

**The Effect of Deprivation on Triggers and
Rates of Cardiology Outpatient Referrals
from Sheffield General Practitioners.
A Two-Phase Study.**

Thesis submitted for the degree of Doctor of Philosophy

by

Elizabeth Walton, BSc (Hons), MBChB

**Academic Unit of Primary Medical Care
University of Sheffield
March 2015**

Abstract

People living in the Most Deprived (MD) areas of Sheffield experience more than double the rate of premature mortality from coronary heart disease when compared with Least Deprived (LD) areas. While the social determinants of health are likely to be the most significant factors contributing to this inequity, this two-phase pragmatic health services research project explored the effect of deprivation on the triggers and rates of cardiology outpatient referrals from Sheffield General Practitioners (GPs).

The first qualitative phase involved semi-structured interviews and a focus group with GPs working in socio-economically contrasting areas of Sheffield. The second quantitative phase produced a retrospective observational analysis of the relationship of deprivation upon GP cardiology outpatient referrals in Sheffield (2008/09).

Themes influencing referral triggers from GPs working in MD areas included patient fear, reluctance and health literacy. In contrast, themes from GPs working in LD areas included articulate patients with high expectations, private referrals and awareness of litigation. Decision-making in MD areas was described as being 'doctor-led' which contrasted with 'patient-led' descriptions from participants in LD areas.

Binary logistic regression analysis revealed a positive relationship between deprivation and elective cardiology referrals for patients aged ≤ 70 years; however, this relationship was lost for older patients*¹

The novel findings of this research present the GP experience when making referral decisions, and reflect the differing pressures of consulting with patients at the extremes of socio-economic position. The findings highlight some of the many challenges faced by people living in deprived areas, contributing to health inequity. Despite the encouraging positive association found between deprivation and referral rates, further analysis is needed to confirm if referrals are proportionate to need, and therefore equitable.

¹ (<55 years: OR= 1.23, $p < 0.0010$, 95% CI 1.15 to 1.31) (55-70 years: OR= 1.08, $p = 0.005$, 95% CI 1.02 to 1.14) (>70 years: OR= 0.96, $p = 0.095$, 95% CI 0.91 to 1.01).

Dedication

To the patients I been privileged to meet, and to the doctors I work alongside: You inspired this thesis.

Acknowledgments

It has been a huge privilege and honour to be supervised by Professor Nigel Mathers who has showed limitless interest in this project and support for my academic career. I am extremely grateful for your intellectual guidance, continued patience and gentle kindness. Professor Mike Campbell, Kate Daniels and Professor Liddy Goyder also deserve thanks for an interesting collaborative adventure into the world of medical statistics. I also warmly thank Professor CJ Ng, Dr Hina Kanabar, Dr Joanne Thompson and Dr Caroline Mitchell for welcoming me into the world of academia and guiding me through various challenges. Thanks also go to my peers and students who have joined me on this quest to master qualitative and quantitative analysis. I have learnt so much from you, and am so grateful for your insights into the analysis of this project: special thanks go to Anam Ahmed, Dr Helen Twohig, Dr Alastair Campbell and Dr Julian Hick. I would also like to acknowledge the assistance of Professor Jeremy Wight and John Soady for their interest and support. Thanks also to my clinical colleagues at Evelyn Medical Centre who have allowed me the space to write this thesis. The most thanks though should go to the patients who inspired this work, the busy GPs who took part and to the NIHR and RCGP who fuelled and funded this project. I will make sure knowledge and experience gained will be used to make a difference. Brigitte Colwell and Jo Allen also deserve a big thank you for friendship and proofreading throughout writing up. This is 2014 and so, I would like to thank my 'Facebook' buddies who have been a fun solace in the solitary world of thesis writing, especially Beccy Davies. Thanks also to my adopted mums Maxine and Gillie for feeding and believing in me. Lastly, my thanks to friends and family, too many to mention, who have suffered many hours of debate over health inequity and supported me in getting this thesis written. Especially Dr Rachael Bentley who endured piloting the topic guides, and has managed to stay awake and supportive through my numerous battles with the data.

Very special thanks and love to my very patient husband G and my always sunny little boy Rex: 'One way or another' we survived!

CONTENTS

Abstract	2
Dedication	3
Acknowledgements	4
Contents	5
Preface	15
List of Appendices	9
List of Tables	10
List of Charts	12
List of Figures	12-13
List of Abbreviations	14

INTRODUCTION

Chapter 1: Health Inequalities	17
1.1 The Determinants of Health	17
1.2 Health Inequality versus Health Inequity	18
1.3 Equity and Health Care: Access, utilisation and outcomes	20
1.4 Theory of social inequality affecting health	22
1.5 Philosophical views of fairness	27
1.6 Health Inequalities: Historical Perspective	28
1.7 The Inverse Care Law	31
1.8 Health Inequalities: Landmark Reports	33
1.9 Measures of Socio-economic Position	42
1.10 Health Inequalities: Current Literature and Debate	47
1.11 Summary of Chapter One: Health Inequalities	49
Chapter 2: Health Inequalities and Coronary Heart Disease	52
2.1 National Perspective of health inequality and CHD	52

2.2	Sheffield: Geography, History and Population	56
2.3	Sheffield 'A Divided City'	57
2.4	Care for patients with coronary heart disease: Regional and Local Data	62
Chapter 3: General Practitioners as Gatekeepers		
3.1	History of GP referrals in England: Wizards and Gatekeepers	64
3.2	Gatekeeping, referrals and socio-economic position	67
3.3	Summary of Chapters Two and Three: Coronary Heart Disease Inequalities and Gatekeepers	70
Chapter 4: Literature Review, Research Questions and Theoretical Influences		
4.1	Search Strategy	72
4.2	Themes in the Literature	73
4.2a	Political/Financial Aspects of General Practitioner Elective Referrals	73
4.2b	Variation and GP Referral Rates	74
4.2c	Factors leading to variation in GP Referral Rates	77
4.2d	Explaining variation to GP Referral Rates: Statistical Discrepancies, Referral rates affected by complex factors	79
4.2e	Strategies to reduce variation and rates of referral	82
4.2f	The consultation, communication and decision-making	86
4.2g	Patient Response to Coronary Heart Disease and its symptoms	88
4.3	Conclusions from the literature review	92
	Research Questions	94
4.4	Theoretical Influences	95

METHODOLOGY and METHODS	
Chapter 5: Methodology	114
5.1 Key Methodological Concepts in Qualitative Research	115
5.2 Research Design and Methodology of this Research Project	132
5.3 Summary of Methodology	157
Chapter 6: Methods	158
6.1 Introduction to Methods	158
6.2 Peer Review, Funding, Ethics and Governance	158
6.3 Qualitative methods: Recruitment, Topic Guide Development, Consent, Data Management, Analysis, Confidentiality and Bias	163
6.4 Quantitative Methods	172
6.5 Data Collection and Organisation	173
6.6 Statistical Analysis: Descriptive, Binary Logistic Regression and Funnel Plot	180
6.7 Data Storage and Confidentiality	185
6.8 Summary of Methods	185
Chapter 7: Results	
7.1 Introduction to Results	187
7.2 The Research Setting	188
7.3 Summary of Recruitment and the Research Participants	189
7.4 Overview of the Qualitative Results	201
Chapter 8: Patient Factors	205
8.1 Classical Triggers	206
8.2 Non-Classical Triggers	213
8.3 Context and Patient Culture	224
Chapter 9: GP Factors	252

9.1	Uncertainty	253
9.2	Referral Decisions	260
9.3	Medico Legal Pressures	268
9.4	Ownership	270
Chapter 10: Practice Factors		274
10.1	Practice Culture	274
Chapter 11: Health Care System factors		285
11.1	Referral Pathways	287
11.2	Referral Monitoring and Management	289
11.3	NHS as a market	295
11.4	Relationship between GPs and Specialists	300
11.5	Focus Group and Overview of Qualitative Results	302
Chapter 12: Quantitative Results (Phase 2)		314
12.1	Introduction to the quantitative results	314
12.2	Descriptive summary of Sheffield General Practice	315
a)	Deprivation	315
b)	List Size	319
c)	Coronary Heart Disease Prevalence	320
d)	Elective cardiology outpatient referral rates	323
e)	Elective all speciality outpatient referral rates	325
12.3	Binary logistic regression analysis of Sheffield GP referrals data	327
12.4	Example of a Funnel Plot to present referrals data	331
12.5	Summary of Quantitative Results	334
Chapter 13: Overview of Results		336

DISCUSSION: Chapter 14	340
14.1 Introduction to discussion	340
14.2 Key findings	342
14.3 Discussion of key findings and Implications for practice	343
14.4 Conceptual framework; Links with Theoretical Framework; Vignettes	371 373
14.5 Strengths and Limitations	386
14.6 Avenues for future research	398
14.7 Summary of Recommendations for policy and practice	402
14.8 Reflexivity revisited	406
14.9 Conclusion	410
REFERENCES	412
APPENDICES	
A Literature Search/Review	439
B Review of Research Proposal	442
C Aim and Objectives	443
D Concepts and Indicators	445
E Letter from Sheffield PCT to all GPs	448
F Ethics Favourable Opinion and NHS Permission to Start	449
G Interview and Focus Group Paperwork	456
H Overview of NVivo coding chart	456
I Conference Presentations	467
J Funding Sources – NIHR, Research and Innovation Grant, Scientific Foundation Board Grant (Royal College of General Practitioners)	468
K Definitions of Key Qualitative Methodological Terms	472

List of Tables

Table 1: Theories of how social inequality affects health. Permission to reproduce this table has been granted by Polity Press. (November 2014)	24
Table 2: European standardised mortality rates by social class, selected causes, men aged 20-64 England and Wales, selected years. Permission to reproduce this table has been granted under the Open Government Licence for Public Sector Information (October 2014)	35
Table 3: Classification of Registrar-General's Social Classes (RGSCs). Permission to reproduce this material has been granted under the Open Government Licence for Public Sector Information (October 2014)	42
Table 4: NS-Sec Classification of Occupational Socio-economic classification. Permission to reproduce this t has been granted under the Open Government Licence for Public Sector Information (October 2014)	43
Table 5a: Life Expectancy at birth of Sheffield residents born in the Most and Least Deprived Areas of Sheffield.	60
Table 5b: Directly aged standardised rates of premature mortality and admissions for LD and MD neighbourhoods of Sheffield for 2008/2009. Data obtained from Neighbourhood Health Profiles (2008/09). Permission to use this data has been granted under the Open Government Licence for Public Sector Information (October 2014)	63
Table 6: Summary of Consultation Models	103-104
Table 7: Table demonstrating the range of definitions key qualitative methodological concepts.	116-117
Table 8: Summary of ontological and epistemological stances.	122
Table 9: A Summary of Pragmatism. (Adapted from Creswell pg 10)	135
Table 10: 'Ideal' Purposive Sampling Strategy for this project.	154
Table 11: Timeline of Data Search.	177
Table 12: Acronyms and Range of IMD Scores for Sheffield Practices.	189
Table 13: Interview Participants Recruitment and Practice IMD Score.	191
Table 14: The Range of Practice IMD Scores of Interview Participants.	191
Table 15: Focus Group Participants, Recruitment and Practice IMD Score.	193
Table 16: The Range of Practice IMD Scores for Focus Group Participants.	194

Table 17: Interview Participants - Demographic Information.	195
Table 18: Focus Group Participants – Demographic Information.	195
Table 19: <i>‘Patient’</i> Factors Influencing Triggers for Cardiology Referrals.	202
Table 20: <i>‘GP’</i> Factors Influencing Triggers for Cardiology Referrals	202
Table 21: <i>‘Practice’</i> Factors Influencing Triggers for Cardiology Referrals.	203
Table 22: <i>‘Health Care System’</i> Factors Influencing Triggers for Cardiology Referrals.	203
Table 23: Mean and Range of Index of Multiple Deprivation (IMD) Scores for Sheffield General Practices.	317
Table 24: Mean General Practice List Size, with Practices grouped by Deprivation	319
Table 25: Prevalence of Coronary Heart Disease for General Practices in Sheffield, group by Deprivation.	320
Table 26: Sheffield General Practice Elective Cardiology Outpatient Referral Rates.	326
Table 27: Rates and Mean of Elective All Speciality Outpatient Referrals from Sheffield General Practices’ grouped by deprivation for patient’s ≥ 40 years.	314
Table 28: Mean and Range of Cardiology and All Speciality Referral Rates.	317
Table 29: The effect of one standard deviation increase of Index of Multiple Deprivation score (equivalent to 15 units of IMD score) on elective cardiology outpatient referrals in Sheffield 2008/09.	328
Table 30: The effect of one standard deviation increase of Index of Multiple Deprivation score (equivalent to 15 units of IMD score) on total elective speciality outpatient referrals in Sheffield 2008/09.	329
Table 31: The effect of Coronary Heart Disease Prevalence on elective cardiology outpatient referrals in Sheffield 2008/09.	329
Table 32: The effect of Coronary Heart Disease Prevalence on total elective speciality outpatient referrals in Sheffield 2008/09.	330
Table 33: Characteristics of Sheffield Practices with Unusual Cardiology Referrals Rates as seen on a Funnel Plot Analysis 2008/09.	333

List of Maps

Map 1: Showing the spatial characteristics of deprivation in Sheffield. Permission to reproduce this table has been granted under the Open Government Licence for Public Sector Information (October 2014)	58
Map 2: Map of Electoral Wards in Sheffield. Permission to reproduce this table has been granted under the Open Government Licence for Public Sector Information (October 2014)	59
Map 3: The Number 83 bus route in Sheffield – Life Expectancy and Indices of Multiple Deprivation. Permission to reproduce this table has been granted under the Open Government Licence for Public Sector Information (October 2014)	61

List of Charts

Chart 1a: Population of Core Cities Based on Statistics from Census 2011. Office of National Statistics.	57
Chart 1: Recruitment to Interviews	190
Chart 2: Recruitment to Focus Group	193
Chart 3: Mean list size of Sheffield General Practices grouped by Deprivation	319
Chart 4: Prevalence of Coronary Heart Disease for General Practices in Sheffield, grouped by Deprivation	320
Chart 5: Mean Cardiology Referrals for Practices, grouped by Deprivation (2008/09)	323
Chart 6: Cardiology Outpatient Referral rates per 1000 Patients (2008/09)	324
Chart 7: Mean All Specialty Outpatient Referrals, grouped by Deprivation (2008/09)	316
Chart 8: All Speciality Outpatient Referral rates per 1000 patients for Sheffield Practices, grouped by deprivation (2008/9)	317

List of Figures

Figure 1: The Main Determinants of Health. Permission to reproduce this figure has been granted by The Institute of Future Studies (October 2014)	17
Figure 2: Types of Health Inequalities. Permission to reproduce this figure has been granted by The London Health Observatory (2 October 2014)	19
Figure 3: The Conceptual Framework from The Marmot Review. Permission to reproduce this figure has been granted by UCL Institute of Health Equity (30 September 2014)	22
Figure 4: The Social Determinants of Health. Permission to reproduce this	26

figure has been granted by Oxford University Press (6 October 2014)	
Figure 5: Male life expectancy at birth by local authority 2002 and number of general practitioners per 100,000 weighted population by primary care trust. Permission to reproduce this figure has been granted under the Open Government Licence for Public Sector Information (October 2014)	30
Figure 6: Life expectancy and disability-free life expectancy (DFLE) at birth, persons by neighbourhood income level, England 1999-2003. Permission to reproduce this figure has been granted under the Open Government Licence for Public Sector Information (October 2014)	38
Figure 7: Age standardised morality rates by socio-economic classification (NS-SEC) in the North East and South West regions, men aged 25-64, 2001-2003. Permission to reproduce this figure has been granted under the Open Government Licence for Public Sector Information (October 2014)	39
Figure 8: Diseases accounting for gap in life expectancy in England between areas in the bottom fifth nationally for deprivation markers and the rest of England. Permission to reproduce this figure has been granted under the Open Government Licence for Public Sector Information (October 2014)	53
Figure 9: Factors influencing the demand for primary medical care. Permission to reproduce this figure has been granted by Professor Campbell (October 2014)	68
Figure 10: Mapping the causes of variation. The King's Fund. Permission to reproduce this figure has been granted by The King's Fund. (October 2014)	75
Figure 11: Factors influencing GP referral decisions.	78
Figure 12: The theoretical framework	96
Figure 13: The House of Care. Permission to reproduce this figure has been granted by The King's Fund. (October 2014)	101
Figure 14: Four-Stage Approach to Research Methodology	119
Figure 15: Methodological concepts as a continuum	124
Figure 16: Research Methodology Approach to this Research	132
Figure 17a: The Research Process for This Thesis	159
Figure 17b: Process of Retrieving Data for this Project	174
Figure 18: Funnel Plot	332
Figure 19: Conceptual Framework	371
Figure 20: Links with Theoretical Framework	372

Abbreviations

AUPMC	Academic Unit of Primary Medical Care
CCG	Clinical Commissioning Group
CHD	Coronary Heart Disease
ECG	Electrocardiogram
GP	General Practitioner
HDA	Health Development Agency
IMD	Index of Multiple Deprivation
LMC	Local Medical Committee
NHS	National Health Service
NVivo	Software package used to manage qualitative analysis
PCI	Percutaneous Coronary Intervention
PCT	Primary Care Trust
PEC	Professional Executive Committee
PICO	Patient /Problem; Intervention; Compare; Outcome
Practices	General Practice
QOF	Quality and Outcomes Framework
R	Statistical software used to produce the funnel plot
RCGP	Royal College of General Practitioners
RIS	Referrals Information Service
SchARR	School of Health and Related Research
STATA	Statistical software used in binary logistic regression analysis
VTS	Vocational Training Scheme

PREFACE

The research described in this thesis was designed and conducted by the author initially employed as a National Institute of Health Research, In Practice Fellow, and later as an Academic Training Fellow, hosted by the Academic Unit of Primary Medical Care at Sheffield University. The author registered as PhD staff candidate in March 2010. Professors Nigel Mathers and Liddy Goyder supervised this research thesis, and Professor Michael Campbell collaborated with statistical aspects of the analysis. The author also works as a salaried General Practitioner at Evelyn Medical Centre in Derbyshire.

The literature reviewed in Chapters 1, 2 and 3 present the main areas of research relevant to this thesis. Chapter 1 outlines the background literature centred on ‘the inverse care law’, which was the initial inspiration of this project. More specifically Chapter 2 describes inequity in relation to Coronary Heart Disease (CHD) both locally and nationally, as this was found to be significant contributor to the poor health of people living in areas of higher deprivation. Chapter 3 presents the general practitioners (GPs) role as a gatekeeper, and introduces the topic of referrals in relation to the socioeconomic position of patients. Chapter 4 presents the results of the more formal search for evidence based after consideration the background literature. This chapter ends with a summary of the theoretical influences on this thesis and the resulting aim and research questions of this work.

Chapter 5 summarises the theory of methodology in qualitative research and also the design and methodology of this research in relation to the key theoretical concepts. Chapter 6 specifically describes the methods used and how the research was conducted. This chapter includes details of recruitment, ethics, governance, data storage, analysis confidentiality and anonymity.

Chapters 7 to 13 report the results of this thesis and include an introduction to the results, a summary of participants and the setting. An overview of the qualitative results through four meta-themes is presented outlining the patient, GP, practice and health care system factors affecting participant's triggers to make cardiology referrals.

Finally Chapter 14 concludes this thesis and the key findings are presented and discussed in relation to the literature. A conceptual framework is then presented summarising the key findings and highlights the different influences perceived by GPs working in least or most deprived areas of Sheffield, when making referral decisions. The key findings are then related back to the original theoretical influences. Strengths and limitations are discussed which naturally leads to the avenues for possible future research section. Recommendations are made for GPs, local commissioners and patients. Reflexivity has been central to this project and is revisited prior to the conclusion of this work.

INTRODUCTION

Chapter 1: Health Inequalities

1.1 The Determinants of Health

It is now generally accepted that an individual's socio-economic position has a significant impact upon their health and life expectancy as described extensively by academic and political literature (Delamothe 2008a; Macleod and Gill 2014; Marmot 2010; Peacock 2011; RCGP 2008; Whitehead 1988). Deprivation or lower socio-economic positioning, is just one of the 'axes' considered to be a factor unfairly involved in leading to increased morbidity and premature mortality. Other important factors include ethnicity, age, disability, gender (Allmark 2009) and geographical location (Dixon et al 2007). In reality there is a complex interplay between many factors (Townsend 1982) of varied importance for each individual, usually starting at conception, which can lead to unfair health disadvantage for the most vulnerable members of society. The factors determining an individual's health are summarised in Figure 1 below.

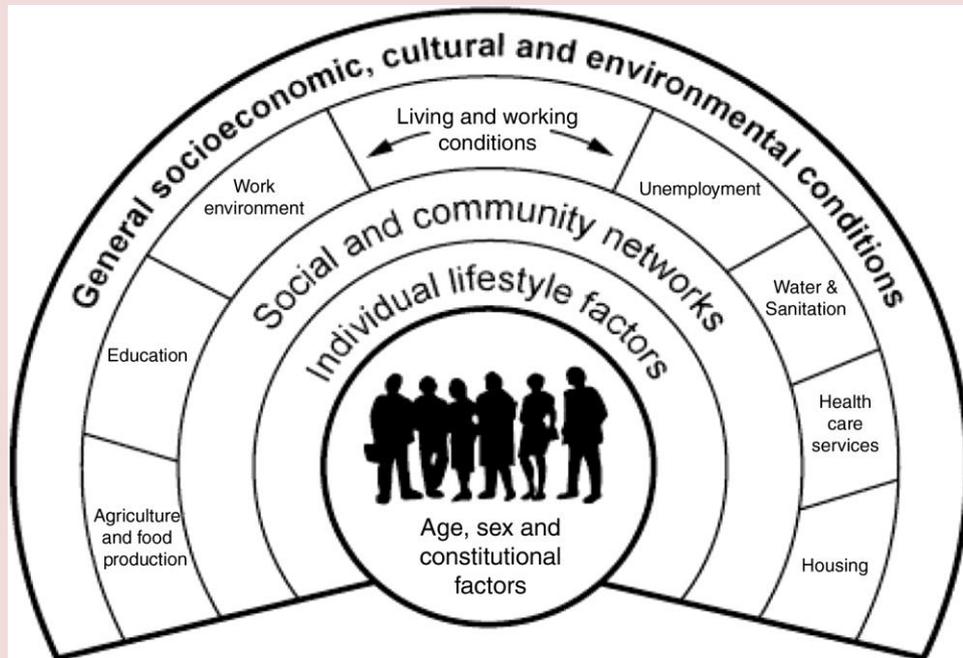


Figure 1: 'The Main Determinants of Health'. Taken from Dahlgren and Whitehead (1991) *Policies and Strategies to Promote Social Equity in Health*. Stockholm, Sweden: Institute for Futures Studies.

1.2 Health Inequality versus Health Inequity

When the factors controlling health lead to disadvantage for a group of people when compared with others, this is termed 'health inequality'. The World Health Organization defines health inequality as *“differences in health status or in the distribution of health determinants between different population groups”* (World Health Organisation 2013, website n.d.). Some health inequalities are unavoidable, such as the increased prevalence of morbidity and mortality associated with increasing age. The inequalities due to uncontrollable biological causes such as ageing, are generally perceived to be inevitable and are not therefore considered to be unjust, unfair or inequitable (World Health Organisation 2013).

However, it is proposed that health inequalities resulting from external factors largely out of the control of an individual, such as socio-economic status and differences in opportunities are seen to be as unjust, and consequently labelled as 'health inequities' rather than 'health inequalities' (Moscrop 2012). The opportunities considered to *“result in unequal life chances”*, include *“access to health services, nutritious food, adequate housing”* (Hamer 2003) and are summarised in below in Figure 2.

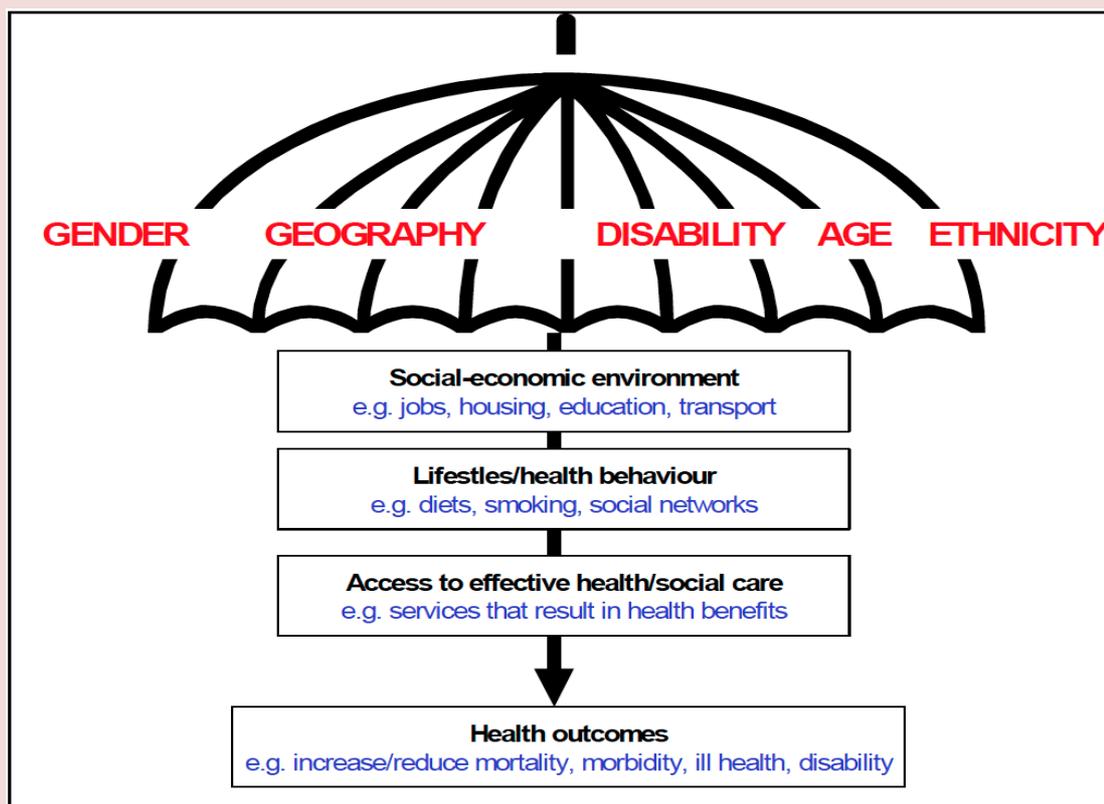


Figure 2: Types of Health Inequalities. Hamer et al, 2003. Health Equity Audit Made Simple: A briefing for Primary Care Trusts and Local Strategic Partnerships.

In the medical literature the terms ‘health inequality’ and ‘health inequity’ are often used interchangeably especially in the UK. This is despite equality being a descriptive concept and equity being a normative concept, and equality not always leading to equity and vice versa (Le Grand 1991). However, as the WHO deems it sensible to use the terms ‘health inequity’ and ‘health inequalities’ synonymously (Whitehead 2006) they are used interchangeably throughout this thesis with a theoretical understanding of the terminology as outlined above.

The terms equity, justice and fairness will also be used interchangeably as the Oxford Dictionary (2013) defines equity in terms of the law being concerned with terms fairness and justice. Economists also tend to also use the terms equity, fairness and justice synonymously (Le Grand 1991).

The term 'social exclusion' is more recently becoming a preferred term, over disadvantage and inequalities (Macleod and Gill 2014). Social exclusion originally defined by Duffy in 1995, as meaning people or groups who are unable to fully participate effectively in the economic, social or political life of mainstream society. The terms health inequity, inequality and disadvantage are however, still found frequently in the literature and all these terms are used in this thesis.

1.3 Equity and Health Care: Access, utilisation and outcomes

Inequity can be described in terms of a population's access to a health service, how the health service is utilised by a population or the health outcomes for that population in terms of morbidity and premature mortality (Dixon et al 2007 and Le Grand 1991). The Health Development Agency (HDA) is a government organization based within the Department of Health, and was created to, "support and enhance efforts to improve health and reduce inequalities of people living in England". Its overall aim is not to provide an equal distribution of resources to all populations as this in itself could create health inequity, but to distribute resources in relation to need, in the hope of reducing "avoidable health inequalities and promoting equal opportunity to the determinants of good health, access to health and other services" (Hamer 2003).

The authors of a Health Development Agency Report (Hamer et al 2003) give examples of projects to explain the concepts of access, utilisation, quality and outcomes to promote health equity. In terms of equal access the authors suggest the greater availability of free fruit in schools in the most deprived areas. Regarding the aspect of utilisation the example presented was greater use of smoking cessation services in most deprived areas. In terms of quality culturally appropriate maternity services for black and ethnic minority communities was cited. Finally, an example of equal outcomes was given of greater reductions in premature deaths from ischaemic heart disease in more deprived groups.

These are examples aiming to provide health equity rather than health equality. The authors (Hamer et al 2003) proceed to describe a further example using coronary revascularization procedures to illustrate this point. They propose that if areas provide the same quantity of coronary revascularizations per million population, that would provide equal access but not equity in terms of need. This is because there should be higher rates of revascularization in the areas with increased incidence and prevalence of coronary heart disease. These would be areas of increased deprivation and groups with higher prevalence of coronary heart disease such as areas with communities of people from South Asia. This is not a new concept, Aristotle stated that “we should treat equals equally and unequal’s unequally” (Aristotele 1287).

Marmot in his 2010 report ‘Fair Society, Healthy Lives’ introduces the concept of reducing health inequalities, not only to improve the health of vulnerable groups but also to improve health for all members of society. The figure reproduced below from Marmots report (2010) shows the conceptual framework outlining this concept, and emphasizes the need for six key objectives (A to F) to be at the heart of policymaking if a society is to reduce health inequalities (Marmot 2010).

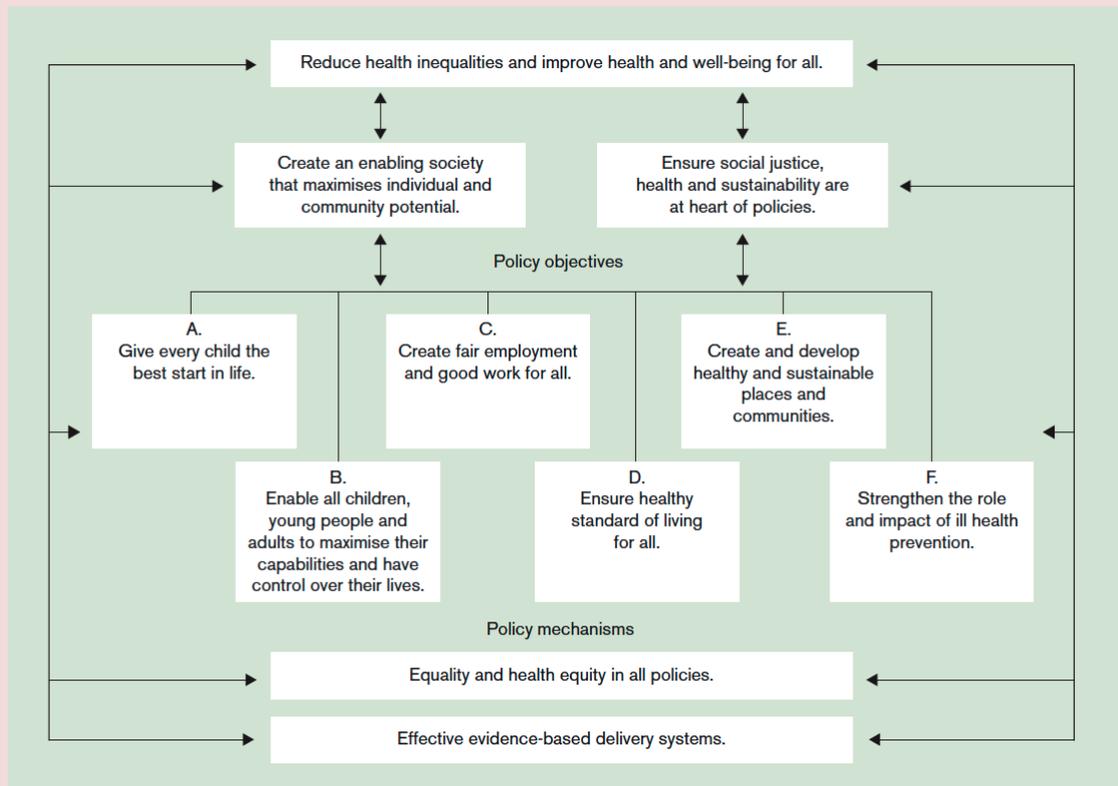


Figure 3: The Conceptual Framework from Fair Society, Healthy Lives. The Marmot Review (2010).

1.4 Theory of social inequality affecting health

There are five main theories of how social inequality affects health. Firstly the ***'materialist/structuralist'*** theory will be described. This theory proposes that it is the conditions in which people reside which lead to health inequalities. For example low income, poor housing, low educational achievement and unhealthy lifestyle choices such as poor diet resulting from living within a certain community, will inevitably lead to health inequalities (Bartley 2003).

Secondly is the ***'cultural'*** or ***'behavioural'*** theory, which emphasizes the importance of lifestyle choices. For example smoking and activity levels can be influenced by the values of the community, and subsequently can lead to poor health and premature death (Bartley 2003). A study of the civil service population in London found the association between socio-economic position and mortality was substantially accounted for by health

behavior (Stringhini et al 2010). Bourdieu (1984) attempted to explain why different groups of people with varied socio-economic positions in society have such differing lifestyles. He points out that it does not make sense that lower income groups should have higher rates of smoking as this actually costs more and lower rates of vigorous exercise as this need not be income related. Bourdieu explains this through the concept of 'prestige'; he postulates that individuals mark their prestige within different groups by undertaking activities considered worthy by the majority of that group. For example in high and medium status circles being a non-smoker and jogging are often the norm. Alternatively he suggests that the experience of having low prestige causes feelings of stress, which may in turn lead to individuals seeking out comforting lifestyles to compensate.

The authors of two major reports of health inequalities in the UK, 'The Black Report' (Townsend 1982) and 'The Health Divide' (Whitehead 1988) counter the argument that lifestyle is the sole cause for health inequalities in their introduction to the book, 'Inequalities in Health' (1992). The evidence collected for their reports discovered that "differences in lifestyle could indeed account for some of the class differential in health".

However, both reports also make the point that lifestyle factors "while explaining some of the health differences observed, cannot adequately explain them all". The authors proposed that deprivation in itself has an impact on health even when lifestyle factors such as smoking and diet are accounted for. These reports are discussed in more detail below in the section 1.8 'Health Inequalities: Landmark Reports'.

Other related explanations of health inequalities are the '**Psycho-Social**' and '**Life-Course**' theories. The 'Psycho-Social' theory emphasizes how lack of status and a low sense of control can contribute to poor health. 'Life-Course' theories show how events starting at conception and progressing through childhood can impact on health for example the

maternal alcohol ingestion on the foetus and subsequent child development. The life-course theory highlights the impact upon health of an individual's social circumstance, and the complex interaction between the two.

Finally the **'Neo-Materialist approach'** emphasizes the importance of the impact of society and 'The Political Economy' on health. For example provision of amenities such as housing, education, healthcare, leisure facilities and transport in an area can have an impact on health. These services are determined by social policy and politics. The effects of amenities in an area can also be called a 'collective resources model' and a study by Stafford and Marmot (2003) supports this theory as impacting on health. Researchers found the poorest individuals living in a deprived area experienced the most negative health effects, possibly because they would be more dependent on collective resources. There was "no evidence that personal poverty combined with an affluent neighbourhood had negative health consequences", thus refuting a possible 'comparison' hypothesis that poorer people are worse off living in affluent areas rather than deprived areas (Stafford and Marmot 2003).

Five theories of the effects of social inequality on health are summarized in Table 1 below.

Theory	Factors
Material	Individual income determines: diet, housing, air quality, dangers at work
Cultural/Behavioural	Beliefs/values Norms E.g. culture of smoking or drinking
Psycho-Social	Sense of low status and control
Life-Course	Events and processes from prenatal to during childhood. Interaction of health and social circumstances over time.
Political Economy (or Neo-Materialist approach or Collective Resources Model)	Whole societies political processes and distribution of power affect provision of services e.g. housing, healthcare, leisure facilities, the quality of physical environment and subsequently social relationships.

Table 1: Theories of how social inequality affects health. Adapted from Bartley (2003 pg 16)

Bartley (2003) acknowledges that the concepts proposed by the theories above often overlap; although understanding them in combination creates complexity, this is often necessary to fully understand inequity.

More recently Brunner and Marmot (2006) have described the physiological effects on health when living with deprivation. In their summary of the effects of living in deprivation on a person's physiology, they describe how long-term stress created by certain social and psychological situations may be implicated in damaging mental and physical health. Their findings fit most comfortably with the 'Psycho-Social' approach, but actually all the above theories in Table 1 would be affected by the physiology of living in more deprived and 'stressful' situations. Brunner and Marmot (2006) explain that stress hormones which are usually produced in response to emergencies, are released in an abnormal and harmful way if living in an environment when an individual feels frequently under threat as in deprived areas. It is acknowledged that in the short term, and at manageable levels stress can be positive. However, "chronic anxiety, insecurity, low self-esteem, social isolation, and lack of control over work appear to undermine mental and physical health" (Brunner and Marmot 2006). Ellaway et al (2012) demonstrated during a 20-year period ending in 2007 in a large region of Scotland, those people living in poorer neighbourhoods reported poor health at much younger ages: up to nine years earlier than in affluent areas. The authors propose "that low socio-economic status and neighbourhood deprivation seem to have cumulative, long-term effects on self reported health" (Ellaway et al 2012).

The physiological consequences of living with deprivation could explain why lifestyle choices alone do not fully explain the gap in health between the most and the least deprived. The gap could be explained by the biological stress response being activated too frequently, either through physical or psychological stressors, which can lead to depression,

increased infection, hypertension, diabetes or increased cholesterol levels with the subsequent increase in cardiovascular risk (Brunner and Marmot 2006) and (Kuper et al 2002). How biological responses could fit with the other social determinants of health are represented in Figure 4 below.

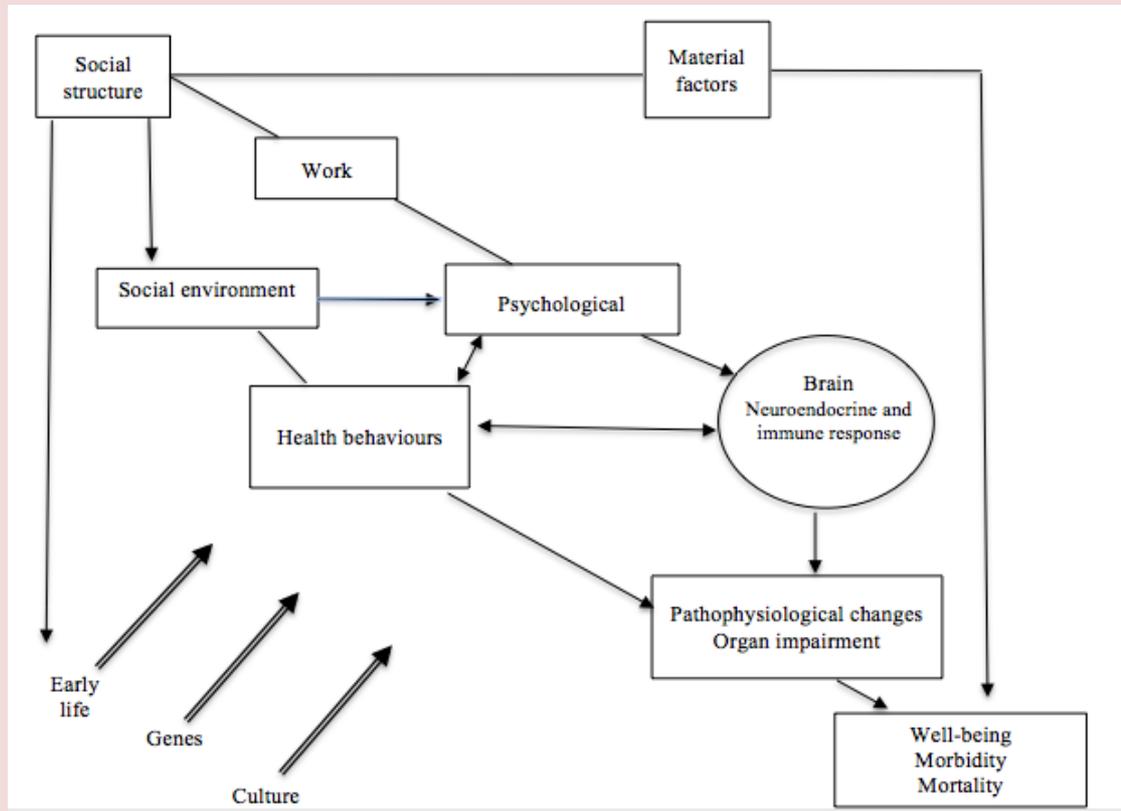


Figure 4 The Social Determinants of Health. Taken from Brunner and Marmot (2006 pg 9)

Researchers investigating health inequity in Scotland, highlight the need for further research regarding the explanations of health inequality between areas of social deprivation (Landy et al 2012). Scotland is shown to have the poorest health of any UK country and also any Western European nation; when Glasgow is compared to other cities such as Liverpool and Manchester, which have comparable deprivation profiles, it is found to have 30% higher premature mortality for its residents (Walsh 2011). Landy et al (2012) with regression analysis found that for the variables *anxiety* and *doctor reported heart attacks*, the higher rates in Scotland are not accounted for by deprivation or behavior differences, and call for further research as to the cause of this increased inequality even amongst areas of similar deprivation such as Liverpool and Manchester.

1.5 Philosophical views of fairness

When considering the causes of, and solutions for health inequalities, theories around 'fairness' are of relevance and can be controversial. The two main opposing views of fairness are the *meritocratic* and *egalitarian* approaches.

Meritocrats believe that equal opportunities are more important than equal outcomes. **Egalitarians** believe that equal outcomes are of the most importance. For example, meritocrats would support campaigns to change individual lifestyle choices such as stopping smoking, improving diet and increasing exercise. If individuals choose not to take up these opportunities for healthy living, then the suggestion is that they are responsible for the health problems that arise subsequently. This approach is epitomized by stereotypes often presented by the media and even by celebrities. Recent debates sparked by a celebrity chefs comments (Daly 2013) are a classic example of the meritocratic approach when presenting arguments about people living in poverty choosing to buy electrical goods such as flat screen televisions, rather than healthy food.

Egalitarians would believe that lifestyle choices are limited by an individual's surroundings and endeavor to explore the reasons why these unhealthy choices were made and find solutions (Allmark 2009). Those who agree with Bourdieu's (1984) theory above that an individual's behaviour is shaped by conforming to the perceived 'prestige' of a community, or that actually the difficulty of living in deprived areas leads to certain comforting behaviours are more likely to concur with the principles of an egalitarian approach.

Mercer and Watt (2007) described the challenges for GPs working in very deprived areas of Glasgow as compared to affluent areas. The authors found that GPs working in deprived areas were consulting with patients who had much higher rates of multimorbidity and psycho-social problems

compared more affluent areas. It could be that due to the increased difficulties of living in such areas and the associated psychological distress, people are unable to prioritise changing their less healthy lifestyle behaviours and embrace evidence-based changes to improve their health. This concept was described as a modern-day inverse care law by Professor Graham Watt (2002) in his paper published in the Lancet.

Political philosophers have described fairness in a broader sense in relation to the term justice. The concept of justice can be explained by the two opposing views of **utilitarianism** and **libertarianism**. Utilitarianism has the aim of providing the greatest happiness for the greatest number, whereas libertarians believe in the right of the individual not to be coerced by others as the most important goal (Le Grand 1991).

Norbury et al (2001) clearly state their views of fairness in relation to health inequalities as summarised below:

“Health inequalities are systematic, socially produced and unfair: systematic because the differences in health outcomes are not randomly distributed but rather show a consistent pattern across the socio-economic spectrum, socially produced because no Law of Nature decrees that the poor should endure greater ill health and premature mortality than the rich, and unfair because they are maintained by unjust social arrangements”.

(Norbury et al 2011, pg 1-3)

1.6 Health Inequalities: Historical Perspective

In 1944, the then Labour Health Minister Aneurin Bevan, presented his vision of the National Health Service (NHS) to Parliament in the White paper: ‘A National Health Service’. His intention was to provide a comprehensive and free health service for all.

The foundations for the formation of the NHS had been laid previously in 1942 with the publication 'The Beveridge Report' which focused on the coordination of social insurance. Beveridge believed that out of the horrors of the second world war there was a possibility of creating a better world and that the five giants of "*want, disease, ignorance, squalor, and idleness*" needed to be slain (Rivett 1998, pg 27).

Bevan took up Beveridge's vision of creating an NHS, and this became reality in 1948 when the NHS Bill was passed. Bevan sent a rallying call to the medical profession in a letter published in the British Medical Journal presenting the ethos of the new NHS to be "each sharing the cost as he can through regular taxation and otherwise while he is well, and each able to use the resulting resources if and when he is ill. There is nothing of the social group or class in this" (Bevan 1948 p 4565). Equity was, and remains a fundamental aim of the NHS as documented by numerous government and academic studies concerned with NHS principles (Dixon et al 2007).

Prior to the formation of the NHS over 60 years ago, health care in the UK was described as "a primitively unstable mixture of class prejudice, commercial self-interest, professional altruism, vested interest, and demarcation disputes" (Delamothe 2008a, p1216, citing Arthur Marwick). The introduction of the NHS was intended to provide a universal, equitable and quality service to all (Delamothe 2008b). The aim of universality has certainly been achieved, but it is debated whether the NHS is achieving its aims of equity and quality when considered in relation to access, use and outcome for certain groups in the UK (Delamothe 2008b). This may be in part due to the history of funding of the health services in different areas. Rivett states in his book, 'From Cradle to Grave. Fifty years of the NHS' that "Health service funds had always been distributed unfairly" (Rivett 1998 p276). Rivett goes on to explain that in 1948 the budgets for the regional hospital boards and boards of governors were based on the

expenditure of the previous year. Of course in 1948, when the NHS was created, the London hospitals and services were dominant as generally the wealthy lived in the south east and so GPs and hospitals were concentrated in that area and therefore received more resources within the new system. This system then perpetuated despite attempts in the 1970s with the Resource Allocation Working Party formula to redress the balance between the north and south and the allocation of money today is supposed to reflect 'need'. However, even in the modern-day NHS there are big variations in allocations and expenditures between different areas in the UK (Delamothe 2008b). One example is demonstrated in Figure 5 below, which shows the areas with the lowest male life expectancy (London, the Midlands, Yorkshire, North West and North East) broadly matching those with the least GPs per head of population. Unfortunately even as the total number of GPs has grown also has the distribution inequality (Darzi 2007).

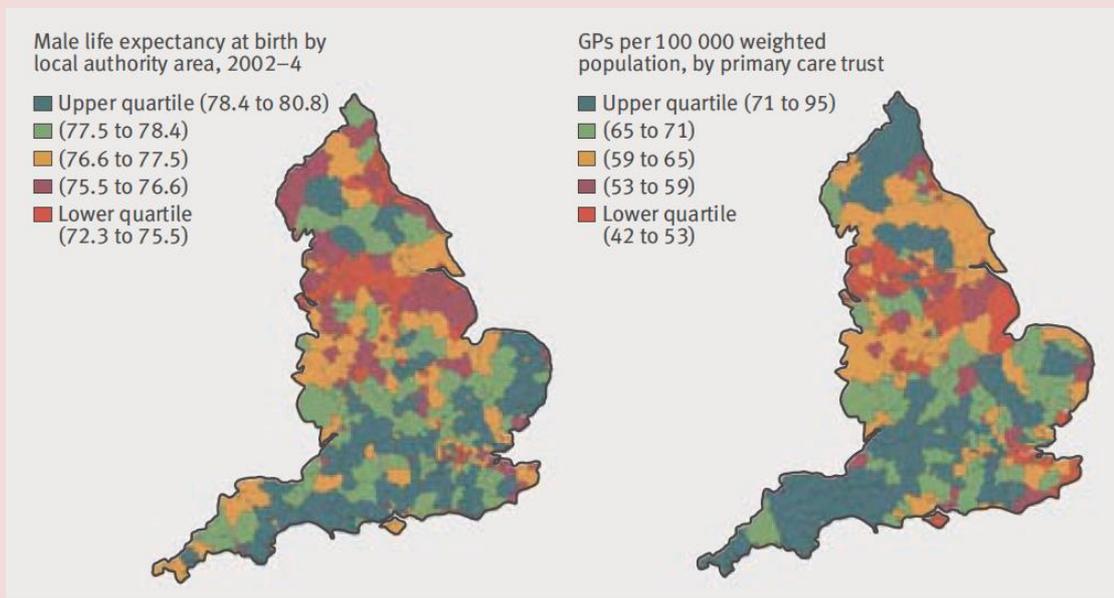


Figure 5: Male life expectancy at birth by local authority 2002-4, and number of general practitioners per 100,000 weighted population by primary care trust. Taken from: Our Health, Our Future. NHS next stage review, interim report. Department of Health (2007)

1.7 The Inverse Care Law

A seminal paper highlighting health inequalities was published in 1971 in *The Lancet* by Dr Julian Tudor Hart, a General Practitioner from Wales. This paper was entitled 'The Inverse Care Law' and Hart explained this as being:

"The availability of good medical care tends to vary inversely with need for it in the population served". (pg 405-412)

Hart described areas of deprivation with the highest rates of morbidity and mortality leading to higher workloads for General Practitioners (GPs) despite fewer GPs per head of population as compared to the affluent healthier areas. This encapsulates the concept of health inequality regarding access to health care, and the subsequent affects on healthcare utilisation and health outcomes, and has been widely cited since.

More recently Professor Graham Watt and his research team from Glasgow have provided evidence of the existence of a 'The Inverse Care Law Today' (Richards et al 2002a, Mercer et al 2007, Mercer and Watt 2007) in the provision of primary care. This is thought to be due to more affluent patients being able to take up the opportunities and advice of evidence based medicine (Richards et al 2002a) and strong links between deprivation and high levels of multimorbidity, including psychosocial problems, leading to extreme workloads for general practitioners (GPs) serving more deprived areas (Mercer et al 2007).

Watt clarifies the inverse care law as now being:

“a man made policy which restricts needs-based health care...not explained by good medical care in affluent areas and bad medical care in deprived areas, but by the difference between what primary care teams are able to do in deprived areas and what they could do if they were better supported” (Watt 2013 p 494-495).

A survey using RCGP data in 2014 showed that there were lower numbers of GPs per 100,000 patients in more deprived areas when compared with affluent, and which led to more difficulty in gaining appointments with GPs for patients living in deprived areas (Torjesen 2014). This reinforces Professor Watt's theory of there being a modern-day 'inverse care law'.

1.8 Health Inequalities: Landmark Reports

There is no dispute that one of the core principles of the NHS is the promotion health equity (Dixon 2003). However, over the past thirty years, four major reports have been published which challenge Bevan's vision for an equally high quality service for all irrespective of means. 'The Black Report' (Townsend 1982), The Health Divide (Whitehead 1988), 'The Acheson Report' (Acheson 1998) and most recently 'Fair Society, Healthy Lives: The Marmot Review' (Marmot 2010a) have all revealed stark health inequalities. The Black Report and The Health Divide describe health inequality in Britain, and the later Acheson Report and Marmot Review focus on inequality in England.

Much of the data used for the analysis included in these reports has been obtained from the decennial Census of England and Wales, which has collected information about occupation status and morbidity and mortality since 1921. The census data has shown a steady decline in mortality at a population level since 1921, but increasing inequality in mortality rates between the social classes (Bartley 2012). Although average incomes have increased since 1921, it has been shown that health is not just related to income, it is also dependent on income related to the needs of an individual within a particular society (Bartley 2012). The following section summarises the findings and context of each of these three landmark reports.

The Black Report

The Black Report was the first report to be commissioned by a government to explore health inequalities. The report was commissioned by a Labour government in the late 1970s. However, when the report was completed it was received by the newly elected Conservative government in May 1980. Its dissemination was controversially delayed until the August bank holiday of the same year to minimise the media and public interest. The reports findings and analysis were wholeheartedly dismissed

by the then Secretary of State for Social Services Patrick Jenkins who gave it a very 'frosty' introduction (Bambra et al 2011).

The report concentrated on health inequality in relation to social class. It found that death rates for men in the lower social classes were double that of men in higher social classes. Townsend proposed four possible explanations for health inequalities:

- 1) Artefact i.e. inequalities were due to statistical errors
- 2) Selection e.g. ill health in childhood leading to low social status
- 3) Materialist or structural causes e.g. poor housing and
- 4) Cultural e.g. lifestyle choices including smoking and diet.

The author explores the idea that the causes of inequalities are cumulative, with multiple causes and impacting over a whole lifetime (Townsend 1982).

The Health Divide

This report was funded by the Health Education Council, which was theoretically independent although funded by the Department of Health and Social Service, to follow up from The Black Report documenting findings from the 1980s and early 90s. Whitehead's (1988) findings were resonant with the Black Report and supported Townsend's conclusions that health inequality is strongly associated with social class; the 'gap' between social classes appeared to be widening and the north/south inequality gradient was persisting. Whitehead also concluded that there was evidence that unemployment was a factor in causing mental health problems and inequalities existed within communities living alongside each other in the same region. There was also a plea to those working in the caring services to help "reduce those aspects of inequality in health caused by inequality in health care" and to alleviate "health damage caused by the wider determinants of inequalities in health" (pg 398)

The Acheson Report

The Acheson Report was also commissioned by the Labour government and was reported in 1998, but unlike The Black Report, it was a newly elected and initially popular Labour government who received it. The report stated that despite improvements in life expectancy, the improvements did not affect all social classes. The greatest improvements being experienced by the more affluent populations and that actually the difference in mortality rates between the top and bottom of the social scale had widened as shown in the 'All causes' section of the table below (Acheson 1998).

Table 2: (taken from Acheson 1998)
European standardised mortality rates, by social class, selected causes, men aged 20-64
England and Wales, selected years

All causes Rates per 100,000				Lung cancer Rates per 100,000			
<i>Social class</i>	<i>Year</i>			<i>Social class</i>	<i>Year</i>		
	1970-72	1979-83	1991-93		1970-72	1979-83	1991-93
I – Professional	500	373	280	I – Professional	41	26	17
II – Managerial & Technical	526	425	300	II – Managerial & Technical	52	39	24
III(N) – Skilled (non-manual)	637	522	426	III(N) – Skilled (non-manual)	63	47	34
III(M) – Skilled (manual)	683	580	493	III(M) – Skilled (manual)	90	72	54
IV – Partly skilled	721	639	492	IV – Partly skilled	93	76	52
V – Unskilled	897	910	806	V – Unskilled	109	108	82
England and Wales	624	549	419	England and Wales	73	60	39

Coronary heart disease Rates per 100,000				Stroke Rates per 100,000			
<i>Social class</i>	<i>Year</i>			<i>Social class</i>	<i>Year</i>		
	1970-72	1979-83	1991-93		1970-72	1979-83	1991-93
I – Professional	195	144	81	I – Professional	35	20	14
II – Managerial & Technical	197	168	92	II – Managerial & Technical	37	23	13
III(N) – Skilled (non-manual)	245	208	136	III(N) – Skilled (non-manual)	41	28	19
III(M) – Skilled (manual)	232	218	159	III(M) – Skilled (manual)	45	34	24
IV – Partly skilled	232	227	156	IV – Partly skilled	46	37	25
V – Unskilled	243	287	235	V – Unskilled	59	55	45
England and Wales	209	201	127	England and Wales	40	30	20

Accidents, poisoning, violence Rates per 100,000				Suicide and undetermined injury Rates per 100,000			
<i>Social class</i>	<i>Year</i>			<i>Social class</i>	<i>Year</i>		
	1970-72	1979-83	1991-93		1970-72	1979-83	1991-93
I – Professional	23	17	13	I – Professional	16	16	13
II – Managerial & Technical	25	20	13	II – Managerial & Technical	13	15	14
III(N) – Skilled (non-manual)	25	21	17	III(N) – Skilled (non-manual)	17	18	20
III(M) – Skilled (manual)	34	27	24	III(M) – Skilled (manual)	12	16	21
IV – Partly skilled	39	35	24	IV – Partly skilled	18	23	23
V – Unskilled	67	63	52	V – Unskilled	32	44	47
England and Wales	34	28	22	England and Wales	15	20	22

This report led to a white paper with the aim of reducing health inequalities which stated “The story of health inequality is clear: the poorer you are, the more likely you are to be ill and die younger. That is true for almost every health problem” (Department of Health 1999b, section 4.2. Communities: tackling the wider causes of ill health)

Fair Society, Healthy Lives. The Marmot Review

More recently theories about the causes of health inequalities have become increasingly sophisticated and Townsend’s final factor of artefact has largely been disregarded (Peacock 2011). Although the NHS itself does show variable evidence of inequalities of utilization and provision (Dixon et al 2007), the Marmot Review particularly focuses on addressing the social determinants of health to improve the health of the most deprived communities as reflected in its full title, ‘Fair Society, Healthy Lives. The Marmot Review’ (Marmot 2010). In the key messages from this report it is concluded again that reducing health inequalities is a ‘matter of fairness and social justice’ and that due to social inequalities many people are dying prematurely. A concept which is described but not defined in the previous reports, is that of a ‘social gradient in health’. The lower an individual’s social position, then the worse health they will experience. Marmot proposed that simply focusing on the most deprived will not reduce inequalities, but that to reduce the steepness of the gradient efforts to improve social determinants of health will need to be universal but in proportion to levels of disadvantage. Professor Marmot has labelled this ‘proportionate universalism’. (Marmot 2010)

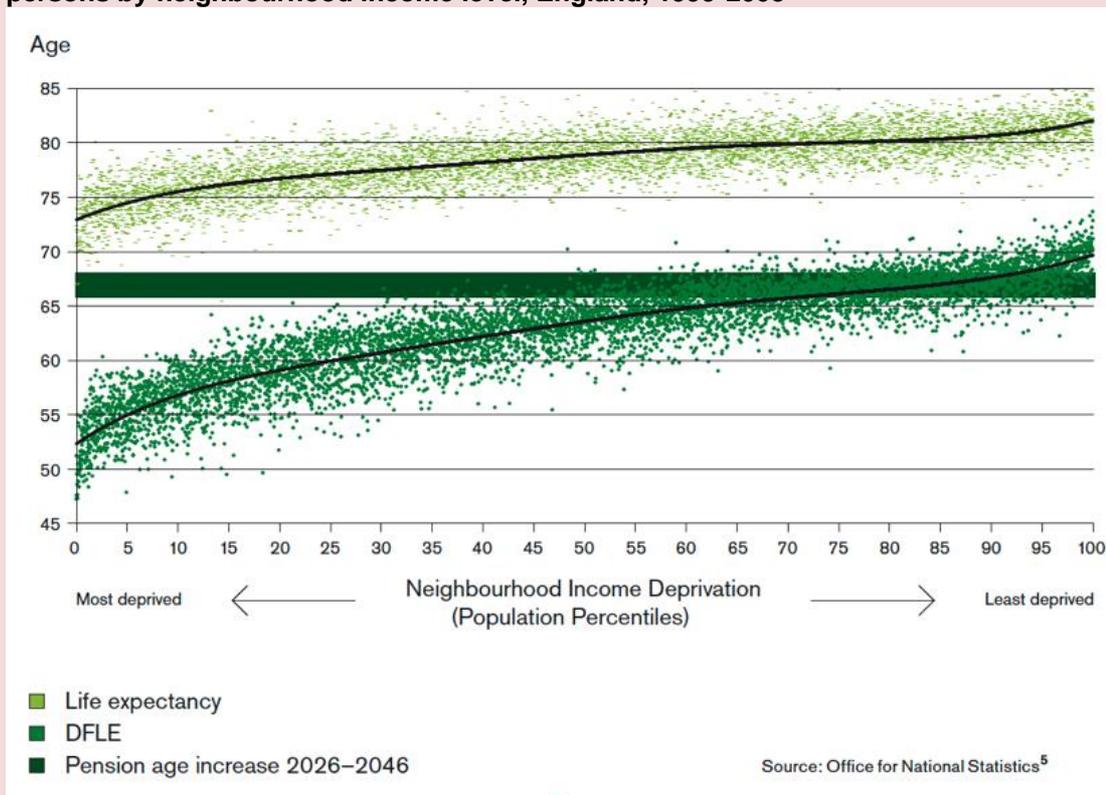
The Marmot Review outlines the social determinants of health as:

- Material circumstance
- Social environment
- Psychosocial factors
- Behaviours
- Biological factors
- Education
- Occupation
- Income
- Gender
- Ethnicity and race

The report goes on to say that the social determinants are affected by the socio-political and cultural contexts in which they sit and that inequality in early childhood, education, housing, living standards, community and the freedom to take part in society equally with others have a dramatic impact on health inequity in the form of life expectancy and disability free life expectancy as seen in figures 6 and 7 below (Marmot 2010).

Figure 6 below shows the effects of the social gradient on life expectancy and disability free life expectancy i.e. how healthy a life an individual has. The gradients for life expectancy and disability free life expectancy between poor communities on the left side of the page at the lowest end of the gradient and rich on the right at the highest end is clearly seen.

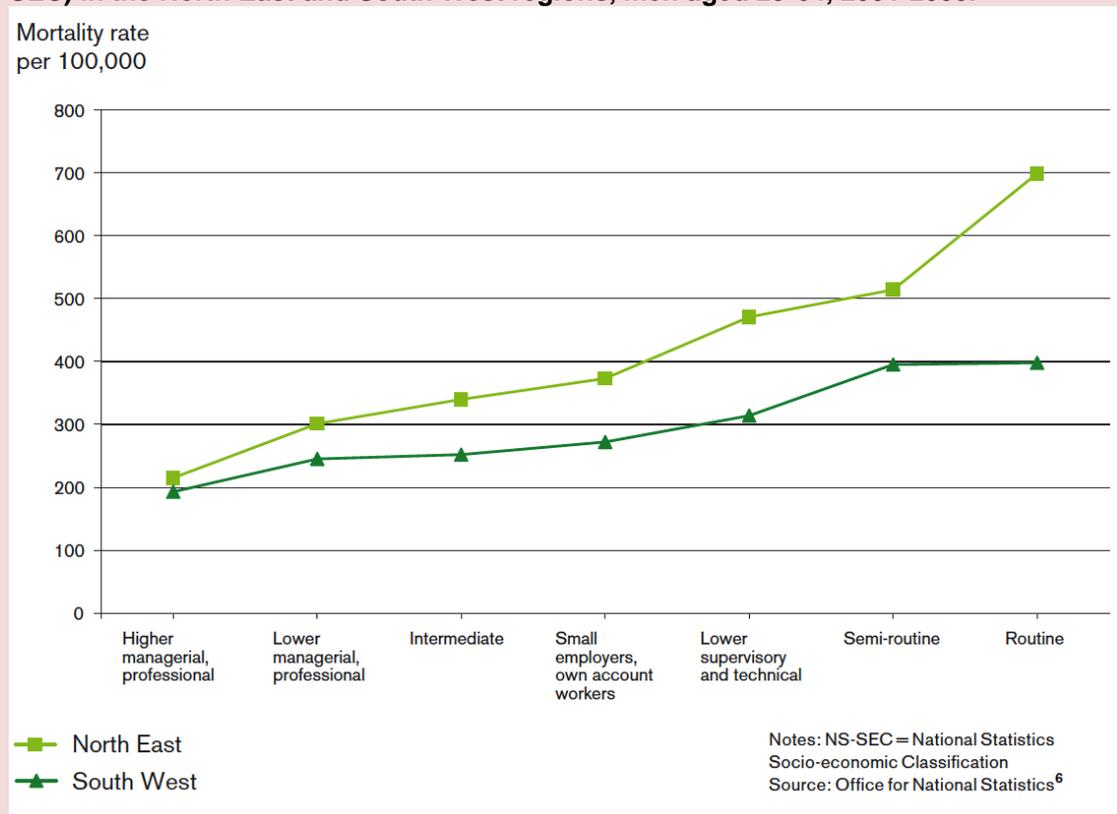
Figure 6: Life expectancy and disability-free life expectancy (DFLE) at birth, persons by neighbourhood income level, England, 1999-2003



Source Fair Society, Healthy Lives. The Marmot Review (2010) Original data source, Office for National Statistics 2009.

Figure 7 below shows how mortality rates per 100,000 can differ not only between lower and higher status occupations, but also how the same occupations in different areas of England have different mortality rates with the higher mortality rates being in the north east as compared with the south west with the difference widening as the occupations become lower in status.

Figure 7: Age standardised mortality rates by socio-economic classification (NS-SEC) in the North East and South West regions, men aged 25-64, 2001-2003.



Source: Fair Society, Healthy Lives. The Marmot Review (2010). Original Data source Seigler V (2008).

Comparing Landmark reports about health inequality: Black, Acheson and Marmot

England has been cited as the leader in explanatory research into health inequalities because of these three landmark reports, but frustratingly has not had any successful systematic policy action to reduce inequalities as yet (Mackenbach 2010). As the Black report was received by a Government who dismissed its recommendations, it was only after the Acheson report that a Labour government attempted to reduce health inequalities in the late 1990s and 2000s. The strategy was outlined in a report called "Reducing health inequalities: an action report" (Department of Health 1999). This contained 39 wide-ranging recommendations about living standards, nutrition at school, housing and a more equitable distribution of NHS resources. The report claimed to be "the most comprehensive programme of work to tackle health inequalities ever undertaken in this country" (pg 5). Its recommendations hoped to indirectly improve health inequalities by introducing a minimum wage, improved pensions and benefits, increased spending on education, housing, urban regeneration and health (Mackenbach 2010). Several other documents and policy changes followed this with the aim of closing the life expectancy gap through programmes to reduce smoking, obesity and hypertension and improving housing and accidents. Throughout the 2000s there were poverty reduction efforts including the Sure Start scheme and efforts to reduced cardiovascular disease in the deprived and low-income areas.

Unfortunately, the progress towards improving inequalities was limited. There was progress in the reduction of child poverty, housing inequalities and educational attainment. While these are very important issues, it was disappointing that the policy change did not lead generally to even stable health inequality between socio-economic groups. There was little change in the gap of male life expectancy and a widening of the gap in female life expectancy (Mackenback 2010).

Mackenbach (2010) reflects that despite the reports, attempts to reduce health inequalities in England in the past two decades were unsuccessful and more difficult than many had perceived. He goes on to describe barriers to reducing inequalities as being firstly due to the lack of available package of policies with proven effectiveness; secondly due to the scale and intensity needed to make a real difference being beyond the capabilities of western governments; and finally due to health inequalities resulting from generations and decades of exposure to health risks, policy changes would take decades to show any effect. Mackenbach doesn't think that health inequalities should be ignored however because of these difficulties, as like other authors he sees it as a moral obligation (Norbury et al 2011) to attempt to reduce inequalities but thinks for policy to be more effective to reduce health inequality it needs to have "less ambitious aims, more focused approaches, and much and better evaluation" (pg1252).

Similarly, due to the similarities between the Black, Acheson and Marmot Reports Bambra et al (2011) conclude that "it could be argued that the research into health inequalities in the UK context over the last 30 years has indeed been something of a 'Labour of Sisyphus', with the industrial scale of production of evidence resulting in little direct impact on policy and only limited progress in moving our understanding of health inequalities beyond what was known by the authors of the Black Report" (pg 404). The authors also present the argument that change in policy to reduce inequalities depends very much on favorable political and economic circumstances for the recommendations of these reports to be acted upon. They view research as part of 'the long-term game', investigating and influencing change in policy and opinion. They advise researchers of the future to concentrate less on describing the problems and working more to find solutions with policy makers.

1.9 Measures of Socio-economic Position

The Black, Health Divide, Acheson and Marmot Reports all summarise the contemporary evidence from their respective eras regarding health inequity. The research they cite use several different measures of ‘socio-economic position’ to allow comparison of different groups of people within the population in relation to access and utilization of health services, and also health outcomes. The choice of measure used by researchers of health inequity has often had to be a pragmatic decision based on availability of data. The research cited by the Black, Health Divide and Acheson reports use the traditional measure of occupational social class in the UK, ‘The Classification of Registrar-Generals Social Classes’ and is summarised in Table 2 below. It is worth noting that although this is called the classification of ‘social classes’ what it really describes is occupation.

Table 3 Classification of Registrar-General’s Social Classes (RGSCs)

<i>Social Class</i>	<i>Social Class</i>	<i>Occupation</i>
I	Professional	Accountants, engineers, doctors
II	Managerial & Technical/Intermediate	Marketing & sales managers, teachers, journalists, nurses
IIIN	Non-manual Skilled	Clerks, shop assistants, cashiers
IIIM	Manual Skilled	Carpenters, goods van drivers, joiners, cooks
IV	Partly Skilled	Security guards, machine tool operators, farm workers
V	Unskilled	Building and civil engineering labourers, other labourers, cleaners

Source: Adapted from (Drever 1997)

There are problems with the RGSCs. For example it assumes that a doctor, scientist or priest would always be ranked higher than a manager who actually may have a far greater income and assets. This score values ‘prestige’ over all other characteristics (Bartley 2003).

Professor Sir Michael Marmots Review (2010) use more sophisticated techniques of describing social position according to occupation together with other measures of deprivation. One of the newer measures of socio-economic status according to occupation is called 'The National Statistics Socio-economic Classification' (NS-SEC) and is described in Table 4 below.

Table 4
NS-Sec Classification of Occupational Socio-economic classification

Class	Occupations
Class 1	Higher managerial and professional occupations (six subgroups)
Class 2	Lower managerial and professional (six subgroups)
Class 3	Intermediate occupations (four subgroups, includes intermediate clerical and administrative, intermediate engineering and several other sub-groups)
Class 4	Small employers and own account workers (four subgroups, includes some non-professional groups and some agricultural workers)
Class 5	Lower supervisory and technical occupations (three subgroups)
Class 6	Semi-routine occupations (seven subgroups)
Class 7	Routine Occupations (Five subgroups)
Class 8	Never worked and long-term unemployed

Source: adapted from Office for National Statistics. The National Statistics Socio-economic classification (NS-SEC rebased on the SOC2010).

Basing a measure of socio-economic position purely on occupation raises some obvious flaws, for example it is not clear how to classify unpaid carers, retired people or those who may have high status but never had an occupation. These measures are not based on the characteristics of a specific individual but rather the occupation they have, therefore some sociologists have favoured the term 'socio-economic position' to incorporate the concepts of social class, social status or prestige (Bartley 2003).

Social class, social status and socio-economic status are terms which are used synonymously but have subtly different meanings as explained by Bartley (2003 pg 24-28). 'Social class' has been defined by the ownership of assets, e.g. property, factories, land, business; possessing organisational assets, eg by employing workers; or qualifications and credentials.

Social status involves hierarchy and ranking individuals according to their prestige. This is confusing as this hierarchy is often labelled as social class in the public domain. The caste system is an example of how social status can rank individuals in a society. For research purposes has been attempted to measure social status through the use of 'judges' who rank occupations according to the individual's views of social status. This has led to issues about the numbers of judges needed and how many occupations should be used. Therefore, the term 'socio-economic status' arose.

Socio-economic status is used to combine information about an individual's education and income. Income is obviously a measure of an individual's economic status, and education is also widely regarded as a measure of status.

In an attempt to clarify these definitions Bartley (2003, pg 28) suggests that the term 'socio-economic position and circumstance' could be used

include the concept of relative income alongside class, status and ownership of assets; two individuals could have the same monthly income and ownership of assets but may have different relative incomes compared to others in the society in which they live.

Despite the sociological definitions of these terms to measure socio-economic position, researchers are forced to be pragmatic about the data available. Hence data concerned with occupation is still widely used. Alternatives include measures of deprivation such as 'Neighbourhood Income Deprivation' scores and also 'Index of Multiple Deprivation' scores (IMD). These scores are used to divide populations into groups to allow comparison. The seven domains used to calculate the IMD score are: employment, education skills and training, barriers to housing and services, crime, the living environment, income, health deprivation and disability (Department of Communities and Local Government 2011). These are measures of deprivation not affluence and it must also be considered that they are a measure of areas and not individuals.

Other measures of deprivation which were not used in the above report, but are of relevance to primary care are 'The Jarman Score' and the subsequent, 'Carr-Hill Formula'. These measures have been employed to determine extra payments for General Practitioners working in deprived areas. The first of these was 'The Jarman Underprivileged Area Score' which was developed in 1983 based on information from the census about social factors. In 1988 it was introduced by The Department of Health and Social Security to make extra payments to GPs for each patient living in a deprived area. The categories identified by the Jarman Index as markers of deprivation include households with: elderly living alone, single parents, overcrowding, high proportion of under-five-year-olds, unskilled workers, unemployed, frequent movers and residents from ethnic minorities. This scoring has been criticised for using census data and that the payments to GPs were much higher than Jarman originally intended. Due to these

criticisms 'The Carr-Hill formula' replaced the 'Jarman Index' in 2005. This formula is calculated by practice rather than by Primary Care Trust data and includes the following factors which aim to represent a higher workload: patient age and gender, Standardised Mortality Ratios, chronic illness for patients under 65 years, newly registered patients, rurality, costs of living in some areas and patients in nursing/residential care.

Alongside these measures of deprivation 'The Townsend Deprivation Score' (1988) was developed for England and the 'Carstairs Deprivation Index' (1991) was developed for Scotland. These were very similar scores but some of the variables were changed according to relevance for each country for example home ownership was not as relevant in Scotland. These are area measures based on census data of material deprivation; they measure factors such as car ownership, overcrowding, households not owner-occupied and unemployment. These measures have been widely cited in academic literature and for resources allocation (University of Southampton n.d.).

There are advantages and disadvantages of all the measures of deprivation described above. The main disadvantage of IMD scores, which are commonly used by policy makers and academics, is that they are subject to a phenomenon known as the ecological fallacy. This is due to a geographical area being given a deprivation score rather than individuals; therefore the score may not always be accurate for every individual living in an area. This has led to studies using measures of deprivation for groups of people, rather than individuals, being criticised due their susceptibility to ecological fallacy. This was a phenomenon first described by Robinson (1950) who argues that correlations found for groups cannot be inferred to apply to individuals within that group. However, MacRae (1994) in his commentary counters critics of ecological correlation studies if appropriate measures of deprivation have been used, and concludes

that the ecological fallacy should not be used as an argument to dispute the association between deprivation and health.

Unfortunately, whilst it would be ideal to obtain data at an individual level for research it is not always possible or practical. Therefore, if a variety of deprivation measures from different research sources are used, as demonstrated by the Marmot Review (2010), then comprehensive overview can be gained.

1.10 Health Inequalities: Current Literature and Debate

There is currently much academic and public debate about issues surrounding health inequality (Moscrop 2012) due in part to the publication of a book called 'The Spirit Level' in 2009. Its authors are two professors of epidemiology Richard Wilkinson and Kate Pickett from the University of York (2010). Later that year a Professor of Human Geography at Sheffield University, Daniel Dorling published, 'Injustice. Why social inequality persists' (2010). These authors echo the conclusions of Marmot, that the main source of health inequalities are due to inequality in the income of a population (Wilkinson and Pickett 2010; Dorling 2010). In other words these authors believe that it is the difference between the incomes of rich and poor in a society that is thought to be important in affecting health inequalities as long as the society has progressed through "epidemiological transition" i.e. has moved on from infectious diseases as being the major cause of death to chronic diseases (Wilkinson and Pickett 2010). Britain was below a threshold of income inequality that would impact on health and social inequality until the late 1980s: however, since then it is argued that a threshold of income inequality has been passed (Wilkinson and Pickett 2010).

The above theories have been debated and have their critics, hence the research findings have been appraised by other organizations such as the Joseph Rowntree Foundation. This external appraisal of the evidence

found the research to be robust in that it does show a relationship between health/social problems and income inequality. However, the authors state there is still a debate as to whether the income inequality actually is the cause of health and social problems despite there having been rigorous studies showing evidence of this (Rowlingson 2011).

'The Spirit Level' book has had an impact politically, being cited by both Labour and Conservative leaders. An 'Equality Pledge' has been signed by seventy five Members of Parliament before the 2010 general election in the United Kingdom promising to "actively support the case for policies designed to narrow the gap between rich and poor" (Equality Trust 2010).

'The Spirit Level' (2010) authors suggest a plausible sounding explanation as to how income inequality could lead to health inequality due to increased anxiety and stress for people with lower social position. Rowlingson (2011) does also point out that other researchers continue to emphasise the importance of the social determinants of health inequalities such as poverty, culture, ethnicity and social policy (Rowlingson 2011).

In the Marmot Review (2010), The Spirit Level (2010) and Dorling's (2010) book, the term health gradient is used to describe how health has relationship with social position i.e. the higher the social position, the better an individual's health. Marmot and Wilkinson emphasise that the social gradient and subsequent health gradient are not limited to the poor, that actually the gradient affects all in a society with lower standards of health at every point downwards on the gradient (Marmot and Wilkinson 2006). Therefore even individuals who are comfortable in the middle of society experience worse health than those slightly above them (Marmot 2006).

1.11 Summary of Chapter 1: Health Inequalities

In this first section of the introduction many of the terms and concepts used when describing health inequalities have been defined and discussed. These have included:

- The main determinants of health as being socio-economic position, ethnicity, age, disability, gender and geographical location.
- The term health inequality versus health inequity being used synonymously in the UK but having subtly different meanings.
- Health inequity in relation to access, utilisation and outcomes.
- Theories of how social inequality affects health including the material, cultural/behavioural, psycho-social, life-course and neo-materialist approaches.
- Philosophical views of fairness, meritocratic approach versus egalitarian and utilitarianism versus libertarianism.
- A historical perspective on the NHS having the core principles of universality, equity and quality.
- The concept of the 'inverse care law' was explained with reference to its original definition as being the availability of good medical care being inversely proportional to the need for it in a population, and its modern-day interpretation of more affluent populations being able to benefit from evidence based medicine as compared with deprived populations.
- Landmark reports (The Black Report, The Health Divide, The Acheson Report and Fair Society, Healthy Lives: The Marmot Review) concerned with health inequality were described and the measures of socio-economic position commonly used by researchers presented.
- Current literature and debates about the effects of income inequality on health were described.

Health inequity was defined as the health of an individual is being unfairly disadvantaged by external factors beyond their control (Moscrop 2012). It is debated as to which factors are within an individual's control for example through lifestyle choices such as smoking, diet and alcohol consumption. Bourdieu (1984) proposed that these behaviours are not so much of a choice. He argues as we are all attempting to conform with the social norms or prestige within our social group, so these lifestyle behaviours are not so much of a choice but a given, and that sometimes they may be used as a comfort when faced with the challenges of living in a deprived environment (Bourdieu 1984). Other leading researchers in this field also believe that lifestyle factors alone do not account for health inequity (Marmot and Wilkinson 2006). It is proposed that it is actually inequalities of income in a society (Dorling 2010) and the detrimental physiological effects of living in a deprived area (Marmot 2006) along with the other social determinants of health, which lead to health inequity.

In conclusion, it is now generally accepted that socio-economic position has a significant impact on health. The evidence for this is seen in the sixteen year difference in disability free years and a seven year difference in life expectancy between the richest and poorest in England (Marmot 2010b). The causes for health inequity are complex and attempts have been made to summarise the factors influencing an individual's health into categories called 'The Determinants of Health' (Dahlgren 2009, originally published 1991; Hamer 2003) or more recently by Marmot and Wilkinson (2006) in 'The social determinants of health'. These overlap with the theories of health inequity summarised by Bartley (2003) as being the material, cultural/behavioural, psycho-social, life-course, neo-materialist causes (Bartley 2003). In reality health is a complex interplay of variables, which are of differing importance for each individual, with the most deprived being affected by the most detrimental variables for health and life expectancy.

The next section will examine health inequity at in relation to coronary heart disease (CHD) at a firstly at a national level. Then local background data about Sheffield is presented followed by data showing inequity relating to CHD at regional and local scale. Finally brief introduction to the role of GPs as gatekeepers within the NHS is presented as a prelude to the literature search.

Chapter 2: Health Inequalities And Coronary Heart Disease

2.1 National perspective of health inequity and coronary heart disease

“The diseases that contribute to dramatically shortened lives and worse health of those in disadvantage in England are not those associated with absolute destitution. They are heart disease, cancers, diseases related to drugs, alcohol, smoking, poor nutrition and obesity, accidental and violent deaths and mental illness”.

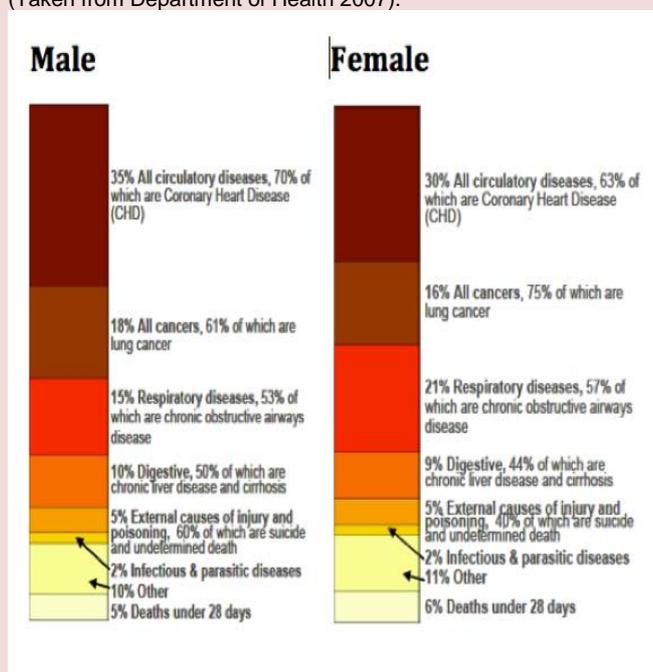
(Marmot 2010 p38)

There is a sixteen-year difference in disability free years and seven year difference in life expectancy nationally between the least and most deprived in England (Marmot 2010a). Circulatory disease has been shown to contribute significantly to the gap in life expectancy between least and most deprived as shown in Figure 8 below (Department of Health 2007). Circulatory disease is also known as Cardiovascular disease (CVD) which is a general term including coronary heart disease (CHD), stroke, peripheral arterial disease and aortic disease; CHD is defined as narrowing of the arteries to the heart due to a build-up of atheroma and the blood supply to the heart is restricted (NHS Choices 2010).

Of all the circulatory diseases, CHD has been shown to make the largest contribution to the gap in life expectancy between least and most deprived communities, seventy per cent for men and sixty three per cent for women (Department of Health 2007).

Figure 8: Diseases accounting for gap in life expectancy in England, between areas in the bottom fifth nationally for deprivation markers, and the rest of England.

(Taken from Department of Health 2007).



Asaria et al (2012) found that mortality from CVD has more than halved in England as a whole in the past thirty years and absolute inequalities from CVD mortality improved between least and most deprived wards for those aged 30-64 years (i.e. less of a gap in mortality rates between least and most deprived); but, absolute inequalities increased for all adults aged over 65 years (i.e. more of a gap in mortality rates) at electoral ward level; the authors also found that relative inequalities had worsened for all age groups between 1982 and 2006².

The inequality gaps between least and most deprived men in England aged 20 to 64 years regarding the risk factors leading to CVD have been

² Relative inequalities refer to inequalities between least and most deprived groups when presented as a ratio. Absolute inequalities compare the absolute numbers of events for each group. A relative ratio of inequalities will not capture any improvement of mortality of a whole population and so absolute numbers should always be presented alongside to show overall trends in decreasing mortality (Masseria 2008)

shown to be widening, due to improvements for those in higher social classes (Rumble and Pevalin 2013).

These findings are similar to those of Bajekal et al (2012) from a population modelling study, which showed the pace of fall in mortality from coronary heart disease (CHD) to be faster for affluent groups (6.7%) as compared to most deprived groups (4.9%); thus showing relative inequalities to be widening. The model showed that about half of the decreased mortality from CHD in England for the period 2000-2007 was attributable to improved medical and surgical treatments, and this was equitable across social groups (Bajekal et al 2012). Decreases in cardiovascular risk factors were identified as having reduced CHD mortality by 43%, but the net benefit was much lower at 34% due increased trends for higher body mass index and type 2 diabetes, especially for people living in more deprived areas. The authors speculate that the most likely explanation for the faster pace of fall in mortality in affluent groups is a social gradient for the effects of risk factor modification; for example the benefits of a specific decreased exposure to a risk factor such as hypertension or high cholesterol may be limited for those living in deprived areas perhaps due to increased psychosocial stress or medical adherence issues, but these speculations are yet to be confirmed (Bajekal et al 2012).

As described above coronary heart disease has been shown to contribute to a significant proportion of the gap in life expectancy between the most and least deprived communities. While the social determinants of health are likely to be the most significant factors contributing to this inequity, access and utilisation of cardiology services may also contribute to health inequity from CHD and have been the subject of extensive research (Coulter 1998).

There have been numerous studies in different locations nationally confirming the evidence of health inequalities regarding access and utilisation to cardiology services for patients from deprived backgrounds (MacLeod et al 1999; Hippisley-Cox and Pringle 2000; Lawlor et al 2005; Morris et al 2005; Saxena et al 2007; Congdon 2008). Inequalities regarding access have also been found for older, female south east Asian patients (Sekhri et al 2008). Counter to this there are some studies demonstrating a lack of evidence of inequality for patients with CHD regarding utilisation of specialist interventions (Jones et al 2004; Britton et al 2004) or of improving primary care (Simpson et al 2005; Doran et al 2008) but these are in the minority compared to evidence supporting inequalities. Congdon (2008) estimated CHD prevalence by analysing Health Surveys for England data for 354 local authorities using a regression model and confirmed that CHD mortality is higher in northern England and in deprived areas; the authors also confirmed other studies showing unequal access to treatments of proven clinical effectiveness such as revascularisation regarding CHD prevalence.

2.3 Sheffield Geography, history and population

The city of Sheffield is a metropolitan borough situated centrally in Great Britain within the Yorkshire and Humber region of England. Sheffield is part of the metropolitan county of South Yorkshire along with Barnsley, Doncaster and Rotherham. To the north of Sheffield is Barnsley Metropolitan Borough, to the southwest is Derbyshire, and to the east is Rotherham.

Sheffield has been built in the midst of seven hills and the confluence of five rivers; The Don, Sheaf, Rivelin, Loxley and Porter. Due to the steep hills there is a wide variation of height in the city, the lowest areas being 33 feet above sea level and the highest being 1,640 feet above sea level (Sheffield City Council 2013).

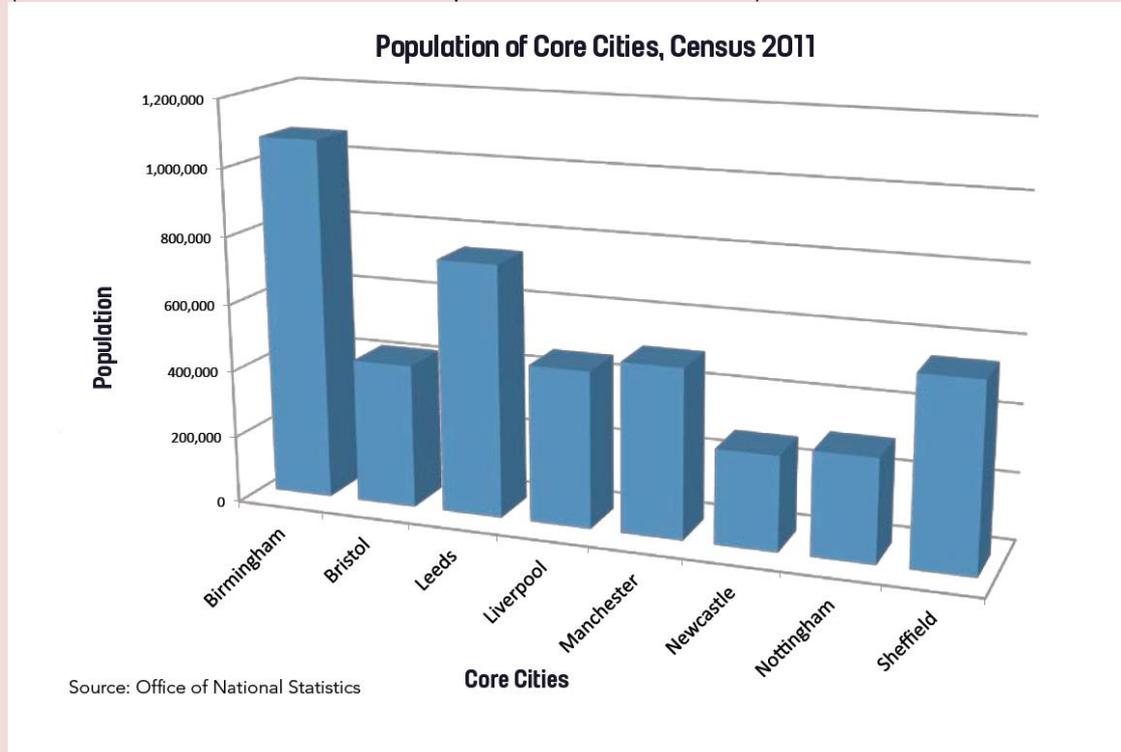
In the 19th century Sheffield gained international recognition for its novel production of crucible and stainless steel. Its population grew rapidly around the time of the industrial revolution and the city received its charter in 1893 (Sheffield City Council 2013).

The Office of National Statistics Census (2011) showed the Sheffield population to be 552,698 making it the third largest metropolitan authority area in England after Birmingham (1,073,000) and Leeds (751,500). Sheffield has a larger population than Bradford (522,500), Manchester City (503,100), Liverpool (466,400), Bristol (428,200) and Newcastle upon Tyne (280,200). Around 1.3 million people combined live in the local authority areas of Sheffield, Rotherham, Doncaster and Barnsley.

Chart 1

Population of Core Cities based on statistics from Census 2011

(Taken from Sheffield First Partnership: State of Sheffield 2013)



2.2 Sheffield 'A Divided City'

Sheffield is a city where deprivation is significantly higher than the national average with over 23,000 (approximately a quarter) of its children living in poverty (Sheffield Neighbourhood Health and Wellbeing Profile 2008/09). For residents from the North East of Sheffield, the risk dying prematurely from circulatory disease is significantly higher than for people living elsewhere in the city (Wight 2009). Also, residents of the North East of Sheffield suffer many other health inequities with regard to cancer and proportionally more emergency hospital admissions (Wight 2009). One of the messages of Professor Sir Michael Marmot's review (2010) was that social inequalities lead to health inequalities. Therefore, it follows that due to the social inequalities evident in Sheffield, life expectancy is significantly lower than average for England (Sheffield Health and Wellbeing Profile 2008/09) and numbers of early deaths (<75 years) from cardiovascular

As mentioned above the expansion of Sheffield was based on producing steel. Due to the prevailing winds blowing from a South-Westerly direction, over the past two centuries the wealthier residents moved to the south west to avoid the smog and smoke. The entrenched nature of deprivation in the north-east of the city has meant that regeneration has been difficult as residents from less deprived neighbourhoods are less likely to be attracted to live in these areas (Sheffield City Council 2010).

In contrast the affluent neighbourhoods are areas of extreme affluence, even nationally. In 2003 The Sheffield Hallam constituency ranked highest outside of London for overall wealth (Sheffield City Council 2013). The Sheffield Hallam constituency is currently represented by the Deputy Prime Minister Nick Clegg and includes the electoral wards of Dore, Broomhill, Ecclesall and Nether Edge, as seen in the South West area of the map below. When the 628 constituencies of the UK are ranked according to the number of residents holding a degree, Sheffield Hallam is ranked 7th in the country, even outranking Cambridge (University and College Union 2009)

Map 2: Map of Electoral Wards in Sheffield

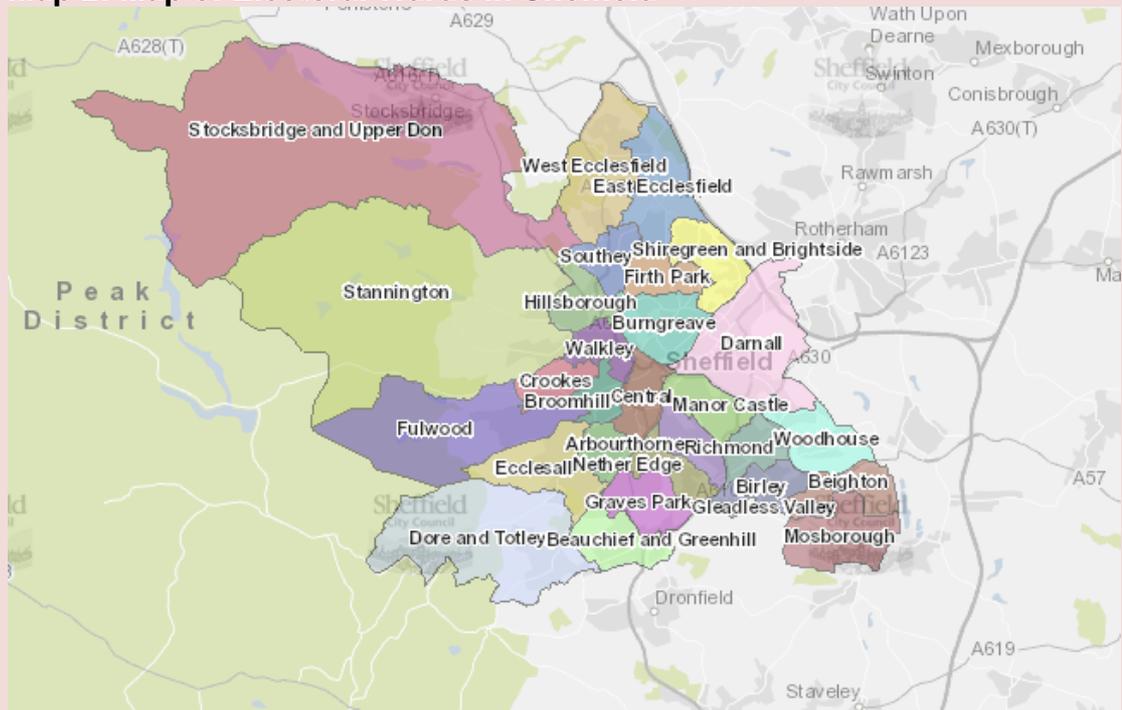


Table 5a below shows the difference in life expectancy for Sheffield residents born into the least and most deprived areas of Sheffield.

Table 5a: Life Expectancy at birth of Sheffield residents born in the Most and Least Deprived areas of Sheffield.

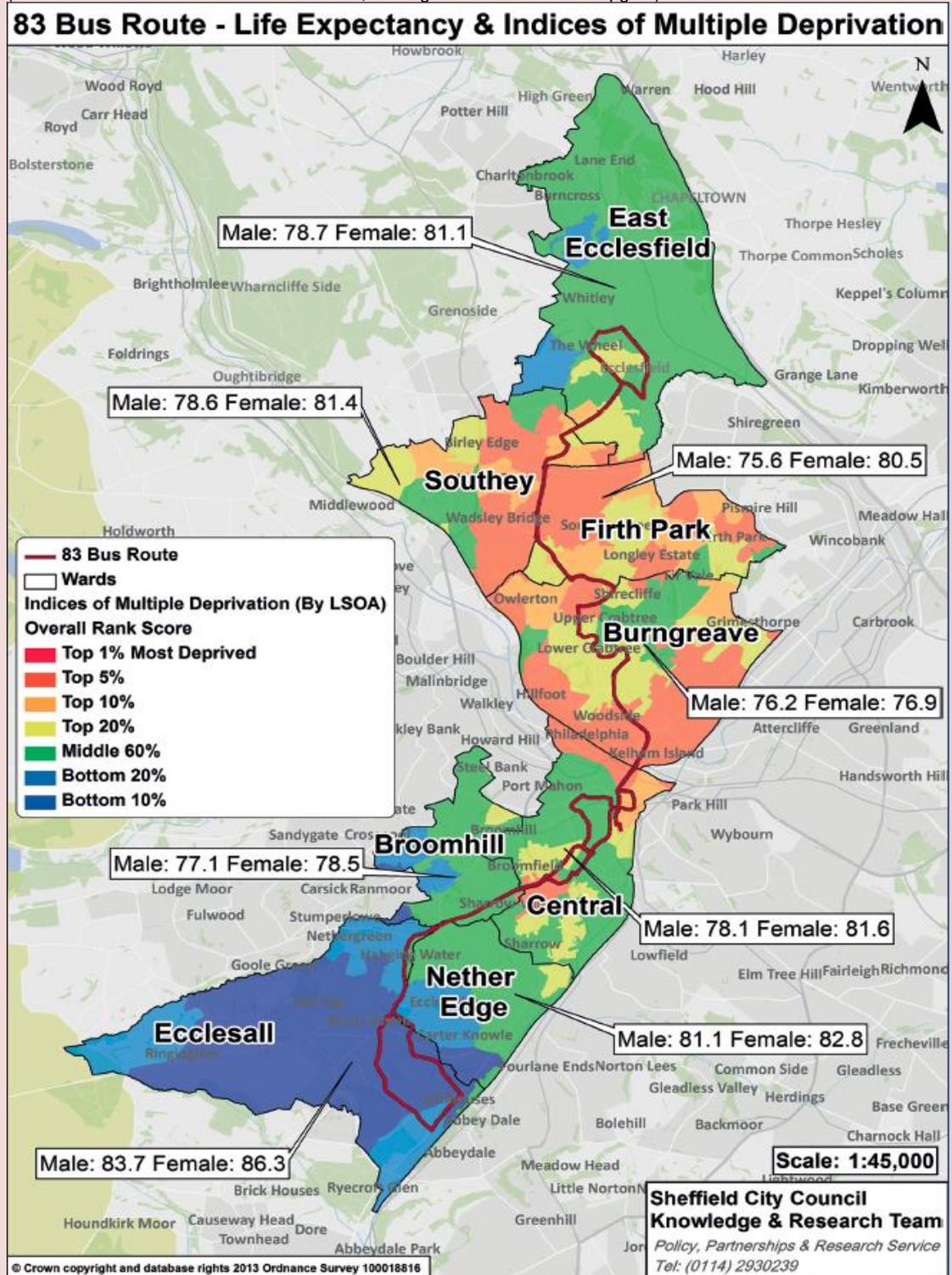
(Data obtained from Sheffield Neighbourhood Health and Wellbeing Profile (2008/09).

	Least Deprived Neighbourhoods in Sheffield	Most Deprived Neighbourhoods in Sheffield	All Sheffield
Life Expectancy at Birth (years)			
Male	81.3 (80.8, 81.7)	74.9 (74.4, 75.4)	78.1 (77.9, 78.3)
Female	83.4 (82.9, 83.8)	79.8 (79.3, 80.3)	81.5 (81.3, 81.8)
Male and Female	82.4 (82.1, 82.7)	77.3 (76.9, 77.7)	79.9 (79.7, 80)

The gap in life expectancy for Sheffield residents is demonstrated by a report commissioned by Sheffield City Council in 2012. It illustrates the reality of gap by highlighting the decreasing age of death along a bus route in Sheffield. At the start of the bus route the life expectancy for women is 86.3 years and 83.7 years for men; this gradually decreases as the bus route travels north and within a forty-minute bus ride the life expectancy has dropped by a decade to 76.9 years for women 75.6 for men (Sheffield Fairness Commission 2012).

Map 3: The number 83 bus route in Sheffield – Life Expectancy & Indices of Multiple Deprivation.

(Taken from Sheffield Fairness Commission, Making Sheffield Fairer 2012 pg 14)



2.4 Care for patients with Coronary Heart Disease: Regional and Local Data

The Yorkshire and Humber region, including Sheffield, has been reported to face the largest challenge in the UK regarding inequalities for access to cardiology services as detailed in a report by Oxford Healthcare Associates (2009); Yorkshire and Humber was found to have significantly lower access than expected for four areas of cardiac intervention: Revascularization (angioplasty, coronary artery bypass surgery) was 12% below expected rates, valve surgery 20% below, defibrillators were 33% below expected and cardiac resynchronisation therapy was 18% below expected (Oxford Healthcare Associates 2009).

In Sheffield attempts have been made in the past decade to tackle inequalities in cardiovascular health within the city. The city wide programme Sheffield CIRC (City wide Initiative for reducing Cardiovascular disease) was implemented after local research in 1997 showed that interventional cardiology services demonstrated an inverse care law. Payne and Saul (1997) demonstrated that patients from more deprived communities in Sheffield were receiving less interventional cardiology procedures than those living in more affluent areas. The evidence of whether this was due to lack of referrals from GPs to interventional cardiology services or whether this was due to a barrier within secondary care services was not examined. Through improvements in primary and secondary prevention of CVD in the community starting in 2000, the CVD mortality gap between the most deprived and affluent fifths of people in Sheffield between 2004 and 2006, is estimated to have decreased by 47% (Wight 2013).

Overall, inequalities in outcomes of CHD persist in Sheffield despite the CIRC project. Absolute levels of health have improved throughout the city over time, however the distribution of health inequalities has changed little over decades (NHS Sheffield 2010). This is demonstrated by the

difference in outcomes of coronary heart disease (CHD) between affluent and deprived neighbourhoods. The online Sheffield Neighbourhood Health and Wellbeing Profiles (2008/09) show that significantly more people from deprived compared with affluent neighbourhoods of Sheffield:

1. Die prematurely (<75 years) from CHD: 29.2 (least deprived) versus 74.1 (most deprived) per 100,000 population, directly age standardised rates
2. Are admitted as emergencies for CHD: 193.5 least deprived versus 434.6 (most deprived) per 100,000 population, directly age standardised rates
3. Are admitted electively for CHD: 198.3 (least deprived) versus 411.6 (most deprived) per 100,000 population, directly age standardised rates
4. Experience proportionately more admissions as emergencies than elective for CHD

Table 5b: Directly age standardised rates of premature mortality and admissions for least and most deprived neighbourhoods of Sheffield for 2008/09.

Data from Sheffield Neighbourhood Health and Wellbeing Profiles (2008/09).

	Least deprived Neighbourhoods in Sheffield	Most deprived Neighbourhoods in Sheffield	All Sheffield
	Directly age standardised rates per 100,000 population (95% confidence Interval)		
Premature mortality (<75 years) from CHD	29.2 (25, 34)	74.1 (66.7, 82.1)	49.7 (47.1, 52.4)
CHD Emergency Admissions	193.5 (183.3, 204.1)	434.6 (417.4, 452.3)	317 (311.5, 323.9)
CHD Elective Admissions	198.3 (187.3, 209.7)	411.6 (393.9, 429.9)	313.6 (307.1, 320.2)
Ratio of Emergency to Elective Admissions	1: 1.025	1: 0.95	1: 0.99

The table above shows that in *least deprived* neighbourhoods of Sheffield there were *2.5% more elective* admissions for CHD than emergency admissions; contrasting with *most deprived* areas where there were *5% less elective* than emergency admissions.

The trend towards emergency rather than elective admissions with increased practice deprivation is indicative of inequalities in access to elective care: the data does not explain the causes inequality. Possible explanations could be barriers at the referral stage from primary to secondary care or within secondary care itself. This project explores the referral stage in primary care and this will be explained further in the following sections.

Chapter 3: General Practitioners as Gatekeepers

3.1 History of GP Referrals in England: Wizards and Gatekeepers

In the United Kingdom prior to being seen by a hospital specialist, patients are required to be assessed by their General Practitioner (GP) and a referral made usually in the form of a letter or fax. Because of this function, GPs have been given the title 'gatekeepers' of secondary care services (Mathers and Hodgkin 1989). The current practice of GPs referring patients for elective outpatient appointments in hospitals first began in the early twentieth century (Loudon 2008). Prior to this doctors worked in charitable hospitals, founded in the mid-eighteenth century. A doctor in the outpatient department of a charitable hospital would only see non emergency patients if they had a letter from one of the 'subscribers' who donated money to the hospital. Ironically, this naturally led to neglect of the poor for whom the hospitals were originally intended.

Around the 1840s the numbers attending outpatient appointments rose dramatically, this was probably due to a cultural change in beliefs about orthodox medicine. For example the Royal London Hospital in the decade 1800-1809 saw around 1000 patients in outpatients. A century later in

1900-1909 this figure had risen to 220,000. This equates on average to 4,200 outpatients a week or over 700 a day for one London hospital (Loudon 2008). Many GPs became bankrupt at this time as their services were charged with a fee, unlike the hospital outpatient clinics.

Unfortunately, hospital consultations at this time were often inadequate due to time pressures on the junior doctors to consult with the multitude of patients, but at least these consultations were free.

By the end of the 19th Century, the outpatient clinics had become chaotic and unmanageable. One junior doctor was expected to see around 200 patients in a morning spending a few seconds or at most a couple of minutes with each patient. Senior hospital staff thought that the more patients the hospital supposedly treated the higher subscriptions they would attract. Due to the unmanageable numbers of patients attending outpatient clinics it was decided that only cases certified by a GP as requiring the special consideration of the hospital should be referred to outpatients. This practice was reinforced by the 1911 National Health Insurance Act, which allowed working men to have free health care with GPs and created a 'list' of patients registered with each GP. This change was deemed as a sensible way of regulating the patients seen in secondary care (Loudon 2008) and the system was consolidated with the formation of the NHS in 1948. When the NHS was formed, hospital doctors famously became salaried at Bevan's persuasion; later Bevan is quoted as saying privately "*I stuffed their mouths with gold*" (Timmins 1995 pg 115). GPs in contrast remained independent contractors and became the official gatekeepers to secondary care, and the two groups of doctors stopped competing for payments (Coulter 1998). This system of GPs acting as gatekeepers continues today with some exceptions of accident and emergency care, and specialist Genito-Urinary Medicine clinics.

The current formal system of referral from GP to specialist is said to be "arguably the most important mechanism for managing demand in the

NHS” and without doubt helps to allow the relatively low cost of healthcare in the UK compared to other countries (Coulter 1998 pg1974).

The system of GPs acting as gatekeepers has not been without its opponents and system changes over the century since its introduction. In the 1980s, under the Thatcher government, there were threats to make the monopoly of GPs to refer patients to hospital consultants illegal due to the perceived impingement this was of this on patient freedom and choice. In response to this, the advantages of the gatekeeping system were summarised in a much cited paper by Mathers and Hodgkin (1989) from the BMJ called “The Gatekeeper and the Wizard: a fairy tale”. In the guise of simple fairy story the concept of positive predictive value is explained. In this context positive predictive value means that as GPs filter patients who do not have serious disease as they are effective at diagnosing ‘normal’ patients and picking out patients who may have serious disease to send to hospital. The hospital doctors therefore see a much higher prevalence of patients with disease. This means that the positive predictive value of any signs or symptoms in patients referred to hospital by GPs are increased, making diagnosis easier for hospital doctors. It has been proven that health systems which use GPs to filter referrals, are more efficient than those without (O’Donnell 2000; Starfield and Horder 2007).

There have been changes to referrals management in the past decade, with the aim of improving patient choice. The most notable being an alternative to the traditional ‘paper letter’ referral which was introduced in 2005, with the electronic booking system of ‘choose and book’. This allowed GPs and patients a facility to compare the waiting times of hospitals offering appointments during a consultation; and also the facility to book an appointment in secondary care around their own diary rather than being sent an appointment on a paper letter through the post.

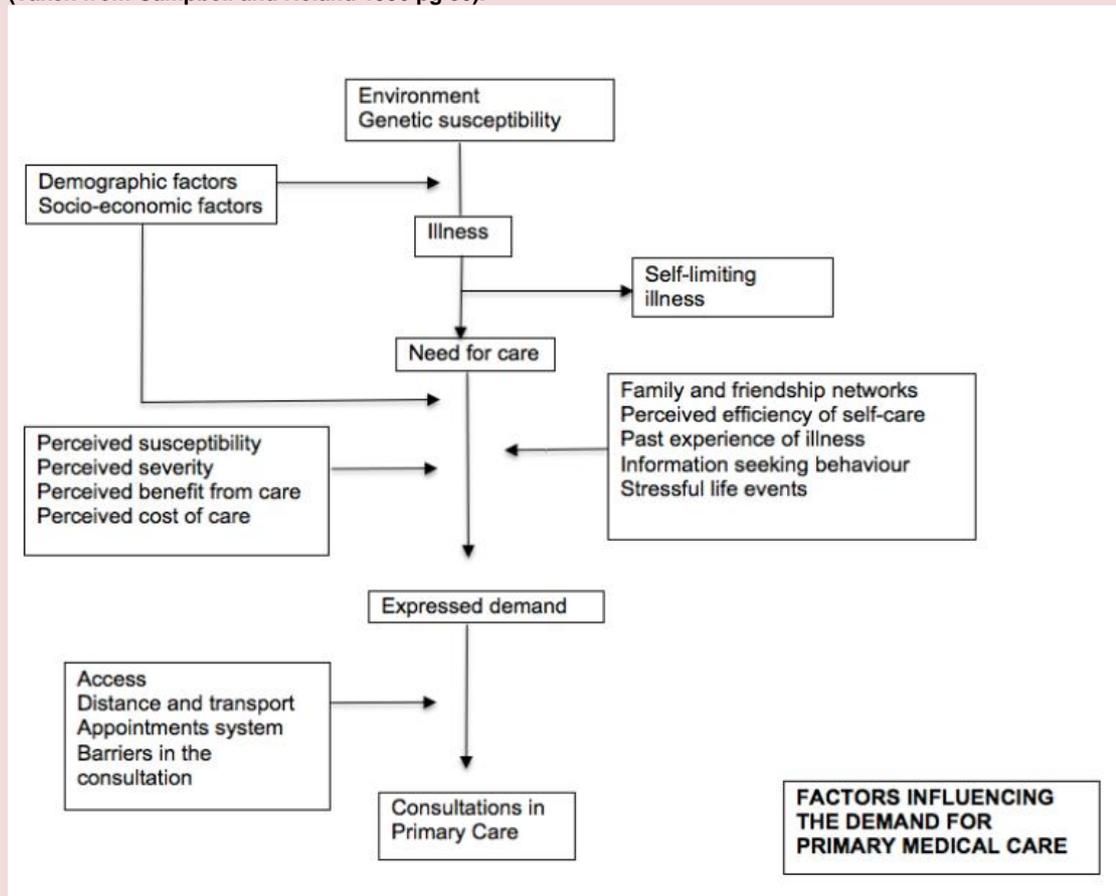
3.2 Gatekeeping, referrals and socio-economic position

There is a wealth of literature describing GP referrals in relation to equity and socio-economic position, but it is often confusing, small scale and contradictory (Goddard and Smith 2001). McBride et al (2010) summarise current thinking and found that people of lower socio-economic position, women and older people (>74 years) despite consulting their GPs more frequently, are less likely to receive attention from secondary care for some conditions, than men of higher socio-economic position and younger people (<65 years) (McBride et al 2010); it was not clear from the literature whether this is due to inequalities in primary or secondary care³.

Researchers have considered the factors influencing general practitioner consultation rates, as patients need to be seen by a GP prior to receiving a referral. Campbell and Roland in 1996 explored the factors involved in patients seeking a consultation with their GP and summarised their findings in a figure reproduced below.

³ McBride et al (2010) researched referral rates for symptoms of specific conditions, where referral to secondary care would be a common outcome. It was found that there were lower rates of referrals for patients from deprived areas with hip pain and dyspepsia. Referrals rates for post-menopausal bleeding had no association with deprivation. Referrals declined for all symptoms with increasing age. Inequalities were described as being between practices rather than within practices and practices in deprived areas were less likely to make referrals generally. The inequalities seen for patients with symptoms of hip pain and dyspepsia are postulated to be due to lack of clear guidelines and due to the symptoms being non life threatening.

Figure 9. Factors influencing the demand for primary medical care.
 (Taken from Campbell and Roland 1996 pg 80).



Campbell and Roland’s (1996) literature review showed that the unemployed and people from social classes 4/5 were more likely to consult their GP for most types of problems; however, consultation rates for patients from people within social classes 4 and 5 were less likely to use preventative services than the higher social classes. This resonates with Professor Watt’s theory of ‘The Inverse Care Law Today’, that the most vulnerable members of society, who are at the greatest risk of morbidity and early mortality, are receiving the lowest rates of preventative evidence based medicine (Watt 2002).

Campbell and Roland (1996) use the 'Health Belief Model' as a framework for understanding why people consult the doctor. This theory explains why people consult a GP using the following themes:

- Perceived susceptibility - locus of control
- Perceived severity
- Perceived benefits and costs from seeking medical care
- Knowledge about illness and information seeking behaviour
- Belief in the effectiveness of self care
- Stressful life events

Campbell and Rowland (1996 pg 75) summarise the literature surrounding patients decision-making as to whether to consult the GP with the following:

“The decision to consult is not based simply on the presence or absence of medical problems. Rather it is based on a complex mix of social and psychological factors”

More recently Goddard and Smith (2001) confirm higher rates of GP consultations are associated with deprivation and patients of lower socio-economic position apart from consultations for preventative care. However, deprivation at a practice level was found to have a positive impact on the total number of referrals from a practice and medical referrals but deprivation had a negative effect on surgical referrals. Goddard and Smith explain that looking at equity in healthcare in relation to referrals is a complex issue, most of the research is very difficult to interpret and generalise from as it methodological inadequate.

However, authors seem to agree that inequities exist in relation to referrals and McBride (2012) et al call for more in depth qualitative research to explain the “complex determinants of inequalities” (pg 9 of 10 online) for

referrals between general practices based in affluent and deprived areas in their conclusion. Goddard and Smith (2001) also comment on the lack of information on the causes of inequities to access to secondary care services, needing qualitative research. It was partly from these conclusions, that the qualitative aspect of this project was developed.

Summary of Chapters 2 & 3:

Coronary Heart Disease Inequalities and Gatekeepers

- There is a seven-year difference in life expectancy between the least and most deprived in England (Marmot 2010). It has been estimated that circulatory disease accounts a large contribution of the gap in life expectancy between the least and most deprived individuals in England and Coronary Heart Disease is thought to make the greatest contribution of all the circulatory diseases (Department of Health 2007).
- Nationally, regionally and locally the majority of the evidence shows that there are inequalities in access and utilisation of cardiology services for people living in deprived communities. It is not clear from the research what is the cause of these inequalities. It could be barriers to treatment from primary or secondary care, or the wider social determinants of health.
- Locally in Sheffield the health outcomes for people living in deprived areas in relation to CHD, are significantly worse with respect to premature mortality, needing more elective and proportionately more emergency admissions to hospital (Sheffield Neighbourhood Health and Wellbeing Profiles 2008/09).

- The causes of the inequalities in access, utilisation and outcomes seen in patients with CHD are not clear. It was decided to focus upon the GPs role as 'gatekeeper' of referrals, to specialist cardiology care in this research, as previous literature has called for more qualitative research to explore the topic of referrals from GPs to secondary care.
- The condition of suspected new onset coronary heart disease was chosen as national guidelines state that patients with this condition should be referred to secondary care (NICE 2010) and also because of the local inequities in morbidity and mortality from CHD. It was decided the gatekeeping role of the GP and the decision-making process to refer, would form the focus of the following literature search, in order to develop the research question for this project.

The next section will describe the process and results of the review of the literature about referral decision-making process by the GP in primary care in relation to coronary heart disease.

Chapter 4: Literature Review

4.1 Search Strategy

Three formal literature searches were carried out between 2008 and 2013 using the OVIDSP search facility to search the medline database from 1950 to the present. Search terms were discussed with supervisors and advisers to the project and then fitted into the 'Patient, Intervention, Compare to, Outcome' (PICO) system of analysis (Schardt et al 2007).

The PICO system of analysis was followed to structure the search and the key terms included were:

- Coronary Heart Disease/Heart Diseases
- Referral and Consultation
- Socio-economic Factors
- Health status disparities

The full strategies for these literature searches can be found in Appendix A. The first two formal searches using the criteria above resulted in 47 and 241 publications respectively, four of which were relevant. Other references were then found through using the reference list from these four papers, the advisers to the project and serendipity when reading clinical journals and at conferences. Pubmed was also used to search for publications identified through the formal literature searching and the setting for email updates was used. After the initial two literature searches the final list of publications were then placed in a table (Appendix B) ordered according to whether they found evidence of inequalities in the care of patients with coronary heart disease or not, and this was used as the starting point for the review of the literature.

The formal literature search was repeated in 2013 and this is also summarised in Appendix A and resulted 538 papers, of which 31 papers

were relevant to this project using the inclusion and exclusion criteria described in Appendix A.

Additional publications informing this literature review were found through lists of citations at the end of publications, serendipity when reading medical literature or at conferences and from academic and clinical colleagues.

4.2 Themes in the Literature

4.2 a) Political/Financial Aspects of General Practitioner Elective Referrals

In recent years General Practitioner referral behaviours have been closely scrutinised at both a local and national level (British Medical Association 2009). This is largely due to the huge expense that GP referrals incur to the NHS budget. In 2010, the UK spent £15 billion (McKinsey 2009) on over nine million outpatient referrals (Office of National Statistics 2008) and referral rates and their subsequent costs are rising.

Alongside the costs of GP referrals increasing, the NHS is facing huge challenges in efficiency savings (House of Commons Select Committee 2010) and is predicted to be entering a “potentially arctic financial climate” (Imison and Naylor 2010 pviii). The House of Commons Select Committee in 2010 stated that if referral rates were not “brought into alignment”, then a financially viable NHS could not be maintained. This has led to Government, NHS management and Clinical Commissioning Groups (CCGs) becoming intensely interested in referral rates and the often inexplicable variation between practices (Davies et al 2011).

Pressure on GPs to reduce referrals with an arbitrary reduction in referral rates, has been argued by The King’s Fund and the BMA to be inappropriate (Imison and Naylor 2010; BMA 2009; McColl et al 1994). However, practice referral behaviours are being constantly monitored and

analysed by CCGs and variable pressure is exerted upon them to either reduce referrals generally (Oliver 2008; McMurray 2008; BMA 2009) or to reduce variation in their referrals (Davies 2011; Imison and Naylor 2010).

4.2b) Variation and GP referral rates

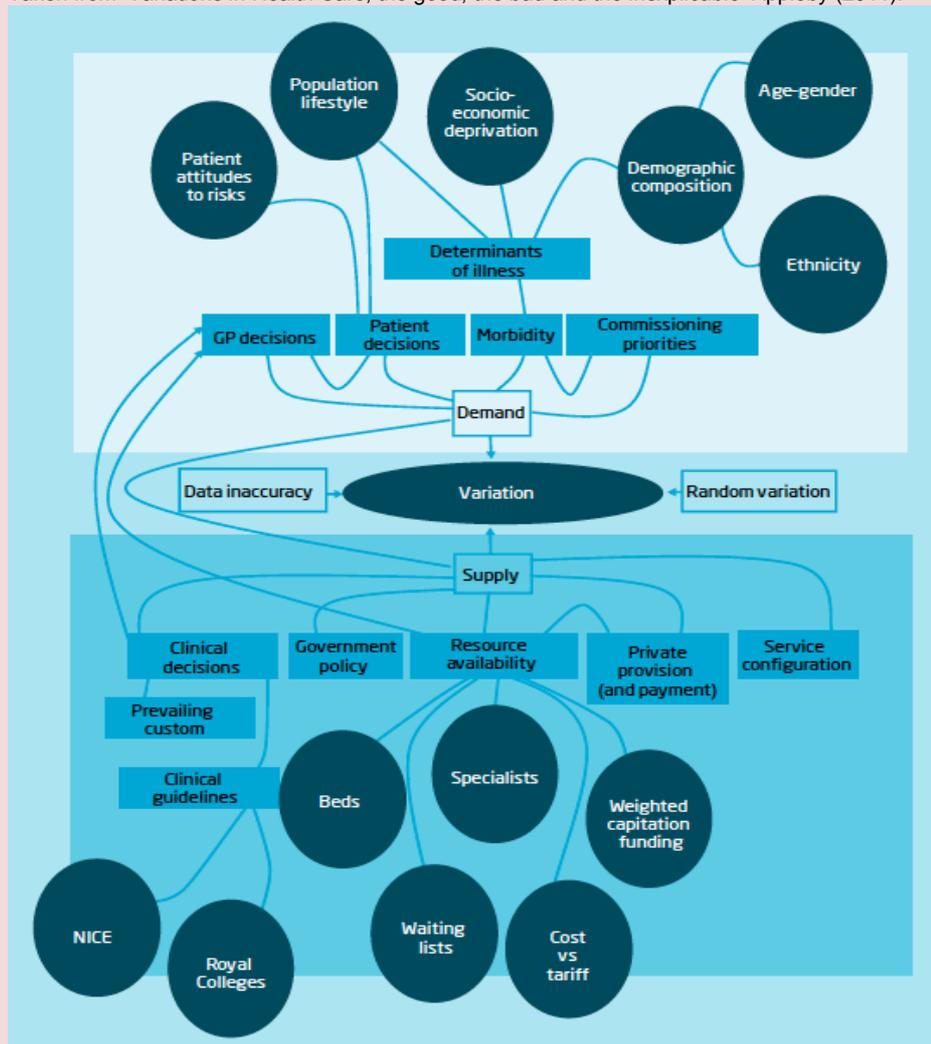
Variations in health care, including GP referrals are not new phenomena. There have been decades of research regarding variations in health care since the 1930s (Appleby 2011). A King's Fund report (Imison and Naylor 2010) entitled "Variations in Health Care", acknowledged that not all variation is *bad* and that it is actually *unwarranted* variation which need addressing: the difficulty is of course, is how to identify unwarranted.

Mulley (2010) summarises the challenges facing policy makers and health professionals in dealing with variation:

"If all variation were bad, solutions would be easy. The difficulty is in reducing the bad variation, which reflects the limits of professional knowledge and failures in its application, while preserving the good variation that makes care patient centred. When we fail, we provide services to patients who don't need or wouldn't choose them while we withhold the same services from people who do or would, generally making far more costly errors of overuse than of underuse".(Mulley 2010 p214)

Figure 10: Mapping the causes of variation.

Taken from 'Variations in Health Care, the good, the bad and the inexplicable' Appleby (2011).



As the Figure above shows, the causes of variation in health care are complex. Large variations exist in referral rates between practices, primary care trusts (PCTs) (now clinical commissioning groups), and within practices (Imison and Naylor 2010). At 1981 prices, the expenditure associated with the highest and lowest practice referral rates were calculated to represent a 10-fold difference between £40,000 and £408,000 (Crombie and Fleming 1988). Other researchers have established that referral rates vary between practices by at least three or four fold (Coulter 1998). Variation causes concern: it is perceived to have implications for quality of care and efficient use of resources (Duffy 2001).

Wennberg and Thompson (2011) from the Dartmouth Institute USA, summarise the evidence surrounding unwarranted variation. The authors emphasise the importance of monitoring variation firstly to raise questions in relation to efficiency and effectiveness, then to use the evidence based answers to inform both policy and clinical decisions. The NHS Atlas of Variation (2011) in the UK shows underuse of effective evidence based care, for example in the care of patients with diabetes. Wennberg and Thompson (2011) describe several factors influencing variations in effective health care interventions: organisation, coordination, team approach and relative number of primary care doctors relative to specialists. For preference sensitive care, for example elective joint replacements, the authors describe shared decision making as improving the quality of decision making and decreasing the demand for invasive interventions (Wennberg and Thompson 2011). Finally, supply sensitive care such as doctor visits and diagnostic tests are described as a “black box” needing to be converted into evidence based care, as in the USA increased care has not been found correlate with better outcomes in mortality and quality indicators.

Sekhri et al (2008) demonstrated that among patients eligible for cardiac interventions older people, south Asian people and people from deprived areas were less likely to undergo angiography than other patients, and as a consequence suffered a higher rate of coronary events. An earlier study by Feder et al (2002) had similar findings regarding south Asian patients being less likely to receive coronary artery bypass grafting than white patients who were deemed appropriate for treatment. This variation of utilisation of cardiology services, would according to Wennberg and Thompson’s (2011) criteria be described as underuse of ‘effective’ services, as the cardiology interventions showed evidence based benefits outweighing risks.

4.2c) Factors leading to variation in GP referral rates

Before considering why there are variations in referral rates, it is useful to consider the reasons why GPs make elective referrals to outpatients.

Coulter (1998) summarised the main reasons for GPs to make referrals:

- Diagnosis
- Investigation
- Advice on treatment
- Specialist treatment
- Second opinion
- Reassurance for the patient
- Sharing the load/risk
- treating a difficult or demanding patient
- Deterioration in general practitioner/patient relationship
- Fear of litigation
- Direct requests by patients or relatives

The factors affecting of GP referral rates have been comprehensively summarised comprehensively in two publications (O'Donnell 2000; Newton et al 1991).

O'Donnell (2000) organises the literature describing the reasons for variation in referral rates between GPs into four main groups of factors:

- Patient characteristics
- Practice characteristics
- GP characteristics
- Access to specialist care

From her literature review O'Donnell concluded that although 40% of observed variation in referral rates can be attributed to patient characteristics and 10% attributed to GP characteristics, the majority of

variation in GP referral rates was unexplained; access to specialist care, the psychological profile of GPs and guidelines were all found to have an impact but the evidence was not available to cite the quantitative effects of these factors on variation in referral rates. Morbidity has been shown to have more effect on the variation on referral rates than age and sex (Sullican et al 2005). Deprivation has also been shown to be an explanatory factor in variation of referral rates, being more important than number of partners, percentage of patients over 65 years and fundholding status (Hippisley-Cox et al 1997). Patients living in deprived areas, older people and women have been shown to be more likely to be admitted as emergencies for some cancers (Raine et al 2010). Newton (1991) summarised the factors affecting referral rates in a very similar way to O'Donnell (2000), as seen diagrammatically in Figure 11 below:

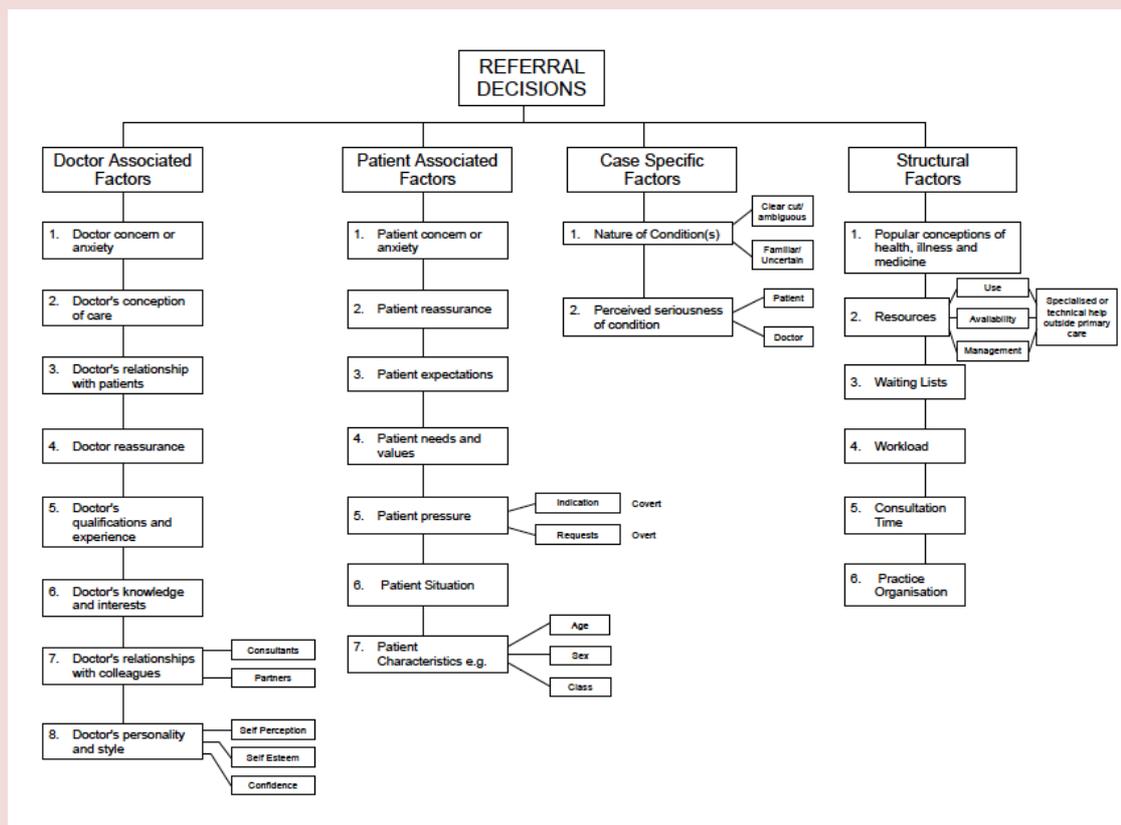


Figure 11: Factors influencing GP Referral decisions.

Taken from Newton et al (1991 pg 312)

4.2d) Explaining variation in GP Referral Rates:

Statistical Discrepancies & Complexity

When examining referrals from GPs there have at times been statistical discrepancies and errors. There are several different sources of referrals data and each will present slightly different data regarding referrals from GPs. Sources can include:

- General Practices - numbers of referral letters sent
- Outpatient clinics in hospitals - numbers of patients attending,
- CCGs - charges from hospital for first outpatient appointments
- Referral management centres and electronic bookings systems

Errors can be made by all of the above sources of data. In the past errors were largely been accounted for by patients having direct access to Accident and Emergency and inter consultant referrals. These were not GP referrals as such, as the source of referral was not the GP but either the patient or doctors working in the hospital setting rather than primary care (Crombie and Fleming 1988).

The British Medical Association (BMA) wrote a report in 2009 outlining dramatic rises in GP referral rates in the preceding year, but highlighting that rates are also subject to external factors such as national policies and not always within the control of individual GPs; the authors refute allegations that increased rates of referrals reflect poor practice. Several alternative explanations are presented which may be causing referral rates to rise. For example around this time the system of *'Payment by Results'* was initiated which has led to hospitals counting all its activities more rigorously and this may have given the appearance of a rise in referrals. As a result of this in recent years consultants have been discouraged from making 'consultant to consultant' referrals, requiring the patient to seek another referral from their GP: again increasing perceived numbers of referrals. Inaccuracies in coding can also lead to errors such as counting

referrals twice or follow-up appointments being counted as a new outpatient referral. Local variations can also be due to the availability of more specialist investigations. For example GPs in some areas have to refer to cardiology to organise special tests like echocardiograms for their patients whereas in other areas, GPs can access these services directly and this will naturally affect GP referral rates (British Medical Association 2009).

More patients are being referred from the community from other clinicians, rather than GPs to outpatient clinics. For example opticians, nurses, health visitors and midwives can all now make referrals to secondary care, over which the GP may have little control. Lack of continuity with a single GP, due to part time working, provision of extended hours and non list based services and other providers such as walk in centres can also lead to increased referrals as this has been argued to lead to more 'defensive practice' (British Medical Association 2009). Summerton (1995) found that GPs were practicing in a defensive manner at times due to concerns about litigation which is a relatively new consideration which could be affecting referral rates. Patient choice and expectations have also risen in recent decades which may be leading to increased demands on GPs, possibly leading to higher referral rates, as GPs may not have the time to treat the patients 'in house'. Consultation rates with GPs are rising and it has been shown that consultation rates have a positive relationship with referral rates (Coulter 1998): thus there will be an inevitable rise in referral activity. Patients are better informed from public health campaigns and information in media and this is thought to potentially have an impact on patient demands (British Medical Association 2009). However other authors support the concept of shared decision-making (Carlsen et al 2008) and that actually if patients are educated and well informed the numbers of patients wanting referrals for procedures such as hysterectomy actually fall (Coulter 1998).

Researchers have explored variables to try and explain variation in referral rates. Hippisley-Cox and colleagues (1997) found deprivation was strongly associated with outpatient referral rates; practices in more deprived areas showed high total referral and medical referral rates, with less of an association with surgical referral rates. This is in keeping with the conclusions of Goddard and Smith's review of the literature in 2001. Emergency admissions have also found to have a positive association with deprivation and age i.e. more older and people from deprived areas were found to be admitted to hospitals as emergencies, but these variables were only responsible for half of the variation found (Duffy 2001). Sullivan (2005) found that morbidity accounts for a third 30% of variation in referral rates, while age and gender only accounted for 5% of variation; the author also found that there was variation not only between practices but also within practices.

Studies have also explored the characteristics of the doctor and the effect on referral rates. Carlsen (2008) found that GPs and patients who have 'congruent' or matching attitudes led to a decreased referral rate. It was postulated that congruence can enhance the GPs effort to solve the patient's problem 'in house' rather than make a referral. Counter intuitively, GPs who have a special interest have been found to refer more to their chosen speciality and it was concluded that, "A high referral rate does not necessarily imply a high level of inappropriate referral" (Reynolds et al 1991 pg1250). Less surprising was the finding that GPs with a low tolerance of risk were more likely to be high refers to hospital from out of hours emergency settings (Ingram et al 2009).

Several of the researchers advise caution on interpreting the results of the statistics about referrals due to the small numbers of referrals over short timeframes possibly leading to unreliable findings (Duffy 2001; Roland and Abel 2012; Sullivan et al 2005).

Largely it appears that variation in GP referral rates remains unexplained (Davies 2011; O'Donnell 2001). Understanding the reasons for variation could help ensure more efficient use of NHS resources or at least satisfy those scrutinising variation in referrals that the variation is 'good variation' as Mulley describes appropriate variation (Mulley 2010).

4.2e) Strategies explored in the literature to reduce variation and rates of referrals

Due to the financial and political implications of variations and rising referrals, much research has been carried out to look at strategies to reduce variation and rates of referrals.

CCGs in some areas of the UK have introduced 'Referral Management' systems in an attempt to resolve the issues of increasing referral rates. Unfortunately, research has shown no reduction in outpatient attendance rates by referral management and it was found to be more expensive than internal peer review (Cox et al 2013). Referral management has also been irritating to some GPs as expressed in a letter from Davies in the BMJ (2010), as it can interfere with communication between primary and secondary care. The importance of dialogue between doctors working in the community and in hospitals to discuss evidence based guidelines about referrals is emphasized by Docherty (2011) in another letter in the BMJ. This is backed up research published by Evans et al (2011) which showed that peer review of referrals between GPs and hospital consultants led to an overall reduction and a reduction in variation of individual GPs referral rates (Evans et al 2011). However Rowlands (2001) found that in house educational meetings did not alter practice referral rates. The authors concluded that GP decision-making is complex and variety of pressures are important including the historical background of the patient (Rowlands et al 2001). The pressures placed upon GPs to refer if a patient requests it are highlighted by Wilkinson (2010) and the

stress caused to the patient doctor relationship if a GP denies access to a referral.

Two reviews collate the evidence in this complex area. The first is a Cochrane review by Akbari et al (2008) which focuses on the evidence of interventions to improve outpatient referrals from primary to secondary care, either in quality or quantity. The second review was published by the King's Fund in 2010 and focuses on the results of Referral Management centres (Naylor and Imison 2010).

Firstly the conclusions of the Cochrane review will be summarised. Akbari et al (2008) described the area of improving referrals as a complex area to research with no studies evaluating the whole process of the flow of patients, the patients who are not referred, patient satisfaction, resource use and secondary care management of patients. Very few of the studies undertook economic or organisational intervention evaluation and very little was discovered about the relationship of referral rates and appropriateness of referrals. In short there is a very limited evidence base to support policy decision-making due to the limited quality of available research, which was not generalizable often with poor statistical methods.

However the review does summarise factors to consider when attempting improvements of referrals from primary to secondary care:

- Referral guidelines more likely to be effective if local consultants are involved with dissemination of new referral guidelines. Passive dissemination of guidelines was unlikely to improve referral behaviour.
- Structured referral sheets are reserved for common important conditions and are embedded into an electronic referral system. Multiple referral sheets for all conditions is not thought to be helpful to improving referrals due to the 'overload' effect this has on GPs.

- Secondary care is responsive to changes in primary care behaviour ie not repeating bloods/xrays
- Reflect local circumstances and address local barriers. GPs will be more likely to use a new system if they see that patients are going to be seen quicker rather than it just being a cost saving exercise. Financial interventions were found to change referral rates but the effect on quality was uncertain.
- In house referrals between GPs in the same practice, was found to be a potential way of improving quality of referrals.

Akbari et al (2008) state that “future research to evaluate primary care interventions should evaluate the quantity and quality of referrals and include an economic evaluation”(page 40).

The second major review of the literature regarding referrals is The King’s Fund review of Referral Management Centres by Imison and Naylor (2010). The authors state that understanding the variations in referral practice and will be critical to improving quality and reducing cost in the future.

The recommendations of King’s Fund Report are mostly similar to the Cochrane Reviews above and include the advice that passive distribution of guidelines for referrals to GPs or financial incentives are unlikely to improve the quality of referrals. The authors also highlight that financial incentives could be dangerous for patient care through the potential reduction in necessary, as well as unnecessary referrals. The authors also support the following, as the most cost and clinically effective referral management strategies being those, that are planned around peer audit and review, with primary and secondary care doctors communicating with feedback about clear referral criteria based on evidence. The authors also suggest that the research shows that the greater management centers intervene in this process, the less value for money these centers would provide. The CCGs are the obvious drivers for peer review and audit and

new and old technologies could be used to help decision-making for GPs regarding referrals.

The authors of the report also suggest that the commissioners recognize the following issues:

1. Any intervention to manage referrals cannot look at the referral in isolation but the context in which it is being made needs to be understood
2. Changing the referral behaviour of doctors is a major change-management task that will require strong clinical leadership from both primary and secondary care
3. Any referral management strategy needs to include a robust means of managing the inherent risks at the point when clinical responsibility for a patient is handed over from one clinician to another (so-called clinical hand-offs)
4. Any strategy to reduce over-referral is likely also to expose under-referral, and thus to limit the potential for reducing demand financial incentives to drive blanket reductions in referral numbers should not be introduced
5. Reductions in referrals from one source can be negated by rises in referrals from other sources, so any demand-management strategy needs to consider all referral routes rather than target just one
6. To manage demand Whole system strategies are needed, with active collaboration between primary, secondary and community care services.

Despite the resources above, describing the factors affecting referrals and potential strategies to avoid variation and reducing overall rates of referrals, there is still little known about the referral process in the

consulting room between GP and patient, and this is said to be a “cultural rather than a planned process” (Davies 2011 p753).

4.2f) The consultation: communication and decision-making

The decision-making process by a GP regarding a referral of a patient to secondary care has been described as heuristic (Dempsey and Bekker 2002). Heuristic decisions use mental shortcuts to make decisions quickly, often by using ‘rules of thumb’. The decision by a GP to make a referral is usually time pressured and peer reviewed by the receiving colleagues. In 1987 there was found to be little agreement between GPs, patients and consultants about performance of the GP before referral, the need for referral and suitability of specialist seen (Grace and Armstrong 1987). GPs have been described by Dempsey and Bekker (2002) to be influenced more by social context, than information about a patient’s condition. A study in the Netherlands found that morbidity from angina and myocardial infarction was higher for people with low socio-economic status (Vogels 1999). However, when the sexes are separated the findings for men and women were very different. For men there was no difference between the socio-economic groups in relation to morbidity. In contrast for women, those with a low socio-economic status experienced significant more morbidity than those from higher socio-economic groups. Also the researchers found that the women from lower socio-economic groups despite experiencing higher morbidity from angina and myocardial infarction than men, were significantly less likely to be referred to secondary care. The authors focused on the differences between men and women rather than the socio-economic status, but this illustrates the importance of the potential for ‘physician bias’. The authors propose that more research is carried out in this area and by no means state that this is a cause of women from lower socio-economic groups receiving fewer referrals, but it is proposed as a potential theory due to doctors assumptions that heart disease is classically experienced by men (Vogels 1999).

GPs have to balance acting as the expert clinical agent for the individual patients they consult with but also act as gatekeepers to the rationing of services on behalf of the NHS (Imison and Naylor 2010). GPs are subject to the pressures of their managing bodies as shown in a letter from Sheffield PCT in 2008 asking GPs to review their referral activities due to financial overspend in the order of millions (Oliver 2008) while caring for the emotional needs of their patients and also managing their medical needs appropriately. Balancing the rationing of services can be especially complex when working with patients from deprived areas and the extra cultural challenges this can bring; as described by the results of qualitative studies in Liverpool and South Yorkshire below in 'Patient Response to Coronary Heart Disease and its Symptoms' (Section 4.2g).

Patients have been shown to present to GPs with a complex mix of multiple problems and aims including a desire for understanding. Patients have been shown to present a concern for the relationship with doctor and the doctors willingness, ability and time. Patients alter their behaviours alter according to the feedback they receive from doctors (Cromarty 1996).

Hani investigated how doctors diagnose CHD and unsurprisingly they use the classical textbook criteria and prior knowledge of patient, their previous diagnosis and information gathered from previous consultations (Hani et al 2007).

Gender has been shown to significantly affect primary care doctors decision-making when presented with video vignettes of patients with classic symptoms of CHD. The results showed that midlife women received the fewest questions, examinations, test requests and appropriate medications from the doctor. Race, social class and age had no effect (Arber et al 2006).

Guidelines are thought to possibly increase use of heuristics rather than the optimal technique of 'Shared Decision-making' with patients to decide upon a referral (Dempsey and Bekker 2001).

As described previously, McBride et al (2010) demonstrated inequalities in referral rates for patients living in deprived areas regarding referrals for hip pain and dyspepsia but not post menopausal bleeding, and calls for qualitative research to investigate the reasons for inequalities between practices in affluent and deprived areas.

4.2g) Patient response to Coronary Heart Disease and its symptoms

A qualitative study of the reasons why GPs refer patients with chest pain or not to secondary care found that the GPs background knowledge of the patient, the clinical presentation, gut feeling and perception of the cardiology team were all important factors on whether a patient was referred or not (Bruyninckx et al 2009).

The above study showed the importance of the clinical presentation of the patient in the decision-making process for the GP of whether to refer the patient or not. Previously, three qualitative studies explored the presentation of patients in more depth through communication differences between affluent and deprived communities and its effects on the GP consultation.

A qualitative study in Toxteth, a deprived area of Liverpool, explored the barriers to referral of patients for revascularisation services. Patients were found to be fearful of hospitals and medical tests, leading to concealment of symptoms from GPs. Patients were also found to have low expectations of treatment, little knowledge about new treatments and were found to be accepting of angina symptoms as part of the normal ageing process. Due to the complex problems of patients in this area it was difficult for doctors to diagnose angina and patients showed reluctance to consulting with their

GPs, not wanting to bother the doctor with their problems. Surprisingly, despite English being as a first language for GPs and their patients in Toxteth, communication difficulties were still common (Gardner and Chapple 1999).

Todd et al (2001) used qualitative semi-structured interviews with both individuals and groups of patients in Barnsley and Rotherham in 2001. Like Toxteth these are also areas of deprivation with associated health inequalities. Results showed that patients from these areas underreported and hid their symptoms from GPs resulting in delayed or missed referrals for CHD. Barriers to referrals included personal and cultural reasons alongside, diagnostic confusion and patient knowledge and awareness. Often factors were operating before GPs were involved.

Richards (2003) again used qualitative methods to examine the barriers for deprived patients from accessing treatment for CHD from secondary care. This study compared patients living in affluent and deprived areas of Glasgow; resulting themes showed that patients from more deprived areas tend to normalise their symptoms of chest pain more than affluent patients potentially due to a greater exposure to morbidity, which allowed normalisation of symptoms. Again patients from deprived areas did not want to feel they were burdening or overusing services. Also, patients from deprived areas were shown to experience more self-blame for behaviours such as smoking than those from affluent areas, and therefore did not present to GPs for fear of chastisement. These social and cultural factors were concluded to be important for GPs to be aware of when consulting with patients from deprived backgrounds.

The above three qualitative papers (Gardner and Chapple 1999, Todd et al 2001, Richards et al 2002) along with two quantitative papers (Payne and Saul 1997, Hippisley-Cox and Pringle 2000) have been pivotal in the development of this research. As with all research, these papers exhibit

strengths and limitations and a critique of these key papers is described below.

Payne and Saul (1997) were the first to highlight inequity regarding revascularisation utilisation for people living more deprived areas. This Sheffield study was described by the authors as small scale, however the researchers did sample a large number the population (16,750 residents) in a random, stratified manner and achieved a good response rate of over 70% to the validated 'Rose Questionnaire' to establish the prevalence of angina in the local population. A further strength of the study included the author's consideration and adjustment for possible confounding factors such as smoking. Practical difficulties accessing data about private referrals and individual residents lead to some weakness within the analysis. Three years after Payne and Saul's (1997) paper, Hippisley-Cox and Pringle (2000) published their results of a cross-sectional survey in the neighbouring area of Nottingham. As in the previous study the authors found patients from more deprived areas having lower utilisation rates of cardiac services, and also longer waiting times compared to more affluent patients. Again this study was just of one area of the country so results may not be generalizable. However, the authors took care to include all practices in the region and not exclude or duplicate data. A weakness of this Nottinghamshire study was that a proxy measure of CHD prevalence was used (admission rates) rather than the true incidence or a validated questionnaire as in the previous study.

The qualitative studies, undertaken in the same period, add insight into to the potential causes of the above inequity. Gardner and Chapple's (1999) paper provides an in-depth picture into the barriers to the referral of patients with angina living in a deprived area of Liverpool; this small study could be criticised for the lead author being the participants GP and the subsequent bias this may bring to the analysis. Also, the sampling strategy excluded participants with other chronic conditions, which could have

potentially led to themes especially around multimorbidity, being overlooked. IN 2001 Todd et al published their paper exploring similar issues; the credibility of this paper is established through peer debrief of the analysis and also exploring themes from different sources in various settings. Finally, Richards et al (2002) provided a paper presenting themes arising from affluent and deprived communities in Glasgow and their responses to chest pain; this paper confirms the findings of the previous qualitative researchers through a purposive sampling strategy. All the above qualitative studies describe systematic analysis of the data with a peer reviewer, thus contributing to their dependability. Unfortunately, apart from a brief reference to reflexivity in the introduction of Gardner and Chapple's (1999) paper there are no other considerations of reflexivity in any of the papers.

The greatest limitation to the relevance of all the above key papers is the date from publication, which range from thirteen to sixteen years ago. However, due to their strengths and key findings they were considered to be of particular relevance to this research project and thesis.

4.3 Conclusions from the Literature Review

Research evidence demonstrates that health inequalities exist both at a national and local level for patients with Coronary Heart Disease (CHD). Inequalities have been demonstrated regarding both access to treatments for revascularisation in specialist cardiac services and health outcomes with respect to increased premature deaths and proportionally more emergency rather than elective care, from CHD for patients living in more deprived areas.

Referrals from GPs to secondary care are currently a focus of attention as costs of referrals are increasing with decreasing budgets. The referral process and variation in referrals rates between GPs remains largely unexplained despite extensive research. National and international reviews of the literature by Cochrane and The King's Fund confirm that the referral process and variation in referral rates from GPs is complex, involving many issues and largely unexplained. Researchers suggest further in-depth qualitative research is needed to understand the complexity of inequalities of referral from primary care.

Qualitative research has shown that responses to chest pain are different between people from affluent and deprived areas. Deprived communities have a high prevalence of multimorbidity for patients with chronic and complex conditions. Referral decisions are made by GPs in very brief consultations when a patient presents with undifferentiated symptoms, and the extent to which a problem is dealt with is very dependent on communication. Communication has been shown to be more challenging in areas of deprivation.

There have been calls for more research examining the interaction between doctors and patients in the primary care setting where referral decisions are made. To my knowledge there have been no published papers reporting the influences placed upon GPs when working with

patients from affluent and deprived communities who have or may have, coronary heart disease. There is a gap in literature regarding referral triggers and the factors influencing decision making for GPs working with patients from extreme social positions; therefore this is an original area of research deserving investigation. Research in this area would provide insight into GPs behaviour, to learn more about the process of decision-making regarding referrals and therefore increase understanding of variation between GPs working in affluent and deprived areas. It has been stated that educating about health inequalities should be an integral part of the undergraduate medical curriculum and insights gained from this research could contribute to this and also inform policy makers. Finally patient care could be improved through more sophisticated understanding of variation in the challenges for GPs working with affluent and deprived patients when making referrals to secondary care.

Research Questions

The literature reviewed in the introduction and consideration of the Theoretical Influences presented below led to the formulation of the following 3 research questions.

Phase 1: Qualitative

- 1 What influences General Practitioners cardiology elective referral decisions when working in the least and most deprived areas of Sheffield?

Phase 2: Quantitative

- 2 Do elective outpatient cardiology referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- 3 Do elective all speciality outpatient referrals from Sheffield General Practice demonstrate a relationship with deprivation?

Later in the research process, in response to analysis of qualitative analysis of interview and focus group data, a fourth research question was set.

- 4 Is there an alternative to the current methods of presenting Sheffield referrals data to demonstrate variation in elective cardiology referrals to General Practitioners?

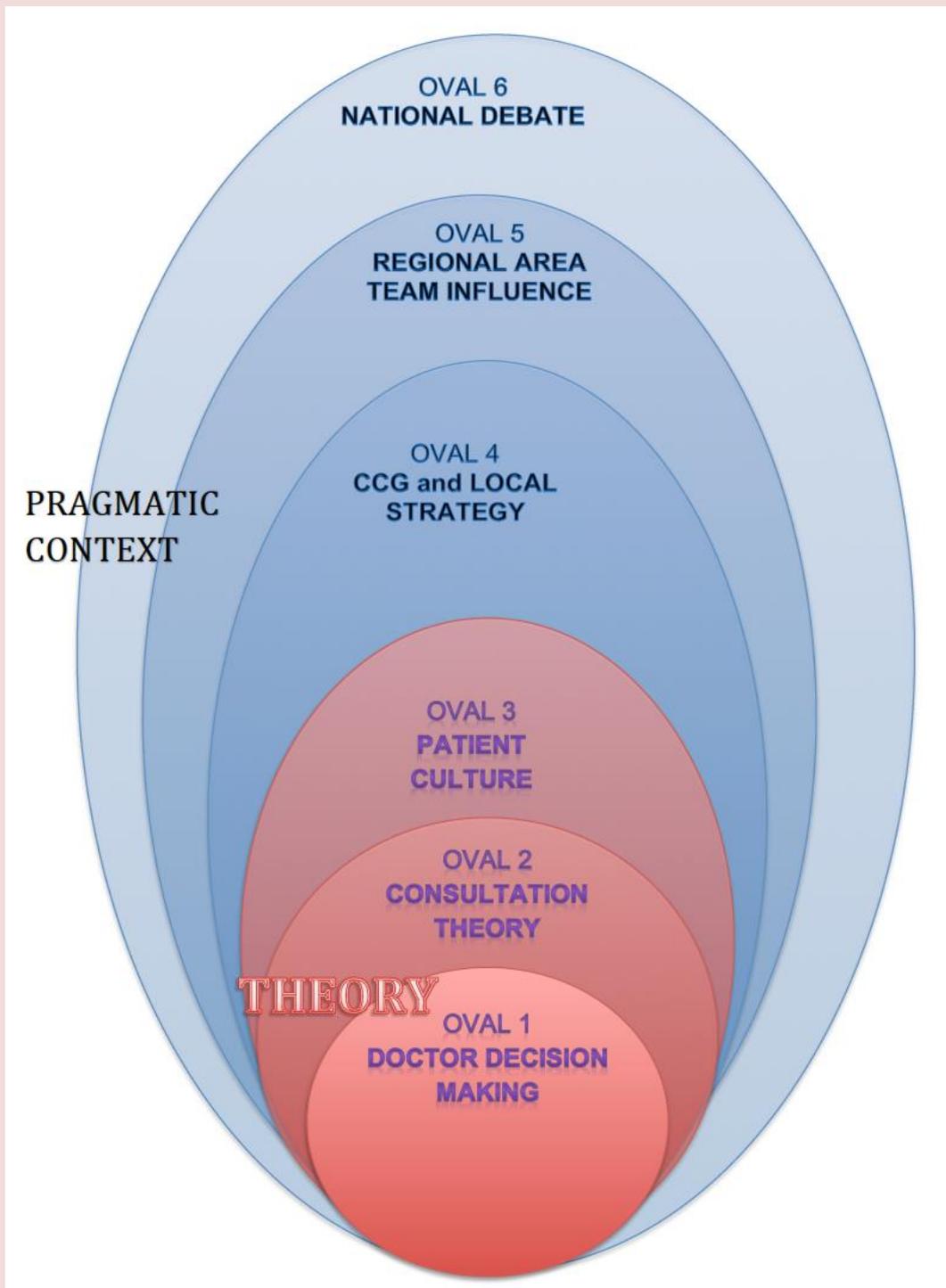
The Concepts and Indicators relating to the above Research Questions can be found in Appendix D and the Aim and Objectives of this project can be found in the following Theoretical Influences Section (pg 112).

4.4 Theoretical Influences

This section aims to summarise the theoretical and contextual influences relevant to this research project. Influences are presented in the form of a theoretical framework: a diagrammatic presentation of the influences that have formed the basis of this research and have contributed to the projects design, recruitment, methods and data analysis.

Constructing the theoretical framework early in the project, and adapting it iteratively throughout the research as the author expanded knowledge of this field, has helped provide structure to the understanding of the theoretical basis of the project and its context. The theoretical framework presented in figure 12 below provides what can be considered as a 'lens' for the research process. This lens, or framework, has been very important in conducting this pragmatic health services research in a time of immense change within primary care and the NHS. The theoretical basis of the research is placed centrally in red, surrounded by the contextual setting of the research in blue.

Figure 12: The Theoretical Framework



Theoretical Influences

The six ovals in the figure above show the theoretical influences relevant to this project. The context of the project is placed in the outer circles in blue. The outer blue circles have been labelled 'Pragmatic Context', as this research, and GP experiences described in the findings, both occur within a wider social and political context. As will be described later in the Methodology Chapter (5) the underpinning methodology of this research project is pragmatism: hence the term 'pragmatic context'. The background context of this project has previously been described in the Introduction, and summarised in the Conclusions from the Literature Review (Section 4.3). Theory about patient culture and consultations are placed more centrally in red, with the theory of doctor decision-making and factors affecting GP referrals being placed at the core.

Oval 1: Doctor decision-making

This research explores the inner world of the GP when making decisions regarding referral of patients with cardiac symptoms to elective cardiology outpatient clinics. Therefore, the theory of doctor decision-making and factors affecting referrals are placed centrally in the theoretical framework. Clinical decision-making is an important issue as, if misguided and incorrect, the consequences for patients can be tragic (Croskerry 2014). Elstein et al (1978) wrote a classic text about the reasoning process doctors go through when making diagnoses in 1978. Making a diagnosis, or a possible diagnosis, is one of the steps a GP makes when deciding whether to refer a patient or not to hospital; the authors emphasized the importance of a systematic and detailed 'work up' of patients when making a diagnosis to ensure its accuracy and safety.

Social scientists have improved the understanding about doctors thinking decision-making in the past two decades. Decisions transform information into actions. It is believed that there are two main systems of human decision-making called the intuitive and analytical systems.

The intuitive system is generally involved in fast, reflex responses based on the brain recognising a pattern. There is no analytic reasoning, the brain purely responds to a pattern it has seen before. Humans, including doctors, work in this mode for the majority of the time as it allows an individual to function quickly and efficiently. There is conflicting evidence regarding whether intuitive decisions result in good decisions for patients (Spring 2008). A Belgian study looking at clinicians gut feelings about sick children, found that intuition that a child was very unwell despite the clinical assessment, substantially increased the risk of serious illness (Van den Bruel et al 2012). The authors of this study recognise that the 'gut feelings' of clinicians are actually based on the history and examination and not a random emotion. Intuitive decision-making has also been labelled "Fuzzy Trace Theory" (Spring 2008) and the advantages of relying on pattern recognition, context and gist of a situation in an emergency setting are clearly seen, when decisions need to be made very quickly and flexibly as new information arises.

The analytical system, otherwise known as 'the expected utility theory' system, requires more thinking effort from an individual and is generally slower and more deliberate. Some experts believe this is a superior process to more 'heuristic' style of intuitive decision-making. It is assuming that the doctor is a "fully informed, entirely rational decision maker who computes with perfect accuracy to make the choice that maximises subjected expected value" (Spring 2008, pg 4). The analytical system fits with using 'evidence-based medicine' (EBM). EBM is defined as practicing medicine with "a set of principles and methods intended to ensure that to the greatest extent possible, medical decisions, guidelines, and other types of policies are based on and consistent with good evidence of effectiveness and benefit" (Eddy 2005, pg 16). Rather than one system being superior to another it is probably more helpful to recognise both systems of intuitive and analytical decision-making as useful in different

scenarios. It is thought that when doctors make decisions it is appropriate to work between these two systems depending on the situation (Croskerry 2014).

Analytic decision-making is not always slow. If symptoms are presented in an organised and logical way this can lead to a fast analytical response from a doctor, as all the important information is readily available to the clinician. This was found to be of relevance when comparing decision-making for GPs working in contrasting areas of affluence and deprivation and is discussed further in relation to the findings of this project in Links with Theoretical Framework, Section 14.4.

It has been already stated that this research is about the inner world of the GP and doctor decision-making. However, it must also be taken into account that ideally a doctor not only considers the doctor's agenda of information gathering about the patient's presenting complaint, but also considers the patient's agenda carefully when consulting (Tate 1994). Therefore, an approach to doctors' decision-making that incorporates patient views, opinions and preferences as part of the process is now considered best practice (Moulton 2007). While undertaking this research I have witnessed a great interest and evidence base growing for a novel alternative to the traditional style of doctor consultation called 'shared decision-making'. There have been many publications on this topic both in the form of national reports, and papers published in international peer reviewed journals. Shared Decision-making can be described as, 'a philosophy' as well as a consultation tool. Central to it is the belief that patients have a vital role in the decision-making process; and that patients' "values and self-determination need to be considered equally alongside scientific knowledge" (de Silva 2012 pg 1). Shared decision-making involves patients and clinicians working as partners to select management plans based on patient preferences, clinician experiences and research evidence" (de Silva 2012, pg IV). In summary, shared decision describes

consultations where patients and clinicians work in partnership to make a plan about patient management where there are multiple equally valid options.

Research has shown that shared decision-making improves patients knowledge about their problem, management options, increases patient involvement, satisfaction, self confidence about self care and communication between clinicians and patients (de Silva 2012). Most GPs in the UK have not yet been formally trained in SDM unless they have had involvement with research. However, many GPs through communication skills training, learn about the more traditional consultation models as summarised overleaf in Table 6. Some of the principles of SDM overlap with the more traditional consultation models. The principles of sharing information with patients and deciding on a course of action, with patients preferences in mind and working in partnership, represent good practice during any consultation (Tate 1994). Therefore, despite the academic and research definitions of shared decision-making stating that there must be multiple options all of equal value for the decision-making to be officially 'SDM'; in the real clinical world many of the principles of SDM are often used when doctors are talking with patients about a single management option, and this is of relevance to this research.

A recent King's Fund Report (2013) described delivering better services for people with long-term conditions and considers personalised care planning in a holistic way in conjunction with shared decision-making. A model called 'The House of Care' is proposed to offer:

“more effective self-management, better co-ordinated care and improved health outcomes for people living with long-term conditions” (Coulter 2013 et al, pg 3).

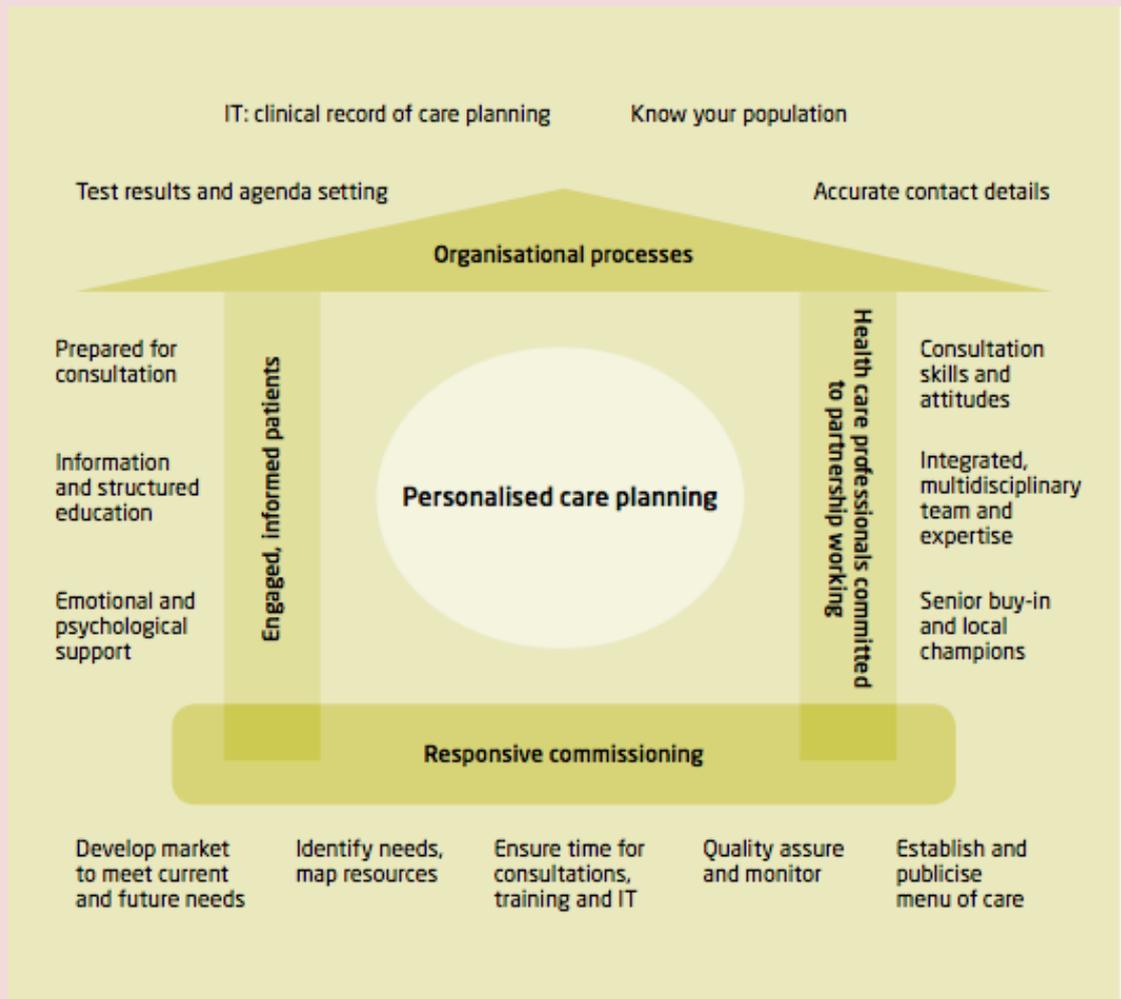


Figure 13: The House of Care

(Taken from Delivering better services for people with long-term conditions. King's Fund Report, Coulter 2013 et al 2013 pg 6).

The left wall of the house represents the patient and is based on evidence that patients who are more knowledgeable, skilled and confident: more 'activated' in self management to improve the patient experience (Greene et al 2013) and decrease costs (Hibbard et al 2013). However, when Kaplan summarised the evidence about patient preference for taking an active, or passive role in decision-making about their care, he concluded that a flexible approach is often needed dependant upon how much involvement patients want in decision-making. Kaplan concluded that doctors need to asses individually how involved a patient wishes to become in their care, with some patients wanting to have a passive role

and let their doctors make the decisions regarding care and others wanting more involvement (Kaplan and Frosch 2005).

Oval 2: Consultation Models

The next oval in the framework is regarding consultation models. These are included near to the core as consulting with patients is the central activity of General Practice. This encounter is crucial to the relationship between a doctor and patient. Doctors require skills and understanding of the consultation to make diagnoses and management plans. Many consultation models have been developed since the inception of the NHS, by various authors; these are summarised in the table below. Consultation models, or concepts from them, are taught widely to undergraduates and postgraduate medics. The models and the skills they describe are useful to improve doctors' understanding of consultations and in turn the aim is improve relationships between doctors and patients and consequently patient care. These models or theories are placed in the second oval as they influence many GPs and communication within the consultation, which will in turn influence decisions about referrals.

Table 6: Summary of Consultation Models

Model/Milestone in Consultation Analysis	Summary
<p>The Doctor, His Patient and the Illness (Book)</p> <p>Michael Balint, 1957</p>	<p>Balint was a psychoanalyst who helped a group of 14 London GPs to explore, through psychoanalysis, their consultations with challenging patients. He ran this project with his wife, also a psychoanalyst, summarising their findings in this book. His work is mainly remembered for the notion that the doctor can be seen as a 'drug', with a powerful influence for good and ill. Among his other conclusions was the concept of human beings, including doctors and patients, exhibiting a 'basic fault'. He explained this 'fault' as being those psychological characteristics, often shaped by childhood experiences, that determine reactions to certain situations, emphasizing that doctors need to recognize and allow for this, and their own emotions, in order to create good relationships with patients. He described the concepts of 'transference': strong feelings in patients towards clinicians, and 'countertransference': feelings experienced by the doctor as a result of a consultation with a patient. These concepts are useful for doctors to be aware of, as recognition of countertransference can be useful to feed back to patients at times to help move consultations forward. Balint also emphasized that clinicians need to be wary of their 'apostolic function' and not allow this to become paternalistic. Rather, he proposed that the relationship between doctor and patient should represent a 'mutual investment company' with a trusting and respectful partnership based on doctors listening attentively to patients. Finally he saw the concept of a 'deeper diagnosis', or as we may now call it a psychosocial history, as being crucial to understanding patients and their 'basic faults'.</p>
<p>Games People Play (Book)</p> <p>Eric Berne, 1964</p>	<p>Berne who was a psychiatrist born in Canada and practised in America. In his book he described the theory of 'Transactional Analysis'. He described all interactions, or transactions as he called them, as taking place in three 'ego states', which included parent, adult or child mode. He described the parent mode when nurturing, caring, controlling and making judgements, the adult mode when analysing and processing information, with an awareness of society, and the child mode is free, creative, spontaneous and trying to please the parent. Berne concluded that the most successful consultations are conducted in the adult-adult ego state. Berne also described feelings in four authentic categories of: sadness, happiness, fear and anger. He recognised that often families are comfortable with three of these emotions, but often have difficulty with a fourth which can lead to patients acting in unusual ways, for example showing anger when fear would seem more appropriate.</p>
<p>Sociobehavioural Determinants of Compliance</p> <p>Marshall H. Becker & Lois A. Maiman, 1975</p>	<p>Becker was a Professor at the Department of Health Behaviour and Health Education and Maiman an Assistant Professor of Paediatrics at the University of Michigan. Their paper, published in 1975 in the journal Medical Care, put forward the idea that patients did not always comply with the treatments doctors suggested due to their 'health beliefs': summarising these as "Ideas, Concerns and Expectations". Patient-held beliefs were thought to be important to explore to gain an understanding of the motivations, perceptions and social influences of patients to explore why patients' may not accept the advice of doctors.</p>
<p>Helping the Client. A Creative Practical Guide (Fifth edition published 2001)</p> <p>John Heron, 1975</p>	<p>Heron was a psychologist who summarised in his book the six types of consultations clinicians/counsellors could have with a patient/client, as:</p> <ol style="list-style-type: none"> 1 Prescriptive: advice giving, directive 2 Informative: giving knowledge, instructing, interpreting 3 Confronting: challenging, giving feedback 4 Cathartic: releasing emotions 5 Catalytic: encouraging patient to explore feelings 6 Supportive: comforting, affirmative for patient
<p>Doctors Talking to Patients (RCGP) London</p> <p>Pat Byrne and B.E.L. Long, 1976</p>	<p>This GP and psychologist audio-recorded 2,500 consultations from UK and New Zealand and concluded after their analysis that six stages to the consultation are identifiable:</p> <ol style="list-style-type: none"> 1. The doctor establishes a relationship with the patient 2. The doctor discovers or attempts to discover the reason for the attendance 3. The doctor conducts a verbal and/or physical examination 4. The doctor, the doctor and patient, or the patient (in that order of probability) consider the condition 5. The doctor and occasionally the patient detail further treatment or investigation 6. The consultation is terminated, usually by the doctor <p>The authors examined dysfunctional consultations in particular and often found stages two and/or four missing in these encounters. They recognised a spectrum of extremes in styles of consultations from being 'patient-centred', with the doctor listening passively, to 'doctor-centred', where the patient is cut off frequently by the doctor.</p>

<p>The Exceptional Potential in Each Primary Care Consultation</p> <p>Nicolas Stott & RH Davies, 1979</p>	<p>In this paper, the authors, who were researchers at The Welsh National School of Medicine, presented four areas to be explored in every GP consultation:</p> <ol style="list-style-type: none"> 1. The identification and management of the presenting problem 2. Modification of the patient's help-seeking behaviour 3. The management of continuing problems 4. Opportunistic health promotion
<p>The Helman Folk Model</p> <p>Cecil Helman, 1981</p>	<p>Helman was a medical anthropologist who suggested that any patient attending a GP is searching for answers to six questions:</p> <ol style="list-style-type: none"> 1. What has happened? 2. Why has it happened? 3. Why to me? 4. Why now? 5. What would happen if nothing were done about it? 6. What should I do about it or who should I consult for further help?
<p>The Consultation: an Approach to Learning and Teaching</p> <p>David Pendleton et al, 1984</p>	<p>Pendleton is a social psychologist who worked with GPs in Oxford. He pioneered the use of video recording for consultation analysis. He identified seven tasks to achieve during a consultation:</p> <ol style="list-style-type: none"> 1. To define the reason for the patient's attendance, including: <ol style="list-style-type: none"> a) the nature and history of the problems b) their aetiology c) the patient's ideas, concerns and expectations d) the effects of the problems 2. To consider other problems: <ol style="list-style-type: none"> a) continuing problems b) at-risk factors 3. With the patient, to choose an appropriate action for each problem. 4. To achieve a shared understanding of the problems with the patient. 5. To involve the patient in management and encourage him/her to accept appropriate responsibility. 6. To use time and resources appropriately <ol style="list-style-type: none"> a) in the consultation b) in the long term 7. To establish or maintain a relationship with the patient which helps to achieve the other tasks.
<p>The Inner Consultation</p> <p>Roger Neighbour, 1987</p>	<p>Roger Neighbour is a GP in Hertfordshire and a GP trainer for the Watford scheme. He wrote the most celebrated book ever written about the consultation, proposing a five-point checklist which he memorably drew in the book on the fingers of the left hand. The checkpoints include:</p> <ol style="list-style-type: none"> 1. Connecting: Rapport. 2. Summarising: The patient's reason for attending, ideas, concerns and expectations. Listening and eliciting. The clinical process. 3. Handing over: Checking the patient agrees with the plan. 4. Safety netting: How to manage uncertainty. Making a plan if there are unexpected events. 5. Housekeeping: Making sure the doctor is ready for the next patient.
<p>The Doctor's Communication Handbook</p> <p>Peter Tate, 1994</p>	<p>Tate worked with Pendleton and further developed his ideas. He was a GP and examiner for Royal College of GPs. He introduced videos into the examination in 1996 and emphasized the importance of the patient's agenda, again focusing on their ideas, concerns and expectations (ICE).</p>
<p>The Calgary Cambridge Observation Guides to the Consultation</p> <p>Jonathan Silverman, Suzanne Kurtz and Juliet Draper, 1996</p>	<p>This method of analysing consultations is now used by many medical schools in the UK. It builds on Pendleton's approach and again divides the consultation into tasks to improve communication. Dr Silverman is Dean and Director of Communication Skills at University of Cambridge, Dr Kurtz is Professor of Communication Skills at University of Calgary and Dr Draper is a Communication Skills Facilitator in the Eastern Deanery, UK.</p> <p>The five tasks of the consultation are summarised as:</p> <ol style="list-style-type: none"> 1. Initiating the session – rapport, reasons for attending, establishing shared agenda. 2. Gathering information – questions, listening, recognising cues both verbal and non-verbal. 3. Building the relationship – developing rapport. 4. Explanation and planning – giving information in manageable chunks. 5. Closing the session – summarising and clarifying the agreed plan.

Summaries made from the following sources (Balint 2000 (first published 1957); Berne 1964; Becker and Maiman 1975; Heron 2001 (first published 1975); Byrne 1976; Stott 1979; Helman 1981; Pendleton et al 1984; Neighbour 1987; Tate 1994; Kutz et al 1998)

Oval 3: Patient Culture

The outer circle of the red theory section of the framework represents patient culture. This has been included in the theory section of the framework due to its importance upon an individual's self-perception of illness, their presentation to a GP, health literacy, doctor decision-making and the subsequent possible effects on GP referrals to be explored by this research project. As described previously in the introduction (Section 4.2f The consultation: communication and decision-making) some researchers have proposed that decision-making regarding referrals is strongly influenced by the social context of patients (Dempsey and Bekker 2002); therefore, the theory exploring patient culture was thought to be important to include in the theoretical framework.

Firstly, the effect of culture on self-perception of illness will be discussed. In a BMJ editorial in 2002 the eminent economist Amartya Sen, discussed how an individual's perception of illness is affected by their educational experiences, literacy and the availability of health facilities. Sen compared examples of affluent and deprived areas of India with the USA to show that the incidence of self-reported morbidity was positively related to life expectancy in these areas. That is, the more affluent the region the higher the life expectancy, but also higher reports of self reported illness, despite people living much longer and leading healthier lives. The dissonance between perceived health issues and actual morbidity is thought to be naturally due to those living with more educational and health facilities having more advantages in being able to perceive their own health problems than those with less advantage (Sen 2002).

When an individual perceives themselves as either having, or potentially having an illness, the following stage is for the individual to decide whether or not they present to a doctor. This in itself can be a complex decision-making process. Zola (1973) proposed that patients do not make a decision to attend the doctor solely on the frequency or the seriousness of

their symptoms. He suggested the idea that many people have symptoms much of the time but that people make decisions about seeking or not seeking help which appear rational when framed in terms of their own value and belief systems. These ideas have been confirmed by subsequent studies. Campbell and Roland's (1996) literature review concluded, "the decision to seek help from a doctor turns on a complex mix of social, psychological, cultural and biomedical factors" (Campbell and Rowland 1996, pg 75).

Once an individual presents to the GP or another aspect of the health care system, a factor which can then affect their journey through the system and health outcomes, is health literacy. Health literacy can be defined as the skills which determine the motivation and ability to access, understand and use information to gain good health (Protheroe et al 2009). Numeracy and basic literacy skills are fundamental requirements for health literacy. The Department of Education and Skills showed that basic literacy levels have been shown to be surprisingly low and prevalent in England: 56%; and even higher levels of poor numeracy skills: 75% (Williams et al 2003). People with low literacy have been shown to be one-and-a-half to three times more likely to have poor health outcomes (Dewalt et al 2004). It must also be considered that some people who have average or even above average literacy and numeracy skills in normal settings may become 'illiterate' in health care settings due to a stressful and potentially alienating environment (Protheroe et al 2009).

In the UK the small amount of research that has been undertaken into health literacy has shown that there is a relationship between lower socio-economic groups, ethnic minorities, older people, people with chronic conditions and disabilities with lower levels of health literacy (Sihota and Lennard 2004). This could be one explanatory factor of current health inequities, as individuals who have less exposure to information about

health and medical matters will also have fewer resources and skills to respond to any information received (Protheroe et al 2009).

The qualitative research previously described in the introduction (Gardner and Chapple 1999; Richards et al 2002; Tod et al 2001) demonstrated how patients from more deprived areas respond and communicate their symptoms of cardiac disease. In summary, the findings of these studies showed that patients from deprived areas were found to be fearful of hospitals, experience difficulties with communication, under-report/normalise cardiac symptoms and experience more self blame and guilt for overburdening health care systems.

Another aspect of patient culture/experience is the concept of the 'locus of control'. Rotter, the eminent psychologist from the USA, originally described the concept of a locus in the 1950s. The locus of control refers to a continuum of a belief system about where the power lies for the control of health. At one extreme are people who believe that they hold all responsibilities for their actions within themselves. This contrasts with the other end of the spectrum who believe that their destiny is controlled externally either by luck or sometimes by 'powerful others', e.g. a doctor or family member (Rotter 1966). Rotter thought that individuals generally assume a similar locus of control in many situations, but this was not fixed and at times people who usually believe in an 'external' locus can at times behave like people with an 'internal' locus.

The concept of the locus of control has been incorporated into a model called the Health Belief System. This was first described by an American psychologist in relation to the question as to why some people took up screening for TB and others did not (Hochbaum 1958). More recently Tate (1994) has described the health belief model in his book about communication in general practice. The health belief theory presents a

series of concepts that an individual considers when deciding to take up an opportunity for health screening/assessment as being:

1. Whether an individual thinks they are susceptible to a particular illness
2. Whether the consequences of the illness could be serious physically or socially
3. Whether the 'treatment' would confer benefit
4. Whether there are barriers where the costs outweigh the benefits, in physical, social or financial terms

Again these concepts were thought to be of relevance to this research when exploring the views of GPs working in contrasting areas with patients of extremes of socio-economic position as the locus of control maybe different for patients living in contrasting areas.

Related to this is the concept of power when considering doctor and patient interactions within this project, as the balance may be different when working with patients from contrasting socio-economic backgrounds. Gabe (2004) defined the interaction between doctors and patients as "the way in which health workers and lay people interact during a medical consultation. Many factors, such as the context of the consultation and communication styles, influence the type of relationship" (pg 96).

Rowlands proposed that the balance of power in current health systems lie with the practitioner due to the mismatch in health literacy between the patient and the practitioner (Rowlands 2012). Nettleton (2006) takes a sociological approach to the doctor/patient relationship and believes that lay/professional relationships reflect wider social inequalities in relation to gender, race and class. The interaction between doctor and patient, she argues, reflects how individuals represent their identities and that power can play a part in the relationship which is also influenced by environmental and personal factors. The concept of power in the

consultation is particularly relevant to this research as it is comparing General Practice in affluent and deprived areas. Patients from lower socio-economic backgrounds, ethnic minorities, the elderly and those with chronic conditions or disabilities are found to have a greater prevalence of lower health literacy (Sihota and Lennard 2004). As a consequence of this, the power balance during a consultation could be very different depending on the socio-economic position and health literacy of the patient. This could in turn affect how patients and doctors communicate and therefore make decisions, as patients with lower health literacy have been shown to:

- Exhibit poorer health status
 - Be at greater risk of hospitalisation and have longer hospital visits
 - Exhibit higher rates of admission to emergency services
 - Be less likely to adhere to prescribed treatments and self-care plans
 - Experience more medication and treatment errors
 - Possess less knowledge of disease management and health-promoting behaviours
 - Demonstrate decreased ability to communicate with healthcare professionals and share in decision-making
 - Be less able to make appropriate health decisions
 - Use preventive services less frequently
 - Incur substantially higher healthcare costs
- (Coulter 2004, pg 24)

Empowerment of both doctors and patients to achieve relationships where both are able to act as adults, rather than the traditional paternalistic approach, is to be encouraged to enable, “autonomy, accountability, fidelity and humanity” (Goodyear-Smith and Buetow 2001)

Ovals 4, 5 and 6: Pragmatic Context

As pragmatism was chosen as the underpinning methodology of this research, the term 'Pragmatic Context' was seen as an appropriate label for the backdrop for this project. The background context of this project in relation to health inequity, coronary heart disease and referrals, has previously been fully described in the Introduction. Conclusions from the Literature Review (Section 4.3) summarise the background evidence as showing local and national inequity for patients with CHD from more deprived backgrounds; GP referrals currently attracting attention due to their budget implications and there being calls for increased understanding of GPs decision-making regarding referrals.

Essentially this is a project contrasting GPs experiences of making referral decisions, focusing on cardiology, between GPs working in most and least deprived areas of Sheffield; the project also investigates the possibility of inequity regarding elective cardiology referral rates in Sheffield. There is a plethora of evidence regarding health inequity for people living in more deprived areas regarding CHD, locally, regionally and nationally.

Variations in referral rates and costs to the NHS have been a focus of attention nationally in recent years. Costs of referrals are increasing with decreasing budgets, and despite extensive research and reviews, variations between GP referral rates remain largely unexplained and complex. This backdrop of local, regional and national context as the topics of GP referrals and health inequity are influencing policy at a local, regional and national level and this is represented in the theoretical framework as the 'Pragmatic Context' of this research.

Consideration of the preceding literature review and the above discussion of the theoretical influences shows this to be a complex area of health services research. This is a project embedded in the reality of the NHS in the early 21st century and as such does not fit a neat trial design. As a pragmatic health services researcher mindful of the above theoretical influences, the following sections will describe the methodology and methods employed to answer the following **research questions** and fulfil the subsequent **aim and objectives**:

Phase 1: Qualitative

- 1 What influences General Practitioners cardiology elective referral decisions when working in the least and most deprived areas of Sheffield?

Phase 2: Quantitative

- 2 Do elective outpatient cardiology referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- 3 Do elective all speciality outpatient referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- 4 Is there an alternative to the current methods of presenting Sheffield referrals data to demonstrate variation in elective cardiology referrals to General Practitioners?

Aim and Objectives

To ensure a thorough investigation of the research question the following aim and objectives were set:

Aim

To explore potential health inequalities between groups of patients from contrasting socio-economic backgrounds, with regard to cardiology referrals from primary to secondary care in Sheffield.

Phase 1: Qualitative

Objective 1

To explore the evidence through literature searching regarding:

- National and regional data about access to cardiac services
- General Practitioners referrals-factors involved, inequalities
- Qualitative Research Methods

Objective 2

Purposively sample practices from differing extremes of economic background and referral rates, and approach to take part in qualitative research.

Objective 3

Through Qualitative data collection, in the form of semi-structured interviews and a focus group with GPs explore:

- The “trigger” moment when a GP decides to make a referral
- The factors leading to a referral
- Feelings surrounding the referral
- Pressures from different sources regarding referrals

Objective 4

To analyse the data collected using Thematic Analysis to search for emerging themes until saturation is reached.

Objective 5

To compare the themes between GPs working in different socio-economic environments.

Phase 2: Quantitative:

Objective 6

Through Quantitative data collection find out local data about cardiology referrals:

- Methods of presenting data regarding referral rates to GPs demonstrating firstly the relationship with deprivation and secondly variation between practices.
- Classify each general practice in Sheffield according to a nationally accepted measure of deprivation
- Obtain data showing observed rates age standardized referrals for each general practice in Sheffield to cardiology services.
- Through collaboration with medical statisticians explore the evidence for a relationship between referral rates and deprivation regarding cardiology and all outpatient referrals in Sheffield
- Through collaboration with medical statisticians explore a new method of presenting variation in GP referral rate

METHODOLOGY AND METHODS

Chapter 5: Methodology

This chapter describes the methodological theory that forms the basis of this research project. Firstly, an overview of the theoretical concepts and definitions regarding methodology and research design are presented (Section 5.1). Secondly, the relationship of these key concepts and their influence upon this pragmatic health services research are described (Section 5.2). Reference is made to the quantitative methods in relation to this projects epistemological stance (Section 5.2), but a full description of the quantitative methods are explained later in Chapter 6 (Methods, Section 6.4).

Section 5.1: Key Methodological Concepts in Qualitative Research

Methodology is a term commonly used by social science researchers to describe the theory underpinning the methods selected to undertake specific research. In the literature, terminology relating to methodology is often inconsistent and at times presented in complex ways (Crotty 1998). The following section presents an overview of methodological theory, as a foundation for the methodology chosen to undertake this project, as presented in the following Section (5.2).

There are eight key methodological concepts frequently referred to when considering qualitative research. These include:

1. Ontology
2. Epistemology
3. Paradigm
4. Theoretical perspective
5. Methodology
6. Methods
7. Axiology
8. Reflexivity

Describing the meaning of these terms is, at times, complex, due to conflicting interpretations found in the literature. Generally, authors agree about the broad definitions of the terms, but there is some variability in the meanings and subdivision of the terms according to each author. This variability by authors is summarised in the table overleaf.

Table 7: Table demonstrating the range of definitions of key qualitative methodological concepts

Author	Ontology	Epistemology	Paradigm	Theoretical Perspective	Methodology	Methods	Axiology/Reflexivity
	The nature of the world & what we know about it	Theory of how knowledge is acquired about the world	A broad worldview within which certain beliefs can influence actions	Philosophical stance informing the methodology	The strategy lying behind the method	The techniques used to gather and analyse data in relation to a research question or hypothesis	The roles of values and reflection in research
Lincoln & Guba (1985)	Positivism & Naturalism	Positivism & Naturalism	Described as being very influential on the research process and having an effect on every aspect of the inquiry. Defines paradigms in terms of eras: pre-positivist, positivist and post-positivist/naturalistic paradigms.	n/a	Naturalistic & Positivism	Quantitative & Qualitative Sampling Inductive data analysis Grounded theory	The researcher is seen as an instrument of research.
Crotty (1998)	Realism & Idealism	Objectivism Constructionism Subjectivism	Not in Crotty's 4-stage schema but discussed in text as an "overarching conceptual construct, a particular way in which scientists make sense of the world" (pg 35)	Positivism & Post-positivism Interpretivism (including pragmatism) Critical Inquiry Feminism Postmodernism	Experimental survey, ethnography phenomenology heuristic action discourse case study grounded theory thematic analysis framework	Sampling measurement statistical analysis interview focus group	n/a
Crookes & Davies (1998)	The nature of reality	The nature of knowledge	Worldview Positivist Naturalistic Critical Theory	n/a	n/a	Research Design: Qualitative Quantitative New Paradigm Research	"Critically thinking through the dynamic interaction between the self and the data occurring during the analysis of qualitative data. During this process, the researcher explores personal feelings and experiences that may influence the study and integrates this understanding into the study" (pg 233)
Richie & Lewis (2003)	Realism & Idealism	Positivism & Interpretivism Induction & Deduction	Positivism & Interpretivism	n/a	n/a	Qualitative, Quantitative and Combination methods	Acknowledgements of own background and beliefs are important to reduce bias.

Author	Ontology	Epistemology	Paradigm	Theoretical Perspective	Methodology	Methods	Axiology/Reflexivity
	The nature of the world and what we know about it	Theory of how knowledge is acquired about the world	A broad worldview within which certain beliefs can influence actions	Philosophical stance informing the methodology	The strategy lying behind the method	The techniques used to gather and analyse data in relation to a research question or hypothesis	The roles of values and reflection in research
Finlay & Gough (2003)	n/a	n/a	n/a	n/a	n/a	n/a	Reflexivity is defined as "thoughtful, self-aware analysis of the intersubjective dynamics between researcher and researched. Reflexivity requires critical self-reflection of the ways in which researchers social background, assumptions, positioning and behaviour impact on the research process" (pg ix)
Morgan (2007)	n/a	n/a	Four ways of describing paradigms: Worldviews Epistemological stances Paradigms as shared beliefs in research field Paradigms as model examples Examples of paradigms: Positivism Naturalistic Metaphysical Pragmatic	n/a	n/a	Qualitative Quantitative Mixed	Values and politics always have an influence on how we act and what we choose to do.
Pope & Mays (2008)	n/a	n/a	n/a	Choice of research methods linked to the researchers theoretical perspective: Ethnography Symbolic interactionism Constructionism Ethnomethodology Phenomenology	n/a	Qualitative methods Quantitative methods	Reflexivity described as "sensitivity to the ways in which the researcher and the research process have shaped the data collected, including prior assumptions and experience." (pg 89)
Creswell (2009)	n/a	n/a	Four philosophical worldviews: Postpositive Social construction Advocacy/participatory Pragmatic	n/a	Calls this Strategy of Inquiry/Research Design Qualitative Quantitative Mixed Methods	Questions Data collection Data analysis Interpretation Write-up Validation	Reflexivity defined as researchers reflect on their "biases, values, and personal background, such as gender, history, culture, and socio-economic status" that may shape their interpretations formed during a study"(pg 177)
Blaikie (2010)	Realism & Idealism	Empiricism Rationalism Falsificationism Neo Realism Conventionalism	Positivism Interpretivism and many variations of these	Inductive, deductive, retroductive and abductive p68	n/a	n/a	Researchers stance: Outside expert Inside learner Conscientizer

The table demonstrates that authors generally show agreement on the subdivisions and meanings of ontology, methodology, methods, axiology and reflexivity. However, the descriptions of epistemology, paradigms and theoretical perspectives are less consistent. One author's epistemology is another's paradigm, or theoretical perspective. Pope and Mays (2008) take a pragmatic approach to methodology in qualitative research and suggest a broad understanding of these terms is helpful, but suggest that the classification of these terms and their importance in relation to research methods used are overstated. This project is a pragmatic health services research project, but it was still considered important to have a structured approach to its methodology and not ignore these complex concepts. Therefore consideration of the literature concerning methodology, the four-stage approach presented by Crotty (1998) as an aid to the design of research was chosen as a structure on which to base the design of this project and structure this chapter.

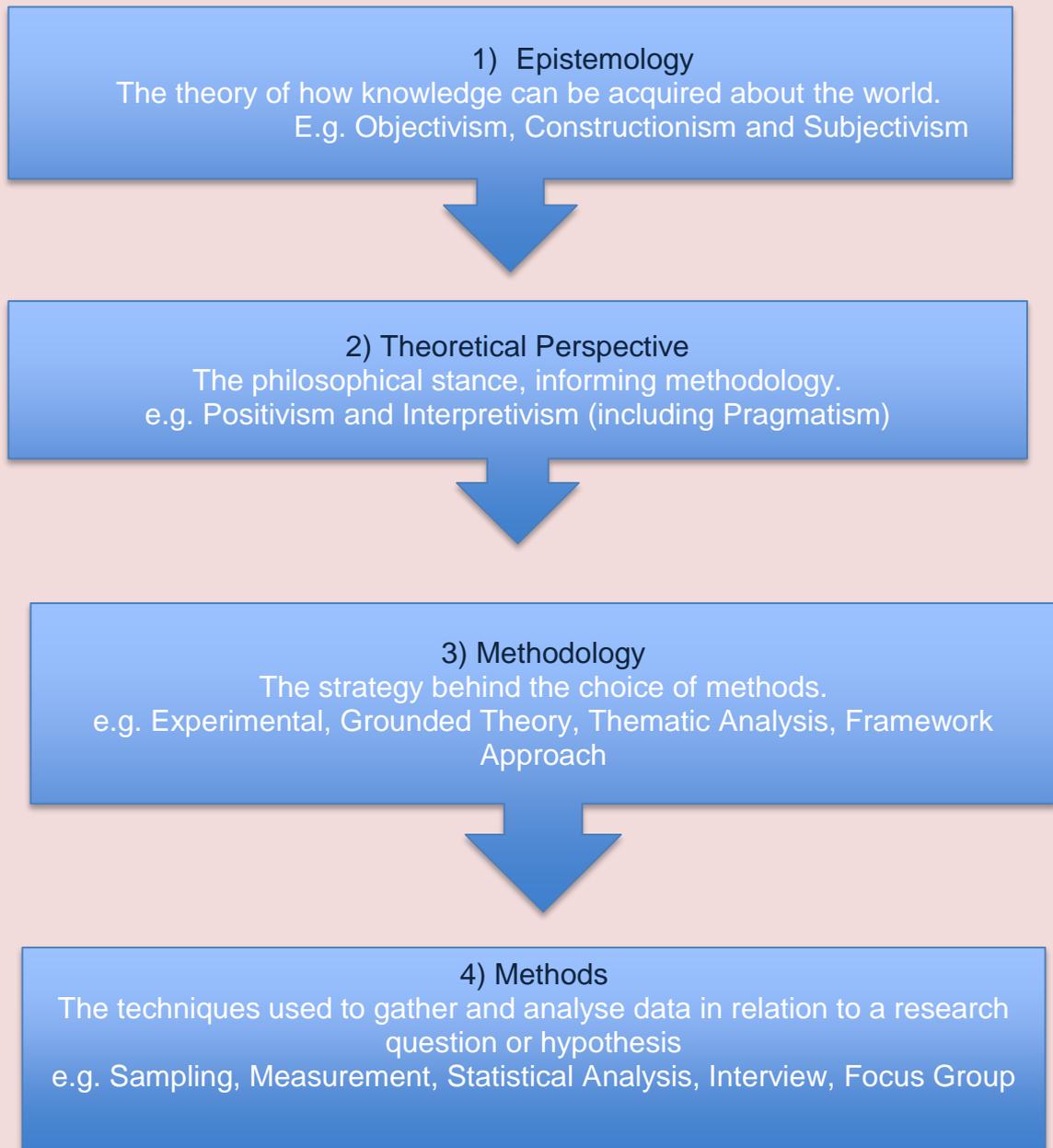
Crotty (1998) presents a four-stage approach to research methodology in his book 'The Foundations of Social Research'. This approach is appealing as it is clear and structured. The four stages include:

1. Epistemology
2. Theoretical perspective
3. Methodology
4. Methods

Crotty's four stages of research design are explained in more detail below, along with related key terms and concepts.

Figure 14: Four-Stage Approach to Research Methodology

(Adapted from Crotty 1998)



Stage 1: Epistemology and Ontology

Firstly Crotty (1998) asks researchers to consider their epistemological stance in relation to their research. A researcher's epistemological stance answers the question '*how is it possible to know about the world?*' (Ritchie 2003, pg 16).

Crotty (1998) subdivides epistemology into the three categories of objectivism, constructionism and subjectivism. However, other authors differ from this definition. Ritchie and Lewis (2003) define epistemological stances as being either positivist or interpretivist, whereas Blaikie (2010) categorises epistemology into the following: empiricism, rationalism, falsificationism, neo-realism, constructionism and conventionalism.

All of these authors present coherent explanations for their presentation of the meaning of epistemology and each interpretation appears logical

Related to epistemology is the term ontology, which is an aspect of philosophy concerned with the study of 'being' (Ritchie 2003); and the nature of what exists (Blaikie 2010). Ontology answers the question '*what is the nature of the world and what do we know about it?*' (Ritchie and Lewis (2003 pg 1). Ontology can be summarised as "*the study of what types or categories of things might reasonably be thought to exist in the world itself as opposed to just our imagined ways of thinking about things*" (Misselbrook 2014 pg 95).

To summarise, epistemology is the theory of how knowledge can be acquired about the world and ontology is defined as beliefs about the world (Ritchie and Lewis 2003).

Crotty (1998) suggests that ontology and epistemology sit alongside each other informing the theoretical perspective of a research project. Authors' explanations of ontology as the study of 'being', in terms of realism and idealism generally concur, unlike the definitions of epistemology. Realism proposes that there is a reality outside of our minds or consciousness. However, idealism proposes that there is no external reality outside of our minds and consciousness. There are several variations and sub-themes relating to these two branches of ontological theory. Ritchie and Lewis present the ontological sub-themes as: realism, materialism, subtle realism/critical realism, idealism, subtle idealism and relativism (see Table 8 below for summary of the meaning of these terms). Some authors merge the terms epistemology, ontology and theoretical perspectives. For example, Lincoln and Guba (1985) strongly associate realism with objectivism.

For clarity, Crotty (1998) does not include ontology in his four-stage approach, as the author argues that to include it would complicate the schema. Crotty reserves the term ontology for occasions when it is necessary to discuss 'being'. The table below, adapted from Ritchie and Lewis's (2003) book, summarises the meanings of philosophical ontological and epistemological standpoints. Other authors describe the positivism and interpretivism as either theoretical perspectives (Crotty 1998) or research paradigms (Blaikie 2009).

Table 8: Summary of ontological and epistemological stances.

Key Ontological and Epistemological Stances	
Ontological Stance <i>The nature of the world and what we know about it</i>	
Realism	Existence of an external reality beyond beliefs and understanding. Closely linked to objectivism: knowledge exists whether we are conscious of it or not.
Materialism	Existence of an external reality beyond beliefs and understanding, but only the material world is considered real and beliefs arise from the material world.
Subtle realism or Critical realism	Existence of an external reality, but it is only knowable through the human mind and socially constructed meanings.
Idealism	No external reality exists independent of our beliefs and understanding and reality is only knowable through the human mind and socially constructed meanings.
Subtle Idealism	Reality is only known through socially constructed meanings and there is a collective mind sharing a single social reality.
Relativism	Reality is only known through socially constructed meanings and there is no single shared social reality, only a series of alternative social constructions. Related to subjectivism: everyone has a different understanding of the world.
Epistemological Stance <i>How is it possible to know about the world?</i> <i>(NB: Positivism and interpretivism are classified as theoretical perspectives by Crotty (1998) or research paradigms by Blaikie (2010))</i>	
Positivism	<ul style="list-style-type: none"> • Methods of the natural sciences e.g. hypothesis testing, causal explanations, modelling • Deductive: find theory to test, then collect the data • Modern empirical approach • World is independent of and unaffected by the researcher, related to realism • Facts and values are distinct, thus making it possible to conduct objective, value free inquiry • Observations are the final arbiter in theoretical disputes • Compatible with objectivism
Interpretivism	<ul style="list-style-type: none"> • Methods of the social researcher concerned with exploring and understanding the social world using both the participants and researchers understanding • Inductive research: usually collecting data then defining the theory e.g. grounded research. Some qualitative methods are more deductive e.g. framework analysis • Postmodern approach: process of knowing and the mind can be part of the process • Researcher and social world impact on each other: more related to idealism • Facts and values are not distinct and findings are inevitably influenced by the researchers perspectives and values, thus making it impossible to conduct objective, value free research, although the researcher can declare and be transparent about assumptions • Compatible with constructionism <p>Interpretivism can be subdivided into Symbolic Interactionism (strongly based on the pragmatist philosophy), phenomenology and hermeneutics</p>

Based on tables in Ritchie and Lewis (2003 pg 16) and Crotty (1998 pg 5)

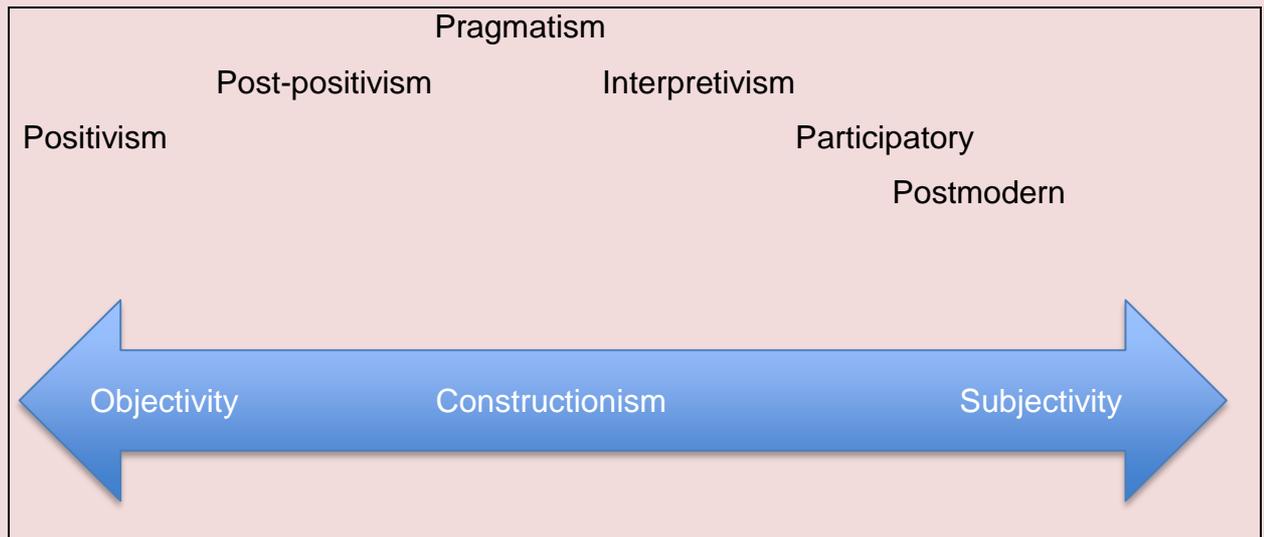
Stage 2: Theoretical Perspectives and Paradigms

The second stage after epistemology in Crotty's (1998) four-stage schema, is labelled the theoretical perspective. Crotty provides a choice of perspectives including: positivism (and post-positivism), interpretivism (which is subdivided in symbolic interactionism and is further described in the text as being influenced by pragmatism (pg 72)), critical inquiry, feminism and postmodernism. The typical clash with other authors' definitions was discovered again in relation to the terms theoretical perspective, epistemology and paradigms. Richie and Lewis (2003) describe positivism and interpretivism as epistemological stances, whereas Blaike (2010) describes these as paradigms! The term paradigm can be controversial, but is used so widely that it merits further explanation in this thesis. Crotty (1998 pg 35) defines a paradigm as "*an overarching conceptual construct, a particular way in which scientists make sense of the world*".

The diagram overleaf is helpful when considering key terms within research methodology. It shows the relationship of subdivisions of theoretical perspectives, paradigms and epistemological concepts in relation to each other. It shows each concept as part of a continuum, with the meanings of terms overlapping and not necessarily absolutely distinct from each other.

Figure 15: Methodological concepts presented as a continuum.

(Adapted from Mohanna 2012)



The figure above demonstrates that objectivity is closely related to positivism and constructionism lies closer to interpretivism. Definitions of the other terms in the diagram above are as follows. The term 'post-positivism' represents the search for causal relationships based on evidence while limiting bias and it assumes that the absolute truth can never be found. Participatory research begins with a stance about the problems in society and focuses on bringing about change in practice. The inquiry is completed 'with others' rather than 'on others'. Post-modern critiques question the notion of objectivity and hence are at the subjective end of the continuum believing that there are "no fixed meanings because meanings are a product of time and place" (Ritchie and Lewis 2003 pg 9). Pragmatism was chosen as the approach for this study and the reasons for this are described in Section 5.2.

Paradigms can also be described in relation to a specific model example of research. This is otherwise known as 'paradigmatic examples'. This is a more common approach as more studies combine qualitative and quantitative methods (Morgan 2007).

Pope and Mays (2008) in their widely cited articles, discuss theoretical perspectives in terms of ethnography, symbolic interactionism, constructionism, ethnomethodology and phenomenology. In doing so, Pope and Mays, combine previous authors definitions of ontology, epistemology, theoretical perspectives and paradigms. These health services researchers seem to take a more pragmatic approach to the debate about classification of these terms and their importance in relation to research methods employed as being overstated. The pragmatic health services research approach for this project is described in Section 5.2 below.

Stage 3: Methodology: Qualitative, Quantitative and Mixed

The third stage of Crotty's (1998) approach to research design moves on to methodology. This is the type of design employed to answer a research question. For example, these could be experimental, survey, ethnography, phenomenology, grounded theory, heuristic, action, discourse, case study, thematic or framework methodology. These methodologies are classified as either quantitative, qualitative or can be mixed. This would be an appropriate point to introduce the concepts surrounding these approaches to research. This section describes these areas of research methods in terms of deduction, induction and abduction and also in relation to some of the key concepts described above.

Traditional positivistic methods have been quantitative and numerically based, often in an experimental design. The process of proposing a null hypothesis and then collecting data to disprove it, is defined as deductive. In contrast, qualitative research is more concerned with naturalistic observations of subjects within their own setting. The aim of qualitative research is to understand social phenomena in natural, rather than experimental settings, and through the views of participants, develop concepts and theory (Pope and Mays 1995). Qualitative research is

described as inductive as data is collected first, followed by analysis and theory generation.

Sometimes qualitative and quantitative methodologies are seen as separate paradigms or epistemologies. The pragmatic approach taken by this researcher allows the utilisation of both quantitative and qualitative methods to answer different research questions appropriately.

Qualitative research generally deals with words and their classification rather than numbers. However, there is still a coherent plan and methodology behind qualitative research but the questions posed are usually exploratory and inductive with the aim of finding out the answer to “*what is X, and how does X vary in different circumstances and why*” rather than “*how big is X or how many X’s are there?*” (Pope and Mays pg 3). Qualitative research is interpretive as it is concerned with

“the meanings people attach to their experiences of the social world and how they make sense of that world. It therefore, tries to interpret social phenomena (interactions, behaviours etc.) in terms of the meanings people bring to them” (Pope and Mays pg 4).

As mentioned above, qualitative research is generally regarded to be inductive, which means that theory is generated from observing the world. Whereas, quantitative work is regarded to be deductive, with hypothesis testing through observations and data analysis. However, some authors, such as Ritchie and Lewis, propose that even in qualitative research, induction and deduction are both used, but at different stages of the research process (Ritchie and Lewis pg 23). Blaikie (2010) describes the use of inductive and deductive methods in qualitative research as an ‘abductive’ research strategy in the form of observation and reflection when considering emerging theories. Morgan also uses the term abduction, but with a slightly different meaning in relation to mixed

methods research. Abduction in this context allows the researcher to move back and forth between the inductive results of qualitative research which inform the deductive goals of a quantitative approach, and vice versa (Morgan 2007).

Qualitative research is sometimes criticised as being a less rigorous form of research compared to quantitative research. However, there are key strategies to employ when designing qualitative research to ensure its trustworthiness or rigour. Lincoln and Guba (1985) provided the foundations for rigour in qualitative research in their text 'Naturalistic Inquiry'. The authors transferred the concepts of reliability and validity used in quantitative research into conceptually equivalent terms in qualitative research. In quantitative research, reliability is the extent to which findings are consistent and validity is the extent to which findings are accurate. The equivalent terms developed by Lincoln and Guba (1985) were: *credibility* (internal validity), *transferability* (generalisability), *dependability* (reliability) and *confirmability* (objectivity). Later a fifth term was added to this list: *authenticity*, which involves demonstrating a range of realities within the research. Authenticity has no parallel term in the positivist world. A summary of the meaning of each of these terms is presented below.

Credibility (equivalent internal validity) is firstly established by an accurate description of the setting and participants of a study. Any conclusions made must relate to the subjects and setting of the research. Lincoln and Guba (1985 pg 301-307) suggest several activities which enhance credibility which include:

- Prolonged engagement with the field
- Persistent observation
- Triangulation

Prolonged engagement involves spending sufficient time in the area to be researched to build up a picture of the culture, testing for misinformation and building trust. Persistent observation allows the researcher to work out what information is salient or important. Finally, triangulation adds credibility to findings by looking at the data from different angles. Denzin (1978) suggests five definitions of triangulation:

- 1) The use of multiple sources, methods, investigators and theories
- 2) Peer debriefing
- 3) Negative case analysis
- 4) Referential adequacy
- 5) Member checks

Transferability (equivalent to generalizability). Qualitative research aims to provide an in-depth picture of a purposive sample of subjects, in a particular situation at a particular moment in time. It is argued that qualitative research does not aim to be generalizable and, therefore, this is not a relevant or achievable goal. However, it is expected that fully accounting for the methods and analysis employed in the research can allow the findings to be interpreted in relation to other settings.

Dependability (equivalent to reliability) is acquired with systematic auditing allowing others to examine the research process. This involves the author embracing reflexivity to appreciate the impact of their views and experiences on the project. Also, acknowledgement of the challenges of undertaking research existing in a changing social world adds to the dependability of a qualitative research project.

Confirmability (relates to objectivity). This is achieved through self-conscious reflection by the researcher at all stages of the research process through the keeping of a research log. Also, researchers should be aware of the Hawthorne effect and the influence of conducting the research on the data obtained.

Authenticity was added in 1994 in response to the debate surrounding the introduction of equivalent terms to those used in positivist research. Authenticity has no quantitative equivalent and has four key criteria of fairness: ontological authenticity, educative authenticity, catalytic authenticity and tactical authenticity (Tobin and Beegley 2004).

The importance of reflexivity upon dependability is highlighted above. This section describes reflexivity and the importance of the researcher as an instrument of research in further detail.

Reflexivity is a *“thoughtful, self-aware analysis of the intersubjective dynamics between researcher and researched”* (Finlay and Gough 2003 ix). The researcher’s background, a priori assumptions and behaviour can impact upon the research process and findings. Qualitative researchers, instead of perceiving this as a problem, convert this into an opportunity to improve the richness of the research through *“immediate, dynamic and continuing self-awareness”* (Finlay and Gough 2003 pg ix). Again there can be confusion amongst researchers as to the meaning of reflexivity and how best to utilise it. Finlay and Gough suggest reflexivity can be utilised

as an introspective tool for using the researcher as a research tool and as having importance throughout the research process, from the development of the research question, extending through the data collection and analysis. Reflexivity can also be used as a social critique to portray issues of power and marginalised groups. The research log, completed before during and after data collection, is a way of capturing the researcher's assumptions, ideas and feelings.

Wilkinson in 1988 subdivided reflexivity into: personal, functional and disciplinary (Wilkinson 1988). Personal reflexivity involves researchers revealing their individuality, which highlights their motivations, interests and attitudes and the impact on each stage of the research. Functional reflexivity explores the relationship of the role of the researcher on the findings and any potential power imbalance during the data collection. Disciplinary reflexivity involves placing the research within current debates on the field of inquiry. It is under these three headings of personal, functional and disciplinary that this researcher's reflexivity is described in relation to this project in Section 5.2.

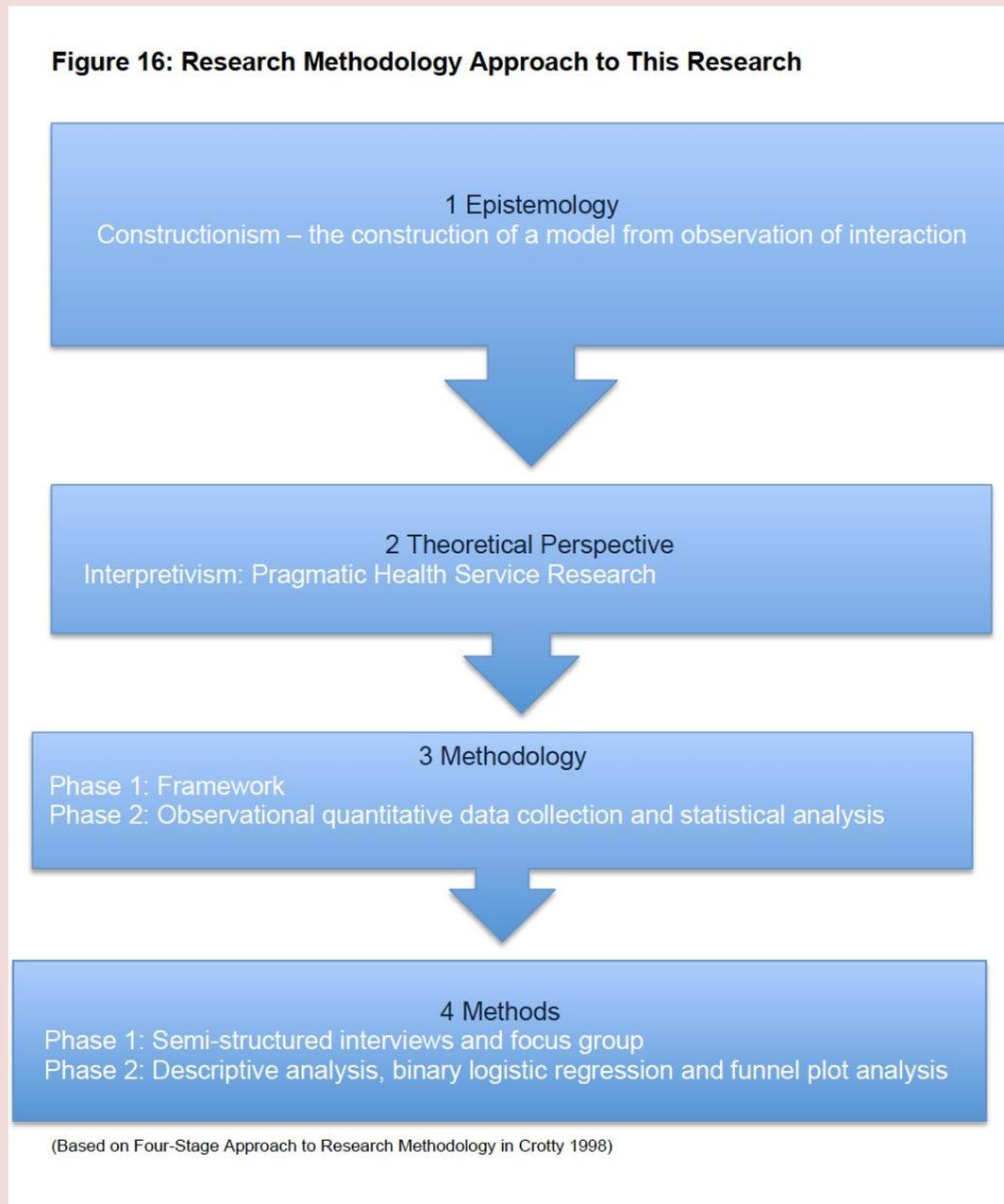
Axiology is related to reflexivity, as it is the role of the researcher's values in a research inquiry. A researcher's values will probably be revealed in their introspective research log. Positivist research is 'free' of values due to the objective nature of its methodology. Naturalistic inquiries, however, are more associated with the values of the researcher (Lincoln and Guba 1985); the authors suggest that research is bound to the values of the researcher through the choice of problem, choice of paradigm that guides the investigation, choice of research methods and how the values of the researcher influence the contextualisation of the research.

Stage 4: Methods

The final section of Crotty's four-stage schema, are the actual methods of the research. This includes details about sampling along with how the research is conducted. For example, qualitative methods can include interviews, focus group, narrative, observation, survey, measurements, statistical analysis etc. The methods used in this project will be described in Section 5.2.

Section 5.2: Design and Methodology of this research project

This section relates how the key terms described in Section 5.1 relate to this pragmatic health services research project. A summary of this project using Crotty's (1998) four-stage structure for research design, is presented in the figure below.



As explained previously (Section 5.1) Crotty (1998) does not include the terms paradigm and ontology in his four-stage structure. The term theoretical perspective, in the second stage of the figure, is the closest fit to the term paradigm in this schema. Creswell (2009) argues that as a pragmatist, commitment to any one system of philosophy is not necessary or that pragmatism is a paradigm itself. Therefore, pragmatism, which is strongly related to interpretivism, is the overarching worldview of this project. Morgan suggests (2007) that definitions or views of what constitutes a paradigm need not be exclusive of each other, or some considered correct and others wrong. Morgan (2007) also proposes use of the most appropriate paradigm for any given question. This pragmatic approach has been embraced by this researcher, for this project and will be explained further in the remainder of this chapter.

Creswell (2007) proposes that a pragmatic approach need not dwell on the laws of nature and reality. However, after consideration of ontological perspectives, if forced to state a stance, the approach of subtle realism would fit well with this research. Subtle realism proposes that there is an existence of an external reality, but it is only knowable through the human mind and socially constructed meanings (Ritchie and Lewis 2003). Pope and Mays (1985 pg 86) describe subtle realism in terms of an underlying reality existing, but that *“the role of quantitative and qualitative research is thus to attempt to represent that reality rather than to imagine that ‘the truth’ can be attained”*. This presents an appropriate ontological stance for this research project.

Stage 1: Epistemology: Constructionism

Constructionism is the conceptualising and interpreting of actions and experiences to make sense of the world (Crotty 1998). The terms constructionism and constructivism are tightly linked. Constructionism is a term generally used by sociologists, and constructivism by psychologists. The difference being that constructionism is concerned with the world around us being socially constructed, rather than constructivism which relates to the psychological cognitive processes at an individual level or how we perceive the world as individuals.

Constructionism fitted with the epistemological stance of this research project as it embraces the importance of social interactions and their meanings in the discovery of new knowledge. As the dominant content of this research is the qualitative first phase, constructionism fitted with the aims of the project to explore the differences between doctors' and patients' interactions in relation to referrals, when working in affluent and deprived areas. Constructionism recognises the importance of reflexivity and the a priori assumptions of the researcher and this was the most appropriate epistemology rather than pure objectivity or subjectivity. This research does not fit with the natural sciences and their associated perspective of objectivity nor is it a subjective discourse, and, therefore, constructionism is the natural stance for qualitative aspects of this work. Regarding the quantitative aspects of this work, the epistemological stance leans more towards the objective, positivist end of the continuum shown in figure 15 (Mohanna 2012) as it involved collecting numbers of referrals and then performing a statistical analysis of the data. However, the epistemological stance of constructionism and the theoretical perspective of pragmatism are not given up for objectivity and positivism as even the descriptive statistics and the more sophisticated analysis of the subsequent binary logistic regression and funnel plots can be seen an interpretation of reality rather than absolute truth.

Stage 2: Theoretical Perspective

The theoretical perspective of this research project is **pragmatism**: which is concerned with finding workable solutions to problems rather than focusing on questions about reality and laws of nature. Pragmatic researchers use all available approaches to increase understanding of the problem. Creswell presents a summary of pragmatism as a philosophical basis for research as shown below.

A SUMMARY OF PRAGMATISM
Pragmatism is not committed to any one system of philosophy and reality. Researchers draw liberally from qualitative and quantitative assumptions when they engage in their research.
Researchers are free to choose the methods, techniques and procedures of research that best meet their needs and purposes.
Pragmatists do not see the world in absolute unity and look to many approaches for collecting and analysing data.
Truth is what works at the time and use qualitative and quantitative methods to provide the best understanding of the research problem.
Pragmatist researchers look at the what, and the how to research.
Pragmatists agree that research always occurs within social, historical and political contexts.
Pragmatists believe in an external world independent of the mind as well as that lodged in the mind. They believe we need to stop asking questions about reality and the laws of nature and proceed with learning and exploring.
Pragmatism opens the door for multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis.

Table 9: A Summary of Pragmatism (Adapted from Creswell 2009, pg 10).

The pragmatic approach, drawing on appropriate aspects of concepts described above, was adopted for the purposes of this research project.

Ritchie and Lewis (2003) state:

“purism about the epistemological origins of a particular approach may undermine our ability to choose and implement the most appropriate research design for answering research questions posed”. (pg 17)

With this in mind, the idea of a ‘research toolkit’ was embraced. This is where quantitative and qualitative techniques can be chosen as needed, and has been employed for this project. Creswell (2009) also proposes that in reality the paradigm held by a researcher can include both qualitative and quantitative approaches and that these paradigms need not battle for superiority as each has its place for answering different research questions (Morgan 2007). The strengths of qualitative and quantitative research can be embraced appropriately as each is chosen for answering carefully considered research questions and need not be exclusive of one another.

Stage 3: Methodology

Two phase project:

Phase 1:

Qualitative (Framework Methodology)

Phase 2:

Quantitative (Observational quantitative data collection and statistical analysis)

This is a pragmatic health services research project, which uses both qualitative and quantitative methodologies. The reasons the project is classified as a two-phase project rather than a ‘mixed methods’ study will now be explained.

Most commonly, mixed methods research will “use qualitative and quantitative methods to examine different aspects of an overall research question” and the data from both sources is ‘triangulated’ at the interpretation phase of the analysis, i.e. the researchers look for corroboration between the findings of the two studies to gain a more informed result (O’Cathain et al 2010 pg 1147). Less commonly mixed methods studies use a technique called ‘following a thread’. Where key themes are identified in the results of either the quantitative or qualitative work and then they are explored in the other data set. A third technique of mixed methods is called ‘mixed methods matrix’, this is where the data from the qualitative and quantitative research is integrated at the analysis stage of the study. None of these three techniques of mixed methods research has been employed in this research, and so it is classified as a two-phase project, despite one of the quantitative research questions arising from the qualitative focus group session.

Phase 1 Qualitative: Framework Methodology

A framework approach was adopted to the analysis of the qualitative data for this project. The framework approach was first devised by Ritchie and Spencer (1994), as a systematic and structured approach to qualitative research, which is especially useful for policy development. The term ‘framework’ has been shortened from ‘thematic framework’ and the identification of themes in the data is its central feature. The framework approach allows the objectives to be set in advance and recognises a priori set of assumptions and reasoning. In this sense, it can be said to be ‘deductive’ at the start of the research using clear aims and objectives. However, at the analysis stage it is very much based on the data collected from participants, is considered to be grounded in the data, and ‘inductive’ (Pope and Mays 2008 pg 720). A framework approach was the most appropriate methodology, for this pragmatic health services research as it remains grounded in the data and inductive, but also allows for a more

structured approach which is more time efficient and practical for a piece of single-handed research (Pope and Mays 2008).

There are two other main types of qualitative analysis: thematic analysis and grounded theory. Elements of all three methods overlap, such as detailed examination of the data, recognition of emergent themes and continuing data collection until saturation of themes is found. The analysis in framework is essentially a thematic analysis. However, framework differs from the others in that the topic guide and analysis are usually more structured and explicit and strongly informed by a priori reasoning. Grounded theory is described as being more iterative as the researchers deliberately select participants based on themes emerging from previous interviews (Pope and Mays 2008). This requires a very flexible approach without need for clear set of objectives or direction at the beginning of the project. This was not considered appropriate for this pragmatic health services research, as this vagueness at the outset of grounded theory research could have been inhibiting when applying for ethical permission and funding, and so the more structured approach of framework was chosen.

There are seven features of the framework approach considered to be of benefit to the research process (Ritchie and Lewis 1994) and the author was mindful of these throughout the project:

1. *Generative*: grounded in the original data set (interview transcripts)
2. *Dynamic*: a flexible approach to analysis that is open to change and amendment
3. *Systematic*: allows for methodical treatment of data
4. *Comprehensive*: allows for full review of data
5. *Enables easy retrieval*: allows for ease of access to original data
6. *Between and within case analysis*: enables comparisons between and within cases
7. *Accessibility*: provides a transparent approach easily viewed and judged by others

When analysing data using the framework approach, there are five distinct phases (Ritchie and Lewis 1994):

1. *Familiarisation*: this is where the analyst gains a broad overview of the range and diversity of the data and becomes immersed in it. This is achieved by careful listening back to the interview data, transcribing and reading the transcripts.
2. *Identifying a thematic framework*: key themes and concepts are noted during the familiarization phase. Priori issues identified before the data collection as well as emergent themes and concepts are recorded. This is a highly iterative process using constant comparison of the data to refine the themes and connections between them. Finally an index of all the themes is produced.
3. *Indexing*: the transcripts are relooked at with the index and can be charted numerically or by words or phrases.
4. *Charting*: The themes can then be charted using software systems e.g. Excel or NVivo. All the data can then be viewed in an organized manner either theme by theme or by sections of the transcripts.
5. *Mapping and interpretation*: Finally the researcher compares data and seeks explanations or develops typologies. This is influenced by the original objectives of the research.

Ritchie and Lewis (2004 pg 220) highlight that although using the framework approach is structured and systematic, the quality of outcomes rely upon the analyst's conceptual ability to be creative and determine the importance of themes and connections in the data.

More details about the framework approach and the quantitative methods employed for **Phase 2** of this project are included in the methods and results sections (Chapters 6 and 7).

As discussed in Section 5.1, reflexivity is an important concept in qualitative research methodology. This section outlines this author's reflexive approach to this research using the categories described by Wilkinson (1988): personal, functional and disciplinary. The following is a distillation of the reflexive research log kept during this research project.

Personal Reflexivity

This account of my personal reflexivity reveals my motivations, attitudes and interests, which have been important in the development of this project.

When considering the motivations for undertaking this project, the reasons I uncovered within myself were varied and related to different periods in my life. The first primary school I attended in the mid-seventies was located on the 'Woodchurch Estate', near Birkenhead on The Wirral. The estate was an area of high unemployment and went on to become notorious for its drug and social problems in the 1980s. However, my memories of school on the estate were really happy, with caring teachers and fun friends of both sexes. When I was eight years old, I was moved to a private 'girls only' convent preparatory school with children from very privileged backgrounds. The contrast was huge in both the attitudes of children and teachers. I remember being faced with comments from unpleasant children who called me 'common'. We were placed on tables in order of performance from our spelling and mental arithmetic tests and I was always on the bottom table. I was also always last in running and sports events at the new school. So I remember being very surprised when I visited my 'old' mates on the estate a few months later that I could run faster than any of them and even outrun some on their bikes.

Sadly my mother died when I was nine years old, so I have never been able to discuss with her the motives for sending me to such contrasting schools. She was a teacher at my first school on the deprived housing

estate, and I speculate she knew that, despite the problems with the area, the teachers were exceptional. The high school on the Woodchurch Estate, which the primary school fed into, has consistently performed well over the years, despite huge challenges. My mother had chosen to work in the most deprived area on the Wirral and I don't know if it was pure practicality wanting to take me to the school where she worked, or if she did have the foresight to envisage the importance of these early childhood experiences would have on my future views on inequalities and the rights of vulnerable communities. I assume she knew she was ill when she decided with my father to move me to one of the 'best' schools in the area in an attempt to help me get through the eleven plus exam to gain access to the convent secondary school.

Margaret Thatcher came to power in 1979, the year I moved schools. My father was a river pilot on the River Mersey. The impact of conservative policy and the previous decline of shipbuilding and business for port in Liverpool were huge. Many of the river pilots' jobs were threatened and so my father took early retirement. I remember listening to my father speaking bitterly about government policy at this time. The emotional and financial strains on him at this time must have been huge, and on reflection must have impacted upon my own political views and opinions about equality and fairness.

I think the contrasts I witnessed in my early life laid the foundations for my current interest and passion to investigate health inequity. I believe that early childhood experience of hospitals and witnessing my mother's illness and death, fuelled my desire to follow a career in medicine. Also an interest in the consultation and communication skills were sparked, as these were woefully inadequate in my own family's experience.

The dangers of not listening to patients were highlighted for me when I was given my notes to hold in a very forward-thinking GP practice as an

adult while waiting my slot with the GP. Glancing through my records I noticed an entry from a GP when I must have been about seven years old that said “mother presenting through child, cough”. It was around this time that my mother must have started having symptoms of lung cancer, which was missed by our local GPs for many months.

These experiences have impacted hugely on my own consultations and the importance I have placed on communicating with patients, especially careful listening. This project is looking at the inner world of GPs and their decision-making regarding referrals. While actually witnessing consultations was not practical as part of this project, communication between patient and doctor is obviously very important aspect influencing doctor decision-making.

Professional experiences have also had an impact on the choice of topic for this research. As GP trainees we were strongly encouraged to choose training practices with contrasting features. My first practice was situated on the Manor Estate in Sheffield, which was not dissimilar to the estate where I first went to primary school. I immediately felt at home. The team were clinically astute, but also nurturing and cared for their staff and patients in a truly compassionate way. Again I witnessed excellence in a challenging environment. However, I found the poverty and its effects on people’s lives through multiple generations really emotionally challenging. I struggled to function at the fast pace general practice requires, alongside consulting with patients so many issues and problems, both medical and psychosocial. I continue to have warm friendships with those inspirational mentors whom I was lucky enough to work with in the most deprived area of Sheffield. Their views politically, and their actions of working so hard with such a vulnerable community, have fuelled my desire to research and highlight the challenges they face every day with patients with such complex and important needs. I have also been influenced by the GPs I have worked with in very affluent areas. They too have supported me

through the challenges of working with patients to achieve successful consultations, often with very highly educated patients, some of whom I had worked with in local hospitals while undertaking Vocational Training.

For my second training practice I moved to Crosspool, which is one of the most affluent areas of Sheffield. Emotionally the work seemed easier initially, with far fewer child protection issues and none of the 'grinding' poverty I witnessed on the Manor Estate. In this practice, however, I struggled with the demands of patients getting what I felt was more of a 'private' service compared to more vulnerable patients in my first practice. I felt angry at times that due to patients' educated and articulate presentations, patients gained more of my and, therefore, the NHS's time and resources. I felt guilty that I should have been able to give this time to less advantaged patients whom I knew experienced many more problems, both physically and emotionally. My feelings were encapsulated, by Iona Heath (2014) in her recent, eloquent essay: "Over diagnosis of the well and under treatment of the sick are the conjoined twins of modern medicine" (pg 20). I reflected on the numbers of patients I diagnosed with cancer in the two practices: one cancer a month on the Manor Estate, with one cancer in total during my whole six-month placement in Crosspool. I remember being particularly challenged by a maths teacher asking me to work out his risk reduction of a cardiovascular event if he took aspirin with his diagnosis of paroxysmal atrial fibrillation. I remember feeling challenged that obviously this patient deserved this attention, but balancing this time and energy given to this one patient's desire for knowledge against the time given to patients with much greater morbidity in deprived areas was troubling for me. A brief working spell in Australia also highlighted the inequity of care when patients are exposed to a 'two-tier' system. The emergency department I worked in was about an hour north of Sydney and we saw patients whose care was either funded by the national 'Medicare' system or by private insurers. The patients insured privately with acute coronary syndrome were transferred immediately to a

centre for revascularisation procedures, whereas non-privately insured patients awaited treatment for up to two weeks on our medical wards. While appreciative of inequities in the NHS system, this blatant inequity to access of care consolidated my desire to ensure a more equitable future for vulnerable patients.

After qualifying as a GP I naturally was asked to work in the areas I had trained in as a locum, and also neighbouring practices. Sometimes I would work in the least and most deprived areas of Sheffield in the same day. I became uneasy: I felt that I was making more referrals in the affluent areas compared with the deprived. I was keen to discover if this was a 'true' finding or just my gut feeling.

Around this time, 2006 onwards, there was an increasing interest in GP referrals, both locally and politically. Referrals are a huge financial burden to the NHS so understandably many stakeholders are interested. I received several emails, letters (Oliver 2008) and attended a meeting with managers from the then PCT asking 'us', the GP collective, to reduce our referrals. I felt confused; I wanted to do the right thing for the NHS, but couldn't see how just being told to reduce my referrals could change my clinical behaviour in a safe way both for patients and myself. Also the statistics being presented to me from the PCT about referrals were complex and difficult to interpret for an individual GP or practice. This was partly the fuel, along with GPs' comments in the focus group and interviews, for the quantitative aspects of the project.

Other GPs also stimulated my thoughts about researching GP referrals. When undertaking a maternity locum in one the most affluent areas of Sheffield I recall a discussion over coffee with one of the GPs stating she felt the patients in her practice area deserved more referrals, even if they were the 'worried well', as they paid huge taxes. In contrast, I remember chatting to a GP in the most deprived area of Sheffield, and her

commenting that she worries we weren't referring enough patients, especially to cardiology based on the work done by a Sheffield team of researchers that showed the inverse care law was still operating with regard to revascularisation procedures (Payne and Saul 1997). I also was party to many conversations with GPs, both at work and socially, discussing the referrals and issues surrounding them. I was struck by how many GPs felt interested (in my experience doctors tend to be fascinated by their rankings in any scenario) in their referrals data, but that how this could also induce feelings of guilt and at times anger regarding the figures. Also, I recognised the challenges relating this information to individual patients in everyday consultations.

Through working in varied areas and types of practice, I realised also that my stereotypes of patients and colleagues working in different areas were often challenged. There were no set personality types for doctors working or patients presenting in affluent and deprived areas. I was surprised at times to meet patients from very deprived areas of Sheffield who requested referral to the hospital for scans or x-rays. However, this seemed to be due to cultural influences in patients who had migrated to the UK from countries with different health care systems, with little primary care. There was one incident when working in the practice on the Manor when a mother was demanding a referral for her pubescent daughter to a breast clinic as she was developing an asymmetrical breast bud. However, I did notice the challenges were generally different depending on the postcode of the practice I was working in. The challenges in affluent areas included more detailed questioning of my own medical knowledge compared with the challenges of multimorbidity, social problems, acute illness and increased prevalence and incidence of disease in deprived areas.

The combination of early childhood experiences, childhood exposure to strong views of politics and how to interact with people, and my

professional experiences on inequity in provision of health services have fuelled the topic choice and design of this research project.

Functional Reflexivity

Functional reflexivity involves my role as a researcher and the impact this may have on the research process. This is an acknowledgement that being female, early forties, a practising GP and my personal attributes could all have influenced the relationship with participants and, therefore, the data gained for this project.

If the epistemological stance of research is objective, then the researcher is detached and the data is collected in a standardised, controlled way. However, for qualitative research, the researcher is very much part of the research process. Qualitative supporters suggest that the interactive and flexible relationship between participant and researcher lead to valuable and meaningful data (Carr 1994). However, there can be pitfalls when collecting data from participants and these were borne in mind when undertaking the interviews and focus group. Patton described one of the pitfalls is not taking control of the interview. As a solution to this he provides three strategies for maintaining control: knowing the purpose of the interview, asking the right questions to get the information needed, and giving appropriate verbal and non-verbal feedback (Patton 1987). Qualitative techniques require considerable skill on the part of the researcher. Fortuitously, many of the skills required are similar to those needed when consulting with patients such as being able to establish rapport with people from all walks of life, being skilled in picking up cues, awareness of open and closed questions. However, I did not assume I inherently had the skills needed for this very different role and undertook training in collective qualitative data and throughout the process reflected on my skills and improving them.

The communication skills acquired through medical and GP training allowed me to facilitate the interviews and focus group smoothly while managing to maintain the distinction of this being a research interview. I received expert training at NatCen in London and this was very useful when undertaking the interviews. Also I monitored my interviewing skills using Whytes (1982) six-point directiveness scale for analysing interviewing technique:

1. Making encouraging noises
2. Reflecting on remarks made by the informant
3. Probing on the last remark made by the informant
4. Probing an idea preceding the last remark by the informant
5. Probing an idea expressed earlier in the interview
6. Introducing a new topic

(1=least directive, 6=most directive)

One-to-one interviews were carried out with 11 GPs in their consulting rooms and one interview took place in the GP's home. The focus group took place in a University of Sheffield building familiar to many GPs in the city due to it being on the site of one of the major teaching hospitals. Participants had responded to the recruitment process and consent was gained to interview them. When meeting participants I facilitated a comfortable environment for participants and established rapport, through introducing myself, and the research in calm and professional manner. I took into account Ritchie and Lewis's attributes of a qualitative researcher (Ritchie and Lewis 2003 pg 142). Many of the skills were congruent with the communication skills training and reflection I undertook during my clinical practice. I made sure I was well prepared for each interview and that my mind was 'tranquil' and ready to listen actively to what participants said, and approached their responses in a clear and logical way. I made sure that after the interview I gave myself time to write field notes and reflect on the process.

The interviews focused on the GPs triggers for cardiology referrals and I employed skills of listening, acceptance, reflection and summarising. I could not conceal that I was a GP as I had lived and worked in Sheffield for many years and would be known to many practices, so this was made explicit in the paperwork. Hopefully this had a positive impact on the data collection as this peer relationship, I believed, made participants more comfortable and they felt able to reveal more than if I was a purely academic researcher.

Power imbalance between researcher and participant can be an issue when undertaking qualitative research. However, in this research, as the researcher and a newly-qualified GP interviewing often much more experienced doctors, I felt fairly intimidated prior to the interviews. I didn't specifically ask participants how they felt about the process, but remember in several interviews that participants appeared to look to me as an expert in cardiology. In a 2002 paper by Professor Carolyn Chew-Graham in Manchester it was found that when clinicians undertake qualitative interviews with other GPs that the "interviews were broader in scope and provided richer and more personal accounts of attitudes and behaviour in clinical practice" (Chew-Graham et al 2002).

Disciplinary reflexivity

Disciplinary reflexivity places the research project within the broader debates on the subject of the research. As discussed in Chapter 5, the 'Theoretical Influences' section of this thesis (4.6) show that variations in GP referral rates and referral costs to the NHS have been a focus of attention in recent years. The variations in GP referral rates remain largely unexplained and are complex. Alongside this there has been a plethora of evidence regarding health inequity both locally and nationally. The discussion surrounding the effects of poverty on behaviour, especially self-esteem and status, are particularly relevant to this research and this could

contribute to how patients respond to symptoms, and also potentially how doctors respond to patients when they do present.

This is a project embedded in the reality of an ever-changing NHS in the early 21st century. This reflexive account describes my personal experiences of the contrasts of wealth in society, and the disadvantage that can bring to those in poverty, being a recipient of health care and doctor decision-making and professional reflections from working in contrasting areas. Along with the theoretical influences of this project, this reflexivity describes the choice of research topic and also research design. Many of the really relevant questions regarding health care do not fit neatly with positivist randomised controlled design. The NHS can be chaotic and messy, this research is an attempt to make sense of a small aspect of the chaos and shed light on aspects that may be leading to variability and potentially inequity.

This account of my reflexivity is a transparent documentation of my thoughts on personal, functional and disciplinary reflexivity in relation to this research. Reflexivity is revisited at the end of this thesis (Section 14.8).

Stage 4 Methods

Phase 1: Semi-structured interviews and focus group

Phase 2: Descriptive data analysis, binary logistic regression and production of a funnel plot

This research project used predominantly qualitative research methods. Quantitative methods were used additionally to add depth of understanding to the topic of GP referrals in Sheffield. The qualitative methods used in Phase 1 were semi-structured interviews and a focus group. In Phase 2 the quantitative methods used were descriptive data analysis, logistic regression and production of a funnel plot. A detailed description of the quantitative methods and how the research was conducted can be found in the next chapter (Chapter 6 Methods). This section provides background theoretical information about the qualitative methods of interviews and focus groups, and why these methods were selected over other qualitative methods.

There are many methods of collecting data in qualitative research including: interview (semi-structured or in depth), focus group, observation, conversation analysis, mixed methods, case study and consensus approaches (Pope and Mays 2008). Each of these methods was considered carefully in relation to the research question and practicalities of conducting this project. Semi-structured interview and focus group were the methods finally selected for this research.

Early in the planning of this research, observation and conversation analysis were considered as a possible methods to explore triggers for GP referrals for patients to outpatient cardiology clinics in affluent and deprived areas. Observation *“offers the opportunity to record and analyse behaviour and interactions as they occur”* (Ritchie and Lewis 2003 pg 35). The immediacy of witnessing the interaction between patients and GPs

can have advantages over interviews and focus groups which rely upon the participants to say what they actually do rather than witnessing it first-hand (Pope and Mays 2008 pg 32). However, for this research the aim was to explore the inner world of the GP and their triggers to make referrals, and observing consultations, even with subsequent detailed conversation analysis, may not actually reveal this to the researcher. Also, the observations would be too time-consuming to be practical, as to witness one consultation where a referral was made to cardiology potentially 200 consultations would have to be witnessed, taking 50 hours. Also, the researcher being in present in the consultation could have an effect on the actions of the GPs and patients. This is called the 'Hawthorne Effect' and is can be defined as a psychological reaction of subjects changing behaviour due to taking part in research (Crookes 1998). Therefore, due to the difficulties of observation and conversation analysis in answering the qualitative research question, practical constraints and an awareness of the potential for a 'Hawthorne Effect', these were discounted as possible methods for this project.

The reasons for this being a two-phase study rather than mixed methods has previously been discussed above in Section 5.2, Stage 3 Methodology. The case study method would also not be appropriate for this research question as it is used usually to ask health professionals more strategic questions often about services or management.

The consensus methods also were also considered, but discounted due to the difficulties in standardising a vignette or stereotypical patient from affluent or deprived areas to present to GPs who work in contrasting areas to explore their triggers for referrals. Interviews and focus group were the methods chosen as those most appropriate to answer the research question and fulfil the aims and objectives of this research.

There are three types of interview in qualitative research (Crookes 1988 pg 88):

- Structured – questionnaire-based
- Semi-structured – open-ended questions
- Depth – reflective questioning, covering a few issues in great detail

The aim of the interview is to find out the participants' meanings and avoid imposing the researcher's assumptions and structures (Pope and Mays 2008). A semi-structured approach suited this research as a framework approach was being employed and, therefore, themes from the literature and also the a priori reasoning of the researcher were combined to create the semi-structured topic guide.

Focus groups can be considered group interviews, which make the most of the communication and ideas generated from participants (Pope and Mays 1998). Focus groups can be used to explore attitudes of staff and data can be generated in a group setting due to the interaction of the group that would not otherwise be gained from a one-to-one interview. In this research the focus group was used to check themes of the initial analysis of the data collected from the semi-structured interviews, but can not be described as member checking as only one participant of the focus group was initially interviewed.

Once the methods of qualitative data collection had been decided upon, sampling was considered. Sampling for qualitative research is broadly divided into two methods: purposive and theoretical sampling. Purposive samples are used as a strategy to gain as diverse a sample as possible and participants are selected on the basis of 'symbolic representation' because they possess a characteristic of great importance to research aims (Ritchie and Lewis 2003 pg 107). Theoretical sampling is a type of purposive sampling where participants are selected based on their

potential contribution to the development of theory. Sampling for qualitative research is, therefore, very different to sampling for quantitative research where representative samples, proportionate to certain subsets of the population studied are obtained.

Samples for qualitative research can often be very small as long as purposive or theoretical sampling has taken place. This is because increasing the sample size often does not contribute extra data for the analysis. Also qualitative studies are not producing results of a quantitative nature such as incidence and prevalence and, therefore, large representative samples are not of the appropriate technique for qualitative research.

When designing this project with supervisors and members of reviewers, it was decided to undertake purposive sampling of GPs working in practices in the most and least deprived neighbourhoods of Sheffield. The Index of Multiple Deprivation (IMD) would be used as the measure of deprivation. Sheffield General Practice's IMD scores were obtained from the freely available online practice profiles (General Practice Profiles 2008/09). The practices were then ranked according to the scores and split into five groups by quintiles. GPs working in the least and most deprived fifths of deprivation were targeted for recruitment. A table demonstrating the ideal recruitment strategy was created.

Table 10: 'Ideal' Purposive Sampling Strategy For This Project.

LEAST DEPRIVED	High referring GP
	Low referring GP
MOST DEPRIVED	High referring GP
	Low referring GP

However, this strategy needed amending for several reasons. Firstly, it emerged that numbers of referrals could not be obtained for individual GPs; data could only be obtained by practice. As most practices have multiple GPs working within them it was not possible to purposively sample GPs with high and low referral rates as compared with their peers. Also even if this data were available it would be flawed as it would not be standardised for the numbers of sessions worked, the numbers of patients seen in each session and other factors which may affect an individual GP's referral rates. For example, minor operation sessions, baby clinic, contraception clinic, teenage clinic, gender of the GP could all have an effect on individual GP's rates of referrals.

It was not felt appropriate to run focus groups for whole practices to obtain this model of sampling due to several factors. Firstly, the author as a GP is aware of the pressures on clinicians in General Practice, which can in part lead to the known difficulties in recruitment to research from General Practice (Colwell et al 2012). It was perceived to be impossible to recruit all the GPs from single practices for a research focus group for practical reasons. Secondly, I felt due to the dynamics between GPs within practices, a focus group setting might actually inhibit data collection.

Referrals can be a sensitive issue among clinicians; at times even within a practice there can be hierarchy among GPs, and it was felt individual interviews to initially gather data from GPs would be more appropriate. Finally, as the recruitment process was to be transparent to GPs I did not want GPs to feel like I was scrutinising their practice's referral patterns and perhaps judging their behaviour, as this would alter the data gathered. In a similar way to a therapeutic encounter, power imbalances can occur between participant and researcher (Nunukoosing 2005); due to this and because of this and practical difficulties in obtaining the referrals data from the PCT, the project was split into two phases, with the qualitative data collection taking place first.

In summary, purposive sampling was undertaken targeting GPs working at practices within the least and most deprived areas of Sheffield. As response was poor, I also took a practical approach to sampling. There is a group of Sheffield GPs who are interested in primary care research, called 'The Cutler Group'; I used this network of GPs for recruitment and this is termed 'convenience' sampling. I also used 'opportunistic' sampling for one of the participants that I interviewed as I met her at a social occasion and she was interested in my research and fulfilled the criteria of working in the most deprived fifth of Sheffield and added to the diversity of the sample as she worked with a predominantly black and ethnic minority community. Sampling for the focus group reflected the pragmatic strategy above of purposeful and convenient sampling. Details of the participants can be found in Section 7.3 of the Qualitative Results Chapter.

5.3 Summary of Methodology Chapter

This chapter was split into two sections. The first section (5.1) described the meanings of key methodological concepts in qualitative research (Appendix K). The second section of this chapter (5.2) described a four-stage approach to qualitative methodology informed by Crotty (1998) to the design of this research as outlined below:

1. Epistemology

Constructionism

2. Theoretical Perspective

Interpretivism: Pragmatic health services research

3. Methodology

Phase 1: Framework

Phase 2: Observational data collection and statistical analysis

4. Methods

Phase 1: Semi-structured interviews and focus group

Phase 2: Descriptive analysis, binary logistic regression and funnel plot analysis

Explanations followed this summary of the choice of this study being two-phase rather than mixed methods; the structured approach of framework analysis and the rigour of this project being supported by a reflexive summary from the researcher and a purposive sampling strategy. The next chapter describes the 'Methods' of the project and how the research was conducted, including details about: consent, data collection, development of topic guides, ethical considerations and bias.

Chapter 6: METHODS

6.1 Introduction to Methods

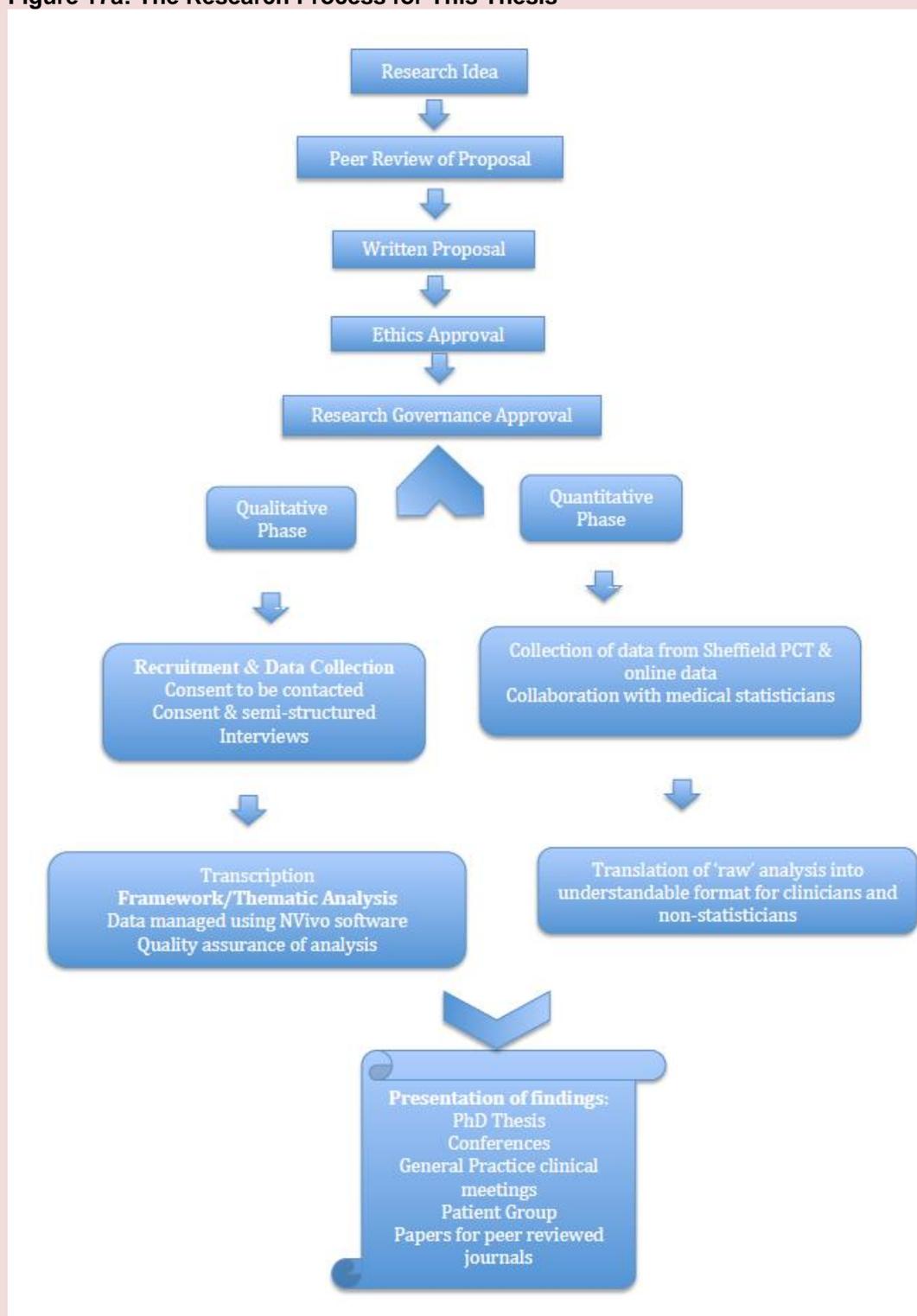
This chapter describes how this research project was conducted. The methodology and subsequent choice of the methods chosen to collect data in order to answer the research questions has previously been described in Section 5.2.

The first section of the chapter describes how this research project was developed with the guidance of peer review and then allowed to proceed with favourable ethical and governance approval. Following this, there is an account of qualitative methods used to answer the qualitative research question. Then follows an account of the quantitative research methods. Lastly there is a summary of the Methods chapter.

6.2 Peer Review, Funding and Ethics and Governance

Figure 17 overleaf shows the main events in the process of development, collection of data, analysis and writing up the results of this PhD project.

Figure 17a: The Research Process for This Thesis



Peer Review

The idea for this research project began in 2008, when the author was working as a sessional General Practitioner in many practices throughout the city of Sheffield. This project was inspired from discussions with other GPs and members of the primary care team when reflecting upon patient consultations with colleagues in general practice serving socio-economically contrasting areas. Discussions with colleagues in primary care, was the first stage of the peer review process for this research project.

Alongside her clinical role as a sessional GP, the author was also teaching medical students at Sheffield University. This allowed contact to be made with academics from The Academic Unit of Primary Medical Care at the University of Sheffield. Several meetings were organised with GP researchers and researchers with sociology, nursing and psychology backgrounds. This more formal process of research project planning allowed the initial research project idea to be developed into a formal academic research proposal.

The research proposal was then refined further under the supervision of senior academics within AUPMC and submitted in an application for an 'In Practice Fellowship' award from the National Institute of Health Research which in itself is a process of review by senior researchers. This application was successful (Appendix J). The author formally started the research as an In Practice Fellow at AUPMC, University of Sheffield (September 2008).

The research proposal was presented at The Society of Academic Research conference regional meeting (March 2009) as both a poster and oral presentation which allowed for further refinement of the research proposal in preparation for ethics and governance applications. The research proposal was also orally presented and discussed at a meeting

of the Cardiovascular Biomedical Research Group at the Northern General Hospital and also discussed separately with one of the research cardiologists and this helped refine ideas about referrals data that could realistically be collected.

Academics with both clinical, public health and statistics specialisms were consulted in the School of Health and related research, which is also part of The University of Sheffield. This was particularly helpful in reviewing and refining strategy for purposive sampling for the qualitative aspects of the project, finding out which data was realistically available and refining the quantitative research question.

Colleagues at Sheffield PCT were also consulted with to help with the quantitative research proposal to find out what referrals data could actually be obtained and clarifying details and flaws about this data. Also a practice manager at a Sheffield general practice met with the author on several occasions to discuss private referrals, and explain how referrals data was fed back to GPs.

The department of General Practice and Primary Care at Glasgow University has also provided expert review of the developing research proposal. The Glasgow researcher team has two main research themes of *“multimorbidity, complex care needs and deprivation and the organisation and implementation of care”*. This interest overlapped with the main themes of this project being health inequalities and service provision, in the form of GP referrals. One of the researchers has written a seminal paper on the factors involved in referrals and discussions with colleagues from Glasgow were very useful in refining the qualitative and quantitative aspects of the project. As a result of these discussions, the head of department wrote a short piece in support of my proposal to gain a grant from The Royal College of General Practitioners. (See Appendix B).

Funding

Funding applications also formed part of the peer review process (Appendix J). The research proposal was sent to the Royal College of General Practitioners for peer review as part of the application for a grant from The Scientific Foundation Board Trust. This application, which is judged by senior academic GPs, was successful and the project was awarded a grant of £7,294 in April 2010. The research proposal was also successful when reviewed by senior academics for an award from The University of Sheffield Research and Innovation Department, and received an award towards funding the project of £1,300.

Different aspects of the results of the project have been presented orally at the Royal College of General Practitioners conference (October 2012) and with a poster at Regional SAPC (March 2013). Application to present at the conferences involves a peer review process. Papers are in the process of being prepared for submission of peer review journals (Appendix I).

Ethics & Governance

A favourable opinion to start this project was given on 13th October 2009 from Sheffield Research and Ethics Committee (Appendix F). This was after submission of the IRAS form on 7th August 2009 and an interview with the committee on 7th September 2009. Governance approval to start was given from Sheffield Research and Development Unit on 14th July 2010. Sponsorship for the project was granted by Research and Innovation Services, University of Sheffield on 20th November 2009.

Section 6.3: Qualitative Methods

This section will describes the first qualitative phase of this project in terms of:

- Recruitment
- Topic Guide Development and Consent
- Data Management, Analysis and Confidentiality
- Bias

Recruitment

Recruitment to the semi-structured interviews took place between 14th July 2010 and 4th November 2010. Initially, purposive sampling was employed to recruit Sheffield GPs working in the most (MD) and least deprived (LD) practices. Each General Practice in Sheffield was ranked according to its Index of Multiple Deprivation Score (IMD) from 1 to 91. The IMD scores were obtained online from the online National General Practice Profiles (2008/09). The practices were then divided into 5 groups by quintiles and the practices least and most deprived fifths were targeted for recruitment. A written postal invitation pack was sent to 164 GPs working at 37 practices (91 General Practices in total in Sheffield). Each pack contained an invitation letter, topic guide, participant information sheet, consent form and demographic questionnaire (Appendix G). Of the 164 GPs sent a mailshot, 85 GPs worked in MD areas and 79 GPs working in LD areas. The process of purposively sampling practices according to their Index of Multiple Deprivation Score can be found in Section 7.3. Convenience sampling also took place through 'the 'Cutler Group', which is a network of South Yorkshire General Practices who are interested and actively involved in research. Each invitation pack sent to GPs contained a letter to the practice manager, with separate packs for each GP containing an invitation letter, topic guide, participant information sheet, consent form and demographic questionnaire. As per ethical approval, after the information packs were sent, three reminder telephone calls were made to

practice managers as part of the recruitment process. Interviews were undertaken between 16th August 2010 and 4th November 2010. One participant was recruited opportunistically at a social event. A summary chart of recruitment to the interviews can be found in Section 7.3. Recruitment to the interviews continued until no new themes were emerging from the data. Strauss and Corbin (1998) call this saturation of themes.

Recruitment to the focus group took place between 16th January 2012 and 22nd February 2012. The focus group took place on 23rd February 2012. Again, recruitment to the focus group was initially limited to a purposive sampling strategy of targeting GPs working in the least and most deprived areas of Sheffield through a written postal invitation as above. Of the 164 GPs sent a mailshot, 85 GPs worked in MD areas and 79 GPs working in LD areas. The process of purposively sampling practices according to their Index of Multiple Deprivation Score can be found in Section 7.3. GPs working in the MD and LD areas were again sent a written postal invitation to attend the focus group (Appendix G). Each pack contained an invitation letter, topic guide, participant information sheet, consent form and demographic questionnaire. A reply slip and self-addressed envelope (postage paid) was also included in the pack this time in an attempt to improve recruitment. A reminder letter was also sent to all practices a week later, with a follow-up telephone call one week later.

Sampling for the focus group also reflected the pragmatic strategy above of purposeful and convenient sampling. Convenient sampling involved the recruitment of a new member of staff at AUPMC and another participant was gained through snowballing. Details of the participants can be found in Section 7.3 of the Qualitative Results Chapter.

The transcripts from the interview and focus group were analysed using a framework approach to the data (Ritchie and Spencer 1994), with a constant attention to the standards of qualitative research set by Lincoln and Guba (1985) to ensure rigor.

Topic Guide Development and Consent

The semi-structured interview and focus group topic guides were designed to investigate differences for GPs regarding their *triggers* for cardiology referrals when working in least and most deprived areas of Sheffield. The topic guides were developed based on the literature about GP referrals and health inequity in mind. Research papers that were particularly influential in informing the authors questions were Gardner and Chapple (1999), Tod et al (2001) and Richards et al (2003) as these qualitative projects also explored health inequity in relation to CHD. Participants *influences* upon their referral triggers were also explored in the interviews and O'Donnell (2000) and Newton et al's (1991) research papers were particularly relevant to this area, as the factors affecting GP referrals are presented very clearly in these papers. Participants experiences of referrals monitoring and its impact upon their referrals decisions, if any, were explored with the Kings Fund Report (Imison and Naylor 2010) and personal experience of the pressure from the then PCT to reduce referrals in mind (Oliver 2008). The final question explored participants views on health inequity in relation to coronary heart disease in Sheffield and the effects this could have on referrals, and their perceptions of morbidity and mortality from CHD in their communities. This was based on the Director of Public Health yearly report which described premature death rates from circulatory disease were significantly higher in the North East of Sheffield than other areas of the city, along with other significant health inequity for more deprived areas (Wight 2009) and the National General Practice Profiles (2008/09) provided a wealth of evidence of health inequity in Sheffield. Also, this final question about inequity in relation to referrals was based on anecdotal conversations between the author and colleagues about a possible inverse care law existing in Sheffield regarding referrals, and the author wanted to explore views of participants about this issue.

The topic guides were piloted with three GPs prior to the formal data collection. Two of these GPs were colleagues at the AUPMC, and one

was is a friend who is also a GP in Derbyshire. This was very useful in refining the questions and predicting timings in the interviews.

The face-to-face interviews were mostly undertaken in private consulting rooms at the participant's surgeries (10 out of 12). One interview took place at a participant's home and one at her non-clinical office.

Participants were asked to block their diary for one hour. This quiet atmosphere allowed for the GPs to reflect on their referrals activity and experiences of patients. Notes were not taken during the interviews as this was thought to potentially be disruptive to communication during the interview.

The focus group took place in a quiet meeting room at Samuel Fox House, at The Northern General Hospital. This is where the AUPMC is housed and many GPs are familiar with its location at the hospital as the library and many teaching sessions are hosted in this building. A medical student undertaking an intercalated research year, helped organize the focus group and took field notes. The purpose of the focus group was to check the preliminary results of the qualitative and quantitative analysis with Sheffield GPs. Therefore, the topic guide included a short presentation by the author explaining the project and the early findings. The subsequent analysis of the focus group transcript was undertaken together, adding to the quality control of the analysis.

The interview and focus group topic guides were semi-structured which allowed a flexible approach to participants' contributions. The interviews and focus group were audiotaped and transcribed. Accuracy of the transcriptions were checked by the author, through listening to the audio recordings while reading the transcripts. This acted as the first stage of familiarization with the data.

Obtaining informed consent from participants was of paramount

importance in this project as participants potentially could reveal sensitive information about themselves and their practices. It was considered very important to make participants aware of the aim and focus of this research.

The recruitment and consent process was designed to allow participants time to consider if they wanted to participate. A written invitation initially followed up by a phone call to the practice manager was not considered intrusive and GPs could easily disregard the invitation. This may have actually contributed to the poor recruitment from the mailshot.

Participants also had an opportunity to disengage from the study when provided with the consent form at the interview and focus group. This allowed participants time to reconsider if they wished. Participants had all been encouraged to read the information leaflet about the study prior to signing the consent form and being audio taped.

Participants were offered a light cold lunch and drink at the start of the interview and focus group but no payments were made.

Data Management, Analysis and Confidentiality

Interviews and the focus group were recorded using audio recorders. Recordings were then uploaded onto an encrypted website for transcription. Transcriber confidentiality agreements were discussed and signed by the independent professional transcriber. Audio recordings were erased from the recorder after upload to the encrypted website. Each participant was given a 'participant number' and transcripts and contemporaneous field notes were labeled accordingly. Tapes, demographic information, transcripts and field notes were anonymised but were cross-referenced to a password protected database held on a computer at The Academic Unit of Primary Medical Care, University of Sheffield (AUPMC). Transcriptions were kept anonymous when using NVivo software. NVivo was used to manage and organize the qualitative data for analysis. Audiotapes of the interviews and focus group were accessed only by the author, a medical student working alongside the author, and the research transcriber. Some of the anonymised interview transcripts and the focus group transcripts were also analysed by four other researchers, from the AUPMC for quality assurance of the analysis, but all identifiable information was removed from the transcript prior to peer analysis. Audiotapes and records were kept in a locked filing cabinet accessed only by the author. Professor Nigel Mathers, Director of AUPMC, had ultimate control of and acted as a custodian for the data generated by the study. All quotes and practices have been kept anonymous in this thesis and conference presentations and publications.

Data Analysis

As described previously a framework approach was adopted for the analysis. Initially audio recordings of the interviews were listened to with the written transcripts as a checking and familiarisation process. Field notes were also considered at this time. The transcripts and field notes were stored in the NVivo software. During familiarisation 'memo' notes were also made as themes arose and were used to link themes between

transcripts. After familiarisation a thematic framework was developed where key themes and concepts were organised into groups. The transcripts were then 'coded', with numerous quotes being allocated to themes or codes. During the familiarisation phase, quotes were coded as 'free nodes' under no particular heading. As the analysis progressed and the framework developed, these were transferred under main headings or 'tree nodes' or subheadings of these or child nodes' as they are referred to in the NVivo software (Example in Appendix H). Eventually all the transcripts were indexed or coded in this way, and no new themes were emerging from the data. Themes were then charted, or examined according to each theme. It was at this point in the analysis that the focus group took place. The audio recording of the focus group was transcribed by a medical student undertaking a BMedSci degree, and field notes were also considered in the analysis. The focus group helped greatly with the final aspect of the analysis, which was to interpret the data into the meta-themes presented in Chapter 7 (Section 7.4).

Peer debrief of the qualitative analysis with colleagues at AUPMC was a really useful process. Two other GP researchers at the unit were also undertaking qualitative projects, and we held analysis meetings to discuss each others analysis in relation to specific transcripts. Quality assurance of the analysis also took place in supervisory meetings with Professor Nigel Mathers.

Negative case analysis was also considered in the analysis and is described in the qualitative results (Section 8.3bi Patient Expectation) and as part of the Strengths and Limitations of the project (Section 14.5).

Bias

All research has potential for bias and the following section outlines some of the areas in which bias may have found in the form of participant and researcher bias.

Participants self-selected to participate in the research and as such, they may be particularly interested in health inequalities or the issues surrounding GP referrals. To counter this potential bias a detailed account of the participants is presented in the qualitative results chapter (Section 7.3). Bias may have arisen from the cases that GPs chose to present at the start of the interview as discussed in the limitations of this project (Section 14.5). Also, the data collected in this study is dependent on the participants' memory. However, 10 of the 12 participants at the interview used their computer records to aid retrieval and one participant at the focus group brought the data from her own audit of cardiology referrals at her practice to make reference to during the group.

The researcher can also lead to bias in research, and is integral to the whole research process. However, full accounts of the author's reflexive summary have been presented as part of this thesis (Section 5.2 and 14.8) and as such add transparency to the author's feelings and views.

To reduce bias, a close attention was paid to the standards set by Lincoln and Guba (1985) to ensure credibility, dependability, transferability and confirmability. The analysis of the qualitative data was undertaken using the framework approach of familiarisation, producing a framework, indexing, charting and finally mapping and interpretation as described by Ritchie and Spencer (1994)

6.4 Quantitative Methods

This section describes the methods of quantitative data collection, collaboration and analysis used in this research project. As described previously, this is fundamentally a qualitative project, which answers the first research question through qualitative methods. However, this complementary quantitative analysis was undertaken to add depth to the background understanding of referrals from general practitioners to specialist hospital outpatient clinics in Sheffield. Results of the focus group discussion also prompted an extension of the quantitative work in the form of developing a funnel plot, as the participants of the focus group requested more meaningful interpretations of their referrals than the current reports sent by Sheffield PCT.

This has been a useful undertaking for the author to experience an alternative set of research methods, which included the development of a quantitative research question, searching for data using routine databases and negotiating access to data from Sheffield Primary Care Trust. An Excel spreadsheet was populated by the author and was shared with medical statisticians at the School of Health and Related Research at The University of Sheffield. This was used to form an inter-departmental collaboration to answer the Phase 2 Quantitative Research Questions. Finally the author translated the findings of the raw analysis into conference presentations, presentations for University meetings and to a patient and practice meeting in two Sheffield general practices. Papers are also being prepared to submit to peer reviewed journals. Finally a stakeholder meeting is being planned, with invitations being sent to all Sheffield GPs, local CCGs and medical statisticians, to disseminate findings in early 2015. This is hoped to be the start of future collaborative work in Sheffield to create more meaningful referrals data for clinicians, commissioning groups and researchers.

This chapter begins by describing the data collection and organisation. It describes the “ideal” data that was needed to answer these questions, and the compromise of using the “best available” data to allow the analysis to proceed. A summary of the process to obtain the data is presented and along with a summary of the summary spreadsheet column headings. The statistical analysis undertaken is then described. Initially the author completed the descriptive analysis and later the collaborative analysis with medical statisticians led to a binary logistic regression analysis and production of a funnel plot. Finally details of confidential data storage systems are given.

6.5 Quantitative Data Collection and Organisation

Phase 2: Quantitative Research Questions

- 2 Do elective outpatient cardiology referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- 3 Do elective all speciality outpatient referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- 4 Is there an alternative to the current methods of presenting Sheffield referrals data to demonstrate variation in elective cardiology referrals to General Practitioners?

The first task was deciding which data were required with the projects peer reviewers, supervisors and senior academics in order to answer the above research questions. After this was decided, the next task was to find out if this ‘ideal’ data were available. Finally, a pragmatic decision was made with the advisors to the project and supervisors as to which of the ‘best available’ data were used in the analysis. The search for ‘ideal’ data and then the decision-making process of compromise to utilise the ‘best available data’ data to allow the analysis to be undertaken are outlined below.

Figure 17a: Process of Retrieving Data for this Project



The Search for the 'ideal' data:

After discussions with several of the advisors on the project, on several occasions, it was decided that alongside nominal and descriptive data about each practice (Practice name, PCT code, list size, numbers of patient numbers in five year age groups) the following variables would be ideally be obtained to answer the above research questions and aims:

1. Numbers of patients referred from General Practice to Outpatient Clinics

Actual numbers (NHS and Private) of referrals from Sheffield General Practices to elective cardiology and all-speciality outpatient clinics broken down into five year age groups from age forty. Forty was chosen as a cut off as CHD is rare under this age.

2. Deprivation

The Index of Multiple Deprivation (IMD) score for each referred patient.

3. Disease Incidence

True CHD incidence for each practice.

Search for 'best available data'

The routine nominal and descriptive data were found through the QOF website (QOF 2008/09) and online Health Observatories (National General Practice Profile 2008/09). Variables found online included: Practice name, Practice PCT code, Practice list size and Practice IMD score. However, accessing the numbers of referrals, IMD scores for patients and finding the true incidence of CHD for each practice proved more challenging. The search and decision-making about these more difficult to access variables are listed below:

1. Numbers of patients referred from General Practice to Outpatient Clinics

The Director of Public Health Sheffield, Professor Jeremy Wight, was approached in person informally at a Sheffield Local Medical Committee meeting to discuss the proposal at the research planning stage and this was followed up with an email request for the permission to obtain numbers of elective cardiology and all speciality outpatient NHS referrals from each practice in Sheffield. This was agreed in principle and the author was directed to several members of Sheffield PCT to obtain this data. Partly due to the author's maternity leave, but also due to delays at the PCT, it took 18 months to obtain the data. The referral numbers in five-year age bands for each Sheffield general practice were eventually supplied by one of the data analysts at Sheffield PCT in an Excel spreadsheet via email. The data was anonymous regarding patient details.

Unfortunately, numbers of private or non-NHS referrals are not recorded in any formal or systematic way. A practice manager, who was one of the advisers for the project, informed me that even in his practice which is situated in one of the most affluent areas of Sheffield, and consequently has a high proportion of private

referrals, does not count numbers of private referrals formally and doubted that any other practices managers kept this data either. It was considered beyond the scope of this project to approach all 91 practice managers in Sheffield to ask them to start recording data about private referrals and patient ages to all specialities and cardiology. And so as discussed in the limitations section, data regarding private referrals was not included in the analysis.

2. Deprivation

It was decided to use the Index of Multiple Deprivation Score for each general practice, as these were freely available on line in the Practice Profile documents compiled by the Public Health Observatories (National General Practice Profile 2008/09). The compromise was made to use practice IMD scores rather than individual patient scores, as it was impractical and beyond the scope of this project to calculate the IMD score of each patient who had received a referral in 2008/09.

3. Disease Incidence

General Practices keep registers of patients diagnosed with coronary heart disease. This data is collated on the QOF database and represents practice prevalence of patients on their register. It was decided to use this prevalence as data about coronary heart disease true incidence for each general practice is not available.

Timeline of Data Search

A search for practice data listing morbidity, deprivation scores and referrals data both online and through Sheffield Primary Care Trust (PCT) was initiated and is outlined below.

Table 11: Timeline of Data Search

Date	Action	Individual/Organisation	Details	Outcome
29.11.08	Email	Jeremy Wight, Director Public Health Sheffield	Request for referrals data	Authorised release of referrals data from colleagues at PCT pending ethics/governance approval
23.3.09	Meeting	Professor Graham Watt, Norrie-Miller Professor	Head of General Practice and Primary Care, University of Glasgow	Discussed data needed for analysis.
8.5.09	Presentation	Cardiovascular Biomedical Research Unit	Sheffield Cardiologists and cardiovascular researchers	Not able to supply data about proportions of patients referred for specific reasons/diagnosis
5.6.09	Meeting	Sheffield Practice Manager	Discussion around data available regarding private and NHS patients	NHS referrals data should be available by practice from Sheffield PCT. Private referrals data not routinely collected by practices therefore not obtainable.
12.6.09 to date	Meetings & emails	Professor Michael Campbell, Professor of Medical Statistics,	SchARR, University of Sheffield	Agreed to join research team & advise on data collection & analysis
28.6.09	Online	Health and Social Care Information Centre	QOF data	Numbers of patients on CHD registers for each General practice (Prevalence of CHD), List sizes for each practice
13.10.09	Letter	Sheffield Research & Ethics Committee		Favourable outcome
28.9.09 – 12.4.10	Maternity Leave			
25.5.10	Email	Sheffield PCT Analyst: Richard Ames	Data supplied after multiple meetings and emails with several Staff from Sheffield PCT	Supplied cardiology/all outpatient referrals data, practice numbers, codes and names for each Sheffield general practice
14.7.10	Letter	Sheffield Research & Development Unit		Permission to start research
19.8.10	Online	The Yorkshire and Humber Public Health Observatories, Practice Profiles	Index of Multiple Deprivation scores obtained	Downloaded Practice Profiles 2008/09

Summarising the data

Excel software was used to create a spreadsheet summarising the quantitative data needed and available to answer the research questions.

Spreadsheet column headings included:

- Practice Number: Each general practice was allocated a number from 1-91.
- Practice Code: Each general practice has a six digit identifying code allocated to it from Sheffield Primary Care Trust (PCT).
- Practice Name: Each general practice in Sheffield has an individual name.
- Index of Multiple Deprivation Score (IMD): Every general practice has an IMD score (2007 data) calculated for it which is listed online (National General Practice Profiles 2008/09).
- List Size: The total number of patients registered with each of the 91 general practices in Sheffield 2008/09 (QOF)
- Coronary Heart Disease (CHD) Register: The number of patients registered at each practice as having a diagnosis of CHD 2008/09.
- Age Group (years): This variable had 14 groups – 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80-94, 85-89, 90-94, 95-99, 100-104, 105-109. Sheffield PCT supplied the data that had been collected in January 2010. Each age group listed the numbers of patients registered at that general practice in that specific age group.

- Cardiology referral: The numbers of referrals from each Sheffield general practice to elective cardiology clinics grouped into the 5 year age bands listed above. Data supplied by Sheffield PCT based on 2008/09 data.
- All outpatient referrals: The numbers of referrals from each Sheffield general practice to elective all speciality outpatient clinics grouped in the 5 year age bands listed above. Data supplied by Sheffield PCT based on 2008/09 data.
- Rate of cardiology referral for practice per age band per hundred thousand: The rate of cardiology referrals for the age bands listed above for each practice. This was calculated as: (the number of cardiology referrals in each age band per practice ÷ population in each age band per practice) x 100,000.
- Rate of all speciality referral rate for per age band per hundred thousand: The rate of all speciality referrals for the age bands listed above for each practice. This was calculated as: (the number of all speciality referrals in each age band per practice ÷ population in each age band per practice) x 100,000.

6.6 Statistical Analysis:

Descriptive, Binary Logistic Regression and Funnel Plot

A descriptive summary of Sheffield general practice was produced using Excel software, which included:

- Mean and range of IMD scores
- Mean and range of list sizes
- Practices were subdivided into five groups split by quintiles according to their IMD scores and the following were calculated: average list size, the range, median and mode of percentage prevalence of CHD and mean cardiology/all outpatient referrals per 1000 for each practice
- Mean cardiology/all speciality elective referral rates per 1000 patients

Collaboration between the author and medical statisticians at Sheffield School of Health Related Research (SchHARR) facilitated further analysis of the data resulting in a binary logistic regression analysis and funnel plot analysis. Initial contact was made with Professor Michael Campbell in June 2009, and after several meetings this resulted in the binary logistic regression analysis being produced in December 2010. After the focus group in February 2012, a further collaboration with Professor Campbell and one of his Masters in Medical Statistics students Kate Daniels, a funnel plot analysis of referrals data was produced in August 2012. An explanation of the analysis is described below.

A **binary logistic regression analysis** within the statistical package STATA was used to examine the associations between:

- Cardiology referrals, IMD scores & CHD prevalence of Sheffield general practices
- All speciality referrals, IMD score & CHD prevalence of Sheffield general practices

The referrals data was split into three age groups ≤ 54 , 55-69, ≥ 70 years, as it was considered there may be differences for older patients based on the literature (Bowling 2001) . Also, as the incidence of CHD increases dramatically after the age of 40 years (Scarborough 2010) referrals data were not analysed below this age. Binary logistic regression explores the relationships between a binary dependent variable, with one or more independent variables. In this case dependant variable was whether a referral is made or not, and the independent variable was the practice IMD score and CHD prevalence. The binary dependent variable can only take the value of 0 or 1. The independent variables can either be binary, continuous or categorical, in this study the IMD score of the practice and CHD prevalence of each practice were used.

The logistic regression analysis firstly age standardised the data to allow for practices with different patient demographics to be compared. The standardisation in logistic regression is equivalent to the indirect method of age standardisation, since it compares the observed number of events in the local population with the expected number when factor-specific event rates are applied to the whole population (Roafle et al 2008). This contrasts with direct standardisation, which works directly with the specific rates of the population being studied (Eayres 2008). The two methods of direct and indirect standardised were compared using the data set for this project as part of a medical statistics masters project and the results were

found to be the same using both the indirect and direct methods of age standardisation for this data for Sheffield practices (Daniels 2012).

Using the STATA statistical software package, Odds Ratios were calculated for each age group with regard to a patient's chance of gaining a referral in relation to the IMD score of a practice and the CHD prevalence of the practice. In order to calculate Odds Ratios, logistic regression uses two calculations: the first is the sum of the predicted probabilities of the event occurring for each individual in the local population and the second is the ratio of the observed and expected event rates (Roafle et al 2008). Finally the Odds Ratios were produced for each age group, demonstrating the relationships between the IMD scores of practices and cardiology referrals and all speciality out patient referrals.

Construction and validation of the binary logistic regression model

Binary logistic regression describes the relationship between a binary dependent variable (in this case a referral to hospital out patients or not) with independent variables (practice IMD score and CHD prevalence). The logistic regression model in this research predicts the probability for a patient registered with a specific Sheffield general practice of gaining a secondary care referral.

As the outcome or dependent variable is categorical, linear regression is not possible. Therefore, *logit* or a logistic regression was used to analyse a non-linear relationship as if it were linear and the subsequent production of odds ratios to allow comparison. An odds ratio compares the odds or chance of an event occurring in one population as compared to another. Odds were calculated by taking the exponential of the estimates produced by the model (Daniels 2012).

The model was written as follows where y_{ij} represents the number of referrals to secondary care in each i th age sub-group from each j th practice and n_{ij} represent the total number of patients in the i th age sub-group of the j th practice:

$$\text{logit}(y_{ij} / n_{ij}) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \dots + \beta_k x_k + \epsilon_j$$

$i=1, \dots, 10$ represent the 10 age sub-groups and $j=1, \dots, 91$ represents the 91 practices. (y_{ij} / n_{ij}) represents the population probability of a referral to secondary care. β_0 represents the reference/first age group 40-44, and $x_1, x_2, x_3, \dots, x_k$ represent the independent variables and ϵ_j represents the error term.

Validation of the model was established by examination of outliers through residuals. Initial analysis of residuals showed a normal distribution and the model to be appropriate. The observed rates of referrals by practice showed only one outlier. The outlier had a small weight upon the overall model and was included in the analysis (practice 4 was the outlier as one out of four patients in the 90-94 year subgroup was referred to secondary care).

As explained earlier one of the findings of the qualitative work of this project was that GPs would like to receive more meaningful referrals data. Consequently the author again approached medical statisticians at SchARR to collaborate in the production of a funnel plot based on the using the same data set collected previously to demonstrating an alternative to the current 'league table' referrals data supplied by Sheffield CCGs. It was thought a funnel plot could be an interesting alternative to the current data and be revealing of practices with unusual cardiology referral rates.

A **funnel plot** is a scatter plot *“in which an estimate of an underlying quantity is plotted against an interpretable measure of its precision”* (Spiegelhalter 2005, pg 1185). They can be used to allow for institutional comparisons as an alternative to using league tables (Spiegelhalter 2005). The ‘funnel’ refers to the ‘control limits’ superimposed onto a plot and represents the 95% (2 standard deviations) and 99.8% (3 standard deviations) prediction limits around the overall rates of the plot. Any points lying outside these ‘control limits’ are considered to have unusual rates. In this case, any Sheffield general practices lying outside the ‘funnel’ were considered to have unusual cardiology referral rates.

Funnel plots have been used to present various other applied health care research. Spiegelhalter (2005) presents examples of the use of funnel plots with regard to teenage pregnancy rates, mortality post hip fracture and coronary artery bypass grafting. More recently Campbell et al (2012) from Sheffield University used a random effects funnel plot to evaluate hospital mortality statistics for patients who died in hospital or soon after discharge; variation between hospitals was demonstrated, and interestingly outliers had previously been highlighted as having unusual mortality rates by other researchers (Campbell et al 2012). Funnel plots have also been used to compare breast cancer survival in women over time at different hospitals (Kesson et al 2012); in this paper two funnel plots are presented showing survival before and after a multidisciplinary team intervention. The plots show less variance and longer survival rates in women treated by all hospitals (intervention and non intervention) in more recent years, but only those hospitals not taking a multidisciplinary team approach lying below the 95% confidence limit for survival (Kesson et al 2012). Despite funnel plots being used in previous applied health care research, to the best of my knowledge funnel plots have yet to be presented in the literature to compare variation in GP referral activity.

The referrals data set was supplied to Kate Daniels who used R statistical software to create a funnel plot, and the computer model she developed to produce this formed the basis of her masters dissertation (Evans 2012). Again the data was age and list size indirectly standardised using logistic regression. Then the Standardised Cardiology Referrals Ratio (SCR) was calculated. A funnel plot of the ratio of observed to expected referrals was plotted against the expected number of cardiology referrals, together with the 95% and 99.8% control limits.

6.7 Data Storage and Confidentiality

Paper records of data and analysis are kept in a locked filing cabinet within a locked office accessed only by the author. Electronic data was stored and backed up at the Academic Unit of Primary Medical Care, University of Sheffield and password protected. Electronic data stored on the author's laptop was be password protected and encrypted. Professor Nigel Mathers, Director of AUPMC, had ultimate control of and act as custodian for the data generated by the study. All data generated from analysis in this project was anonymised in any publications and presentations and specific practices were not identifiable.

6.8 Summary of Methods

This chapter has described the qualitative (Phase 1) and quantitative (phase 2) research methods employed by this project. The first part of this chapter (6.2) described the peer review process, funding and ethics and governance approvals. The second part (6.3) described the qualitative methods including purposive sampling to recruit GPs working in least and most deprived areas of Sheffield to semi structured interviews and a focus group, topic guide development, consent, data management, framework analysis, confidentiality and bias. The third and final part of this chapter (6.4) described the quantitative methods used: the identification of the 'ideal' data and the reasoning behind using the 'best available' data, descriptive data analysis and the collaboration to produce the binary

logistic regression analysis. The logistic regression analysis examined the relationship between deprivation and all out patient referral rates, and cardiology specifically, in Sheffield in 2008/09. Finally a description of the funnel plot analysis of cardiology out patient referrals in Sheffield 2008/09, again produced in collaboration, was described as an example of a potential alternative presentation of referrals data to the current league table style results. Limitations of the methods are described later in Section 14.5 of the discussion.

Chapter 7 RESULTS

7.1 Introduction to the Results

The following Chapters (7 to 11) report the qualitative results of this thesis produced using framework analysis. Chapter 12 reports the quantitative results of this including the descriptive, binary logistic regression and a funnel plot analysis. Chapter 13 presents an overview of the results.

This chapter considers the setting, recruitment and participants of the qualitative phase of this project. The theory of framework analysis as described by Richie and Lewis (2003) has been described previously in the Qualitative Methodology Chapter (Section 5.2). The analytic process of this thesis, have also been described previously in the Methods Chapter (Section 6.3). This chapter begins with a summary of the setting of the research and the demographic profile of the participants. An overview of the results are then presented through four overarching meta-themes, which were found to influence GPs triggers for referrals: patient, GP, practice, and health care system factors. The final part of this chapter describes the results according to the meta-themes in detail.

7.2 The Research Setting

The findings reported in this thesis are as a result of a qualitative research project conducted with doctors who work as general practitioners in practices in the city of Sheffield, UK. As this is the first point of care for the majority of patients in the UK, it is often described as 'primary care'. As described in the introduction, GPs in the UK act as gatekeepers to specialist services in hospitals (Section 3.1), which are known as 'secondary care' services. At the time of this research, there were 91 primary care general practices in Sheffield.

The mean list size for general practices in Sheffield practices was at the time of data collection 6,166.31 patients (QOF 2008/09), with a range of practice sizes from 1,315 to 22,839. Index of Multiple Deprivation (IMD) scores ranged from the most deprived practice scoring 59.5 and the least deprived scoring 4.7 (National General Practice Profile 2008/09). The IMD as a measure of deprivation for an area is described in more detail in the Quantitative Results chapter (Section 12.2a).

Practices were ranked in order according to their IMD scores. The practice with the highest deprivation according to its IMD score as listed on its practice profile online was labelled as Practice 1, and the other practices ranked subsequently according to their score up to the practice with the least deprived score labelled as Practice 91. The practices were then organised into fifths of deprivation by quintiles. The first quintile represented the most deprived practices and the fifth quintile represented the least deprived practices. Acronyms for the groups of practices according to their IMD scores are shown in the table below.

Table 12: Acronyms and Range of IMD Scores for Sheffield Practices

Deprivation fifth divided by quintiles	Acronym	Range of IMD Scores within this level of deprivation	Number of Sheffield Practices within each fifth (91 in total)
Most Deprived	MD	59.5-46.7	(Practices 1-18) 18
Above Average Deprivation	AAD	46-34.5	(Practices 19-36) 18
Average Deprivation	AD	34.4-24.7	(Practices 37-54) 18
Below Average Deprivation	BAD	24.2-16.2	(Practices 55-72) 18
Least Deprived	LD	15.8-4.7	(Practices 73-91) 19

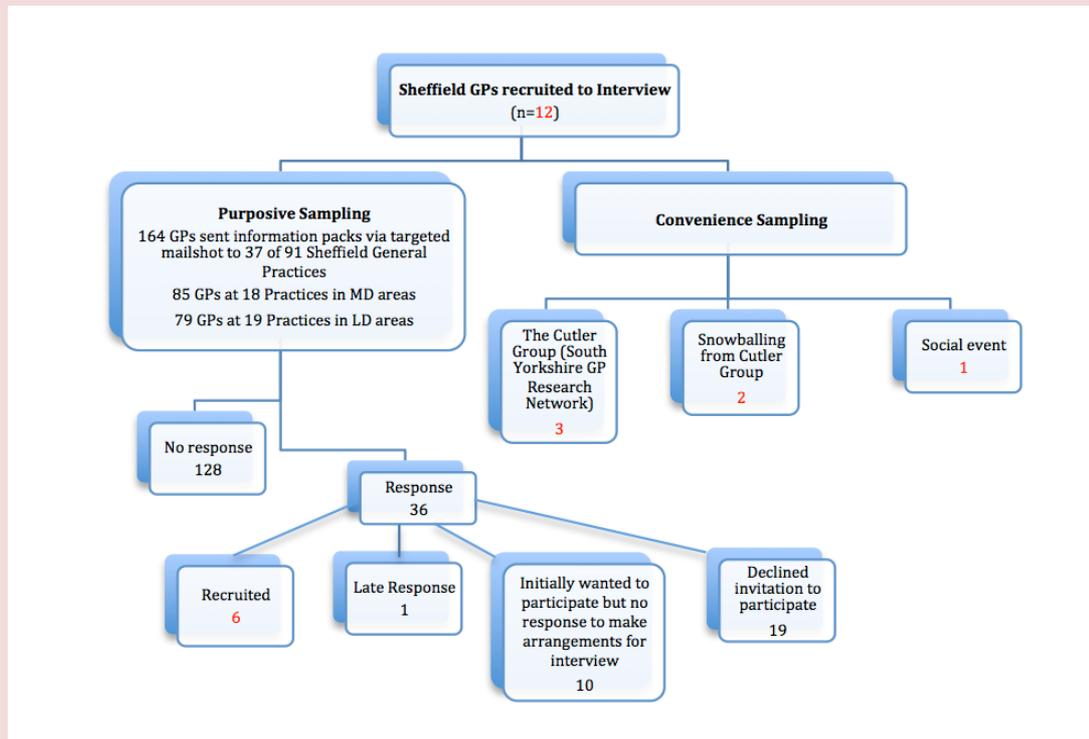
The above acronyms will be used subsequently throughout this thesis to represent practices grouped by their index of multiple deprivation scores. Further quantitative descriptive data about the practices is presented in the Quantitative Results Chapter (Section 12.2).

7.3 Summary of Recruitment and Participants

Recruitment to Semi Structured Interviews

A favourable ethical opinion was gained on the 13th October 2009 with NHS permission to start the project on 14th July 2010 (delay due to author's maternity leave). Recruitment took place between 14th July 2010 and 4th November 2010. Initially, purposive sampling was employed to recruit Sheffield GPs working in the MD and LD practices through mailshots to GPs. This mailing included an information pack about the research and an invitation to participate (Appendix G). Recruitment also took place through the 'Cutler Group', which is a network of South Yorkshire General Practices who are interested and actively involved in research. Each pack sent to GPs contained a letter to the practice manager, with separate packs for each GP containing an invitation letter, topic guide, participant information sheet, consent form and demographic questionnaire. As per ethical approval, after the information packs were sent, three reminder telephone calls were made to practice managers as part of the recruitment process. Interviews were undertaken between 16th August 2010 and 4th November 2010.

Chart 1: Recruitment to Interviews



Summary of interview participants and recruitment:

- Six GPs were recruited from the purposive sampling via the mailshot to GPs working in the Least/Most Deprived areas of Sheffield (*GP12 LD, GP11 LD, GP9 LD, GP8 LD, GP4 MD, GP3 MD*).
- Three GPs sampled conveniently, two of which fit the purposive sampling strategy, from a local group of GPs, called the Cutler Group, interested in research (*GP1 MD, GP2 MD, GP6 AAD*).
- Two GPs were recruited as a result of snowballing from the Cutler Group participants (*GP10 LD, GP7 AD*).
- One GP was recruited conveniently at a social event when she showed a great interest in the project (*GP5 AAD*).

Table 13: Interview participants, Recruitment Method and IMD Practice Score

GP Code	Recruitment Route	IMD Score Rank in Sheffield (1=MD, 91=LD)
GP1 MD	Cutler Group/Convenient	1
GP2 MD	Cutler Group/Convenient	1
GP3 MD	Mailshot/Purposive	7
GP4 MD	Mailshot/Purposive	10
GP5 AAD	Social Event/Convenient	19
GP6 AAD	Cutler/Convenient	33
GP7 AD	Snowballing from Cutler	48
GP8 LD	Mailshot/Purposive	74
GP9 LD	Mailshot/Purposive	78
GP10 LD	Snowballing from Cutler	78
GP11 LD	Mailshot/Purposive	81
GP12 LD	Mailshot/Purposive	84

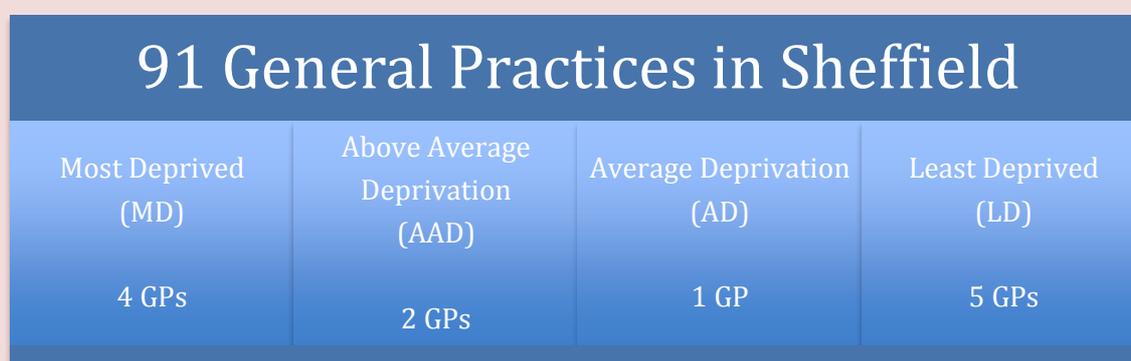


Table 14: The Range of Practice IMD Scores of Interview Participants

The Index of Multiple Deprivation (IMD) score was used to rank practices where GPs who were interviewed worked. Out of the twelve interviews, nine were from GPs working in the extremes of deprivation in the city as per the purposive sampling strategy. The remaining three GPs did not work in practices based in the extremes of deprivation. Some unexpected strengths arose from including these GPs as participants as they were able to compare patients within their practices.

Recruitment to the Focus Group

Recruitment to the focus group took place between 16th January 2012 and 22nd February 2012. The focus group took place on 23rd February 2012. Six GPs were initially recruited but, unfortunately, one of the GPs could not attend due to illness, and so the final number of participants was five. Demographic information about the five who attended the focus group is summarised in the table below.

Again, recruitment to the focus group was initially limited to a purposive sampling strategy of targeting GPs working in the least and most deprived areas of Sheffield through a written postal invitation. Practices had been previously ranked, and divided into five groups by quintiles according to their IMD scores as reported on the practice profiles (ref). GPs working in the MD and LD areas were sent an invitation to attend the focus group (Appendix G). The invitation was identical to the interview paperwork, apart from 'focus group' was substituted for the word interview, and so only one set of documents have been included in the appendix of this thesis. Each pack contained a letter to the practice manager, with separate packs for each GP containing an invitation letter, topic guide, participant information sheet, consent form, demographic questionnaire and reply slip with a reply envelope (postage paid). A reminder letter was sent to all practices a week later, and a follow up phone call one week later. This first stage of recruitment resulted in four GPs confirming attendance at the focus group (FGGP1 MD, FGGP2 MD, FGGP5 LD and the GP who could not attend due to illness whose practice was part of the LD group).

Ideally, focus groups are of between six to eight participants (Pope and Mays 2008) and so the recruitment was widened to GPs whose practice IMD score fell outside of the LD/MD ranges. Both convenient sampling and snowball sampling were then employed as it was felt the yield from the initial mailshot was so poor, and time was limited before the focus group date. Convenient sampling and snowball sampling can be considered appropriate when trying to recruit difficult to reach populations

(Heckathorn D 2011). Participant FGGP4 BAD, was a new colleague at the AUPMC and was sampled conveniently – through snowballing she recruited participant FGGP3 AAD.

Chart 2: Recruitment to Focus Group

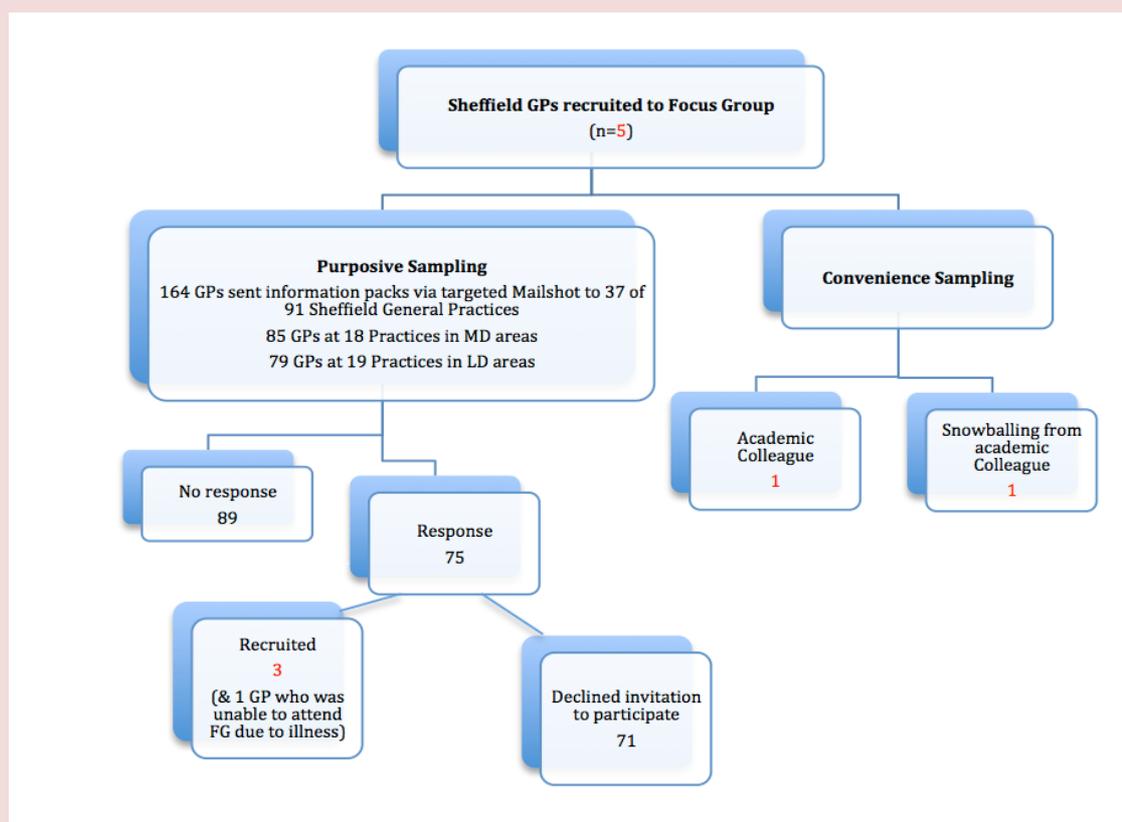


Table 15: Focus group Participants, Recruitment Method and IMD Practice Score

GP Code	Recruitment Route	IMD Score Rank in Sheffield (1=MD, 91=LD)
FGGP1 MD	Mail shot/Purposive	1
FGGP2 MD	Mail shot/Purposive	18
FGGP3 AAD	Snowballing (FGGP4)	22
FGGP4 BAD	Academic Colleague/ Convenient	62
FGGP5 LD	Mail shot/Purposive	81

Table 16: The Range of Practice IMD Scores of Focus Group Participants

91 General Practices in Sheffield			
Most Deprived (MD)	Above Average Deprivation (AAD)	Below Average Deprivation (BAD)	Least Deprived (LD)
2 GPs	1 GP	1 GP	1 GPs

Demographic Information

Interview Research participants

As a result of previous purposive sampling to recruit participants from the extremes of deprivation in Sheffield, four GPs working in the Most Deprived (MD) practices in Sheffield and five from the Least Deprived (LD) practices took part in semi-structured interviews. Recruitment of GPs then had to be pragmatic, due to the low response rate for invitations to participate. Subsequently, two GPs were interviewed from practices of Above Average Deprivation (AAD) and one from Average Deprivation (AD). No GPs were interviewed from the Below Average Deprivation group (BAD).

Eight male and four female GPs were interviewed for this study. Eleven of the GPs interviewed were Members of the Royal College of General Practitioners.

Again, purposive sampling was used to recruit GPs to the focus group, which resulted in two GPs working in the MD areas of Sheffield, one from AAD, one from BAD and one from a LD area. One male and four female GPs took part in the focus group.

The strengths and limitations of recruitment to this study are discussed later in the Discussion Chapter (Section 14.5).

Demographic information about each of the twelve interview participants and five focus group participants is summarised in the tables below:

Table 17: Demographic Information about Interview Participants:

GP code	Practice IMD Score (ranked out of all Sheffield practices)	Gender	Status	Year finished GP training	Practice Population	% Private Referrals (estimates)
GP1 MD	1/91	M	Partner	1984	5,353	0
GP2 MD	1/91	F	Partner	1985	5,353	0
GP3 MD	7/91	M	Partner	1988	5,407	0
GP4 MD	10/91	M	Partner	1985	8,500	unknown
GP5 AAD	19/91	F	Salaried	2007	6,656	0
GP6 AAD	33/91	F	Partner	1986	7,218	0
GP7 AD	48/91	F	Partner	1986	22,000	1-2
GP8 LD	74/91	M	Partner	1996	8,600	10
GP9 LD	78/91	M	Partner	2009	6,750	15-20
GP10 LD	78/91	M	Partner	1992	6,750	15-20
GP11 LD	81/91	M	Partner	2003	7,857	15-20
GP12 LD	84/91	M	Partner	2003	9,386	15-20

Table 18: Demographic information about Focus Group Participants

GP Code*	Practice IMD Score (ranked out of all Sheffield Practices)	Gender	Status	Year finished GP Training	Practice Population	% Private Referrals (estimates)
FGGP1 MD (was GP4)	1/91	F	Partner	1998	5,353	0
FGGP2 MD (was GP1)	18/91	F	Partner	1996	7,682	0
FGGP3 AAD (was GP3)	22/91	F	Salaried	2010	4,505	<1
FGGP4 BAD (was GP2)	62/91	F	Salaried	2010	9,421	<1
FGGP5LD	81/91	M	Partner	2003	7,857	15-20

*FG precedes the codes for these participants to differentiate them from interview participants.

Extra Research Participant Demographic Information

In addition to the information provided in the table above extra demographic details of each the participants is provided below. This is provided as it has been stated that the credibility of research is partly dependent upon providing an accurate description of the setting and participants (Lincoln & Guba 1985 pg 301 – 307).

Interview Participants

Participating GPs from practices in areas of Most Deprivation

GP1 MD

This GP qualified as a doctor in 1981 and finished Vocational Training Scheme (VTS) training in 1984. He is a Member of the Royal College of GPs (RCGP) and has special interests including medical education, social deprivation and homelessness. He practices in the area of highest deprivation in Sheffield and also offers one GP session a week at a shelter for people who are homeless. The practice where he works is ranked first out of the 91 practices in Sheffield when ranked in order of IMD scores. There many nationalities of ethnic minorities registered at his practice, including Polish, Pakistani, Indian, Iraqi, Iranian, Lithuanian and Chinese. However, ethnic minorities only make up 3% of the total practice population, and 24% of the practice population is aged over 55 years.

GP2 MD

This GP qualified as a doctor in 1980 and finished VTS training in 1985. She is a member of the RCGP and has special interests which include GP training and diabetes. She is a partner with GP1 MD at the same practice with the highest IMD score in Sheffield. The demographic information about this participant's practice is outlined above in GP1 MD section.

GP3 MD

This GP qualified as a doctor in 1983 and finished VTS training in 1988. He is the only participant who is not a member of the RCGP. He has special interests in infectious diseases and tropical medicine. His practice is ranked seventh out of the 91 practices in Sheffield when ranked in order

of IMD scores for deprivation. He describes the ethnic minority population within the practice as mixed: Asian, Asian/British, Black, Black/British, Chinese and other. Ethnic minorities make up 4% of the practice population and 20% of the population are aged over 55 years.

HM GP4 MD

This GP qualified as a doctor in 1981 and finished VTS training in 1985. He is a member of the RCGP. He has special interests in diabetes and medical education. His practice is ranked tenth out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. He describes the ethnic minority population within the practice as Pakistani, Afro-Caribbean, Somali, other African and Refugees. Ethnic minorities make up 20% of the practice population.

Participating GPs from practices in areas of Above Average Deprivation

GP5 AAD

This GP qualified as a doctor in 2001 and finished VTS training in 2007. She is a member of the RCGP. She has special interests in genito-urinary medicine and the medical care of ethnic groups. His practice is ranked 19th out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. She describes the ethnic minority population within the practice as Pakistani, Yemeni, Eastern Europeans, Refugees and Asylum Seekers. Ethnic minorities make up 81% of the practice population. She also notes on her demographic form that the practice has a very small number of doctors currently undertaking specialist training and their families, registered with her practice. 15% of the population are aged over 55 years. Also of note is that she added to the question about private referrals on her demographic form that patients sometimes ask the GP about a private opinion and are given the details of private hospitals, but the patients usually ask for an NHS referral.

GP6 AAD

This GP qualified as a doctor in 1982 and finished VTS training in 1986. She is a member of the RCGP. She has special interests in dermatology

and educational supervision of Foundation Year 2 doctors. Her practice is ranked 33rd out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. Ethnic minorities make up 0.19% of the practice population and 26% of the population are aged over 55 years.

Participating GPs from practice in area of Average Deprivation

GP7 AD

This GP qualified as a doctor in 1976 and finished VTS training in 1986. She is a member of the RCGP. She has special interests in medical education and GP training, and has a significant role in this area. Her practice is ranked 48th out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. She describes the ethnic minority population within the practice as Asian, Mixed Asian, African, Caribbean, Chinese, and Other White backgrounds. Ethnic minorities make up 18% of the practice population. The practice serves Sheffield Hallam University and this may account for the low number of patients aged over 55 years. Only 5% of the practice population are aged over 55 years.

Participating GPs from practices in areas of Below Average Deprivation

No participants

Participating GPs from practices in areas of Least Deprivation

GP8 LD

This GP qualified as a doctor in 1990 and finished VTS training in 1996. He is a member of the RCGP. He did not list any special interests on his demographic form but explained during his interview that he had recently given up a role within the PCT looking at referral rates from GP practices. His practice is ranked 74th out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. He does not describe the groups of ethnic minorities within the practice, but does report that ethnic minorities making up a “low” percentage of the practice population. He also describes the practices population of patients aged over 55 years as being “higher than average”.

GP9 LD

This GP qualified as a doctor in 2002 and finished VTS training in 2009. He is a member of the RCGP. He listed 'Generalist' as his special interest. His practice is ranked 78th out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. He describes 30% of the practice population being from ethnic minorities and their backgrounds as being "mixed professionals", and 26% of the population are aged over 55 years.

GP10 LD

This GP qualified as a doctor in 1986 and finished VTS training in 1992. He is a member of the RCGP. He has a special interest in palliative medicine. His practice is ranked 78th out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. He is a partner with GP9 LD and the practice population is described above.

GP11 LD

This GP qualified as a doctor in 1993 and finished VTS training in 2003. He is a member of the RCGP. He described his special interests as drug misuse and medical education. His practice is ranked 81st out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. He describes 90% of the practice population being White Caucasian; he does not offer a list of the remaining 10% ethnic minorities, but describes their backgrounds as being "mixed professionals". 17% of the practice population are aged over 55 years.

GP12 LD

This GP qualified as a doctor in 1999 and finished VTS training in 2003. He is a member of the RCGP. He described his special interests as minor surgery and IT. His practice is ranked 84th out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. He was unable to find out what percentage of patients at the practice are from ethnic minorities, but was able to list the groups as South Asian, Chinese, Japanese, and more recently Eastern European. 32% of the practice population are aged over 55 years.

Focus Group Participants

FGGP1 MD 1/91

This GP qualified as a doctor in 1994 and finished VTS training in 1998. She described her special interest as training. Her practice is ranked first out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. 24% of the practice population is aged over 55 years. This GP is a partner of GP1 and GP2 MD who took part in the interviews.

FGGP2 MD 18/91

This GP qualified as a doctor in 1992 and finished VTS training in 1996. She described her special interest as training. Her practice is ranked 18th out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. 27.2% of the practice population is aged over 55 years.

FGGP3 AAD 22/91

This GP qualified as a doctor in 2005 and finished VTS training in 2010. She described herself as having no special interests. Her practice is ranked 22nd out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. 13% of the practice population is aged over 55 years.

FGGP4 BAD 62/91

This GP qualified as a doctor in 2003 and finished VTS training in 2010. She described herself having an outside role at Sheffield University as an Academic Training Fellow. Her practice is ranked 22nd out of the 91 practices in Sheffield when ranked in order of IMD scores for deprivation. 30.2% of the practice population is aged over 55 years.

FGGP5 LD 81/91

This GP qualified as a doctor in 1993 and finished VTS training in 2003. He is a member of the RCGP. He described his special interests as drug misuse and medical education. 17% of the practice population are aged over 55 years. This GP was the only participant who took part in the focus group and was interviewed (GP11 LD).

7.4 Overview of the Qualitative Results

There are four principal meta-themes, each of which is divided further into themes and sub-themes through which the results are described. The meta-themes are reported in detail in the following sections. The meta-themes are shown in the following results tables 1-4 below and also at the beginning of the each main results sections.

The themes and sub-themes within the 4 over-arching meta-themes will be described and illustrated with quotations from the participants providing the evidence and context for each sub-theme. Where relevant, the similarities and contrasts of the themes uncovered between GPs working in affluent and deprived areas will be described in relation to the research question.

Phase 1: The qualitative research question:

Are the triggers for elective outpatient cardiology referrals different between General Practitioners working in the least and most deprived areas of Sheffield?

Table 19: Illustrating Meta-theme 1 -

'Patient' factors influencing triggers for cardiology referrals

Theme	Section	Sub-theme
8.1 Classical Triggers	8.1 a	History
	8.1 b	Examination findings
	8.1 c	Investigation result
	8.1 d	Medication issues
8.2 Non Classical Triggers	8.2 a	Atypical history
	8.2 b	Memorable patient
	8.2c	Patient/Family reassurance
	8.2d	Age
	8.2e	Number of consultations
8.3* Context & Patient Culture	8.3a	Morbidity & mortality of community
	8.3b	Patient Response i) expectation, ii) fear, iii) reluctance, iv) deference
	8.3c	Communication of symptoms to GP
	8.3d	Private Referrals
	8.3e	Patient Ability to navigate healthcare system

*Theme most revealing of the differences for referral triggers for GPs working with least and most deprived communities

Table 20: Illustrating Meta-theme 2-

'GP' factors influencing triggers for cardiology referrals.

Theme	Section	Sub-theme
9.1 Uncertainty	9.1 a	Specialist Assistance: diagnosis, interpretation, complexity
	9.1 b	Resource shortage: time, investigations, experience
9.2 Referral decisions	9.2a	Decision-making
	9.2b	Risk Threshold and Impact of Situation: stress, fatigue
9.3 Medico-legal		Pressures
9.4 Ownership		GP versus Patient ownership of referral decision

Table 21: Illustrating Meta-theme 3 -

***'Practice'* factors influencing triggers for cardiology referrals.**

Theme	Section	Sub-theme
Practice culture	10a	Pack Pressure & GP with Special Interest
	10b	Strategies to improve quality of referrals

Table 22: Illustrating Meta-theme 4 -

***'Health Care System'* factors influencing triggers for cardiology referrals.**

Theme	Section	Sub-theme
11.1 Referral pathways	11.1a	Chest Pain Exclusion Service (A&E) & Fast Track Chest Pain Outpatient Clinic
	11.1b	Community ECG service
11.2 Referrals Monitoring and Management	11.2a	Positive views
	11.2b	Negative views
11.3 NHS as a market	11.3 a	Resources and Referrals Data Presentation
	11.3 b	Financial incentives & QOF
11.4 Relationship between GPs and specialists		Value of direct communication & relationships (links 10b iv)

The remainder of this chapter provides a full description of these meta-themes.

RESULTS PRESENTED THROUGH META-THEMES

This project aimed to explore potential causes of health inequity with regard to premature mortality rates and higher proportions of 'emergency' over elective cardiology referrals for people from deprived areas in Sheffield. Initially the research question was limited to be concerned with cardiology outpatient referrals. This was an attempt to narrow the research question to an area where health inequity was in evidence.

However, during the semi-structured interviews and the focus group, participants discussed patients' case histories and gave examples of patients who had experienced various pathways to secondary care, e.g. via A&E or the chest pain exclusion service.

Rather than exclude these data, as although not directly answering the research question, it was seen as important to include these examples in the results of the analysis. This was firstly through respect to the participants who had taken time to revisit these cases in preparation for the interview, but also as the emerging data was seen to be of great relevance to the analysis. In keeping with the background data, to give one example, it was found that the GPs from the MD areas emphasised using 'emergency' 'on the day' services more than the GPs working in LD areas.

During the data collection, participants also described patients they had referred to specialities other than cardiology. As this was primarily an exploratory qualitative project, participants were not directed away from describing other types of referrals and the data about these has also been analysed as it was of relevance to the differences experienced by GPs working in contrasting areas and contributes to further understanding of potential sources of health inequity. When cases deviate from outpatient cardiology referrals, the type of referral the GP is describing will be defined for clarity.

This meta-theme illustrates the factors relating to *'patients'*, which participants reported as influencing their triggers for referrals. The first theme within this meta-theme is the 'classical' (8.1) symptoms or findings of heart disease discovered through history taking, examination or investigations. Participants also reported issues surrounding medication as a trigger for a referral.

The second theme describes the atypical or 'non-classical' triggers for referrals (8.2) reported by participants. This includes the sub-themes surrounding triggers for referrals, which would not be formally taught to doctors or described in books: it includes examples of patients with atypical histories or memorable features, patients who need reassurance, the influence of age or patient frailty, and finally the influence of numbers of consultations.

The third and final theme (8.3) describes the influence of the 'context and patient culture' on referral triggers. This firstly includes descriptions made by the participants about the morbidity and mortality of their community. Then factors associated with the patient response to symptoms are explored through the sub-themes: patient expectation; fear, reluctance, deference, and ability. Other sub-themes included communication, private referrals and the patient's ability to navigate the healthcare system. The 'context and patient culture' theme and its sub-themes were found to be of most relevance to the Research Question, highlighting most clearly the differences in experiences of GPs working in least and most deprived areas and the influence this has upon their referral triggers.

**Table 19: Illustrating Meta-theme 1 –
‘Patient’ factors influencing triggers for cardiology referrals**

Theme	Section	Sub-theme
8.1 Classical Triggers	8.1 a	History
	8.1 b	Examination findings
	8.1 c	Investigation result
	8.1 d	Medication issues
8.2 Non Classical Triggers	8.2 a	Atypical history
	8.2 b	Memorable patient
	8.2c	Patient/Family reassurance
	8.2d	Age
	8.2e	Number of consultations
8.3* Context & Patient Culture	8.3a	Morbidity & mortality of community
	8.3b	Patient Response i) expectation, ii) fear, iii) reluctance, iv) deference
	8.3c	Communication of symptoms to GP
	8.3d	Private Referrals
	8.3e	Patient Ability to navigate healthcare system

*Theme most revealing of the differences for referral triggers for GPs working with least and most deprived communities

8.1 Classical Triggers

All participants (n=12) commented on classical biomedical symptoms and signs of heart disease as a trigger for referrals to cardiology specialist clinics. This theme is divided further into the sub-themes of history, examination findings, investigation results and medication issues.

This quote illustrates how GPs respond to patients presenting with classical symptoms of heart disease:

“with this story, three days constant tight, central pain and shortness of breath, there would have been no hesitation or doubt in my mind, you know, if 100 patients came and tell me that, 100 patients will be referred to the Northern General.” (GP1 MD)

8.1a History

This section includes themes describing patients’ symptoms, details about their past medical and family history that can act as a trigger for referrals. Doctors are trained to recognise the classic symptoms that can indicate a problem with a patient’s heart that requires specialist assessment. Naturally, when a GP hears from a patient the classic symptoms of heart

disease, these details act as important triggers to refer patients to specialist cardiology services. All the GPs interviewed cited a selection of these factors as triggers for referrals as illustrated in the following quotes:

“So it was burning in his chest and it had been harder to breathe... it would happen every time he went up the stairs... not on the flat but he walked up a hill and then I thought, OK, this is, now I know what we’re talking about.” (GP5 AAD)

“he’d ’had a two or three week history of central chest pain, which made him feel sweaty” (GP12 LD)

The relationship of chest pain to exertion was found to be a key trigger for a cardiology referral for GPs:

“It’s the relationship to the exercise and the pain that made me want to refer him...” “...it was the fact he got it when he walked up a hill.” (GP8 LD)

“He’d been getting some increasing chest pains over the previous few weeks to months, it sort of felt stretching out quite some time, but he was getting these pains two or three times a day, he described it as a tightness in his chest and was worse with cold and exercise and was relieved by a GTN spray after a few minutes and helped by rest.” (GP2 MD)

Participants also explained how a patient’s past history influences their trigger for referral:

“I sent him back to Doctor X (consultant) because of the fact he’s had the previous treatment and he’s symptomatic, so he’s feeling a bit light-headed and a bit breathless on exertion, which he wasn’t until this happened.” (GP10 LD)

The next quote is from a GP who was concerned about a male patient who had previously undergone heart surgery, but was still experiencing chest pain. The GP believed the pain was probably related to the scar through his sternum, but could not be absolutely sure:

“There was also the element that this man is 44, in mid-life, with work and so on and he’s a high risk individual ... he is a high risk individual, he needs, in that if he does have some, even if it’s a small chance of him having something wrong, he really needs, he’s entitled to a specialist opinion.” (GP4 MD)

This quote illustrates how a young patient can lower the threshold for GPs to make a referral and links with Section 1.2d Age. This is summarised by GP1 MD as he describes one of his strategies to help with decision-making is to weigh up:

“The chances of being right (diagnosing non-cardiac chest pain) ... against the consequences of being wrong (missing an ischaemic heart disease diagnosis).” (GP1 MD)

Part of patient history taking involves assessment of an individual’s risk for heart disease through certain evidence-based factors, such as smoking, cholesterol, past medical history etc. If a patient was found to possess risk factors, then this could act as a trigger for referral. Here the patient’s smoking history is described as influencing the referral decision-making for this patient:

“And if you just looked at the tightness in the throat and the feeling that she was going to pass out, I suppose, and I’m sure she’s an ex-smoker or has been a fairly heavy smoker, so there’s those other things, isn’t it...” (GP2 MD)

Some cancer treatments can be less well-known risk factors for heart disease than smoking or diabetes. This participant described how diabetes

and a previous history of cancer influenced his referral decision for a patient when asked to think about his reasons for referral in detail:

“His history, so he is diabetic by the way, so he’s already had two quite bad cancers, so I guess that maybe played on my mind, that generally when this bloke comes in complaining of something, he generally has something quite bad!” (GP12 LD)

Continuity is important in this case as the GP regards his presentation as serious as he obviously knows the patient, his response to symptoms and his history well; he is incorporating his previous experiences of this patient who has only presented in the past with serious illness, into his decision-making about when to refer. The GP’s previous experience of this patient’s health seeking behaviour lowers the GP’s threshold to make a referral.

A patient’s family history was also found to be a significant factor when the participants deliberate over a referral decision as described in these quotes below:

“He has a son who had a heart attack when he was 30. Strong family history, yes, yes, so his brothers and his father, but I can’t remember about those, but his son will always stand out in my mind.” (GP2 MD)

“Researcher: Were there any other factors or issues involved in the referral?”

Participant: No, I mean, really, I think it was straightforward, apart from his family history was then, when I found out, that was a reason to say, yeah, we’ll definitely refer and he said, yeah, I’ve already survived 10 years over my dad, which is quite a powerful statement to make, to encourage you to refer, so.” (GP9 LD)

The significance of a family history of heart disease is, of course, only of physical relevance to an individual if they are a biological relative; however, one participant pointed out the influence of a patient’s husband dying suddenly of a myocardial infarction on her decision to refer:

“With her husband’s story and her persisting story, it felt eventually that I could no longer hold that risk.” (GP7 AD)

8.1b Examination findings

In the case histories presented during the interviews, participants described various examination findings, which triggered them to make a referral as shown in the quotes below.

“Why did I refer her... that was for an echo, because she had a murmur.” (GP8 LD)

“he came to see me, yeah on 6th September saying his heart was irregular, I examined him and thought, I well I wasn’t sure it was ectopics or it was AF, it wasn’t really very obvious one way or the other, it was certainly irregular, so, in fact, I sent him for an ECG.” (GP10 LD)

This participant described how his practice population has changed with a community of people from Eastern Europe who have moved into his practice area. He described how the practice was referring more children to paediatric cardiology from this community:

“this is a Roma... a gypsy from Slovakia” “So this child had a, sort of, murmur and her mum thought she was going blue” “...the other one I’ve sent was a small baby, 44 weeks, again, a child from Eastern Europe .. I thought this was a significant murmur, possibly a VSD or like.” (GP4 MD)

This group of patients were used as an example of a negative case analysis, as they were not typical of patients as described by GPs working in deprived areas. This will be discussed in more detail in section 8.3 Context and Patient Culture.

8.1c Investigation result

The participants, along with history and examination findings, described investigation results as triggers for referrals as illustrated below:

“I sent him for an ECG which showed classic atrial flutter, so I thought, I’ll put him on Sotolol and Aspirin and I sent him back to see Doctor Sahoo.” (GP10 LD)

“So I organised an ECG which showed prolongation of the QT intervals so I did discuss it with a cardiologist on call and they suggested referring this lady.” (GP6 AAD)

One participant explained how the report from an Echo prompted one of his referrals:

“there, it says it in bold letters on there, it says suggest cardiology referral.” (GP12 LD)

This is also an example of a protocol-driven referral, where official guidelines, in this case on the report from the hospital, trigger this GP to make a referral. This links with Meta-theme 4 ‘Health Care System Factors’.

8.1d Medication issues

Finally under the thematic heading of classical triggers of referrals, medication issues were found to be a frequent referral trigger.

Some participants reported the complexity of medication regimes as a trigger for referrals. This GP spoke to the cardiology registrar to see if there were any obvious medication changes that could be made to avoid a referral, but there were not:

“this was more a management (of medication) one really.” (GP12 LD)

This GP referred to cardiology due to the patient's poor compliance due to side effects:

She unfortunately hates these tablets, she gets terrible side effects from her Beta blocker and she thought also the Simvastatin ... she kind of, really resents this diagnosis of angina and keeps coming to see me saying 'I want to stop these tablets'.... her Atenolol was changed to Bisoprolol because the cardiologist thought she'd get less side effects on Bisoprolol but she still feels dreadful and she preferred life with angina and no medication to life on the medication." (GP3 MD)

This participant described how her patient repeatedly presented with symptoms and was reluctant to take her medication for hypertension. After seeing a cardiologist the patient was not found to have any significant heart disease,

"but that the cardiologist managed to persuade her to take medication that I'd not managed to persuade her to take, and she came back beautifully controlled, back with beautifully controlled blood pressure." (GP7 AD)

The trigger for referral was the patient's repeated attendances with the GP, but a positive outcome was the improved compliance with medication.

Summary of the Classical Triggers Theme (8.1)

This section outlined how patient factors including history, examination, investigation findings and medication issues can act as triggers for cardiology referrals. The emergence of these themes is not unexpected as these are the '*classical triggers*' that GPs would be formally trained in to seek help from specialist to provide expert assessment of patient management. This section did not find any differences in the themes regarding the triggers for referrals between GPs working in least and most deprived areas.

Participants also described patients who triggered referrals as having symptoms or histories that did not always fit the classical textbook picture of cardiac pathology. This theme is further organised into five sub-themes: atypical history, memorable patient, patient reassurance, age, and number of consultations.

8.2a Atypical history

This GP was describing a patient who wasn't diagnosed immediately with angina as the symptoms he presented with were not classical:

“He'd been fit and well but then did have some chest pain although it wasn't typical by any means because he had diarrhoea and some back ache and I think when he first came in he kind of almost didn't mention the chest pain, it was really kind of bizarre and he had had a myocardial infarction but his presentation was so atypical that we didn't refer him at first because of the way he presented. And you would have thought with that family he'd have been saying 'look, my dad died at this age and I have had some chest pain' but he didn't even mention chest pain, it was – I can't remember exactly – but it was extraordinary really.” (GP6 AAD)

GPs are obviously aware that cardiac symptoms may not always present in a nice neat symptom package, and this GP tries to explain the process of sifting the symptoms presented by a patient:

“This is a lady I know well who comes quite a lot, in contrast, who is 75 years old, often with slightly, sort of, vague symptoms, so she came, because she was concerned something was not right, she'd had a couple of episodes and the difficulty of teasing this out and what I've put isn't it, I think the consultant found it difficult also to tease out the symptoms, but I think, because it was two separate things, she described episodes of tightness in the throat, but also episodes where she thought she was going to pass out and then heaviness in the arms.” (GP2 MD)

In the following quote, the participant discussed how a patient's symptoms could have easily attributed to a muscular pain rather than cardiac:

“A case like this, you know, because you could have easily have just said, ah you've got a bit of muscular pain in your arms, its nothing to do with anything, it's not exertional.” (GP10 LD)

The previous section (8.1a) described that if patients described chest pain as being associated with exertion, that this was a key trigger for a referral. This was also the case even if the symptoms were not of classical central or left sided chest pain. When this GP was asked what the actual trigger for her to refer a patient who had been seen repeatedly by several doctors at the practice, she replied:

“I think it was the exertional nature of it. He had a particular way of describing it ... he said it's burning, which is probably why people had thought about indigestion before.” (GP5 AAD)

Abdominal pain is not a classic feature of heart disease, but this participant described a patient with abdominal pain who went on to be diagnosed with heart disease. This symptom concerned the GP as a presenting feature when it was associated with exertion:

“he was complaining of an ache in his abdomen really, so it's abdominal symptoms when he's walking up a hill and it's the relationship to exercise and the pain that made me want to refer him and he turned out to have angina and had a bypass” (GP8 LD)

This GP described a patient who did experience exertional chest pain but was slightly atypical in that it was only once a day. However, this was enough to trigger the GP to make a referral:

“the fact that it always came on in the same place after he'd walked this distance up a hill, Even though he said that if he walked into

town later on in the day and back up the hill, he never got it, it was only like once a day that he had this pain, but it was the regularity of it and the fact it was a, sort of, tight vague chest pain that obviously made me think this is probably angina.” (GP3 MD)

8.2b Memorable Patients

Several GPs recounted case histories about memorable patients they had made referrals for. They stood out to the GPs for the various reasons outlined below. The memorable patients described in the quotes below were not necessarily a ‘trigger’ for a referral, but the stories described were thought to be important as they describe incidents of some significance to the participants of this project, and as such could potentially influence their referral decisions in the future.

This patient was memorable to the participant as he died of a Myocardial Infarct at a very young age; this was despite being referred twice by the GPs to cardiology specialists. He had been assessed by the cardiologists as not having heart disease very shortly before his death. Here the GP was discussing why the patient’s heart disease may have been misdiagnosed. It appears that he had the classic symptom of heart disease as he was complaining of chest pain, however, his history was atypical as he was very young, and the treadmill test didn’t stress his heart enough to bring on his symptom of chest pain and so his diagnosis was missed:

“So normally daily activities, he didn’t get chest pain, but he got chest pain after, sort of, strenuous activity at the gym and I thought, well, that’s angina really, so I referred him and he had an exercise tolerance test which was negative, because that’s a 10-minute test and a couple of weeks later, he died with an MI ... I think it was because he was young and, obviously, it’s very unusual for a 35-year-old, I think he was, to have angina. But he’d got lots of risk factors, he was still a bit overweight, he was Asian, he was diabetic, he was a good candidate, and his dad’s had an MI and he was a

taxi driver and he died driving his taxi, he had a cardiac arrest driving his taxi.” (GP3 MD)

This participant recalled a patient she described as attending a routine GP appointment with dramatic symptoms:

“he didn’t look perturbed at all and he said, through the interpreter, I’m not surprised (to be admitted to hospital) my heart’s been hurting me today and he’d had four hours of central crushing chest pain.” (GP5 AAD)

The following patient was memorable as there was a personal connection with the GP. Also, the patient had presented atypically with abdominal pain but due to the relationship to exertion, the GP had become suspicious and referred on:

“he was the uncle of somebody I was at medical school with, so that’s why I, sort of remember it particularly” “...this is something that stands out in my mind because it was a fairly tricky presentation, so I feel quite good that I picked it up and you know, it turned out to be positive.” (GP8 LD)

The following is an example of how memorable patients can change practice:

“The midpoint of my career, I can remember when we did out of hours work, being called by a really nice chap, an ex-coal miner, with chest pain, and I can remember thinking oh bloody hell, it’s three o’clock in the morning, but I did get out of bed and I did drive over, you know, across to the other side of the city to see him, and got there in time to certify him dead, because he’d died while I was driving across... And so there’s a point at the beginning of my career where good doctors did not tell their patient to ring an ambulance, there was a midpoint in my career where I did go out and visit but wondered if I was doing the right thing, and now I’m

very aware that if a patient rings me with chest pain over the telephone, I say look, fella, either yourself, or somebody who's with you, when I put this phone down, just dial 999 and get an ambulance... So it's a redefinition of what good practice is, really, and I'm aware that that's happened over 20 years." (GP1 MD)

When talking about a patient who presented with very 'atypical' symptoms and turned out to have had an MI:

"I think cases like that and other cases have just made us really quite careful these days." (GP6 AAD)

8.2c Patient Reassurance

Several GPs when discussing cases they had referred to cardiology, mentioned the difficulty of differentiating between anxiety and cardiac symptoms, and of the need of specialist reassurance at times as a trigger for a referral to cardiology:

"So it can be difficult because this is, so in essence, this is someone who often comes with, you know, medical physical symptoms but, often the underlying problem is her anxiety and depression ... trying to weigh this up, is it a true physical symptom." (GP1 MD)

"Patient anxiety, slightly doctor anxiety I suppose, a small chance of it being a problem but probably anxiety." (GP6 AAD)

The following quote was from a GP describing one of his patients with palpitations whom he referred to cardiology when he was unable to reassure the patient through his own consultations:

"I did not think [it] sounded pathological, they sounded much more, sort of, stress, anxiety, lifestyle stuff, you know they were not prolonged, they got better when she went on holiday, all those kind

of things, but she was much more, she wanted to see a cardiologist.” (GP11 LD)

This GP is describing the need for a specialist to give his patient reassurance:

“the GP says, I don’t want certainty – I just want you to, you know, lay on hands and reassure.” (GP4 MD)

This was echoed by several other GPs demonstrating the useful function of patients being seen by cardiology specialist for reassurance at times, as it allowed the patient and GP to move on:

“really this guy needed heavier duty reassurance than I could give him but he hasn’t got cardiac pain.” (GP4 MD)

“So the decision not to refer her for all those consultations was right, but I don’t think we could have carried on without that reassurance.” (GP7 AD)

“there is a minority of people that you’ve just got to, as part of the reassurance process, they have to see a specialist, you know, as part of the reassurance process.” (GP8 LD)

This GP who works with high proportion of Asian patients denied there being much demand for referrals, but a high demand for reassurance through cholesterol and diabetes checks after a 30-year-old taxi driver from their neighbourhood had died very suddenly:

“(he) just dropped dead” “they didn’t come in and say, I want to see a cardiologist, they came and said, will you check my cholesterol and my blood sugar.” (GP5 AAD)

This participant works in an unusual practice as one of his colleagues is a GPSI in cardiology. He described his normal pathway for reassuring

patients that he did not believe to have a pathological problem with their heart; he went on to say that after he had examined the patient, organised for the patient to have an ECG, he would then discuss their case with the GPSI at the practice:

“I think once we’ve gone through that, it’s pretty rare that people are not reassured and if they weren’t I would refer them because, well I can’t reassure them anymore, but that’s pretty rare.” (GP8 LD)

At times, referrals can be triggered by a patient’s family needing reassurance, rather than the patient themselves:

“I think one of the things she conveyed to me was some anxiety from her family. And I think that might have been the final thing that tipped me into thinking I should refer her... And you made that referral because they dropped in the doctor is the daughter or, you know? And you think, were you truly fair to that other person that didn’t have that person of rank and power in their family.” (GP7 AD)

8.2d Age/Frailty

A theme about patient age and frailty emerged from the data as a factor influencing triggers of referrals. GPs reported if patients were extremely elderly and frail they associated this with a reluctance to be referred. Whereas, younger patients even if they had equivocal symptoms, were referred as the consequences of missing a diagnosis was seen as more important. These themes are illustrated by the quotes below:

“She’s probably not got cardiac chest pain, but she’s 56 and the consequences of being wrong are quite high so, you know, in that sense, for me it’s not a dilemma (to refer).” (GP1MD)

“this man is 44, in mid-life, with work and so on and he’s a high risk individual.” (GP4 MD)

“I was obviously concerned about his, the severity of his symptoms, he’s only 55 as well, so he’s not a particularly elderly bloke.” (GP12 LD)

The GPs’ responses to very elderly and frail patients is summarised in this quote:

“the main body of people we wouldn’t refer is really elderly frail people who don’t want to be referred, who don’t want intervention.” (GP6 AAD)

When exploring this theme further with GPs, one of the participants who works in a extremely deprived areas of Sheffield described one of his patient’s feelings about referral. The patient was 70 years old and remained very active and generally fit, so the GP felt she very much warranted a referral. However, the patient herself was reluctant:

“she certainly wasn’t keen, she didn’t want any investigations.” (GP3 MD)

This was in contrast with a GP who works in a more affluent area, who when asked if patients ever are reluctant to attend hospital from his practice, he responded:

“No, that’s rare, that’s really rare here, that’s really rare, I’d say I can think of one or two really old men who would say, well you just sort it out here doctor I don’t want to go to the hospital, but that’s really, I mean they stand out, I can think of two or three, well one or two that would do that, yeah, that’s rare, yeah.” (GP8 LD).

National financial targets for payments (QOF) for GPs were described as influencing referrals of elderly patients at the time of diagnosis. When the interviews took place, one of the targets was to refer all newly diagnosed patients for exercise testing through a cardiologist:

“in the past, say, for instance, you had an 85-year-old who was relatively frail physically, who had developed obvious angina, clinically in the past, I would have given them a GTN and said try it, I would have said well did it work, did it not, did it make a difference? ... I probably wouldn't have referred them.” (GP10 LD)

The effect of QOF and the subsequent withdrawal of this target is discussed later within the Meta-theme of *'Healthcare system factors'* (sub-theme 4.3b).

The outcome of referring an elderly, newly diagnosed, patient with heart disease was described by this GP. The patient was an 84-year-old Yemini gentleman whom she had referred to the cardiologist as she had newly diagnosed him with angina. There had been a delay due to an administrative error:

“He was finally seen and a consultant wrote a slightly shirty letter back saying that, actually, he thought he'd had his chest pain for several months but, you know, he was started on some treatment. He didn't have any follow up, it was just presumed, from his history really.” (GP5 AAD)

In this case the consultant viewed the referral as unnecessary and actually this target was subsequently removed from the QOF target system to allow GPs the freedom to initiate treatment without referring very elderly or inappropriate patients if they thought appropriate.

The theme of age prompted a deeper questioning of participants about patients' reluctance and this revealed the first differences between GPs working in LD and MD areas. This showed increased reluctance to being referred from patients presenting to MD GPs in contrast with evidence of very little reluctance from patients presenting to LD GPs. This is explored further in *'Patient Fear and Reluctance'* (Sub-theme 8.3ii).

8.2e Numbers of Consultations

Participants described patients who attend frequently with the same symptoms as a trigger for referral:

“I’ve heard you say this too many times, and I can’t carry on reassuring you... because she kept reporting the symptoms to me that actually, I had to take action and we had to know what was going on... if you keep telling me about it, I’m going to have to do something about it.” (GP7 AD)

Anxiety and need for reassurance seemed to be the motivator for patients repeatedly attending and reassurance has been considered in more detail earlier in section 8.2c:

“his worry was about his heart and I thought it was quite clear that three people have already had a go at trying to reassure him in the field and I thought if it’s clearly, there’s no point beating around the bush anymore, he may as well actually, sort of, go ahead and embrace the, get on with it (the referral)” “ at some stage, you’re simply a war on time, or the patient goes from doctor to doctor to doctor and you think, oh, you know, at least lets make a positive stab at this.” (GP4 MD)

“the pressures on the GP, if the patient is very anxious, you know, they can have minimal risk factors, and you have to be quite tough if they persist and push you to say, no, I’m not referring you, this isn’t -, because at the back of your head, there’s always that, you know, the one 30-year-old with no risk factors who does drop dead.” (GP5 AAD)

This GP describes using repeated consultations with a patient to build trust in order to allow her to refer him. This again is a patient needing reassurance but in contrast with the patients above who require a referral to be reassured, this patient needs the support of the GP to allow his fears to be reassured about attending hospital:

“let’s go with him and just have a bit more time to, sort of, talk this through and win him round ... so that’s another bite of the cherry.”
(GP2 MD)

Summary of Non Classical Triggers (8.2)

GPs from all areas cite examples of patients who present with atypical symptoms, which can trigger a referral especially if symptoms are associated with exertion. The need to reassure patients was also found to be an important trigger for a referral, and is again described by GPs working in both LD and MD areas. GPs presented cases that were memorable to them as part of the interview and the strengths and limitations of this are discussed later in the discussion (Section 14.5). The frailty associated with advanced years was found to inhibit a referral trigger for GPs working in MD and LD areas. Finally, numbers of consultations were found to be significant in two aspects: firstly as a trigger for a referral if a patient presents repeatedly, but also as a tactic used by GPs to either encourage a patient to be referred or to prevent a referral. The theme of ‘Non Classical Triggers’ for referrals, as for the previous theme of ‘Classical Triggers’, shows no clear difference between GPs working in least and most deprived areas.

This section considers the influence that themes surrounding ‘context and patient culture’ have upon GP referral triggers. There was a marked difference between GPs working with patients from contrasting socio-economic positions under this heading as illustrated by the examples below. The first quote is from a GP working in an area of above average deprivation, which contrasts with the second and third quotes from GPs working in areas of least deprivation in Sheffield:

“a lot of them (patients at the practice) are very poor, their lifestyles, their life’s difficult, communication’s a problem, understanding the health system, expectations of illness and, you know, not having the understanding of the implications, I guess, or the resources.”
(GP5 AAD)

“a lot of our patients, because they’re educated, have quite clear views about what they want to happen ... I don’t think we get probably quite as many patients coming in saying, oh I’ll just leave it up to you doctor as other practices might.” (GP12 LD)

“Certainly in this quarter. But, you know, interestingly, despite what I’ve told you about private medicine, we, in this corner of Sheffield, are higher referrers compared to other parts. And I personally don’t think that means we’re rubbish doctors, I think it’s a function of demand.” (GP10 LD)

8.3a Morbidity and Mortality of Community

The significant differences in mortality and morbidity between least and most deprived areas of Sheffield have previously been described in the Introduction. The following qualitative data reflect the health inequities of higher rates premature mortality, multimorbidity and emergency admission for people living in deprived areas; this section presents those inequalities as seen through the eyes of GPs working with these contrasting communities.

Firstly, these initial quotes are from GPs working in MD areas, describing the health of their patients:

“round here, people are poor, live in poor housing, smoke and drink more, have more mental health problems, more everything.” (GP3 MD)

“particularly working round here where you see so much real illness.” GP6 AAD)

Previous research has shown that patients living in deprived areas experience higher levels of multimorbidity, and this was reflected in the qualitative data:

“a lot of my patients who do present with problems have got problems” “if they’re not ischaemic heart disease, a lot of pulmonary disease.” (GP1 MD)

“I’ve sent a couple of children up recently because we did a lot of people from Eastern Europe and from Africa, we’ve got a big refugee population here ... people don’t just have single problems here, they have multiple problems.” (GP4 MD)

Many of the cases that the GPs from the MD areas presented were about emergency rather than elective referral decisions, or about patients presenting directly to Accident and Emergency:

“I had a very young guy who died and I was very upset about that, really, we were all very upset about it, but he was a diabetic guy, a taxi driver, who had, he was overweight and diabetic, he was only in his mid-thirties.” (GP3 MD)

“And I, sort of, saw a classic patient (for the practice), elderly, type 2 diabetes, had just felt crap for two weeks, was short of breath, had been in (hospital) the week previously and I don’t know what it was about her that made me think, she’s had a silent MI, but she just looked grey and it was the way she described having no energy.” (GP5 AAD)

This GP describes one of her patients who had been experiencing severe chest pain, but had been to work and waited for a routine appointment to see her:

“he said through an interpreter, I’m not surprised (about being referred to hospital), my heart’s been hurting me today and he’d had four hours of central crushing chest pain while he’d been at work and it was a routine appointment, I sent him over to A and E and they stented him that night.” (GP5 AAD)

Experiences like this has led the same GP to feel that:

“there’s a huge amount of pathology that we don’t know about. There will be lots of silent events and people, again, their health literacy is poor, they struggle with diabetes, education.” (GP5 AAD)

This GP reports a “mixture” of patients with both physical pathology and also the “worried well”, but that she feels patients can present very late to her practice in the most deprived area of Sheffield and describes a ‘normalisation’ of symptoms which reinforces findings of previous qualitative research as presented in the introduction:

“working here, you’re also aware that people just don’t come, and normalise (symptoms) because we’ve got a very, compared to other parts of the city and certainly other parts of the country, we’ve got sort of high levels of, very high levels of deprivation are mirrored by high levels of morbidity and particularly, cardiovascular morbidity...in the community, it’s also fairly normal for a middle aged man ... all his family all had it, didn’t they, which one level does make you worry and go and do something about it and another ...well there you are, it will happen to me, won’t it.” (GP2 MD)

“I certainly always live with that feeling, that people do present late ... its part of the, sort of, normalising it, because if everybody’s got angina, you know, everybody’s got angina.” (GP2 MD)

“I saw one guy with his son, elderly guy with type 2 diabetes who literally, they knew he was probably having a heart attack, he’d been in the Mosque praying and he’d had central crushing chest pain for about four hours that day and all over the weekend, but they hadn’t been to A&E and they just sat very calmly and told me that’s what they thought was happening, probably it was his heart.” (GP5 AAD)

“I suppose it shocks me, and it still shocks me, how accepting people are of their heart disease and their relatives heart disease”
“its just, sort of, not quite that that’s your lot but yeah, or an acceptance, I some people, some Asian people just accept it because they see it all around them and I think it’s the acceptance of it.” (GP5 AAD)

This participant moves on to thinking about how to improve health in deprived areas:

“think it’s so difficult for our practice population. I think how do you improve people’s health literacy? You know, you need, kind of, such an intensive approach, their socio-economic status, their expectations, their understanding. I suppose if we had, I mean, even if we had half an hour with each patient, there’d (still) be the people that didn’t come.” (GP5 AAD)

Themes describing high prevalence of illness and high numbers of acute admissions needing emergency admissions reported from GPs working in MD areas did not arise from GPs working in the LD areas. The emphasis from GPs working in LD areas was on patients they had referred to cardiology electively, some of whom had serious heart conditions, but there wasn’t the overwhelming feeling of disease burden and emergency triggers of referrals that the GPs from deprived areas portrayed.

This GP from a least deprived practice, when asked if he had an awareness of patients attending A and E as emergencies for heart problems, did not feel this was a problem in his area:

“I don’t think so. It doesn’t feel like it, its not something we’ve ever studied, you just get an awareness of it as seeing the post come through and stuff like that.” (LD 11 LD)

This GP from a LD area of Sheffield alludes to his patients normally understanding and acting upon a serious symptom such as chest pain through an example of patient who was not 'typical' at his practice, who was living in his practice area as he was working away from home as a caretaker at local school:

"to be blunt, I would anticipate this would be more of a patient not from this area who happened to be living in this area, if that makes sense... he was a guy who wasn't from round here...he didn't really know the significance of his chest pain...he'd had these investigations a year before and wasn't clear what the outcome was and never turned up for them, which is quite unusual for people who we normally see." (GP9 LD)

The same GP described another case as 'straightforward', which in comparison to some of the cases from GPs described from MD areas seems an appropriate description:

"from a patient demographic point of view for this area, he seemed you know, I think he's quite educated and probably... a professional you know, so probably knows a bit more about the relevance of ischaemic heart disease and things like that... so it was a, kind of, straightforward thing, really." (GP9 LD)

Contrasts with this quote about a patient from an area of AAD:

"He hasn't got a full, you know, understanding to realise what cholesterol is, what cholesterol does, what the aims of these treatments are and, probably, certainly, I think it would take probably 40 minutes to have that chat properly. And although we've had little stabs at it, yeah, I think he's not used to taking tablets, he hasn't got anyone to support him taking them. He has had some side effects from them and he doesn't really understand the rationale for taking them." (GP5 AAD)

This participant is working in an area with a high proportion of patients from diverse ethnic backgrounds. She spoke of the difficulty of prescribing medication in an understandable way to her patients:

“each time he comes in, we get out the packets of medicine and I think with him, actually, I drew pictures on the pill packet of how, so two round circles were the ones he need to take twice a day and that kind of thing a moon for night time and a sun for morning, so squeezing all of that into 10 minutes is quite challenging” “he’s probably still really inadequately treated just because, you know, he got headaches with his beta-blocker and I had a look at what had happened just when I was looking at these cases and seeing another doctor. And his cholesterol was high and he’s not taking his statin properly so” “I think he’s not used to taking tablets, he hasn’t got anyone to support him taking them. He has had some side effects from them and he doesn’t really understand the rationale for taking them.” (GP5 AAD)

This GP described spending repeated consultations with an interpreter to aid compliance. This adds to the evidence of previous research described in the introduction concluding that for GPs working in deprived areas experience high workloads due to their patients being more likely to suffer from multimorbidity and psychosocial problems, than patients in more affluent areas.

8.3b Patient Response: i) Expectation

Patient expectations were found to be of significant importance when considering GP triggers for referrals; significant differences in perceptions of patient expectation were found between GPs working in MD and LD areas. This is summed up in this quote from a GP who works in one of the few practices in Sheffield which serves patients from varied socio-economic backgrounds. GP7 works in a practice classified as having ‘average deprivation’ and, as such, was not initially part of the purposive sampling. However, despite this, due perhaps to her working in one of the

few practices in Sheffield with patients from varied backgrounds, she offered great insight into the differences between patients:

“lots of different pressures, to refer and not to refer, because if you have somebody that comes along who is, say, from a professional background, or who has family who are a professional background, the pressures to refer there are often greater, than if you have somebody who has, you know, a manual worker or has not got the same rank in society. And the people backing them, the same rank in society.” (GP7 AD)

GPs working in least deprived areas described high patient expectations. This GP works in one of the most affluent areas of Sheffield and is describing one of his patients that he had referred to cardiology with an abnormal heart rhythm:

“when he came in the first time, his expectation would be to end up with a referral... I think our patients do have a lower threshold to actually ask for a referral. And also if they detect any doubt on our part or, you know, being unsure, they’re often more likely to ask for a referral.” (GP10 LD)

The GP goes on to talk about patients at the practice and how some doctors have struggled to cope with the high demands from patients:

“I think our patients are demanding. We’ve had various doctors working for us over the years who’ve left, stopped working for us because of the level of demand we have from this group of patients.” (GP10 LD)

When asked what the demands were for, he replied:

“Of us, more than anything else and, kind of, ability, explanation, knowledge ... I’m saying more demanding in some ways, but they’re less demanding in others. We probably, I would imagine if

you looked at our numbers of consultations and compared them to a more deprived practice, per head of population, they might be less. There might be more items on the agenda in those consultations and they might take longer.” (GP10 LD)

Another GP from a less deprived area supports the concept of high patient expectations influencing the triggers for referrals; the theme of high patient expectations emerged much more strongly from GPs working in the least deprived areas:

“You know, if I’m hearing from them that they’re going to want referral, I’m very likely to refer them, whatever it is, If I’m hearing from them that they’re going to want referral and just all their non-verbal cues are telling me that, then I will almost certainly refer them.” (GP8 LD)

Another GP who works in a very affluent area felt his patients were very clear about their wishes, but didn’t think this necessarily equated to more demands for referrals:

“I think probably a lot of our patients, because they’re educated, have quite clear views about what they want to happen, but I think that can be either way. So there are some people (who) are quite clear they just don’t want to go up to the hospital and have things done. Other people are very keen that they do want that to happen.” (GP12 LD)

Despite stating that he did not feel under pressure from patients to make referrals, on further discussing the issue of patient demand, GP12 then went on to describe an incident where one of his patients had been insistent upon a referral to a plastic surgeon:

“she basically said, look, I’m (the patient) just going to make another appointment and come back and keep seeing different doctors until one of you refers me... So it got done in the way the patient wanted, but I think the doctor who referred her made quite a point of chatting to her about how she’d kind of approached it and how she’d spoken to the doctors and we didn’t think it was appropriate, really.” (GP12 LD)

This is in contrast to the descriptions of the majority of patients in the more deprived areas. A patient whose appointment had not been sent out due to an administrative error, after a referral had been made to cardiology:

“even with all the delays, he was very grateful every time I saw him and explained we’d been on the phone trying to sort it out and there was never any, sort of, challenge in it or why hasn’t this happened quicker.” (GP5 AAD)

This concept of patients not having high expectations in more deprived areas was reinforced by this GP:

“I don’t find our patients particularly demanding.” (GP1 MD)

Generally, the themes that emerged from the more deprived areas of Sheffield were surrounding patient fear and reluctance, which contrast with the above quotes about patient expectation and are discussed in detail in Sub-theme 1.3b ii and iii. A contradiction to this general trend emerged from GPs working with communities of patients who are recent immigrants from countries without a gatekeeping primary care system. GPs from MD areas also reported pressures from patients who also had high

expectations and demanded access to hospital services. This was approached as a negative case analysis:

“with the Eastern Europeans or Polish people or lots of countries where they haven’t had that block (GP as gatekeeper) and then can’t understand the block and that feels very inappropriate to them.” (GP2 MD)

“maybe 10% of the population here are, sort of recent immigrants, refugees ... they are extremely demanding of referral because they don’t understand primary care and so they’re pretty difficult, they think, they often see GPs as a sort of obstacle in the way to getting a specialist opinion or scan.” (GP7 AD)

As happened in many of the interviews, this participant diverts away from cardiology cases when considering the pressures of her patient group, and she is reminded of a patient with back pain and how she is managing his expectations for a ‘referral’ to the hospital for investigations:

“he’s in quite a lot of pain and he wants an x-ray. And is very resistant to my explanation of why that’s not correct, which I would be less likely to have with somebody from a similar culture to myself.” (GP7 AD)

She goes on later in the interview to report that some of her patients can make:

“unrealistic demands, because that’s the medical culture they’ve come from in their own countries” “not even, even using a GP as a gateway to a specialist, so they are used to going direct, so there’s a, sort of, all kinds of nuances there.” (GP7 AD)

When exploring this with this theme further, I asked GP5 directly about if there was much patient pressure for referrals from her patients as she

works in an area with a very high proportion of patients who have been born in Sheffield who are of South East Asian descent:

“Researcher: Doesn’t sound like that’s a common presentation for you, though, that patients are pushing you for referrals?”

Participant: It’s not, I mean I’ve had one ... he pushed and pushed to go back to see a cardiologist and I think I felt that would be harmful and, actually I saw him, there was a note put on that he was only to come and see me.” (GP5 AAD)

This GP may not feel the pressure of GP7 and GP2 as although many of her patients are of Southern Asian heritage they are not usually recent immigrants, but the second or third generation to be born in Sheffield and so will have more experience of the primary care system in the UK.

Considering the demands of new migrants upon GPs for referrals, this GP speculates about his impression of the differences between the local indigenous Sheffield population and new migrants:

“I’m not sure if its just generalising about the indigenous population are undemanding and uncomplaining, I’m not sure what evidence I’ve got but that’s the impression I have.” (GP4 MD)

This is echoed in this quote:

“a lot of those patients (recent immigrants) in contradiction to the, sort of, poor indigenous, working class deprived population in this area who will not ask for anything, those people just ask because they think they’ve got access to it and they’ve not had access to investigations before ... they want a scan for any sort of pain at all...whereas our solid indigenous population, they just tend not to complain as much and you’ve often got to drag a symptom out of them.” (GP7 AD)

This GP also describes being conscious of the concept of “working class deprived population ... who will not ask for anything”, as he describes his personal experience of his own mother avoiding going to the doctor in case she was told she had cancer:

“a working class fear of the diagnosis being confirmed by the doctor.” (GP1 MD)

GP8 LD, in some ways is similar to GP7 AD, as they both work in practices with more of a variety patients from a varied of socio-economic groups unlike the other GPs in the sample; here GP8 comments the differences he observes in patients from different backgrounds and the effect on expectations:

“Practice X is really interesting because it’s, there’s a real salt of the earth, fantastic families in Area X*, you know, steelworkers, usually steelworkers’ widows sort of thing that are left, you know, families have been there for, sort of, three ... we also cover a bit of Area Y*, so come up, sort of, quite posh, and you do see the difference, I mean, it’s one of the reasons I really like it here, ... we do see the range and that’s one of the things I find interesting. So, I mean, I saw him yesterday, a chap, and he always says, whenever he says, he says, well I’m 74 now, what else can I expect? You know, I’ve seen them both this week, I’ve got another chap, he’s 93 and he’s going, well I can’t believe it’s age, you know, when he gets his illness and he’s been doing that, you know, he’s finally accepted that he’s got old but, you know, he’d be 89 and, sort of, struggling with his mobility but still able to get up and around and he’ll be, well you can’t just tell me it’s age, doctor. And he comes from the more affluent, you know, and it’s great, you see the difference and expectations of what people expect.” (GP8 LD)*

*changed for confidentiality

These sentiments about the responses to symptoms of 'old Sheffield' people are echoed also in this quote:

"I feel you that you know, they are an uncomplaining lot and I sense that a lot of the people in more affluent areas are much more aware that, you know, chest pain may be cardiac. And not only that, but they feel they want something done about it and will come and, you know, probably insist something is done about it. Where I feel that, although I haven't got an evidence base for it, that a lot of my patients will not necessarily make the link with chest pain and heart disease, although a lot of them will, but when they do make the link, they're a bit more fatalistic about it and, oh I've got, you know, possibly fatalistic or possibly even being frightened, oh its heart disease, and then you make that illogical step, oh I'm not going to go and see the doctor in case it is, rather than, I will go in case it is"
(GP1 MD)

8.3b Patient Response: ii) Fear

The theme of patient fear emerged from GPs working in the more deprived practices of Sheffield and was revealed in several contexts. Participants from the more deprived areas described patients' fear of the hospitals, and also with reference to their symptoms:

"Fear of what it might be, fear of, you know, going to the hospital and, you know, maybe, you know, they're not daft, are they, you know, they know that this may end up having things like coronary angiograms and possibly surgery and those things would, you know, how much do you know, play things down because it's, I don't want to own up to it and have to and subject yourself to, yeah potentially dangerous and certainly quite unpleasant tests." (GP2 MD)

In this case the patient was keen for more medication, rather than for a referral; the GP had decided to refer him, but not urgently so she decided

to bring him back for a follow-up appointment with her to break the news about referral:

“it was buying time and going with him... let’s just go with him and have a bit more time to, sort of, talk this through and win him round.” (GP2 MD)

This participant goes on to say she feels fear is a common emotion among of her patients:

“I recently had a lady with, gosh, what was it, Lupus it was, actually, the most horrendous thing, and she put up with it for weeks and weeks and weeks before coming, to the doctor and you think how do people do that. And, I guess, I suppose in part, that’s fear.” (GP2 MD)

This GP describes a similar perception of fear with his patients:

“I’m not going to go and see the doctor because, you know, he’ll tell me it’s heart disease or he’ll send me to the hospital, so it’s a fear, it’s an inappropriate choice not to use a service.” (GP1 MD)

“there’s an unrealistic perception of the risk about going to hospital, which is very, very small. And yet people think, you know dreadful things are going to happen to them. And also, if you get a referral to hospital, there’s the fear of what they will find, there’s a sort of, and you have to let go, more so that when you come to the GP... you have to put your trust in the people there, and they’re doing more significant things to you.” (GP7 AD)

*“Researcher: And the resistance that you mentioned earlier in some people to go to the hospital, where do you think that comes from?
Participant: Oh I think it goes way back, all kinds of things, I mean really, in some of the older people, just the thought that, like the Northern General used to be the Workhouse, and I know that’s a*

very, very long time ago, but I think it's still there in the folk memory of people in Sheffield and the people have very strong preferences ... certainly in my patch, they much prefer the Hallamshire to the Northern General, there's often resistance to that. And I think that's partially to do with the fact it's a huge site, but also there's that kind of, folk memory that's in the subculture about what it used to be. And you know, it seems crazy talking about that in 2010 but it is still there." (GP7 AD)

This GP works in an above average area of deprivation, was describing thinking carefully about the breaking of news of test result to a patient due to her awareness of the patient potentially being fearful:

"I'd really thought about how I was going to do this because I didn't want to upset him or frighten him." (GP5 AAD)

This GP was answering a question about why patients may not present to a doctor when they are experiencing symptoms:

"Well, it's probably a mixture of things, but I think a lot of anxiety and fear about actually being diagnosed with a problem and having to go to the hospital." (GP6 AAD)

When asking this GP about whether the patient in one of her cases had an understanding that he had heart disease, the participant replies:

"yeah and it doesn't seem frightening or terrible, just thank you for helping me... I think people are just accepting of heart disease and almost wait for it." (GP5 AAD)

So although the GPs in deprived areas describe fear of coming to the doctor or going to hospital, they also describe a 'normalisation' of the symptoms of chest pain. This initially appears to be contradictory; however, on consideration these themes could be complementary as if

patients are fearful of going to the doctor, one coping strategy could be to downplay or ignore symptoms as then there would be no need to attend.

8.3b Patient Response: iii) Reluctance

Subtly different from the above theme of *'fear'* is the theme of *'patient reluctance'*. Reluctance could be seen as a manifestation of patients' fear, but as the quotes below demonstrate, this emerged as a clearly separate theme predominately from GPs working with more deprived patients and so has been described as a theme in its own right.

"he didn't want to come, but he'd got some, he'd been getting some increasing chest pains over the previous few weeks to months, ...I did persuade him that it would be a good idea to [go] and see a heart specialist again and just see if there was more we should be doing other than medication, just wondering, should he have an angiogram and possible surgery. But he was pretty reluctant to."
(GP2 MD)

"it's usually us saying, well, you know, we think you need to go and see a specialist, not the patients' demanding it." (GP3 MD)

This female patient was thought to have angina by the GP, but was reluctant for investigations outside of the practice:

"So I suggested to her that she had further investigation, she certainly wasn't keen, she didn't want any investigations." (GP3 MD)

This GP was describing a patient as being in a 'passive stage of her life' due to being recently widowed and that influenced her referral decisions:

"if she'd been much more assertive, I'd have referred her sooner."
(GP7 AD)

In this quote the GP is reading out from a letter about a patient from the cardiologist who even comments on the patient's response to his symptoms:

“symptoms consistent with ischaemic heart disease despite his dismissiveness of his symptoms.” (GP2 MD)

Other examples of reluctant patients included:

“And one of the factors here is that she didn't want to be referred and doesn't like hospitals.” (GP7 AD)

This patient had been reluctant to inform the GP for some time about his chest pain, but one day, almost as he was leaving, he confided in his GP:

“I was seeing him for something and he'd actually got up, he'd got his coat on and he was walking out and he said 'oh, by the way, maybe I should mention I get this pain', so he came back in, took his coat off and definitely something made me think that this was a significant pain that he was complaining about, so I thought, there and then, that it needed investigation...he'd been thinking about telling me about this for a long time and he hadn't and, for some reason that day, he decided to tell me.” (GP3 MD)

This GP working in an affluent area confirms that patients are less reluctant in least deprived areas, as he describes this one patient as unusual:

“this was an interesting one in that it was than I felt I really, kind of, I almost pushed the patient to have this referral rather than the other way round, which is not that common that that happens to me... normally the patient comes in with a problem and they're quite happy to be referred, because they're worried about it, or they come, kind of, saying, I want you to refer me, whereas it's quite unusual, especially with cardiology things, I think, that you have to

literally put someone's arm behind their back to get them to go up to the clinic.” (GP12 LD)

Participants from most deprived areas described patients putting off dealing with significant symptoms, as seen in these quotes:

“it had (the chest pain), sort of, been going on for weeks and then even he began to get a bit worried.” (GP2 MD)

“when he first came in he kind of almost didn't mention the chest pain, it was really kind of bizarre and he had had a myocardial infarction but his presentation was so atypical that we didn't refer at first because of the way he presented...you would have thought with that family he'd have been saying 'look, my dad died at this age and I have had some chest pain' but he didn't even mention the chest pain, I was – I can't remember exactly but it was extraordinary really. (GP6 AAD)

8.3b Patient Response: iv) Deference

Another theme which emerged from interviews from the GPs working in more deprived areas was feeling of patient deference towards the doctors:

“They also say they don't want to bother the doctor...I'm glad I said that...because I do feel there is something in that, isn't there about my rights... and they often say that, I didn't want to bother you, doc. “you know, here they, sort of, apologise to you for coming.” (GP2 MD)

“he's very much that generation that appreciates everything and, actually, last time he told Dr Al Mohammed stuff that he hadn't told me because he didn't want to worry me!” (GP5 AAD)

Same GP also reported about a patient who had mistakenly had his medication stopped:

“loads of his medicines had been stopped, he hadn’t challenged it or come into say, why haven’t my medicines been put back on. So yeah, I think a very, sort of, old style, you don’t challenge the doctor and you wait and they’ll look after you. And very much a feeling, well, this is inevitable, I’m getting older.” (GP5 AAD)

This GP was comparing recent immigrants who were unaware of the primary care system to the local people:

“our solid indigenous population, they just tend not to complain as much and you’ve often got to drag a symptom out of them.” (GP4 MD)

“usually it’s us saying well, you know, we think you need to go and see a specialist, not the patients demanding it. Occasionally, you get people with trivial things that, you know, feel they need to see a specialist but, usually you can talk them out of it... we don’t really have many people we refer totally because the patient wants that, you know, we do it because we want to.” (GP3 MD)

8.3c Communication of symptoms to GP

So far the themes described have demonstrated that GPs working in contrasting areas perceive their patients to have different expectations and emotions in relation to cardiac symptoms. This section describes how patients from least and most deprived areas communicate their symptoms differently to GPs. Again there is overlap with previous sections, as the themes of patient response overlap heavily with communication, together presenting a picture of the each community through the eyes of a GP.

GPs in MD areas described more difficulty in getting a clear picture of patients’ symptoms at times, which potentially could delay rather than trigger a referral. This GP from a MD practice, when discussing one of her cases, described the difficulty she found in consulting with a patient and working out what her symptoms were; this was backed up by the consultant who wrote in the letter:

“the difficulty of teasing this out...I think the consultant found it difficult also to tease out the symptoms...wonderful quotes (from the letter) like ‘the symptoms are rather individual!’” (GP2 MD)

These difficulties are repeated here:

“he didn’t even mention the chest pain, it was – I can’t remember exactly but it was extraordinary really...it’s difficult finding out what’s going on sometimes.” (GP6 AAD)

The complicated histories presented in the deprived areas contrasted with the “straightforward consultation” described by GP9 in a least deprived area:

“it just seemed quite a straightforward consultation.” (GP9 LD)

and with this GP’s experiences:

“a lot of our patients, because they’re educated, have quite clear views about what they want to happen...I don’t think we get probably quite as many patients coming in saying, oh I’ll just leave it up to you doctor as other practices might.” (GP12 LD)

“there’s several problems, one is the patients don’t present, two, I think probably the GPs maybe are not as active at referring people who are uncomplaining and the example I gave you was a consultant who really didn’t do what he should have done because the patient was, you know, a disadvantaged person and was going to be troublesome. So I think there’s lots of levels and I think that people who haven’t got a voice are going to miss out at every, sort of, level, aren’t they, and they’re less confident and they’re less willing to assert their rights and so on and we’re really less willing to, we know that the people who are less articulate get less attention from their GPs, sadly.” (GP4 MD)

An added complication experienced only by GPs working in the more deprived areas was of consulting with patients whose first language is not English and having to use interpreters and the added dimensions this can add to a consultation. GP4 described consulting with the Roma community, and having to use family members as interpreters as the professional interpreters could only speak Slovakian rather the Roma language:

“Yeah, I mean, we get 20 minutes if we have an outside interpreter, but ten if it’s a relative or a receptionist.” (GP5 AAD)

GP5 also consults frequently with patients through interpreters and when describing this she says:

“it is quite challenging to have a consultation and it’s, kind of, an affront to suggest an interpreter in a lot of these cases...with a lot of our patients, it’s all very grey and they have very different ways of explaining things.” (GP5 AAD)

She goes on to describe the difficulties in starting medications when communication is difficult:

“even getting him to understand and comply with taking, you know, an aspirin and a low dose of a beta-blocker to understand what to do with the GTN spray was confusing.” (GP5 AAD)

None of the GPs from the LD practices described needing to use interpreters. However, they did describe other challenges such as patients presenting with information from the internet and other sources. Here is another quote from GP7 who works at a practice which has patients from both affluent and deprived backgrounds, and is describing varied pressures:

“then there’s that other pressure that comes from the family and from the person’s knowledge, I’ve read this, I’ve read that and I’ve looked it up on the Internet, which happens across the social strata, if you like, now but happens more and with more force from people who’ve got a professional background, who’ve got an education at the back of them, or have got other people in their social group, or their family group that’s got that expertise.” (GP7 AD)

This is supported by GP8 who is from the other ‘varied’ practice within the cohort of participants who is also discussing the pressure from different groups of patients and describes the less affluent patients as:

“not coming in with the latest sort of thing off the Internet.” (GP8 LD)

In summary, it appears that communicating with patients from deprived backgrounds can be more challenging due to patients’ reluctance to disclose symptoms and also presenting symptoms in a less straightforward manner than affluent patients, especially if an interpreter is needed. Again it is useful to consider a quote from GP who works with patients with a more varied socio-economic background:

“one just has to be really cautious and careful as a doctor not to, to counter internal stuff that makes you a bit more likely to dismiss one type of person and listen to another type of person and, actually you’ve just got to keep listening.” (GP7 AD)

This emphasises that due to communication differences between patients from affluent and deprived communities, it may be harder for GPs to ‘listen’ who work in deprived areas, and listening may take longer; this may in turn mean GPs working in deprived areas need more time to make decisions with patients based on active listening and then sharing decision-making.

8.3d Private Referrals

Several of the cases that the GPs from LD areas discussed were patients who chose to see specialists privately; however, none of the GPs from any of the other areas discussed private referrals.

“there are some patients in this practice who you know can easily afford to go privately and many of them actually would want to have the option. Some of them are a bit embarrassed or are slightly thinking they are letting us down... It’s interesting they’re both, I’d forgotten they were both (cases) private.” (GP10 LD)

“she actually had private insurance, so she went to see a cardiologist privately.” (GP12 LD)

The above quotes contrast strongly with a GP who works in a deprived area in answer to the question about how many private referrals he makes:

“What percentage of our referrals are private? and it’s none, really none of our patients, once in a blue moon, so obviously our NHS referral rate is higher because, you know, the percentage of private is negligible.” (GP3 MD)

On further questioning of this GP who makes private referrals frequently about why patients prefer this service, then reasons emerge as being waiting lists, continuity and convenience:

“I think some people like that they don’t have to go to the Northern General. I think some people like the fact that they’re guaranteed to speak to the consultant and they have more time, they like those aspects. Some people trust it more, it’s better. I’m not saying it’s better ...more convenient... the continuity of care is a big issue for some patients.” (GP10 LD)

8.3e Patient Ability to Navigate Healthcare System

At times organising and navigating the health care system as a patient can be challenging; this was a theme which emerged from GPs in the most deprived areas of Sheffield and was used as a negative case analysis from the GPs working in least deprived areas.

This GP is describing the case of an elderly Yemeni gentleman living in an area of above average deprivation whose hospital appointment was delayed to an administrative error. He lives in a house with other Yemeni gentlemen, and the GP here is discussing the difficulties of navigating the system to due to communication and practical difficulties:

“letters are difficult, making phone calls are difficult ... I think he might have had a mobile phone but, often that can be a problem as well. And they do support each other to an extent if one of them is really ill, they will look after each other. But I don't think anybody would have had the skills to ring up and sort out an appointment ... patients often actually bring us the letters to show us and particularly with ... choose and book things or when they've been asked to ring back to make an appointment, actually that's a barrier for lots of patients, that's hard” (GP5 AAD)

When looking through the computer notes of one of the patients she presented in the interview, this GP from a deprived area is speculating on whether her patient would chase up an appointment for an angiogram if the hospital doesn't contact him:

“you just sort of wonder, you know, if it doesn't come through or whatever, will he chase it up and suspect not really.” (GP2 MD)

Contradicting this, however:

“everyone realises that hearts are important, I think, and I think if it was a more trivial possible diagnosis then the DNA would be a lot higher. I don't have many that don't go.” (GP4 MD)

Two of the GPs working in the least deprived areas also discussed the difficulties for patients who travel with their work and the confusion this can lead to when secondary care services are needed:

“he’d had investigations a year before and wasn’t clear what the outcome was and never turned up for them, which is quite unusual for people we normally see... I think this was partly to do with his personality and, I guess partly to do with his chaotic lifestyle, you know, moving round the country for work.” (GP9 LD)

This quote refers patient who became reluctant to be seen at the hospital, due to an initial error. He had been working in Hong Kong and had been told incorrectly by the hospital that he was not eligible for NHS care:

“he’d had this unpleasant experience where he felt quite, I don’t know how he, but you know the fact he was told he wasn’t eligible for NHS treatment, I think he felt quite angry about that because, you know, he’s worked quite hard here for a long time.” (GP12 LD)

As both these patients from LD areas were struggling to navigate the system they were considered specifically as a negative case analysis. Due to the nature of the description of the patients by the participants as being unusual they were not considered typical for these practices and the challenges for patients from deprived areas are thought to be much greater than those generally from LD areas.

Summary of Context and Patient Culture (8.3)

This was the key theme that emerged highlighting the differences in the GP experience when working in least and most deprived areas and when making decisions regarding referrals. Although, the classic and atypical triggers for elective cardiology outpatient referrals were found to be the same for GPs when working in all areas, the theme of ‘context and patient culture’ revealed subtle differences of how patients present and

communicate to GPs in LD and MD areas, and the influence this has upon triggers for referrals.

GPs working in MD areas recognised the high burden of multimorbidity within their communities and describe case histories with a greater emphasis on patients being admitted as emergency cardiology admissions rather than elective outpatient referrals. The GPs who work in MD areas also describe patients normalising their symptoms and at times communicating their symptoms in a confusing manner to the GP; also GPs from MD areas also describe patients reacting in fearful, reluctant and deferent ways towards their symptoms and, at times, hospitals. An example of a group of patients who contradict this trend are recent immigrants from countries without primary care systems.

Contrasting with the above themes were the perceptions from GPs who work in the LD areas of Sheffield. GPs from the LD areas find their patients to be clear about symptoms and these patients have often decided which course of action they wish to take. Patients are described as requesting private referrals from with GPs working in LD areas, which was not a feature of GPs' work in MD areas.

Regarding difficulties in navigating the health care system, GPs from LD and MD areas reported problems for some patients in the case presentations. However, the cases from LD areas did not seem to be typical as they were both cases of patients who travel for their work and were presented as being unusual by both participants.

Summary of Meta-theme 1: Patient Factors

GPs working in least deprived (LD) areas described experiencing high expectations from articulate patients, who were clear about their wishes for future management often through 'patient-led' decision-making. This could at times lead to GPs feeling under pressure and demand; either for a referral, or to keep care within the practice. In contrast, GPs working in the most deprived (MD) areas described patients as being fearful, reluctant and deferent: all of which could inhibit referrals. One group of patients who contradicted this finding were those who had recently moved to Sheffield from countries without a gatekeeping primary care system. GPs working in LD areas described patients utilising elective private health care, which contrasted with GPs from MD areas who described referring patients to NHS emergency services more frequently. GPs working in MD areas also described patients struggling to navigate the elective NHS system due to multimorbidity, poor health literacy and communication issues: these factors were again found to inhibit referrals or create barriers to a successful encounter with secondary care. Other '*Patient*' related triggers for cardiology referrals for GPs working in all locations included symptoms and signs of heart disease, investigation results, medication issues, patient reassurance, family reassurance and young age.

This theme illustrates themes relating directly to the GP, which were found to influence their triggers for referrals. GP factors were organised into four main themes: uncertainty, referral decisions, medico-legal pressures and ownership of referral decisions.

The meta-theme of how GP factors can affect referrals is introduced by the following quote from one of the participants when asked why GP referral rates can vary:

“Oh it’ll be lots of stuff, personality, training, confidence, relationship with patients, business, stress, all those things ... You know, how much risk can they carry.” (GP8 LD)

The moment when a GP arrives at a decision to make a referral can be seen as a ‘tipping point’ and this quote illustrates how a GP’s need for reassurance can tip the balance:

“Clearly, we live with a lot of uncertainty and it’s the point at which my anxiety overrides it.” (GP7 AD)

**Table 20: Illustrating Meta-theme 2 -
GP factors influencing Triggers for Cardiology Referrals**

Theme	Section	Sub-theme
9.1 Uncertainty	9.1 a	Specialist Assistance: diagnosis, interpretation, complexity
	9.1 b	Resource shortage: time, investigations, experience
9.2 Referral decisions	9.2a	Decision-making
	9.2b	Risk Threshold and Impact of Situation: stress, fatigue
9.3 Medico-legal*		Pressures
9.4 Ownership*		GP versus Patient ownership of referral decision

*Themes revealing the differences between GPs working in LD and MD areas regarding referral triggers

“I was trying to make sense of these symptoms, which was really quite difficult to do.” (GP2 MD)

The theme of uncertainty as a trigger for referrals was split into two sub-themes: ‘Specialist Assistance’ and ‘Resource Shortage’.

Specialist Assistance is concerned with GPs’ need to make a referral for expert help with a diagnosis, interpretation of results or with patients who have complex problems.

Resource Shortages describes influence of the themes of time, access to investigations and GP experience upon triggers for referrals.

9.1a Specialist Assistance: Diagnosis, Interpretation and Complexity

All the participants relayed the history and examination findings of at least two patients they had referred to cardiology services as part of the semi-structured interview. When GPs suspect a patient has a new diagnosis of a heart problem, the appropriate next step in the management of most patients would be referral to secondary care for further investigations to either confirm or refute a diagnosis. Naturally, one of the main triggers for referral described by participants was the need for help with diagnosis for patients. The quotes below are a selection from the data about a request for a diagnosis being the trigger for referral from GPs across the city:

“So I thought, I think my gut feeling was that this wasn’t ischaemic heart disease, but I thought there was enough in the history for me to think I need to take another step.” (GP11 LD)

“I want ischemic heart disease excluding here.” (GP1 MD)

Alongside the need for a diagnosis, GPs also described needing help with interpretation of the results of investigation as a trigger for referral. GPs

showed some reluctance to interpret tests such as ECGs, which are used in the diagnosis of heart problems.

This quote is from a GP describing referring a patient back to cardiology specialist services even though the patient has been seen in past, as the GP has ordered an ECG but was unsure how to interpret it:

“I think probably now she needs an official cardiology referral because even though her story hasn’t changed, there were, you know, I suppose, at the end of the day, I’m thinking, if this woman drops dead of a heart attack and we look back at this and it says, so you had this test they weren’t sure about and then you left it there, I’m going to look a bit silly, even though I’m pretty sure she’s not going to drop dead of a heart attack.” (GP11 LD)

The following two quotes are from GPs who now feel they are no longer skilled in analysing ECGs and rely on hospital services to assist with this. Sheffield GPs can refer for an ECG and its analysis without the patient seeing a consultant:

“I’m not brilliant with ECGs these days with prolonged QT intervals so I have to also think what does that mean at the time and it’s a long time since I’ve been in hospital, but I just have to check each time basically.” (GP6 AAD)

“if you’d come to see me 25 years ago when I was in the hospital with an ECG, I’d have been very comfortable interpreting it. But I’m not so comfortable interpreting it now. And if it’s a sufficiently worrying history, then I’m going to be strongly reassured by an opinion on the ECG rather than me looking at thinking, oh bloody hell, is that ST elevation or not.” (GP1 MD)

Alongside the need for specialist help with diagnosis, and investigation interpretation, GPs also described needing help with the management of patients with complex medical problems as a trigger for referral. The

following quote is from a GP who works in a practice in one of the most deprived areas in Sheffield, and he is describing how he made a referral for a patient with complex problems to a cardiologist, rather than just for an echocardiogram test, as he thought this pathway would be more efficient:

“she might have, what is it, HEFNEF, heart failure with normal ejection fraction so I thought that, you know, very difficult to get her anywhere and I thought well she may as well get seen and dealt with at one go rather than having an Echo and then another referral after that. So that was an attempt to try and be efficient.” (GP4 MD)

The following quotes show the triggers for referrals are the need for specialist help with patients who have complex medication and medical histories:

“He had, you know, there was no real record of why he hadn’t been put on a beta-blocker, we weren’t quite sure what was going on with his chest and he had a partial heart block of some description as well. And, yeah, I was just floundering around and felt out of my depth and didn’t feel I could ring up and ask from some advice because it was just too complicated.” (GP5 AAD)

9.1b Resource shortages: time, investigations and experience

A shortage of time was thought to influence triggers for referrals in two ways: by both lowering and raising the threshold to refer in different scenarios. During the interviews GPs would not be able to present the cases of patients who have missed out on necessary referrals, as GPs would not be able to identify these patients, as they would be the ‘unknown, unknown’ patients. This GP speculates on why referrals may be missed at times:

“Well I think mostly not having enough time, not listening to the patient well enough, not actually examining the patient properly, you know, sometimes it’s lack of knowledge, but I think more

commonly, it's actually inadequate assessments, probably...I mean, if I'm honest, I think every GP misses referrals, I don't see how you can avoid it, you know, you're making 40 decisions a day, they can't all be perfect all the time. You can try, you can safety net, you can do all of these things, you know, but we've all missed things, do you know?" (GP10 LD)

To counter the potential of missing patients who should be referred, this GP stated:

"I suspect one just has to be really cautious and careful as a doctor to not, to counter internal stuff that makes you a bit more likely to dismiss one type of person and listen to another type of person and, actually, you've just got to keep listening." (GP7 AD)

As discussed previously, GP7 works in a practice with a population from very varied socio-economic backgrounds and it may have contributed to her insights in this area.

Time was also speculated to increase the triggers for referrals as if the GP is time short they may make a referral to reduce the risk of harm to the patient and relieve themselves the extra burden of organising and interpreting investigations and subsequently relaying results to the patient. This quote is from a GP speculating about why inappropriate referrals may sometimes be made:

"I think sometimes they're probably made when you're under pressure and that may not be by that patient, it may be, you know, you're under a time pressure or a pressure in the day to, you know, because for whatever reasons, you don't have the energy or the time that day in order to deal with them appropriately, or in order to deal with them in a different way, when you have more time, you may deal with them in a diff-, you know, by doing something different." (GP9 LD)

This GP was discussing why at times patients may be referred if they repeatedly present with the same problem, even if GPs feel there is no serious physical underlying problem:

“you’re just simply a war on time.” (GP4 MD)

This GP is also commenting upon the impact of the GP being tired or there being lack of time at the end of the week for considered referral decisions:

“it’s a Friday evening or you’re worn out and so there clearly are times when you’re, it’s human... Doctor inexperience or, yes, doctor fatigue or just, sometimes, it depends, sometimes you might think that there’s nothing actually can be done about this, but really for the patient, they need more heavyweight opinion.” (GP4 MD)

Lack of time can impact upon educational meetings. The value of time for educational meetings and case discussion between GPs and specialists is discussed later in section 11.4.

Lack of access to investigations can lead to GPs making referrals, which potentially could have been avoided. GP6 explained that now the practice has access to a ‘cardiac memo’ test, which allows patients to press a button when they feel they are having palpitations and an ECG is recorded; she does not need to refer the patients to cardiology. She goes on to explain this test has reduced the need for referrals in patients:

“where we’re not expecting to find an abnormality but we need to rule it out.” (GP6 AAD)

This shows that access to tests that have been traditionally only been accessed through specialists could alter GP referral triggers.

Following on from this, this participant mentions the specialist service run by another practice in Sheffield where other GPs can refer to for special ECG testing, which can help in the diagnosis of ischaemic heart disease.

“I decided to refer her really to get a 24-hour ECG but this was a little while back, before we could get it at Tramways.” (GP7 AD)

Again, the GP could have avoided this referral if access to the specialist test had been available.

Moving on to how experience was reported to affect referral triggers, several of the GPs felt that there was an inverse relationship between GP experience and referral rates:

“when we looked formally at dermatology, again, it showed that the more experienced doctors referred less.” (GP10 LD)

As will be discussed further in section 3a, which describes possible strategies to improve referrals, many of the GPs reported supervising more junior doctors referrals because they felt they referred more patients:

“all the junior doctors here are supposed to run their referrals by us prior to doing them.”(GP6 AAD)

This practice has GP Registrars and Foundation 2 doctors and reported:

“every referral is double signed. And it occasionally leads to a discussion. I mean, certainly, they don’t, I mean, they don’t refer anyone to anybody without discussing it with us.” (GP10 LD)

“We’re a training practice so we’ve got registrars, again, tend to refer quite high rates.” (GP11 LD)

This GP describes how prior to the interview he was looking up patients who had been referred to cardiology recently. He was struck by how trainees at the practice were making more cardiology referrals than the experienced GPs. He found they were mainly referring to Rapid Access Chest Pain Clinic:

“they may see more of the acute people coming in for chest pain. Or I may be just a bit, sort of, less receptive, less keen on cardiology referrals, maybe I’m a bit more sceptical about chest pains, if they are cardiac, having said that, the ones that they refer were generally thought to be, at the end of the day, probably cardiac pain though not lovely clean cut, you know, clear treadmill thing.” (GP4 MD)

This is an interesting point, as it raises the issue that different GPs can attract a different subset of patients, so even within the same practice different GPs will have different referral rates sometimes depending on their status within the practice. Also, the increased referral rates of the less experienced GPs may actually be the ‘correct’ management of those patients and it raises the question of what identifies referrals as inappropriate or appropriate.

This GP has noticed the effect of experience on referral rates of GPs but also is aware of the surprising effect of having a special interest in a topic and the fact this can paradoxically increase referrals:

“when we looked formally at dermatology, again, it showed that the more experienced doctors referred less...So, you know, with things like skins, we sort of say, if you’re thinking about referral, why don’t you get someone else to just have a squint at it. But I think it’s very hard to change these ingrained ways of working and the medical legal thing makes it very difficult... I mean, there’s been lots of things looked at over the years, which is often found when people are educated, they refer more because they actually know more, they know more pitfalls, they have more concerns, they take less on the chin. And that’s got to be good, is that good for patients, I would imagine it probably is. It’s the flaw in actually trying to actually make this one of the prime movers in the management of cost in the NHS, in my opinion.” (GP10 LD)

The spending NHS resources will be discussed further under Meta-theme 4 – Chapter 11 Healthcare system factors.

9.2 Referral Decisions

9.2a Decision-making process

This section describes the internal decision-making process of GPs when considering referrals and their triggers. The next section, 9.2b, moves to describe factors which can affect the decision-making process to either by lowering or raising the thresholds for referrals.

This quote sums up the decision-making process:

“there’s triggers and things that prevent you, in both myself and the patient, but also externally in where you’re referring them to.” (GP7 AD)

Considering the decision-making process in more detail, GP1 has developed a ‘law’ or rule of thumb, which he uses himself as a teaching point for less experienced doctors. He names this ‘law’ after himself, but his name has been changed for confidentiality:

“it basically comes down to a, sort of, you know, Dr Xs Law, which is the chances of being right, consequences of being wrong...she’s probably not got cardiac chest pain, but she’s 56 and the consequences of being wrong are quite high so...Because if the consequences of being wrong are sufficiently severe and I would put it to you that in this person they are – 56 – I want ischemic heart disease excluding here. So dilemma yes, dilemma no.” (GP1 MD)*

*Name changed for confidentiality of participant

This GP uses this rule of thumb to help with the decision-making process, and as a trigger for referral. He is stating that if the consequences a symptom could be serious, even if he thinks a diagnosis is unlikely, he will make a referral. The same GP goes on to say how this ‘law’ leads him to

make very definite decisions about referral if a patient presents with chest pain:

“if you put those, well three words together and you sit in that seat and you say heavy chest pain, then you know, the little voice in my head says, its cardiac until it’s proved otherwise.” (GP1 MD)

Interestingly, like GP4 previously described in section 9.1b (pg 253), this GP reported that he hadn’t made any elective outpatient referrals in the preceding few years. However, GP1 had made several referrals to the same day Accident and Emergency, chest pain rule out service at the local hospital. He works in the most deprived area of Sheffield. This contrasted with the GPs in the least deprived areas who described more cases of elective referrals, often for private consultations with specialists. This was not a systematic audit of the numbers of GP referrals, and the GPs were free as to their choice of cases to present during the interviews, which can lead to limitations, which are discussed later (Section 14.5). However, the difference in cases presented by GPs working in LD and MD areas does give a snapshot of the working lives of the doctors and also the patients whom they serve; and it was found that GPs working in MD areas presented cases about emergency referrals more frequently and had more experiences of unexpected deaths from heart disease, than the GPs working in affluent areas. It is not clear if the participants’ referral choices stemmed from the groups of patients they were working with and their associated incidence and prevalence of disease, or from the GPs’ risk thresholds and habits.

GP4 commented upon teaching trainees to always ask themselves a question before making a referral:

“Is anything useful going to come of this (referral)?” (GP4 MD)

In a similar way to GP1, this seemed to be a useful ‘law’ to employ in his own practice and to help trainees make ‘good’ referral decisions.

Several participants described the internal process of actually making a decision regarding a referral. Two sorts of decisions were described: firstly, fast decisions made early in the consultation without much conscious thought. Secondly, decisions involving a more deliberate and thoughtful process often over several consultations. The following quotes describe both these scenarios:

“sometimes in a consultation it feels, sometimes it’s clear and you know where you’re going and sometimes it feels like quite circular, like you’re moving around with the patient and suddenly you end up more on one side than the other.” (GP5 AAD).

“Well the internal process is, is it an emergency, in that case it’s quite easy, you go. And then when it’s not an emergency, is it something that’s going to put this person’s life at risk, or quality of life at risk, in this particular person and there’s something about needing to know and, ultimately, not likely to live with that kind of degree of uncertainty. Clearly, we live with a lot of uncertainty and it’s that point at which my anxiety overrides it...And so then it becomes a thing that goes round in your head every time you think about the person, you think, should I refer or shouldn’t I refer, and then finally tip over into doing it.” (GP7 AD)

After describing the two cases of cardiology referrals as examples, this GP describes her different feelings about referrals of the two patients:

“The other one was much more clear-cut, I definitely wanted to refer, and I was leading him on. With her, I wasn’t really sure I did want to refer, but she probably did and there was enough of not being sure of, perhaps concerning symptoms that I, but OK, we will do.” (GP2 MD)

GP4 describes making 'fast' decisions especially in relation to patients presenting with emergency cardiac symptoms:

"I think that happens really ... early on because I think you get a, sort of, feeling quite quickly on, well I think that experienced GPs, sort of, know fairly early on what way this is going to go." (GP4 MD)

GP9 also makes a fast decision in this situation:

"I suppose because it was quite straight, it seemed to lead us, you know, it's the almost typical textbook case, it seemed to lead us to where we were going and I think that's probably why he was expecting, he didn't seem too shocked either when I said we're going to refer you, so that was OK." (GP9 LD)

The above quotes about making fast decisions contrast with the following quotes, which show a more lengthy process:

"huffing and puffing and should I, shouldn't I refer her... a series of moments and a series of consultation." (GP7 AD)

"I suppose that's the thing about cardiology referrals, well certainly angina referrals, is that it really is based on the history and your feeling...we do see an awful lot of people with chest pain, most of which is atypical and most of it, if you can find another reason for the chest pain and reassure yourself that it's not angina, then you don't refer them and you obviously don't refer everyone with chest pain to cardiology." (GP3 MD)

Summary of 9.2a) decision-making process:

Two sorts of decision-making were described during the interviews that fit with literature about doctor decision-making: firstly fast decisions based on patients' symptoms and internal rules of thumb, and secondly, lengthier more deliberate decisions taking more time and thought. GPs referred to a 'tipping point' or threshold where their anxiety is the trigger for a referral.

9.2b Risk Threshold and Impact of Situation: stress, fatigue

This section includes themes that emerged around the ability of the GP to cope with risk and the factors influencing this. The patient's need for reassurance has already been discussed, this section looks at the GP's need for reassurance:

"Patient anxiety, slight doctor anxiety I suppose." (GP6 AAD)

"And then with her husband's story and her persisting story, it felt eventually that I could no longer hold that risk... Clearly, we live with a lot of uncertainty and it's that point at which my anxiety overrides it...I, kind of, felt a bit, sort of wimpish, really, should I really have referred her?" (GP7 AD)

This participant lists factors, which may lead to variation in a GP's threshold to refer:

"Well the factors in the doctor being a bit below par, if you have personal upset or depression or a bereavement or, yeah, particularly if you have a family member recently died, or something related to that condition or got killed related to that condition, and anecdotes of hearing about stories related to that condition, not just your own family, but other people or other patients, those are the kinds of situations that lower the ability to handle risk. And we just have to accept that happens from time to time. Inexperience, so younger doctors, I think, the figures would probably show refer more..."(GP7 AD)

This GP speculates that she may even make different decisions about the same patient under different circumstances:

“one day I might have done this and one day I might not have done this!” (GP2 MD)

These GPs previous clinical experience of patients within their practices influence their decision-making:

“the pressures on the GP, if the patient is very anxious, you know, they can have minimal risk factors, and you have to be quite tough if they persist and push you to say, no, I’m not referring you, this isn’t -, because at the back of your head, there’s always that, you know, the one 30-year-old with no risk factors who does drop dead.” (GP5 AAD)

“other cases (young patients found to have IHD) have just made us really quite careful these days.” (GP6 AAD)

There will be variation in the amount of prescribing and investigations GPs undertake prior to making a referral:

“I mean, the question is should you, as a GP, initiate the treatment. I tend to be prepared to try things, to be honest.” (GP10 LD)

“I like being a clinician and in some ways, I kind of think, you know, a huge percentage of me thinks this person has not got ischemic heart disease, you know, based on things. And I suppose I wish I could stick with that and the pressures, it’s interesting trying to work out what it is, is it, sort of, purely defensive medicine that I’m referring her? It feels a bit like that perhaps.” (GP11 LD)

Again GP7 AD provides insight into the decision-making process, and how it has the potential to be unfair at times when GPs feel an understanding with their patients if they are from similar backgrounds:

“I think I try to, but clearly, it doesn’t work all the time. Because I’m a human being. And I might think about it a day or two later, and I’ll think, oh yeah, you did that, didn’t you. And you made that referral because they dropped in the doctor is the daughter or, you know? And you think, were you truly fair to that other person that didn’t have that person of rank and power in their family, so you never get exact cases to compare, but there’s always that sense of -, which makes it very interesting working in that kind of practice, because it’s very clear, the differences, and how we respond differently and how, just physically, we respond differently, to people with whom we can feel a sense of understanding of where they might be coming from.” (GP7 AD)

Several of the participants discussed the ability of GPs to cope with uncertainty and a referral only being triggered when a threshold of risk for a patient, and/or themselves, is reached. This threshold may be reached very quickly or slowly depending on the potential seriousness of the symptoms presented by the patient, and also how the GPs respond to the symptoms. Many factors were cited as affecting GPs’ response and ability to cope with uncertainty. These are important factors in determining whether a referral is triggered. The following quotes show that many factors, including business, personal and clinical stresses, can all influence the GP’s ability to hold the risk of not making a referral or can potentially lead to referrals being missed.

The following quote is from a participant who lists the factors that can lead to variation of a GP's threshold to make a referral:

“Well the factors in the doctor being a bit below par, if you have personal upset or depression or a bereavement or, yeah, particularly if you have a family member recently died, or something related to that condition or got killed related to that condition, and anecdotes of hearing about stories related to that condition, not just your own family, but other people or other patients, those are the kinds of situations that lower the ability to handle risk. And we just have to accept that happens from time to time. Inexperience, so younger doctors, I think, the figures would probably show refer more than, is that right?” (GP7 AD)

This is further explained by this GP commenting on the variation of referral rates between GPs:

“Oh it'll be lots of stuff, personality, training, confidence, relationship with patients, business, stress, all those things... You know, how much risk can they carry, you know.” (GP8 LD)

This quote is from a GP in a LD area who was aware of his practice having high referral rates and was commenting on the significant stress he and his colleagues had been under for various reasons over the past few years:

“I think also the partners, you know, we've been under a lot of strain through partnership issues, personal issues, and I think when people are under pressure, some people, probably more people than not, tend to refer more when they're stressed, because they can't deal with the uncertainty, as well as everything else they're dealing with.” (GP10 LD)

Difficulties within the practice have led to this practice not undertaking educational referrals activity:

“We’ve recently, because we’ve had such a difficult time in the last couple of years, a lot of that stuff has just gone out the window, you know, there’s been a real, kind of, survival of the partnership, without trying to sound too dramatic.” (GP11 LD)

This GP also reveals how a practice’s referral rate can potentially be increased by difficulties within the practice:

“And all the locum referrals but we’ve had a couple of partners off sick recently and, obviously, summer holidays and things, so we’ve had a lot of locums and I know it is thought that locums refer more patients than GP partners, so we look at all those well.” (GP3 MD)

9.3 Medico-Legal Pressure

The defensive nature of some triggers for referrals was a theme exclusively found when interviewing GPs from LD and AD areas.

This quote is from a GP who was describing his feelings about referring a patient who he felt most likely did not have a cardiac problem:

“there’s also a bit, probably, again, annoyingly, of the sort of defensive, you know, if something did happen to her, then she could really come back and say, look I was asking for a referral and you wouldn’t allow me to go. You know, and then you could, you’d really have some questions to answer then, I think...I don’t think about that a lot, and I don’t think about that, you know, say compared to my colleagues here, I don’t practice as defensively as others, but it comes into it, unfortunately.” (GP11 LD)

This quote also illustrates the GP wanting to protect themselves, as well as making the best decision for her patient:

“And then I think she mentioned about the family being concerned and that then becomes another pressure there’s not just me worried about something going wrong with her, there’s her worried about it and her family worried. And there’s that thing about them then thinking I’ve made a mistake if something goes wrong. So there’s, sort of, there’s the fear of, the want to do the right thing for her but then also the fear of protecting yourself, about if you don’t make the right decision.” (GP7 AD)

This GP mentions talks about medico-legal issues twice during his interview. Firstly with regard to inappropriate referrals:

“But I think it’s very hard to change these ingrained ways of working and the medical legal thing makes it very difficult.” (GP10 LD)

Secondly in relation to referrals management:

“I think if I have actually put in an appropriate referral which then gets managed and, therefore, someone tells the patient they can’t have the referral, as long as that person is prepared to take full medical legal responsibility for the fact that, actually, it didn’t happen. And if they end up having something wrong with them, they get sued, well that’s fine. I think it’s a minefield.” (GP10 LD)

This GP isn’t necessarily describing pressure from patients threatening medico-legal proceedings, but it is interesting that he mentions these issues twice during his interview.

Only one GP from one the MD practices mention medico-legal issues and this is in relation to secondary care colleagues not making definitive diagnosis:

“what’s sad is that often that you’re disappointed in getting your heavyweight opinion because a lot of these young consultants really don’t do that anymore, I don’t know whether they’re just frightened by the medical legal sort of stuff.” (GP4 MD)

9.4 Ownership

One of the themes highlighting the different experiences of GPs working in the least and most deprived areas, was that of doctor versus patient ownership of decision-making. As described previously, the interviews strayed away from the chosen topic of referrals to cardiology clinics, but the themes which emerged were felt to be important to be reported upon as they highlight the differences in experience for patients from deprived areas which could be contributing to health inequity.

This quote from a GP who works in a MD area sums up this concept:

“we don’t get patients coming in saying ‘I want to go and see a specialist because of this’, whereas, and I’m sat here thinking, well, I don’t think you need to see -, it’s usually the other way round, it’s usually us saying, well, you know, we think you need to go and see a specialist, not the patients demanding it.” (GP4 MD)

“most referrals, I think, are our idea, the GP’s idea.” (GP1 MD)

“patients maybe just go with what we say more than in an affluent area, they’re more willing to accept what we tell them and what we decide! So, yeah, I’m sure the referrals are more doctor-led maybe in a working class, poorer area.” (GP3 MD)

“now I think about it, its completely doctor-led, in looking at all of these cases, nobody’s pushed me to do anything and its very much me pushing them to explain why you do need five medicines to treat your blood pressure.” (GP5 AAD)

The above quotes contrast with the quotes below from GPs working in LD areas:

“I don’t think we get probably quite as many patients coming in saying, oh I’ll just leave it up to you doctor as other practices might.” (GP12 LD)

“this was an interesting one in that it was more than I felt I really, kind of, I almost pushed the patient to have this referral rather than the other way around, which is not that common that that happens to me.” (GP12 LD)

There was a difference highlighted around how the GPs in LD and MD respond to demands or expectations.

This quote is in relation to a patient who repeatedly demanded a referral from the practice to a plastic surgeon, when the protocol should have been to refer to dermatology; eventually the GPs allowed this and:

“it got done in the way that the patient wanted.” (GP12 LD)

This is a quote again from a GP working in a LD area who seems resigned to following patient expectations at times:

“You know, if I’m hearing from them that they’re going to want referral, I’m very likely to refer them, whatever it is, if I’m hearing from them that they’re going to want referral and just all their non verbal cues are telling me that, then I will almost certainly refer them.” (GP8 LD)

Similar experience from another GP working in a LD area:

“Yeah, I think I probably couched it like a, sort of, you know, I really don’t think there’s anything significant going on here. I think there’s lots of features in what you’re telling me and how I examined you that make it a non-cardiac reason, so I don’t feel that you need to go and see a specialist, how do you feel about that, and she said, I still think I’d like to go and get it checked out. And she was a, sort of, professional, confident in her, kind of, approach to dealing with me. And, yeah, I don’t know, I suppose I’m, kind of, when I get to that stage with someone, I don’t fight it anymore, I don’t say, well you’re not going.” (GP12 LD)

Whereas GPs in MD areas seem to be able to dissuade patients more easily from obtaining a referral if the GP doesn’t think that it is clinically indicated:

“Occasionally, you get people with trivial things that, you know, feel they need to see a specialist but, usually, you can talk them out of it, really, or you know, let’s do this blood test, let’s do this scan or whatever, so we don’t get many people, we don’t really have many people that we refer totally because the patient wants that, you know, we do it because we want to.” (GP3 MD)

From the emergent themes it appeared easier for the GPs working in MD areas to dissuade patients from requests for referrals that the doctors did not feel were appropriate than for GPs working in LD areas.

This GP is talking about patients living within communities of high prevalence of heart disease and her feelings towards her patients' reluctance to address symptoms:

“feeling about protecting people a bit from that and about needing to be aware that they may normalise it and shrug it off and just maybe need that, sort of, helping hand to say, actually, it's OK to go and do something about this and not just accept this and that I might die prematurely, but something can be done about it.” (GP2 MD)

Summary of Meta-theme 2: GP factors

GPs described several factors, which alter their thresholds to make a referral. GPs from all locations described 'Doctor' factors such as, uncertainty, resource shortages (time, investigations, and experience), personality and situation (stress, fatigue) as influencing decision-making regarding referrals. However, GPs working in the least deprived areas also described increased awareness of medico-legal pressures and their decision-making being strongly influenced by patient views. This is in contrast to GPs in deprived areas describing decision-making regarding referrals being a more 'doctor-led' process.

Table 21: illustrating Meta-theme 3 -

'Practice' factors influencing triggers for cardiology referrals

Theme	Section	Sub-theme
Practice culture	10a	Pack Pressure & GP with Special Interest
	10b	Strategies to improve quality of referrals

This meta-theme explores the influence of '*Practice*' factors upon GP referral triggers.

Firstly, practice factors are described in section 10a within the sub-theme of '*Pack Pressure*', which presents the influences of colleagues upon GP referral decisions. Also included in section 10a is the influence of having a GP colleague within the practice who has a '*special interest*' in Cardiology.

The second part of this meta-theme presents strategies described by participants that they have employed in an attempt to improve the quality of their referrals (10b). Although the strategies used by participants in an attempt to improve referrals do not directly answer the research question, they have been collated in this section as it is hoped they could provide a useful resource for GPs wishing to consider strategies in their own practices to improve quality of referrals.

10a Pack Pressure & GP with Special Interest

The quotes below demonstrate the influence that colleagues within the practice can have:

"I think, you know, when you're chatting, you know, coffee over lunch and discussing cases... if the consensus about, tends to be people get referred, that becomes the norm, that becomes acceptable and then that definitely starts, sort of, seeping into your, kind of, practice and you kind of think, well, you know, Doctor X had one of these a month ago and he referred them, I wouldn't have referred them but maybe I should refer them" (GP11 LD)

GP8 LD had been working in a role with the PCT and trying to understand referral rates – he described a situation where two practices merged and despite working within the same area, one practice had a very high referrals rate and the other one a very low rate. He speculated on the effect of the two practices merging:

“I suspect they’re probably doing what they were doing before, but they will probably, over time, learn from each other.” (GP8 LD)

Three of the participants worked with a colleague who held a Special Interest (GPSI) in Cardiology and discussed the effect on their referrals and asking for advice from specialists. This participant reported that working with a GPSI didn’t affect his referral behaviour with patients who were newly presenting with angina, but he did ask for advice at times about other conditions and probably avoided referring patients or asking cardiology for advice about these patients:

“if I’m in doubt, I’ll ask Dr Z and get his opinion... Palpitation, AF, things like that, quite often he gives advice, you know, latest thing...he’d say, well I’d do this.” (GP8 LD)

GP1MD who also works with a partner who has a special interest in cardiology commented on how interesting he found the lack of elective outpatient referrals from himself and his colleague with a special interest, but wasn’t sure of the significance of this:

“Dr X, who’s the cardiac man, doesn’t seem to have made so many (cardiology referrals as another colleague), but whether the sample size is big enough to read anything into it, I don’t know.” (GP1 MD)

10b Strategies to Improve the Quality of Referrals

i) Avoiding referrals

Firstly, strategies are presented that participants described that relate to situations when GPs felt a referral was not clinically indicated, but the patient was keen for a referral. GPs described several strategies they employed to cope with perceived demands from patients for referrals.

These two quotes show participants using a 'patient-centred approach' to find out the cause of the demand for referral:

"I suppose the first one is to find out why they feel they need to see the specialist straightaway and is there - because sometimes if they've got a goal or a fear, you can allay that or say, well actually we would do an x-ray here first, you don't need to see the -, and that then disarms them a little bit. Yeah, and I suppose, you know, then you can use the sort of things, well if we referred you now, all they would do would be doing things that we would do here and it would take you a lot longer and, you know, I suppose, typically thinking things like dermatology, you know, offering creams and things." (GP9 LD)

"be a bit more direct about tackling the underlying psycho-social problems and being up front about it and saying, you know, I wonder whether this chest pain is related to this, that or the other."(GP4 MD)

The following participants described organising investigations to reassure patients when they were sure that there was no underlying physical problem. Interestingly, the GPs would organise tests, which they knew would not necessarily reveal heart disease, but used the investigation as part of a reassurance process:

“some people are reassured simply with me listening to their heart and checking their blood pressure or whatever, which you know as well as me, does not pick up ischemic heart disease, but is reassuring and, you know, they don’t necessarily know that 90% of the diagnosis is on the history, you know, but obviously I’ll be confident that it’s not ischemic heart disease. Some of them will need the extra thing of having to have an ECG done.” (GP8 LD)

“I sometimes cheat and turn, take a middle, even middle path, but take another path by I can see myself, I can hear myself sometimes saying to people, look I really don’t think this is your heart at all, but if it’ll make you feel any easier in your mind, I can get an ECG done at the hospital, it’s no trouble to me at all. Some people say if you say it’s not my heart, doctor, then I’m OK. Other people will say, that’s OK, make me a bit easier in the mind if you don’t mind. So I will write out the form, I will send them with an ECG. Now while I know is a normal resting ECG does not exclude cardiac chest pain, but if I really think it isn’t and a normal ECG will put a line underneath it, then I must say, I do do that sometimes. Whether I should or not, I don’t know, but I do.” (GP1 MD)

This GP also uses an investigation to reassure patients called cardiac memo to exclude abnormal heart rhythms:

“Well looking at cardiology, not too many probably (unnecessary referrals from the practice), particularly now that we’ve got the cardio memo thing going on because I think the palpitations was one thing where we were sending anxious patients over but I think we’ve cut that down and I think we’ve all got better anyway at sort of dealing with anxiety and being a bit more confident. And then I think we were talking before about a lot of the people who present with chest pain, whether it’s typical angina or atypical, we often just send them to casualty these days to get the ECG and bloods done. Are some of those inappropriate? Maybe but I think increasingly it’s hard not to refer people with chest pain.” (GP6 AAD)

This participant gives referral pathways and guidelines as an explanation why he can’t make a referral:

“you can just say, look, this is the pathway, it says that I can’t refer you for this, so I can’t refer you so we’ve got to work out what we do here in the practice. I think probably the dermatology exclusion criteria is quite a good one, they’re quite a good example of that where there’s a clear list of conditions that the dermatologist won’t see. And if you do refer them you get a letter back saying we don’t see these. So in that circumstance, it makes the discussion a bit easier in some ways because, you know, you haven’t got any room to manoeuvre.” (GP12 LD)

Frank conversations with patients were another strategy described. This GP had open discussions with patients about why he couldn’t refer, either because of guidelines or because the problem could be managed in-house. This would take confidence:

“we’ll have a discussion and we say, look, we probably shouldn’t be referring you because of this, and increasingly, I find myself, kind of, talking about the financial cuts and financial pressures and making sure that every referral and every treatment we do is, kind of, cost effective and justified...if its still unresolved , we sometimes discuss them in partners’ meetings, just say look, well if you’d like me to discuss it with my colleagues and see what they think ...and that makes it a bit less confrontational...it doesn’t necessarily damage your doctor/patient relationship.” (GP12 LD)

GP7 AD felt at times patients would not leave her consulting room happy if she was going to avoid ordering unnecessary investigations and referrals:

“Well, you’ve got to be clear and actually, if you think it’s not in the patient’s best interest to have an x-ray, be prepared for them to go away a bit grumpy.” (GP7 AD)

This participant teaches junior doctors to have a mental check before they make a referral:

“is anything useful going to come of this?...what we try and teach the trainees is well what useful important outcomes are going to happen if, imagine yourself in the hospital, what useful outcomes are likely to come out of this referral and if there isn’t anything, then they shouldn’t be referred.” (GP4 MD).

ii) In-house referrals between GPs

The following participants use referrals between doctors in the practice as a strategy of gaining a second opinion, before making a referral to secondary care:

“if it’s uncertainty by the doctor and need a second opinion, we’ve got a, we will refer within the practice and certainly the trainees are strongly encouraged to do that but some of the doctors have got different interests. And so we try and say, OK, you really are not sure about this, I think we need to see, get another opinion and see doctor so-and-so.” (GP4 MD)

“it’s sometimes quite helpful to be able to say look I’ve discussed it with my partners and they felt it was inappropriate and it’s then, it doesn’t necessarily damage your doctor/patient relationship so much.” (GP12 LD)

“now if we’ve got referrals that we’re not sure about, we all ask another partner or actually at the partner practice meetings we bring it up.” (GP7 AD)

iii) Double signing

Doubling signing of referral letters was another strategy used in an attempt to improve the quality of referrals from the practice. The following quotes show how the double signing strategy can be useful:

“Two reasons why it works, one is that GPs, so again, I might do a gynaecological referral and then one of our GPs will sign it and say, you know, you could have just tried this, and then I’ll go and try it, it doesn’t happen often but I’ll do that... Yeah and because we’ve done that, it’s actually made it much easier to go and ask them

beforehand, which is what I tend to do now, say, well don't refer this person, just try her on this tablet first...But the other way that it works is that the GP who is writing the letter knows one of his partners is going to see it. So if it's a crappy referral, he's less likely to do it." (GP8 LD)

"And it's not that common that it happens, but there's been a few that I can remember that I've signed other people's letters and read it and thought, well actually, I wonder why we haven't tried doing this or that, so it's probably stopped a few referrals like that, but I think the thing it's really done is it makes you really think when you're going to refer someone, have I done everything and is it appropriate... we're just going through a bit more, we're being a bit more rigorous or just, you know, really trying to exhaust all the options before we refer people." (GP12 LD)

Several participants reported checking trainee and locum letters:

"Yeah, every referral is double signed. And it occasionally leads to a discussion. I mean, certainly, they don't, I mean, they don't refer anyone to anybody without discussing it with us." (GP10 LD)

"Well all the junior doctors here are supposed to run their referrals by us prior to doing them." (GP7 AD)

"I look at all the locum referrals." (GP8 LD)

iv) Educational Referrals Meetings and Follow Up

There were several methods that the participants used to follow up referrals, including referrals meetings, in order to improve their knowledge and subsequently improve patient care and possibly avoid future referrals.

This GP is discussing an innovative model where a diabetes specialist comes to the practice quarterly to discuss cases and that this limits the

numbers of referrals. The GPs, practice nurses and the diabetes specialist share lunch and discuss patients in an educational forum (this will be discussed further in Theme 4.3, Relationship between GPs and Specialists).

“I mean, I’m involved in the diabetes model, you see that’s a wonderful model, isn’t it, the specialist coming out once every three months and you run all your problems and difficulties past him and he makes them better and, you know, we carry on and we carry on managing them in primary care.” (GP2 MD)

Part of the success of this meeting may be the relationships built up between the clinicians and the importance of relationships were highlighted by this GP:

“I think you almost never go wrong by having personal contact with a consultant.” (GP10 LD)

The following quotes are participants’ views about meeting with other doctors to discuss their referrals:

“I think educationally, we have felt it might be useful.” (GP1 MD)

“We may, for educational purposes, particularly the registrars, but also of ourselves, you know, want to look at referrals.” (GP1 MD)

“always interesting to look at what you’re doing and see where somebody else has done it differently and could I have done something else that would have avoided a referral.” (GP2 MD)

As the quotes above illustrate participants are keen to take part in supportive educational meetings focusing on referrals but there were several barriers to these sessions actually happening including lack of time, perceived threats and other priorities:

“We didn’t actually get round to having a learning session that would deal with it, but we will one day, it’s on our list of things to do! And I think as a general rule, it’s a good thing to do, but it’s that finding the time and the discipline to do it.” (GP7 AD)

“Oh I think they’re really useful, because we, there’s a lot of shared, you know, you pool knowledge that people know about other services. ...I think everybody’s felt educationally they’re useful. I think the older GPs, kind of, in some ways, it’s stupid, isn’t it, but there has been that thought that it’s quite threatening to look at what your colleagues are doing, which is blatantly ridiculous, you shouldn’t be working on your own and it’s much better to discuss these things. But it’s a very open, I don’t think it’s, it is quite supportive and, you know, I was a registrar when they started doing it and I thought they were great, they really helped me.” (GP5 AAD)

“I’ve been to somewhere I worked before, sometimes they can be just a paper exercise where you go through all the referrals and say, I would have done exactly the same, so they can be not very worthwhile. Ideally, if they’re focused, then they can be useful as an educational tool. I think what we’ve decided to do is try and pick an area and then look at the referrals in that particular speciality. Because it’s time related as well, like everything else.” (GP9 LD)

“We’ve recently, because we’ve had such a difficult time in the last couple of years, a lot of that stuff has just gone out the window, you know, there’s been a real, kind of, survival of the partnership, without trying to sound too dramatic. We are, quite literally, restarting them (referrals meetings).” (GP11 LD)

This sub-theme has shown that if supportive educational relationships between doctors are nurtured, this could possibly lower referral rates and improve of the quality of patient care.

The participants were also asked about their own personal follow up of

referrals and a range of strategies were revealed:

“There’s a good system where, sort of, post will be looked at by whoever’s on call, but it will be put in your tray, so letters come back to you.” (GP5 AAD)

“not invariably but I would usually say come back and see me after you’ve finished with the hospital so we can sort of tie up any loose ends and just make sure we all understand where we’re at and make sure there’s nothing else that needs to be done.” (GP6 AAD)

“I’ll quite often leave a note to myself to look at their notes in two months’ time” (GP8 LD)

“I think we tend to have quite a good system of the letter which comes back from, you know, after someone’s referred, it’s likely to get directed to you, so you will likely, sort of, see things again. I have had times, and unfortunately not doing at the moment, where I’ve kind of kept a note of all my referrals and, sort of, 3 months later gone back through and said, oh I wonder what happened to that person, you know, and it’s a really good process, it’s a little bit time consuming.” (GP11 LD)

Summary Meta-theme 3: Practice Factors

GPs from all locations reported *practice* colleagues as influencing referral decisions through their referral behaviour and knowledge, especially if they have a special interest in cardiology. Practice teams were keen to embrace strategies to improve the quality of referrals especially through educational conversations both within the practice and with secondary care colleagues.

This fourth and final meta-theme considers features specific to the health care system upon GP referral triggers. The Health Care System meta-theme is further divided into the sub-themes of referral pathways, GP experience of monitoring and management, the NHS as a market, and the relationship between GPs and specialists.

The following quotes summarise the essence of the themes that emerged from this meta-theme. This first quote is from a GP who is considering strategies to improve the quality and quantity of referrals and why this may be a challenge with the current health care system:

“after 12 months, a consultant cardiologist comes to us and goes through with us all those cardiology referrals with the partnership and talk through, quite critically, happy to be criticised, but you know, in a nice way! Supportive criticism... I think the trouble is it’s not in the secondary care’s interest, because of payment by results, or whatever they call it these days, you know, it’s not in their interest to get referral rates down anymore, because that’s their income.” (GP11 LD)

The second quote is from a GP who is considering the differences in referral rates and pressures between GPs working in contrasting areas:

“I’m well aware that there are pressures of working in a deprived area and I’m very aware of that, it can be difficult, but I’m sure, equally, in fairness to my colleagues in affluent areas, they have different pressures to deal with... I would warm more to encouraging my colleagues in deprived areas to up their rates rather than the affluent people to decrease theirs, I am not daft, if you’ve only got the same number of clinic appointments, how then do you square that circle, well that’s why I’m a coalface GP, that’s for somebody else to bloody sort out, not me, you know, what is the correct and appropriate level of referral and access to investigations.” (GP1 MD)

**Table 21 illustrating Meta-theme 4:
‘Health Care System’ factors influencing triggers for cardiology referrals.**

Theme	Section	Sub-theme
11.1 Referral pathways	11.1a 11.1b	Chest Pain Exclusion Service (A&E) & Fast Track Chest Pain Outpatient Clinic Community ECG service
11.2 Referrals Monitoring and Management	11.2a 11.2b	Positive views Negative views
11.3 NHS as a market	11.3 a 11.3 b	Resources and Referrals Data Presentation Financial incentives & QOF
11.4 Relationship between GPs and specialists		Value of direct communication & relationships (links 10b iv)

GPs refer to a variety of cardiology services in Sheffield, which they access in several different ways. Proximity to services has been shown to influence referral rates as described in the introduction; therefore the route of their patient's referral was included in the topic guide. Analysis showed the emphasis from GPs working in LD areas was more towards elective and private referrals, whereas the GPs in deprived areas presented more cases describing emergency NHS referrals. This reflects the statistical data presented in the introduction showing higher proportions of emergency to elective admissions from deprived areas.

One route to access specialist assessment is through Outpatient Cardiology Clinics, either to a named consultant or to the first available appointment with a consultant. Part of this outpatient service is a 'fast track' system for patients who are suspected of having new onset angina. Emergency referrals are made to A&E with or without 999 ambulance, to a service called 'the chest pain exclusion' service; finally community direct access services e.g. ECG, 24-hour ECG are also available. In order to make an outpatient referral participants at the time of data collection were using the CCGs Referrals Information Services (RIS). Referring patients via the private route has been discussed previously in section 1.3d and is not repeated here other than to note that it was only GPs in LD areas who described referring patients privately.

11.1a Fast Track Chest Pain Outpatient Clinic and Chest Pain Exclusion Service^(A&E)

Participants described several cases where they used the Emergency Chest Pain Exclusion service in the Accident and Emergency department of one of the teaching hospitals in Sheffield called The Northern General Hospital.

"Chest Pain Exclusion Service at the Northern General A&E and I've always found them very helpful." (GP1 MD)

“I sent him over to A&E and they stented him that night.” (GP5 AAD)

This is in contrast with GPs from the least deprived areas, who in the main described elective cases of outpatient referrals many of which were private.

When looking back at referrals to find cases in preparation for the research interview, this GP from a most deprived area commented on the most common route referrals from his practice as being to the outpatient rapid access clinic where the GP suspects a new onset of angina:

“Most of them to rapid access chest pain clinic...obviously, if someone’s coming in and it’s a very recent onset of chest pain then you send them to A&E, don’t you, but if it’s something that’s been going on for a few weeks or whatever then to outpatients.” (GP4 MD)

11.1b Community ECG service

Access to investigations varied from different practices. Traditionally investigations such as 24-hour ECGs have only been available in secondary care. Now these investigations are available in the community to selected practices. This variability can lead to a referral being triggered if a GP cannot access the test without a referral to cardiology.

At this participant’s practice there was a software issue which precluded referrals for a 24-hour tape being possible. Therefore, patients had to be referred to outpatients from this practice rather than being able to organise investigations in primary care:

“I think you can just refer for a 24-hour tape and it gets counted as a cardiology referral ... And it works for some practices, for some reason it doesn’t work for ours.” (GP8 LD)

This GP is happy that 12-lead ECGs are not available at his practice and it doesn't seem to alter his triggers for referral:

“Open access ECG is so easy here, because we've ... had access to either rapid access chest pain clinic or chest pain exclusion services, just what is the role of onsite ECGs, other than trying to look good to our registrars.” (GP1 MD)

So for this GP, proximity to a quality secondary care service doesn't necessarily trigger a referral, but allows him to concentrate on his GP skills, rather than what he perceives as a specialist skill such as analysing ECGs which can be obtained easily.

“if you'd come to see me 25 years ago when I was in the hospital with an ECG, I'd have been very comfortable interpreting it. But I'm not so comfortable interpreting it now. And if it's a sufficiently worrying history, then I'm going to be strongly reassured by an opinion on the ECG rather than me looking at thinking, oh bloody hell, is that ST elevation or not.” (GP1 MD)

11.2 Referrals Monitoring and Management

Referrals monitoring did not emerge as a theme that directly influenced GPs' triggers for referrals. However, strong negative emotions were revealed, especially from GPs working in deprived areas; also the potential useful strategies that monitoring had prompted, such as educational conversations between GPs and specialists as a way of improving the quality of referrals (4.4 & 3b), led to the inclusion of this sub-theme in the presentation of results.

The participants saw monitoring of their referrals activity as inevitable, as summarised by this GP:

“I think it’s an inevitability. So I’m being careful here not to use moral language, whether it’s good or bad, but I think it’s an inevitability, you know, we generate, we’re the biggest generators of cost and it’s ridiculous to think that’s how we’re looked at, it’s just ridiculous. It’s an inevitably.” (GP8 LD)

“we use RIS rather than Choose and Book. I think that it is inevitable so it doesn’t really matter.” (GP9 LD)

However, participants’ contrasting responses to the value of monitoring and managing referrals are reflected in this participant’s quote about the opposing GP opinions in her practice on referring monitoring:

“there’s partners who have diametrically opposed opinions on it, within our practice anyway.” (GP5 AAD)

The opposing views are summarised below under the headings of Positive (11.2a) and Negative (11.2b) views on monitoring/managed referrals.

11.2a Positive views on monitoring/managed referrals

This GP feels the current monitoring is acceptable:

“At the moment, it’s done at a, sort of, in a reasonably positive, sort of, way and I don’t feel that it’s actually impinging on my judgement about the referral.” (GP4 MD)

The Referrals Information Service (RIS) was set up by the PCT in order to monitor GP referrals. GPs had been asked to send all their referrals via this system by the PCT prior to the research interviews taking place:

“In the main, it works [the RIS], you know, I must say, I can remember being slightly irritated by it, but in the main it’s OK, it’s just another form to fill in, but it’s a very short form...in a few situations, it seems to increase work but, on balance, it’s probably better, probably OK.” (GP1 MD)

The strategies presented in Section 3b were as a result of the PCT monitoring of referrals, and the participants were generally very positive about suggestions such as double signing of referrals letters and educational referral meetings as tools to improve patient care (px):

“we started off doing it once a month (meeting to discuss referrals) but it was too big a pile to look through. So we’re now once a week, this is only recently, so I don’t know how long it’s going to last, but hopefully it will last. We look through all our referrals.” (GP3 MD)

11.2b Negative view on monitoring/managed referrals

In contrast with the above positive views about referrals monitoring and management, there were some very strong negative emotions revealed, especially from GPs working in deprived areas as illustrated by the quotes below:

“we are a high referring practice and we have had the PCT come and tell us off about it, really, which was a horrible meeting and there were two partners within that meeting and basically, we were told that we are one of the highest referring practices in Sheffield and that referrals and disease incidence has nothing to do with deprivation and that we shouldn't, we should be not referring, we shouldn't be referring anymore than the average. And they basically told us that, they said we had to start doing referral meetings because there is evidence that that reduces the number of referrals and that basically, you know, we shouldn't be doing what we're doing. And then we were very angry with them and said that, you know, we refer people because there is a much higher than average incidence of chronic diseases in this area and that we will continue to refer patients that we feel appropriate. So it was a nasty meeting!...it was very heavy and more unpleasant than I thought it was going to be, I thought that, you know, I knew what they were coming about but it was, they handled it worse than I expected them to handle it...” (GP3 MD)

GP3 continues his response to the monitoring of his practice's referrals:

“we know we're a high referring practice and we know why we're a high referring practice... we weren't referring people out of laziness, we were referring people because we thought they needed to be referred.” (GP3 MD)

GP1 echoes the sentiments of GP3, who again works in a very deprived area of Sheffield:

“I think periodically, this thing about referrals comes up, is it an active decision not to monitor, not to look at referrals [by his practice], I guess it probably is but it’s more there are so many things that we do do, that we’ve never felt sufficiently strongly about it, to feel that it’s worth the effort, really... we’re slightly suspicious that monitoring of referrals is a cost-driven exercise and we’re almost, you know, bristling up at that, aren’t we, you know, if I want to refer somebody, I’ll bloody refer somebody and I don’t want some sodding manager up at the PCT telling me not to refer.” (GP1 MD)

This participant also has not found referrals meetings useful (unlike the majority of GPs – see section 3b):

“we’ve been looking at referrals for the last few years, we haven’t done much in the last twelve months because it wasn’t terribly fruitful.” (GP7 AD)

There were also concern regarding how meaningful the referrals data was that was being presented by the PCT:

“they’re not weighted for morbidity, deprivation, that kind of thing” (GP8 LD)

“we are hoping to get data that’s more meaningful in time” (GP7 AD)

There were concerns that the introduction of tick-box style protocols and guidelines to control referrals could lead to mistakes:

“my concern is that these, you know, if you manage referrals too tightly ... the nature of the beast is there are always going to be surprising ones. And that’s the difficulty, isn’t it, that’s the crux of it...And I think if we over manage our referrals, then I’m worried that cases like this, you’ll have just patted on the back and then he’ll drop dead at 46 of a heart attack....” (GP10 LD)

“you can’t put a tick box of criteria for why it’s an inappropriate referral you’ve done because, you know, the bloke with abdominal pain wouldn’t have got referred because he didn’t have chest pain.” (GP8LD)

“I think the doctor’s skill is to pick up the thing that’s different from the protocol and the nurse’s skill is to follow the protocol and both are valuable, but you do need both and I’m not sure we’re getting pushed towards the nursing way of doing it because we’ve got to think outside that. So I think the best way to do it is to educate people. And not, you know, go on protocols, you know, I feel that strongly.” (GP8 LD)

“if it becomes a series of tick boxes, I don’t have to think about referral, I can simply say send this to the tick box place that wants to see if my referrals are appropriate, they can then reject it or not, they can take the risk – that’s fine, yeah, OK, you’ve got chest pain, mate, fine, I’ll refer you to them and they can say whether it’s appropriate or not. I don’t need to bother to do anything and so there’s two problems with that, one is it demoralises me but the other is it deskills me.” (GP8 LD)

GP12 describes the process of not referring as an increase in workload:

“with the increasing, kind of, pressure on keeping referrals down, it definitely is more work for us.” (GP12 LD)

“we’re paying for a bureaucracy, aren’t we. This never used to cost anything but, of course, it was less manageable...I think if I have actually put in an appropriate referral which then gets managed and, therefore, someone tells the patient they can’t have the referral, as long as that person is prepared to take full medical legal responsibility for the fact that, actually, it didn’t happen. And if they end up having something wrong with them, they get sued, well that’s fine. I think it’s a minefield.” (GP10 LD)

Referrals Management Services were reported by the participants as causing delays for patients:

“if we can directly book it, actually it just makes the process a bit easier, really, a bit simpler [than going through RIS].” (GP2 MD)

“sometimes it’s fairly frustrating ...the admin person at the RIS office just wouldn’t book the appointment until all the tests were done. And there have been a few things like that where it’s a bit annoying.” (GP12 LD)

“Lots of stuff’s gone missing. So, yeah, all our referrals are faxed unless it’s to a particular consultant that saw them recently or something, but all new referrals are done through RIS and faxed.” (GP3 MD)

11.3 NHS as a Market

Over past decade, a system called ‘Payment by Results’ has been introduced where hospitals charge a tariff for every service they provide to organisations who commission their services such as CCGs (formerly PCTs). The following section outlines the participants’ feelings about this ‘marketisation of the NHS’ in relation to referrals:

“I mean, it’s the artificial purchase provider split, if you look at what actually costs money in this city, it’s what, people and suppliers, isn’t it...we actually all being slightly deluded by the nature of this artificial system. And should, if you really want to cut money, should you look at how many people in each thing you want. That’s my view...So various things have come from all of this world that I don’t like, I feel philosophically against them.” (GP10 LD)

11.3a Resources and Data Presentation

Participants discussed resources in relation to the costs of their referrals and wider implications for the NHS:

“So I’d be really interested to know what the percentage is of people who are referred turn out to have disease and then you’d have to ask a basic philosophical question, what percentage can this society afford. That’s the question. And I’d be really interested to know if the percentage of -, it’s different between different areas, I think that would be really interesting.” (GP8 LD)

This leads on to the question about how to determine the correct referral rate for a practice and participants recognised the complexity of this:

“it’s a troublesome thing about referrals, it’s not knowing what’s the right referral rate. Because is it that the affluent areas are referring too many people because of all this ‘worried well’ stuff, or is it that the deprived areas are not referring enough.” (GP7 AD)

“it’s such a minefield, isn’t it, about what’s the appropriate rate, and so giving feedback on the referrals is the first step to try and improve the quality and I’m very happy with that indeed.” (GP4 MD)

This participant is concerned that his practice probably under-refers, but is not challenged about this, unlike GP3 MD:

“the referral rate in this practice, because we’ve got, it’s really probably the lowest in the consortium, when you compensate for all the, you do the deprivation for the population. So we’re probably on the other end, we’re probably not referring enough, actually.” (GP4 MD)

“Frankly, the NHS would be better if the unmet need was unmet. We can’t afford to meet all the unmet need.” (GP8 LD)

This quote demonstrates how GPs see the quality of referrals as more important than numbers of referrals:

“I guess, probably because we’re a higher referring practice... the important thing is the quality of a referral, not how many referrals you do. I think if you refer a large number of patients but they’re of good quality, justifiable referral, then you’re, then I don’t think, you know, don’t think you should be shouted at for doing that.” (GP12 LD)

This GP is talking about investing in GPs as attempting to shift the role to other health professionals can be seen as a ‘false economy’:

“GPs are really, should be trained to manage risk, that’s really the raison d’être of GPs in the NHS, isn’t it, is that they assess and they make a judgement and they weigh up the risks and then they advise on management and they bear the risk and that is why we’ve got a system which is basically fairly cost effective... nurses and health visitors and midwives are much more likely to do this than GPs because GPs are trained to do it and the others are not paid to do it, we’re paid huge salaries for doing this.” (GP4 MD)

Finally, regarding the resource sub-theme these participants summarise the dilemma of GPs trying to weigh up utilitarian versus libertarianism approaches to their work:

“trying to save money based on referrals is going to be doomed to fail because we’re all be so medical legally and just to have the concern of the patient as well, heart, which is the most important issue.” (GP10 LD)

“I worry that the whole basis of the thing is leading us up a similar sort of decisions that bed managers in hospital mean that people are discharged. A patient of ours was recently discharged from hospital with a cardiac arrhythmia, who was chucked out of Casualty and he collapsed on the way home, well what, the PCT didn’t have the money. You know, you just think, in a kinder era, someone would have put him in a bed overnight and actually observed him and worked out what was wrong. So all of these, I think all this creeping stuff worries me, but then I appreciate that doctors have always sounded like complete luddites about change like this.” (GP10 LD)

During the interviews and the focus group, participants commented on the quality and meaning referrals data presented to them by the PCT. Strong negative emotion was revealed as was described previously at the way in which this data was disseminated (Section 11.2b). The quotes below show that participants would welcome more meaningful data:

“we’re hoping to get data that’s more meaningful in time.” (GP7 AD)

“they’re not weighted for morbidity, deprivation, that kind of thing. So yeah, the only thing that’s meaningful really is yeah, to get some idea of where you are with other practices that are more similar to you but you’d have to look at that over time because if you just look at one six month period that might have been a blip mightn’t it?” (GP7 AD)

GP8 was unusual in that he has held a special leadership role within the clinical commissioning group:

“I know a lot about referrals and, you know, money and restructuring the health system etc., etc., yeah, so I’ve got a lot of knowledge of that, I’ve worked hard and thought about it a lot the last four years.”(GP8 LD)

However, even though he has held this role, he wasn’t clear on how the data are prepared regarding referrals feedback for GPs:

“Researcher: How did you organise the data, the referral rates, was it - ?

Participant: PCT did it.

Researcher: And did they adjust it, you know, for size of practice and was it a rate or was it just raw -

Participant: Er, it would have been numbers per 1,000 patients.

Researcher: OK, yeah, and was that age standardised?

Participant: No, don’t think it was.

Researcher: And had it gone through the deprivation formula?

Participant: No, no, it wouldn’t have gone through that. I don’t think so.

Researcher: Did GPs ask you, you know, did they question the maths of it or -

Participant: Oh yeah [laughs], particularly if they came bottom, they didn’t if they were top!” (GP8 LD)

This exemplifies the general confusion about the preparation of referrals data and this will be discussed further in the presentation of themes from the focus group.

11.3b Financial Incentives (QOF)

When the interviews took place, GPs were financially incentivised through the QOF system to refer patients for specialist exercise testing if there was a new diagnosis of angina or suspected angina for a patient. The impact of this upon referrals was discussed as illustrated by the quotes from participants below:

“the QOF has probably driven me to refer that patient, whereas, you know, and maybe they’ll now get an angioplasty, you know, for a while there were age limits on those sort of things too.” (GP10 LD)

“we’re actually being forced, not, you know, because we can’t make the diagnosis. So there is a, that’s something where the guidelines force our hand a bit.” (GP4 MD)

“if I enter angina as a diagnosis on my computer then I lose out financially because, at the end of the year when QOF, you know, there’s nothing to substantiate my diagnosis for angina, so we have to, quite rightly I suppose, we have to have more investigation. So, no, if someone walks in the door and I think they’ve got angina, then I refer them.” (GP4 MD)

11.4 Relationship between GPs and Specialists

(links with node 10.1b iv)

The infrastructure of the health care system can affect relationship between primary and secondary care clinicians. The value of these relationships has already been presented in sub-theme ‘Educational Referral Meetings’ (10.1b iv) and if nurtured, the effect of supportive educational relationships as possibly lowering referral rates and improving of the quality of patient care. The following quotes are a selection from participants who were overwhelmingly in support of the health care system improving communication between doctors:

“I think it (the health care system) has devalued the nature of these relationships we were talking about earlier, which used to enable me, much more readily, to get things done for patients.” (GP10 LD)

“What was going through my mind was that if you’ve developed a relationship with the cardiologist, you maybe could prevent a referral by saying, look, I’ll ring, or write, Doctor Cardiologist, who’s a consultant, I’ll tell him all about you, I’ll send him your ECG and let’s meet again and I tell you what he said, something like that might prevent a referral.” (GP11 LD)

When asked about whether he felt a relationship with consultants was important, this GP was very positive:

“I think you almost never go wrong by having personal contact with a consultant. I think they get a sense that you know what you’re doing and you develop a relationship. And what it also means is that if you’re in real stick with a patient, if you’ve got a personal contact, personal relationship, quite often you can ring them up and say would you mind helping me out here. And, over the years, that’s helped me enormously. So I believe in it but, you know, I know that when you send a referral off to the RIS it’s actually rather frowned at if you write someone’s name on it, for waiting list reasons.” (GP10 LD)

“I mean, if there was some halfway between people actually going up to the hospital, so communicating, would be helpful..”(GP5 AAD)

Summary Meta-theme 4: Health Care System factors

Monitoring and management of referrals by the Health Care System was seen as an inevitable process due to the financial challenges of the NHS. GPs were keen to improve the quality of referrals, but were strongly resistant of protocol style referrals produced as a result of financial pressures, purely to reduce referral rates; participants perceived this as possibly endangering patients. There is a general lack of understanding and mistrust of how referrals data is produced by managers. GPs would value clarity regarding its reliability and validity and would welcome more meaningful data presented sensitively in supportive educational environments.

11.5 Focus Group and Overview of Qualitative Results

Key findings from a preliminary analysis of the interviews were presented to a focus group of five Sheffield GPs as a way of presenting preliminary results. The sampling and recruitment process of the focus group has been described at the beginning of this chapter.

Patient factors influencing triggers for cardiology referrals

Firstly, findings regarding patient factors and their influence upon GPs' referral decisions were explored with the group. Participants at the focus group concurred with the preliminary analysis of GPs describing patient expectations being higher in LD compared to MD areas of Sheffield, as shown in the following group discussion quote:

“GGP3MD: It's all about what's their expectation of what's acceptable or normal. Actually all of their friends are out of breath when they walk up Manor Lane and now so are they it's new for them but it's not a big deal. So yeah threshold for what's normal

GGP1MD: their expectations out of life are often different aren't they? They're prepared to think that they're getting old so they can't breathe very well so they'll just huff and puff a bit rather than.... if it gets tight you just don't walk up hills anymore you just get a taxi you know its just...

GGP2MD: or priority is the other thing, you know, other things are more important

GGP5LD: that's the hierarchy of need you kinda have got other things to worry about”

Findings regarding the emphasis in MD areas being upon emergency referrals, and there being high rates of morbidity in these areas were also confirmed by the group:

“I don’t think we’ve referred many people probably when we looked at them in the last three months ... whether our patients aren’t very demanding or whether we don’t pick up on it, but the worry is we have the highest rate of heart disease in the city ward by ward and the highest mortality rate” (GGP1MD)

A theme that did not emerge from the interviews were patients in deprived areas often being lost to follow-up from clinics or not attending hospital appointments:

“It happens a lot in deprived areas doesn’t it? They kind of just drop out and then need re-referring.” (GGP1MD)

“Ours is very similar to that, our last referral had been under but at some point DNA’ed And then so lost, and errr so ours are very similarly numbers.”(GGP2MD)

This could be affecting the quantitative results as this would make referral rates look higher in deprived areas as GPs re-refer patients who have been discharged from secondary care clinics due to non-attendance. This could actually lead to a more positive relationship between deprivation and referral rates, and lead to a false perception of a positive care law.

In the following quote, the participant, who works in a LD area of Sheffield, muses on his own practice's high referral rate:

"I think it's interesting to find out more about why that may be and certainly you can work in a practice like 'ours' you can hide behind the pillar of saying... our patients are very demanding, therefore, we have high referral rates. I'm not sure whether that's fair or not, when the physical pathology is certainly less. So, erm, it's an easy thing for us to say well they're all middle class so we have to refer them!"*
(GGP5LD)

**Name of practice removed for confidentiality*

In the following quotes, the group were discussing the differences between the experience of making referrals from LD and MD practices:

GGP3AAD: "I'm conscious I spend a lot more of my time trying to persuading people that they may liked to be referred rather than them saying I'd like a referral."

GGP5MD: "Hmmm, very different."

GGP3AAD: "Just sort of thinking of a chap recently who clearly was in heart failure had a really loud murmur and you're sort of thinking yeah there's a proper reason, you're in heart failure you need to see someone not me. And it was a negotiating process to get him to go to the clinic."

GGP5LD: "Oh, it's just really interesting reading those ones in red (quotes from GPs working in MD areas) because it's so different ... was trying to think of the last time I was trying to persuade someone they really did need to go to hospital for an outpatient referral and you know that's not a conversation you have very often, so, that's quite different."

Themes around the systems of referral suiting patients from LD areas more than MD areas were also discussed:

“I’m thinking, but it needs to be less than a month! And I’m thinking none of them fit! But that’s the thing about delaying it isn’t it in Crookes they’d probably come after they had it for two days you know it’s...the majority of deprived patients will have been suffering for at least three months if not longer ... this priority isn’t it they haven’t priorities it in that time, and often these er throw away things, how many consultations have you had where when it isn’t the actual presenting complaint, ‘By the way Dr I’m you know I get out of breath when I go up hills’. Well I’m thinking, well I’m just gonna have to change tack and have another consultation because you can’t not deal with it can you, then you stressed knowing you need to refer them.” (GGP1MD)

GP factors influencing cardiology triggers for referrals

Variation between GPs was confirmed and factors affecting thresholds for variation were also discussed:

“I think cardiology referrals talking to colleagues seems to be one of the things even within the same practice where referral rates or threshold for referral are quite different for different GPs.”
(GGP3AAD)

“I think with our practice there’s a huge variation with our GPs and how they manage the anxious palpitation patients depending on your time your own stress levels and your own sort of skills.”
(GGP5LD)

This GP was considering the analysis of referrals in meetings to see if any referrals can be avoided:

“There’s so much that goes on within a consultation before you get to that decision to make the referral that you can’t then easily, it’s quite hard to remember it then it’s quite hard to explain why you made those decisions.” (GGP4BAD)

Practice themes influencing triggers for referrals:

The effects of working with colleagues with special interests as possibly having an influence on referral rates was confirmed:

“I don’t think we’ve referred many people probably when we looked at them in the last three months, and I’m not sure if that’s because if I work with the lead from cardiology so talk to him about stuff.” (GGP1MD)

GPs again showed enthusiasm of educational approaches to improving the quality of referrals, but were cautious about this being carried out in a supportive and non-threatening environment:

“That’s a learning exercise – you can see what happened and that any evidence for looking at referral shows that you should be looking to see your outcomes, because that’s far more likely to change your behaviour than someone sitting in a meeting telling you you’ve got to refer less if you refer someone with palpitations they go they have a 24-hour ECG and then they’re discharged.” (GGP2MD)

“It’s similar to the double signing thing isn’t it, because I can see the principle of that but it would very much depend on the atmosphere of the practice and the relationship between the GPs wouldn’t it because we do it and I’ve never questioned anyone else’s referral and I’ve never had anyone come back to me.” (GGP4BAD)

“I think everyone feels threatened when you have your referrals looked at and challenged and I think that is a threatening thing. I think some of its really good ... (if) it is an educational thing looking at it, but its no good if it's in a very threatening environment and peoples backs go up, it defeats the object.” (GGP2MD)

“It's just part of life now – I think we're gonna have to do this and we will have to be confident and we will have different thresholds, that's normal, we've all got different skills erm within the practice, and its helping people to not feel threatened about it because then you're far more likely to be open to any changes or looking at it, you know there need not to be threatening meetings like this they're completely unhelpful.” (GGP2MD)

Health care system themes influencing triggers for referrals

GPs exhibited mistrust and confusion about the data presented to them by the CCG/PCT. Participants criticised the timescales and felt their work patterns were not reflected in the data:

“Referrals have been a sort of topic of contention for me for the last few years, with the consortium and the PCT and all that stuff and I suppose I found it all frustrating how, I dunno we get this kind of ridiculously short timescale for referral data and with no evidence of statistical significance.” (GGP5LD)

“That comes back to this ridiculous details isn't it because we get these monthly things for referrals, how many erm of all these different specialities that I've referred and you know I'm part time so it might be three one in each different speciality every month you know it means nothings, I mean we'd have to take it over a ten-year period to look at trend.” (GGP1MD)

Participants felt the short-term data was not useful as leave and factors such as covering registrar's surgeries could all have an impact on referral

rates and change the GP's position on the ranking charts regarding referrals:

"It's lower this month because you've had two weeks of annual leave!" (GGP3AAD)

"There's so many variables aren't they, how many patients you saw that week you know if your covering surgeries, so basically I'm covering the registrars all the time, I've hardly seen any patients, you know I'm not gonna have many referrals am I?" (GGP1MD)

"The data is basically poor and like you were saying its very random when you go to the meetings and they say yeah you're top of the referral list and the you're bottom." (GGP2MD)

Other potential factors raised which could make comparing individual GPs referral rates problematic: small numbers of referrals, working part-time, different roles within the practice - some GPs provide a more nurturing role for patients with complex needs, while others may undertake more sessions of minor operations or family planning, and GP behaviour regarding follow-up of patients. For example, GPs who do not ask as many patients to rebook for follow-up may see more patients with new problems and potentially make more referrals, and GPs who ask other GPs for in house second opinions may have fewer referrals, if their colleagues make more referrals on their behalf.

This the mistrust of the data, and its unhelpful nature has led to participants feeling remote from managers, and that data is not contextualised:

"When you kinda say everyone should be referring the average levels, I mean that is such a load of rubbish isn't it ... what is this two standard deviation of normal for referral rates, and over what period of time, no one has got those answers at all..." (GGP5LD)

“it feels like these distant managers are too simplistic in their views of things really.”(GGP4BAD)

The participants felt that referrals data is unreliable. GGP2MD describes a result of her audit looking into cardiology referrals from her practice where she uncovered evidence of ‘double counting’ patients for referrals:

GGP5LD: “Well, its one of the most frustrating things about looking at referrals because the data is so inaccurate.”

GGP2MD: “It’s dreadful!”

For example referrals being counted twice if a patient did not attend first outpatient appointment as described above; GPs working in most deprived areas, felt this discriminated against them as their patients were thought to more commonly miss appointments than in more affluent areas.

GGP5LD: “And you know you think this is going be a crucial thing for how the whole financial thing works for GPs is gonna be based on this poorly put together data.”

GGP2MD: “That’s why doing the audit was quite interesting, that’s one of ours they’d referred an echo card and a referral and two charges, separate charges.”

Part of the mistrust of the referrals data currently being presented to GPs was that the quality of referrals were not being taken into consideration:

“It shouldn’t be about numbers of referrals because that’s you know, you might have had three times the average cardiology referral but every single one...you may have still under referred for the patients you saw.” (GGP1MD)

“It’s about the quality of referrals.” (GGP5LD)

In the final part of the focus group, the results of logistic regression analysis were presented. Participants commented on the findings as shown in the quotes below, mainly in relation to the loss of a positive care law in patients aged over 70 years:

Researcher: "... if you're under 70, living in a deprived area, you've got more chance of a cardiology referral.

GGP2MD: "and probably needing it!"

The participants suggested that people living in MD areas may already have established disease by the age of 70 years, unlike those living in LD areas, and therefore:

"they don't need new referrals." (GGP4BAD)

and

"they've already been discharged." (GGP2MD)

GGP3AAD suggests also that often her patient in this age group do not want referring and recalls two patients who fit in this category:

"Well I just think the people I'm sort of picturing in my mind are... a couple of old chaps and ladies who just... they're already diagnosed with angina, which is clearly not well controlled really on pretty good doses of medication, and yeah they were just like – no!" (GGP3AD)

Summary of Focus Group

Participants at the focus group provided a useful confirmation of the key interview findings regarding patient, doctor, practice and health care system factors. The results of the group also shaped the next step of the quantitative work in the production of a funnel plot to provide an example of an alternative way of presenting referrals data.

Summary of Meta-themes

Meta-theme 1: Patient Factors

GPs working in least deprived (LD) areas described experiencing high expectations from articulate patients, who were clear about their wishes for future management often through 'patient-led' decision-making. This could at times lead to GPs feeling under pressure and demand: either for a referral, or to keep care within the practice. In contrast, GPs working in the most deprived (MD) areas described patients as being fearful, reluctant and deferent: all of which could inhibit referrals. One group of patients who contradicted this finding, were those who had recently moved to Sheffield from countries without a gatekeeping primary care system. GPs working in LD areas described patients utilising elective private health care, which contrasted with GPs from MD areas who described referring patients to NHS emergency services more frequently. GPs working in MD areas also described patients struggling to navigate the elective NHS system due to multimorbidity, poor health literacy and communication issues; these factors were again found to inhibit referrals or create barriers to a successful encounter with secondary care. Other '*Patient*' related triggers for cardiology referrals for GPs working in all locations included, symptoms and signs of heart disease, investigation results, medication issues, patient reassurance, family reassurance and young age.

Meta-theme 2: GP factors

GPs described several factors as altering their thresholds to make a referral. GPs from all locations described '*Doctor*' factors such as, uncertainty, resource shortages (time, investigations, and experience), personality and situation (stress, fatigue) as influencing decision-making regarding referrals. However, GPs working in the least deprived areas also described increased awareness of medico-legal pressures and their decision-making being strongly influenced by patient views. This is in contrast to GPs in deprived areas describing decision-making regarding referrals being a more 'doctor-led' process.

Meta-theme 3: Practice Factors

GPs from all locations reported *practice* colleagues as influencing referral decisions through their referral behaviour and knowledge, especially if they have a special interest in cardiology. Practice teams were keen to embrace strategies to improve the quality of referrals, especially through educational conversations both within the practice and with secondary care colleagues.

Meta-theme 4: Health Care System Factors

Monitoring and management of referrals by the Health Care System was seen as an inevitable process due to the financial challenges of the NHS. GPs were keen to improve the quality of referrals, but were strongly resistant of protocol style referrals produced as a result of financial pressures, purely to reduce referral rates; participants perceived this as possibly endangering patients. There is a general lack of understanding and mistrust of how referrals data is produced by managers. GPs would value clarity regarding its reliability and validity and would welcome more meaningful data presented sensitively in supportive educational environments.

Summary of Qualitative Results Chapter:

This chapter has described the themes influencing GPs' triggers for outpatient cardiology referrals and highlighted differences between GPs working in deprived and affluent areas of Sheffield.

Themes influencing referral triggers from GPs working in MD areas included: patient fear, reluctance, deference, health literacy, communication issues and doctor-led decisions. In contrast, themes from GPs working in LD areas included: articulate patients with high expectations of their GPs, private referrals, awareness of medico-legal issues and patient-led decisions.

GPs from all areas reported classical and non-classical presentations of heart disease as a referral trigger; were enthusiastic about nurturing educational relationships with secondary care clinicians to improve the quality of their referrals and called for more meaningful referrals data, with some GPs from MD areas revealing strong negative emotions around this theme.

The next chapter describes the quantitative findings of the project. Finally, the Discussion chapter will present the key findings of both the qualitative and quantitative research in relation to the original questions and positioning within the broader literature concerning health inequity and GP referrals through a conceptual framework.

Chapter 12: Quantitative Results (Phase 2)

12.1 Introduction to the quantitative results

The following chapter presents the quantitative results of the second phase of this project and is divided into three main sections:

12.2 Descriptive summary of Sheffield General Practice

12.3 Binary logistic regression analysis of Sheffield GP referrals

12.4 Example of a Funnel Plot to present of referrals data

The first section (12.2) of this chapter provides an overview of General Practice in Sheffield with regard to deprivation, list size, coronary heart disease (CHD) prevalence, rates for elective cardiology outpatient referrals and rates for all speciality outpatient referrals. The remaining two sections (12.3 and 12.4) provide the results of the analysis undertaken in order to answer the following **research questions**:

- Do elective outpatient cardiology referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- Do elective all speciality outpatient referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- Is there an alternative to the current methods of presenting Sheffield referrals data to demonstrate variation in elective cardiology referrals to General Practitioners?

12.2 Descriptive summary of Sheffield General Practice

12.2 a Deprivation

The Index of Multiple Deprivation (IMD) score has been used as the measure of deprivation for each Sheffield general practice in order to allow practices to be ranked and grouped according to deprivation. Higher IMD scores indicate higher levels of deprivation. Sheffield Practices were ranked in order according to their IMD scores. The practice with the highest deprivation according to its IMD score as listed on its online General Practice Profile' (National General Practice Profiles 2008/09) was labelled as Practice 1, and practices were ranked subsequently according to their IMD score up to the practice with the least deprived score as Practice 91. The practices were then organised into five groups by four quintiles. The first group represented the most deprived (MD) practices and the fifth group represented the least deprived (LD) practices. This resulted in the organisation of practices into the following five groups:

MD = most deprived

AAD = above average deprivation

AD = average deprivation

BAD = below average deprivation

LD = least deprived

IMD scores for each General Practice in England are supplied online in the 'General Practice Profiles' (National General Practice Profiles 2008/09). The IMD score is a measure of deprivation at small area level; so it is an appropriate measure to use for the practice level data needed for this study. IMD scores are currently used widely in England to target resources appropriately for regeneration projects (McLennan et al, 2011).

The IMD score combines values of indicators under seven main domains of deprivation:

1. Income 22.5%
2. Employment 22.5%
3. Health deprivation/disability 13%
4. Training/Education/skills 13%
5. Barriers to housing/services 9.3%
6. Living environment deprivation 9.3%
7. Crime 9.3%

The domains are weighted with income and employment receiving the most weight gradually reducing down to living environment and crime, which receive the lowest weighting.

Some examples of the subdivisions of each domain are provided below:

Income/employment– Income support, job seekers, asylum seeker

Health and Disability- premature death, years of potential life lost, disability and morbidity, emergency admission, mood and anxiety

Education and Training – entry to exams, absence, not entering higher education

Barriers to housing services – overcrowding homelessness, distance to GP surgery, post office and primary school

Living environment and crime-violence, burglary, theft criminal damage, poor condition housing, central heating, air quality, road traffic accidents

The indices allow for ranking of practices relative to each other, but do not provide information about how much more deprived one practice is in relation to another. For example the ranking of Sheffield GPs according to deprivation in this project, demonstrates that a practice with a higher ranking is more deprived than another but not that Practice 2 is twice as deprived as practice 4; it can only be stated that practice 2 is more deprived than practice 4.

Table 23: Mean and Range of Index of Multiple Deprivation Scores (IMD) for Sheffield General Practices

Groups of Sheffield General Practices <small>(Practice IMD scores used to rank and then divide 91 practices by quintiles into 5 groups)</small>	Acronym	Number Of Registered Patients of Group	Range Of IMD Scores Of Group	Mean IMD Score Of Group
Most Deprived <small>(18 practices)</small>	MD	98,980	59.5 to 46.7	51.29
Above Average Deprivation <small>(18 practices)</small>	AAD	71,853	46 to 34.5	40.90
Average Deprivation <small>(18 practices)</small>	AD	125,757	34.4 to 24.7	29.21
Below Average Deprivation <small>(18 practices)</small>	BAD	158,880	24.2 to 16.2	19.65
Least Deprived <small>(19 practices)</small>	LD	105,664	15.8 to 4.7	11.06
Range of IMD Scores for all Sheffield General Practices			4.7* to 59.5**	
Mean IMD Score for all Sheffield General Practices				30.21

*Bents Green **Whitehouse Surgery

(IMD scores and numbers of patients registered for each General Practice obtained from online National General Practice Profiles 2008/2009)

Table 23 describes the Index of Multiple Deprivation scores for General Practices in Sheffield. There was a broad range of IMD scores from 4.7 to 59.5, however the mean IMD score for Sheffield General Practice falls into the 'Average Deprivation' quintile. This suggests that although there are areas of less deprivation in Sheffield, the trend for IMD scores for Sheffield General Practice was towards average deprivation. This contrasts with the numbers of

patients registered with practices in Sheffield; there are more patients registered with 'Below Average Deprivation' and 'Least Deprived' practices (264,544) than AAD and MD practices (170,833). The total number of patients in Sheffield registered with a GP is 561,134. This is a larger number than the census population figure of 552,698 people living in Sheffield in 2011. The reasons for this could be due to inaccuracies in numbers of patients registered on practice lists due lists not being properly 'cleaned' as patients move, or due the then PCT boundary possibly being different to the boundary used for the census collection of data. Also, patients who do not have a fixed address or seeking a decision about asylum may be missed off the census data.

To put the IMD scores for Sheffield in a wider context, the average IMD score for England General Practices was 21.5; with the highest scoring practice being in Liverpool with a score of 68.4 and the lowest scoring practice was in Surrey with a score of 2.9 (National General Practice Profiles 2008/09).

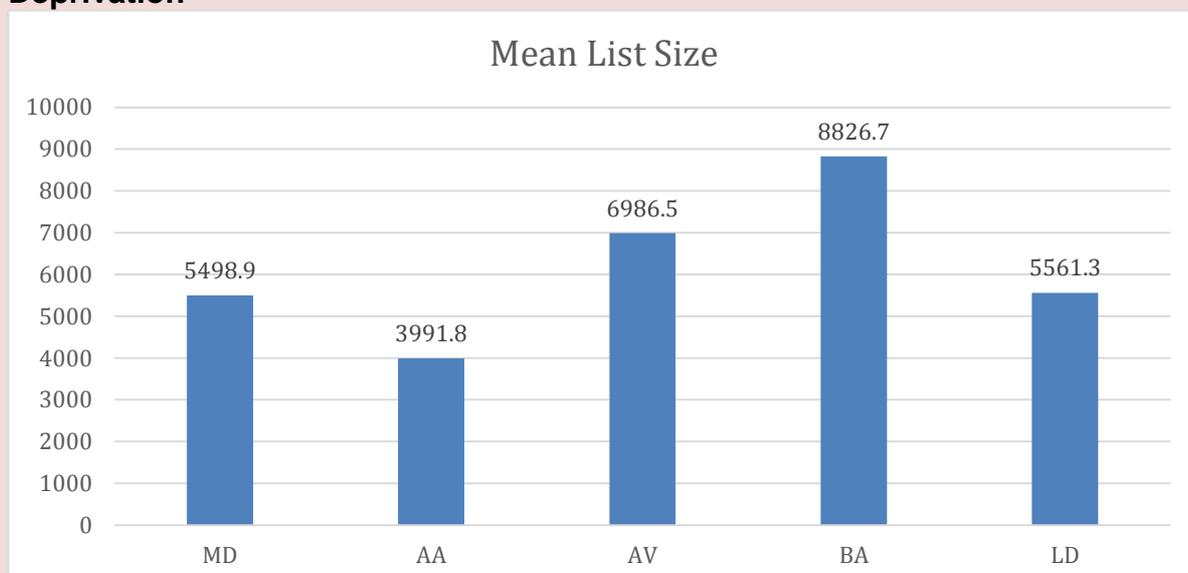
12.2b and List Size

Table 24: Mean General Practice List Size with Practices Grouped by Deprivation

Groups of Sheffield General Practices	Mean list size
MD	5498.9
AA	3991.8
AV	6986.5
BA	8826.7
LD	5561.3
Range of Sheffield Practice List Size	1315* to 22839**
Mean Sheffield Practice List Size	6166

*Mulberry Practice (Asylum Seeker Health), Central Health Clinic. **University Health Service (IMD scores and list sizes obtained from National General Practice Profiles 2008/09)

Chart 3: Mean List Size of Sheffield General Practices Grouped by Deprivation



The England average General Practice list size is 7,041 (National General Practice Profiles 2008/09). Sheffield with its average list size of 6,166 is around 15% below average. The University Health Practice with its high number of registered patients will be raising the mean list size in the 'Below Average Deprivation' group of practices. Also, the smallest practice at the time of analysis in Sheffield CCG was the Mulberry Practice, which provided health care for people living in Sheffield who seek asylum and for homeless patients, will have lowered the mean average list size in the 'Most Deprived' group of practices.

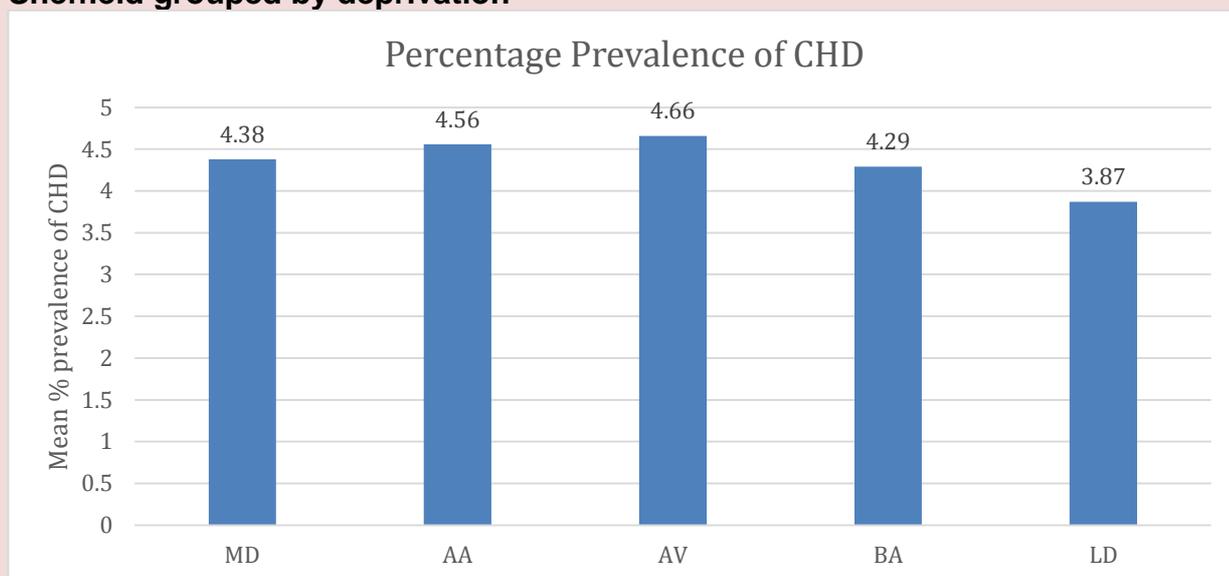
12.2c Coronary Heart Disease Prevalence

Table 25: Prevalence of Coronary Heart Disease for General Practices in Sheffield grouped by deprivation

Groups of Sheffield General Practices	Range of prevalence of CHD	Number of practices in range	Average IMD Score	Mean Prevalence %	Median Prevalence %	Mode Prevalence %
MD	6 (0.2 to 6.2)	18	51.3	4.38	4.5	4.5
AA	4.6 (2.3 to 6.9)	18	40.9	4.56	4.35	4.1
AV	6.2 (0.6 to 6.8)	18	29.2	4.66	4.7	4.3
BA	5.5 (0 to 5.5)	18	19.7	4.29	4.55	4.8
LD	3.6 (2.4 to 6)	19	11.1	3.87	3.7	4.3

(Original Data on CHD Prevalence from QOF 2008/2009)

Chart 4: Prevalence of Coronary Heart Disease for General Practices in Sheffield grouped by deprivation



It was surprising *not* to see more of a difference between LD and MD areas with regard to CHD percentage prevalence, in view of the health inequity relating to CHD as described in the introduction.

The lack of a trend for prevalence of CHD with deprivation could be due to several reasons. Firstly these data has not been age standardised. This could

have an impact due to inequalities in life expectancy. It may be that the percentage prevalence of CHD is similar in LD to MD areas due to people living longer with CHD in LD areas as compared with people in MD areas. It is known that people in MD areas of Sheffield have a shorter life expectancy when compared with those in LD areas, and the difference in life expectancy across Sheffield is around eleven years for men and over 6 years for women (NHS Sheffield 2010). For example the life expectancy at the practice in Sheffield with the lowest IMD Score i.e. least deprived was 82.7 years for male patients and 87.6 years for female patients. Whereas, life expectancies at the Sheffield practice with the highest deprivation score are much shorter at 74.4 years and 79.9 years respectively for men and women (National General Practice Profiles 2008/09). As the incidence and prevalence of chronic diseases such as CHD increase with age, as people live longer in LD areas the prevalence of chronic diseases such as CHD will increase, whereas in MD areas the prevalence is lower than expected as people die at a younger age. In this case example the least deprived practice in Sheffield has a percentage population of 14.5% for patients aged >75 years and 4.5% for patients aged >85 years; whereas the most deprived practice only has a percentage population of 6.3% patients aged >75 years and 1.8% patients aged >85 years. As CHD is age related, this is likely to be part of the explanation of how the percentage prevalence between practices when grouped by deprivation is surprisingly similar. Also, CHD for patients living in more deprived areas is more likely to cause death as evidenced in the data presented in the introduction showing increased premature mortality from CHD for patients living in deprived compared with affluent areas of Sheffield.

Secondly, as described in the methods section it was not possible to obtain the true incidence of CHD. The Quality and Outcomes Framework (QOF 2008/09) data on CHD prevalence represents the numbers of patients the GP has registered on their lists as having CHD. Therefore, there may be individuals who in reality do have CHD but have either not registered on a practice list or have not presented with symptoms of CHD to their GP; or their GP has not diagnosed or registered patients as having CHD. The prevalence of chronic disease is often lower than expected especially in urban deprived areas (Majeed and Soljak 2014). This may lead to the prevalence of CHD in more

deprived areas appear artificially low in some areas compared with others. Due to the complexity of patients lives and high levels of comorbidities (Mercer et al 2007) and communication difficulties when consulting with patients who live in deprived areas (Gardner and Chapple 1999) it could be postulated that more patients may be missed with CHD in more deprived areas than more affluent areas, and this could potentially contribute to percentage prevalence of patients with CHD in deprived areas appearing artificially low.

12.2d Sheffield General Practice Elective Cardiology Outpatient Referral Rates

Table 26: Rates and Mean Elective Outpatient Cardiology Referrals from Sheffield General Practices grouped by deprivation for patients ≥ 40 years.

Groups of Sheffield General Practices	Average Number of Cardiology Referrals from an individual Practice within this group in 2008/09. (patients ≥ 40 years)	Average List Size of each practice	Rate of referral per 1000 patients
MD	39.55	5498.88	7.19
AA	26.72	3991.83	6.69
AV	47.83	6986.5	6.84
BA	58.77	8826.66	6.65
LD	45.57	5561.26	8.19

(Original data from Sheffield PCT, 2008/09)

Chart 5: Mean Cardiology Referrals for practices grouped by deprivation (2008/09)

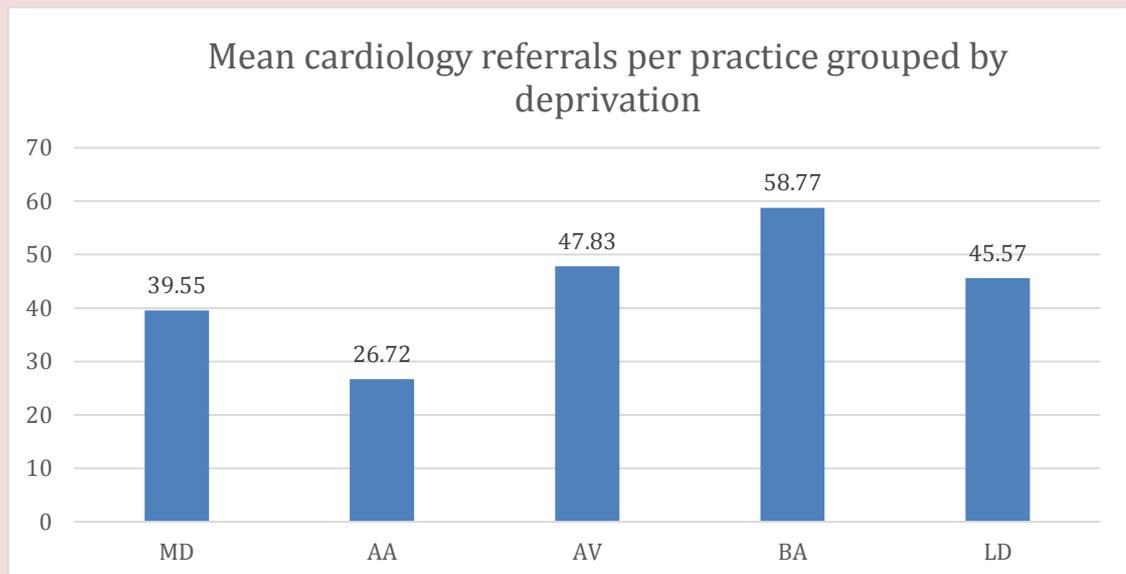
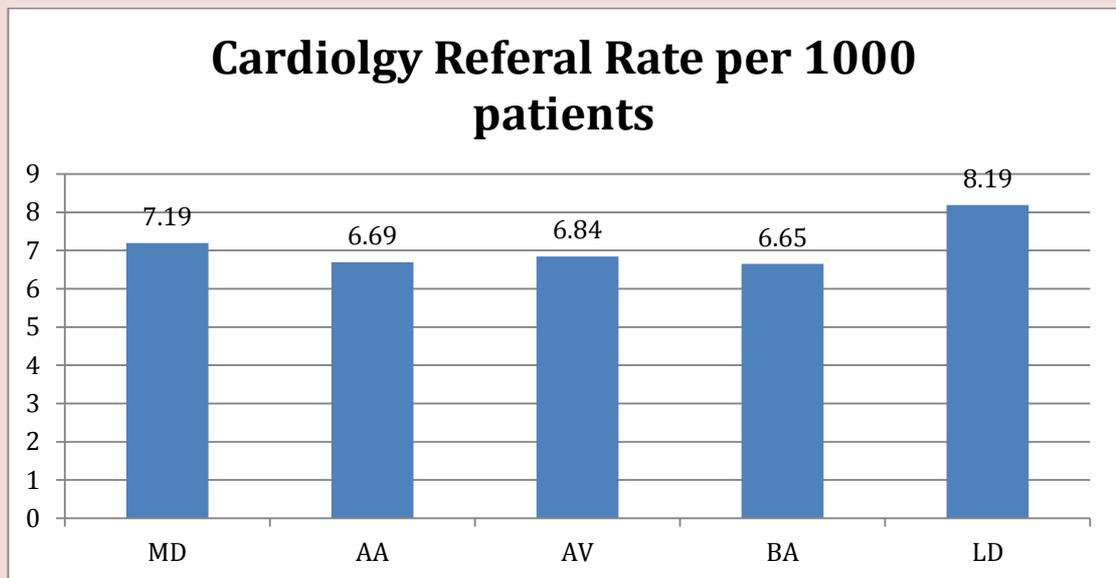


Chart 6: Cardiology Outpatient Referral rates per 1000 patients for Sheffield Practices grouped by Deprivation (2008/09)



Again this data has not been age standardised and so higher numbers of older patients in less deprived areas may be influencing rates of referrals.

12.2e Elective All Speciality Referral Rates

Table 27: Rates and Mean Elective All Speciality Outpatient Referrals from Sheffield General Practices grouped by deprivation for patients ≥ 40 years.

Groups of Sheffield General Practices	Average Number of all speciality referrals from an individual practice with group for patients ≥ 40 years	Average List Size of each practice	Rate of referral per 1000 patients
MD	659.55	5498.9	119.94
AA	421.05	3991.8	105.48
AV	757.16	6986.5	108.37
BA	984.61	8826.7	111.54
LD	701.84	5561.3	126.20

(Sheffield PCT, 2008/09)

Chart 7: Mean All Specialty Out Patient Referrals Practices grouped by Deprivation (2008/09)

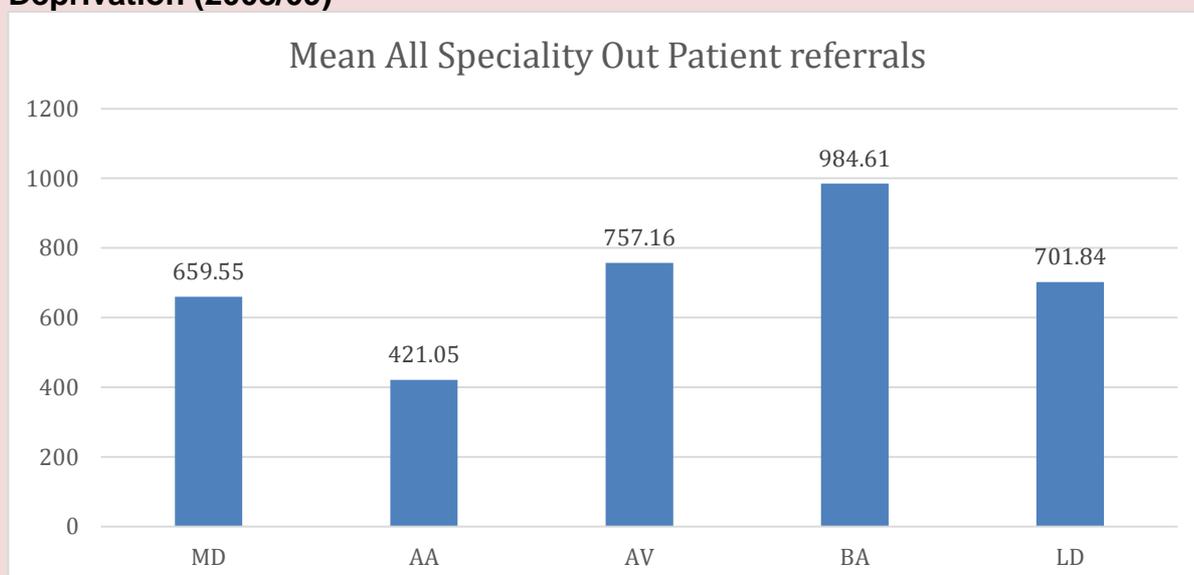


Chart 8: All Speciality Outpatient Referral rates per 1000 patients for Sheffield Practices grouped by Deprivation (2008/09)

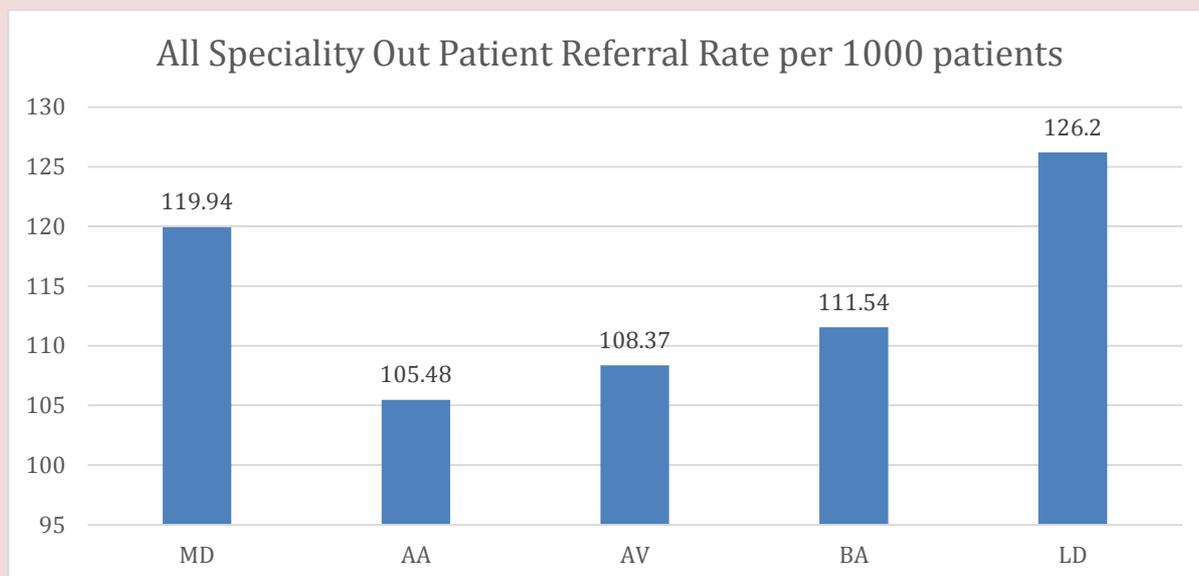


Table 28: Mean and Range of Cardiology and All Speciality Referral rates per 1000 patients

	Mean	Range
Cardiology	7.11	14.75 (0 – 14.75)
All Speciality Referrals	114.3	194.07 (1.71 – 195.78)

(Sheffield PCT data based on 2008/09 referrals)

To make this relevant to an average GP working week:

At the above average referral rate of 114.3 referrals per 1000 patients. The number of patients seen by GPs in a day varies but is quoted as between thirty and forty patients (Medical Careers 2014). If a GP sees 30 patients a day, at this rate, this would equate to 3.42 referrals a day. Or if working 5 days a week, this would equate to 17.1 all speciality referrals a week and 1 cardiology referral a week.

12.3 Binary logistic regression analysis of Sheffield GP referrals data

The following section present the results of a binary logistic regression analysis in order to answer the following research questions:

- Do elective outpatient cardiology referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- Do elective all speciality outpatient referrals from Sheffield General Practice demonstrate a relationship with deprivation?

Data was collected and summarised using EXCEL by the author in order to answer the above questions. This was described fully in the Methods Chapter but a brief summary is described here for clarity. Data was obtained from Sheffield PCT listing each practice in Sheffield, the numbers of patients in each age group and numbers of referrals to cardiology and all specialities for the period 2008/09. IMD scores for each practice were obtained from online General Practice Profiles (National General Practice Profiles 2008/09) and CHD prevalence rates and list size for each practice were obtained from online QOF data (QOF 2008/09). The above descriptive data was collected and summarised by the author, but in order to answer the research questions in a meaningful way a more sophisticated statistical approach was needed.

Therefore, Phase 2 of this research project was undertaken through collaboration with Professor Michael J. Campbell at The University of Sheffield, who assisted with performing the binary logistic regression with the descriptive data collected and organised by the author. Later our collaboration also involved Kate Daniels, who was studying for a Masters degree in Statistics with Medical Applications, to produce a funnel plot. The following section provides the results of the analysis undertaken from this collaboration.

The relationships between elective '*cardiology*' and '*All speciality*' outpatient referrals were examined in relation to practice IMD scores and CHD prevalence for three separate age groups, <55 years, 55-70 years and >70 years. A binary logistic regression analysis was undertaken on age-standardised data using STATA. Age was standardised for each practice as part of the logistic regression analysis.

12.3a Do elective outpatient cardiology referrals from Sheffield General Practice demonstrate a relationship with deprivation?

A binary logistic regression analysis requires a dependant and independent variables. In this analysis the dependant variable was whether a referral was made or not; the independent variables were the IMD score of each practice and the practice CHD prevalence.

A positive relationship between practice deprivation scores and elective cardiology outpatient referrals was found in patients aged seventy years and younger in Sheffield for the period 2008/09 (Table 29).

As the IMD score of a practice increased by one standard deviation, or 15 units of IMD score, there was a positive effect on elective cardiology referrals for patients aged < 55 years (OR=1.23, P<0.001, 95 % CI 1.15 to 1.31) and 55-70 years (OR=1.08, p=0.005, 95% CI 1.02 to 1.14) (Table 29). This means that for every standard deviation increase in deprivation a patient's chance of being referred to cardiology patient increased by 23% in patients aged less than 55 and 8% in patients aged 55-70. However, for patients older than 70 years there was not a relationship between the deprivation score of a practice, and the chances of a person registered at that practice being referred electively to cardiology outpatients (OR=0.96, P=0.095, 95% CI 0.91 to 1.01) (Table 29). In other words for patients over 70, there was no evidence that there was a relationship between the deprivation score of a practice and elective cardiology outpatient referrals.

Table 29: The effect of one standard deviation increase of Index of Multiple Deprivation score (equivalent to 15 units of IMD score) on elective cardiology outpatient referrals in Sheffield 2008/09.

Age group	Odds Ratio	P Value	95% Confidence Interval
< 55 years	1.23	<0.001	1.15 to 1.31
55-70 years	1.08	0.005	1.02 to 1.14
> 70 years	0.96	0.095	0.91 to 1.01 ns*

*not significant

12.3b Do elective all speciality outpatient referrals from Sheffield General Practice demonstrate a relationship with deprivation?

A positive relationship between practice deprivation scores in Sheffield (2008/09) and elective any speciality outpatient referral was found for all age groups; the positive relationship was found to decline with age. (<55 years: OR=1.14, P<0.001, 95% CI 1.13 to 1.17) (55-70 years: OR=1.10, P<0.001, 95% CI 1.08 to 1.11) (>70 years OR=1.06, P<0.001, 95% CI 1.04 to 1.07) (Table 30). This means that for every standard deviation increase in deprivation the risk of receiving a referral to any outpatient speciality increased by 15% for patients <55 years, 10% for patients 55-70 years and 6% for patients over 70 years.

Table 30: The effect of one standard deviation increase of Index of Multiple Deprivation score (equivalent to 15 units of IMD score) on total elective speciality outpatient referrals in Sheffield 2008/09.

Age Group	Odds Ratio	P Value	95% Confidence Interval
<55 years	1.14	<0.001	1.13 to 1.17
55-70 years	1.10	<0.001	1.08 to 1.11
> 70 years	1.06	<0.001	1.04 to 1.07

No relationship was found between CHD prevalence data for Sheffield practices in 2008/09 and cardiology referrals (Table 31).

Table 31: The effect of Coronary Heart Disease Prevalence on elective cardiology outpatient referrals in Sheffield 2008/09.

Age Band	Odds Ratio	P Value	95% Confidence Interval
<55 years	0.13	0.52	0.00 to 62.3
55-70 years	0.89	0.37	0.00 to 17.91
> 70 years	1.07	0.9	0.00 to 160.5

For patients <55-years, a practices with higher CHD prevalence were found to be more likely to refer patients electively to all speciality outpatient appointments (OR 0.13, p=0.007, CI 95% 0.03 to 0.58) but not electively to cardiology outpatients. No relationship was found between CHD prevalence and all outpatient referrals in age groups >55 years groups (p>0.1) (Table 32).

Table 32: The effect of Coronary Heart Disease Prevalence on total elective speciality outpatient referrals in Sheffield 2008/09

Age Band	Odds Ratio	P Value	95% Confidence Interval
<55 years	0.13	0.007	0.031 to 0.58
55-70 years	0.27	0.131	0.05 to 1.468
> 70 years	0.28	0.106	0.059 to 1.31

12.4 Example of a Funnel Plot to present of referrals data

This final section of the quantitative results answers the final research question of this project:

Is there an alternative to the current methods of presenting Sheffield referrals data to demonstrate variation in elective cardiology referrals to General Practitioners?

This question was inspired by one of the key findings of the qualitative data collection:

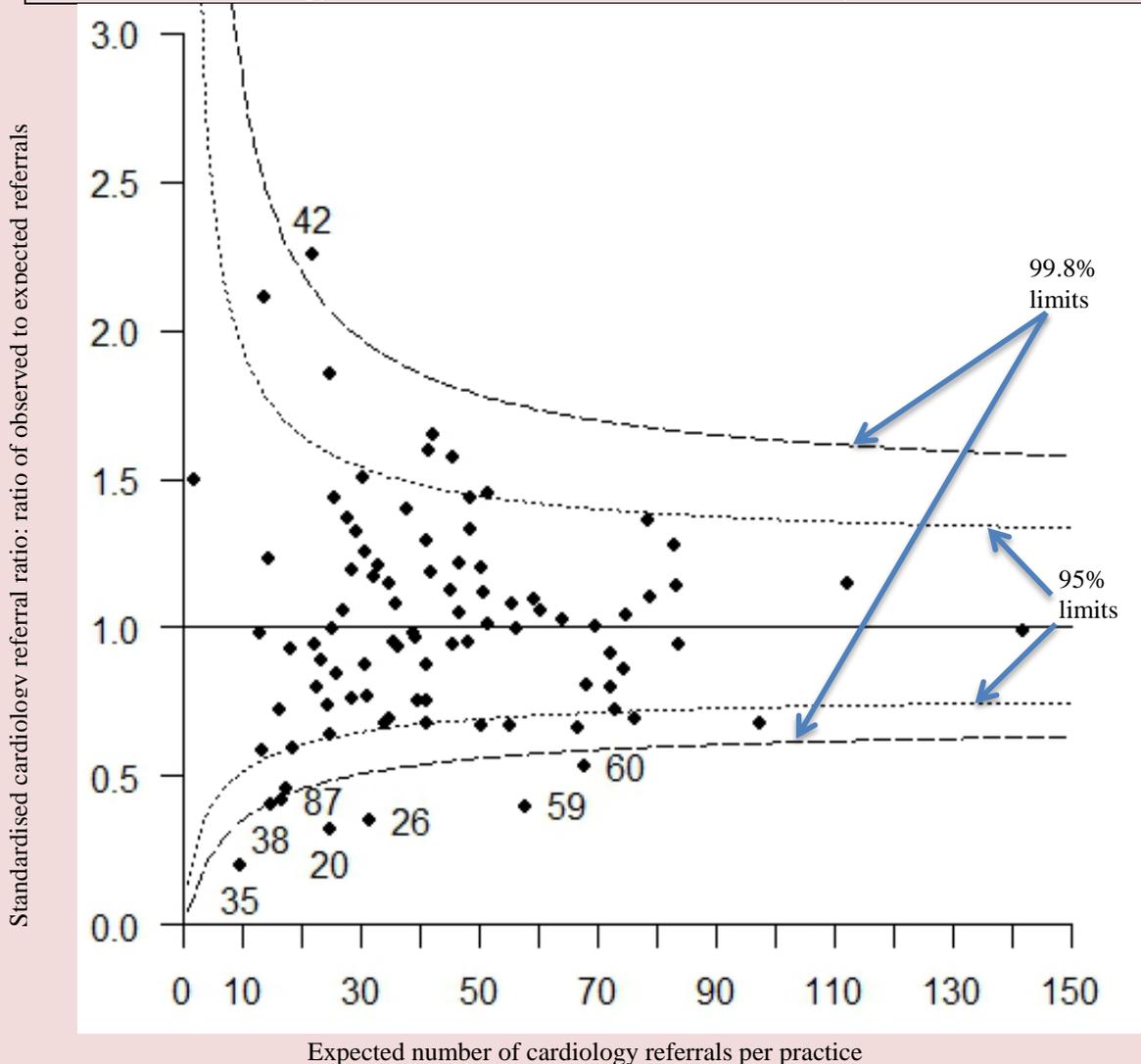
GPs would welcome the presentation of meaningful referrals data

In order to answer this question the author continued to collaborate with medical statisticians and this resulted in the following funnel plot. This was produced as an example of an alternative way of presenting referrals data, which could potentially be replicated by referrals analysts in the future. Again data was organised and collected by the author of this thesis. These data were presented to medical statisticians with the research question, who then devised the statistical model to produce the following funnel plot.

A funnel plots are a graphical method of comparing institutions and are described by Spiegelhalter (2005 pg1185) as being “flexible, attractively simple, and avoid spurious ranking of institutions into league tables”. Hence this method of comparison of practices was chosen as an example of an alternative presentation and potentially more meaningful presentation of GP referrals data than the ‘league tables’ currently presented regularly to GPs by managers and analysts, because they allow for ‘natural variation’ in referral rates.

Figure 18:

Funnel plot showing Standardised Cardiology Referral Ratio and the expected number of cardiology referrals for each Sheffield General practice



(Daniels 2012)

Each dot on the funnel plot above represents a Sheffield practice and is a plot of the ratio of the observed to expected referrals against the expected number of referrals. The expected number of referrals, were calculated as those predicted from a model derived from the whole Sheffield population. A logistic regression model using age, list size and deprivation was undertaken to calculate the standardised cardiology referral ratio (SCR). The funnel lines represent the 95% (equivalent to 2 standard deviations) and 99.8% (equivalent to 3 standard deviations) prediction limits around the overall SCR. Any points outside the 99.8% limit are regarded as unusual compared to the 91 practices as a whole. Practices lying on the 99.8% line are regarded as possibly having

unusual referral patterns. If a practice has an SCR of 1, then its standardised cardiology ratio is the same as the baseline ratio for Sheffield GPs. If a practice has an SCR >1 then its rate is higher than baseline and its SCR is <1 its ratio is lower than baseline.

Out of the 91 practices in 2008/09 in Sheffield 6 practices are considered to be unusual (i.e. they are plotted beyond the 99.8 prediction line) and 2 practices possibly unusual (i.e. they are plotted on the 99.8 prediction line). Only one practice is found to be unusual in that it refers too much (practice 42, plotted above the 99.8 prediction limit line) whereas 5 practices are found to be unusual in that they refer too little (35,20,26,59,60 plotted below the 99.8 prediction limit) and 2 practices possibly unusual in that they refer too little (practice 38 & 87, plotted on the 99.8 prediction line).

Table 33: Characteristics of Sheffield Practices with Unusual Cardiology Referrals Rates as seen on a Funnel Plot Analysis, 2008/09.

Practice Number	SCR	List Size	IMD score	Deprivation fifth (practices divided by quintiles)	% CHD Prevalence
Practice referring “too much” (SCR above the 99.8% prediction limit)					
42	2.2565295	6584	30.8	AD	4.3
Practices referring “too little” (SCR below the 99.8% prediction limit)					
35	0.2015506	6868	35.2	AAD	2.7
20	0.3204910	4034	45.9	AAD	3.5
26	0.3479801	4628	42.6	AAD	4.1
59	0.3962094	4367	22	BAD	4.8
60	0.5296069	9455	20.5	BAD	3.2
Practices possibly referring “too little” (SCR lying upon 99.8% prediction limit)					
38	0.4044368	5478	33.8	AD	4.7
87	0.4160556	3959	8.1	LD	4.5

Table 33 shows that practices with unusual referral activity exhibited a range of demographic characteristics and were not limited to a certain size (list sizes ranged from 3959 to 9455) or deprivation (IMD scores ranged from 8 to 46).

12.5 Summary of Quantitative Results (Phase 2)

Descriptive data about General Practice in Sheffield showed a broad range of deprivation scores, but with a mean General Practice IMD score in the Above Average Deprivation range. The average list size in Sheffield is 6,166 and is smaller than the national average of 7,041. Percentage prevalence of CHD was surprisingly similar throughout practices when grouped by deprivation. Possible reasons for this were suggested as being due longer life expectancy and therefore increased prevalence of chronic disease in less deprived areas and potentially more patients with CHD being 'unknown' to practices in more deprived areas. The mean rate of elective cardiology outpatient referrals from Sheffield General Practice was calculated to be 7.11 per 1000 patients (range 0 to 14.75). The mean rate of elective all outpatient referrals from Sheffield General Practice was calculated to be 114.3 (range 1.71 – 195.78). Interpreting these figures in the context of a GPs working day and week, this would equate to 1 cardiology referral a week and 17 all speciality outpatient referrals a week on average; assuming that a GP sees thirty patients a day five days a week.

A collaboration with medical statisticians led to using binary logistic regression to answer the research questions seeking associations between deprivation and referral rates. A positive relationship between practice deprivation scores and elective cardiology outpatient referrals was found in patients 70 years and younger in Sheffield for the period 2008/09. No relationship was found between CHD prevalence data in 2008/09 and cardiology referrals. A positive relationship between practice deprivation scores and elective all specialty outpatient referrals was found in all age groups 2008/09. The positive relationship declined with age. While it is encouraging that this analysis does not reveal an 'inverse care law' it does not reveal whether rates are proportionate to 'need' of the practice population, especially for patients over 70 years for cardiology referrals, for whom the positive relationship was lost. The next step in the quest for more meaningful data could be to calculate expected and observed referral rates over longer time periods for larger areas than Sheffield.

Further collaboration with medical statisticians shaped by the above findings and the qualitative research finding that GPs would welcome more meaningful referrals data, led to the production of a Funnel Plot. Funnel plots are an innovative method of presenting variation in GPs referral rates and the example presented found 8 Sheffield General Practices having unusual cardiology referral activity compared to their peers. Only 1 practice in Sheffield showed higher referral activity, the remaining 7 practices all showed decreased cardiology referral activity. The 'outlying' practices showed a range of characteristics with respect to list size, deprivation scores and CHD prevalence and so were not limited to practices of a certain size or demographic.

Chapter 13: Overview of Results

The research questions are answered in the following discussion by outlining the key triggers, and influences upon triggers, that GPs report when making decisions about referrals of patients to cardiology specialists.

Phase 1 Qualitative Research Question

- 1 What influences General Practitioners cardiology elective referral decisions when working in the least and most deprived areas of Sheffield?

Answer:

Patient factors were found to strongly influence GP decision-making regarding referrals beyond the expected triggers of signs and symptoms suggestive of heart pathology. Central themes described by GPs working in MD areas included patient fear, reluctance, deference, emergency NHS referrals, health literacy, changing populations and 'doctor-led' decisions. In contrast themes from LD areas included articulate patients with clear views about future care, high expectations of GPs, elective private referrals and 'patient-led' decision-making.

The following factors influenced **GPs** working in both LD and MD areas, usually by lowering the threshold to trigger a referral: 1) Clinical Uncertainty, 2) Resource Shortages - time, investigations and experience, 3) Personality and Situation - stress and fatigue. In LD areas participants also highlighted medico-legal pressures.

The main differences between GPs working in least and most deprived areas were as follows.

Themes from GPs working in LD areas influencing triggers for cardiology referrals:

- Articulate patients with high expectations of their GP
- Patients who can express views clearly on management decisions
- Emphasis on elective and private referrals
- Patient-led decisions
- GP awareness of medico-legal issues

Themes from GPs working in MD areas influencing triggers for cardiology referrals:

- Fearful, reluctant and deferent patients
- Emphasis on emergency referrals
- Health literacy difficulties (including communication and navigating health care systems)
- Changing populations
- Doctor-led decisions

The referrals activity and knowledge of the **clinical team** within a **Practice** were described as influencing the referral triggers of an individual GP. GPs were keen to embrace strategies to improve the quality of referrals especially through supportive educational conversations.

Monitoring of referrals by **The Health Care System** was seen as an inevitable process due to financial challenges facing the NHS. However, there is confusion surrounding the production of referrals data; GPs are resistant of protocol based systems driven by financial pressures to reduce referral rates and participants from MD areas were found to have a negative experience of referrals monitoring. GPs would welcome more meaningful referrals data presented sensitively, in supportive educational environments.

Phase 2 Quantitative Research Questions:

2. Do elective outpatient cardiology referrals from Sheffield General Practice demonstrate a relationship with deprivation?
3. Do elective all speciality outpatient referrals from Sheffield General Practice demonstrate a relationship with deprivation?
4. Is there an alternative to the current methods of presenting Sheffield referrals data to demonstrate variation in elective cardiology referrals to General Practitioners?

Answers:

1. Following a collaboration with Medical Statisticians at Sheffield University through a **binary logistic regression analysis** a positive relationship was found between deprivation and outpatient cardiology referrals (2008/09) in Sheffield, for patients aged 70 years and younger (<55 years: OR 1.23, $p < 0.001$, 95% CI 1.15 to 1.31) (55-70 years: OR 1.08, $p = 0.005$, 95% CI 1.02 to 1.14). This relationship was lost for older patients (>70 years: OR 0.96, $p = 0.095$, 95% CI 0.91 to 1.01). No relationship was found between CHD prevalence data and cardiology referrals ($p > 0.1$).
2. A positive relationship between practice deprivation scores and elective all speciality outpatient referral was found for all age groups, which also declined with age age (<55 years: OR=1.14, $P < 0.001$, 95% CI 1.13 to 1.17) (55-70 years: OR=1.10, $P < 0.001$, 95% CI 1.08 to 1.11) (>70 years OR=1.06, $P < 0.001$, 95% CI 1.04 to 1.07). For patients < 55 years, practices with higher CHD prevalence were found to be more likely to refer patients electively to all speciality outpatient appointments (OR 0.13, $p = 0.007$, CI 95% 0.03 to 0.58). No relationship was found between CHD prevalence and all outpatient referrals in age groups >55 years and older ($p > 0.1$).
3. As a result of qualitative key findings which called for more meaningful referrals data, a **funnel plot analysis** was produced with outpatient

cardiology referral rates from Sheffield GPs (2008/09); this revealed 6 practices with unusual referral activity (outside of the 99.8% limits) and 2 practices with possibly unusual referrals activity (lying on the 99.8% limits); only 1 of these 8 practices was found to be referring at an unusually high rate, the remainder referring at an unusually low rate. Practices with unusual referrals activity represented a range of demographic characteristics and showed no trend for list size (range 3959 to 9455; Sheffield 1315 to 22839, Sheffield mean 6166); deprivation (IMD Score 8- 46; Sheffield 4.7 to 59.5) or CHD prevalence (range 2.7 to 4.8%; Sheffield 0.2 to 6.9%).

Chapter 14: DISCUSSION

14.1 Introduction to Discussion

This chapter discusses the novel findings of this research and their positioning within the literature of health inequity and GP referrals.

The 4 key findings of this thesis are presented with a subsequent discussion of their relationship to the literature in the fields of health inequity and GP referrals. The fourth finding is discussed through the possibility of a 'positive care law' regarding referrals existing for patients in Sheffield.

A conceptual framework is then presented highlighting the similarities and differences of referral triggers and their influences, for GPs working in socio-economically contrasting areas. The original theoretical framework developed when planning this project is also considered in relation to the key findings of this thesis. The findings are then presented through 4 summary vignettes. The vignettes are illustrative of the themes discovered regarding triggers for referrals from GPs working within the least and most deprived communities of Sheffield. The vignettes are grounded in the qualitative and quantitative data collected for this project and also draw upon a selection of relevant literature. The vignettes highlight that the research findings are based on the everyday working lives of GPs.

A critique of the strengths and limitations of the project are then discussed which lead onto suggestions for future research. A summary of recommendations based on the findings of this thesis for GPs, local clinical commissioners and patients are then considered. Finally a reflexive summary is given, followed by the conclusion to this thesis.

14.2 Key Findings

The following discussion of the key findings and their implications for practice, address the aim and research questions reporting on the effect of deprivation on the triggers and rates of cardiology referrals from General Practitioners.

Aim

To explore potential health inequalities between groups of patients from contrasting socio-economic backgrounds, with regard to cardiology referrals from primary to secondary care in Sheffield.

Research Questions

- 1 What influences General Practitioners cardiology elective referral decisions when working in the least and most deprived areas of Sheffield?
- 2 Do elective outpatient cardiology referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- 3 Do elective all speciality outpatient referrals from Sheffield General Practice demonstrate a relationship with deprivation?
- 4 Is there an alternative to the current methods of presenting Sheffield referrals data to demonstrate variation in elective cardiology referrals to General Practitioners?

In order to answer the research questions a pragmatic two-phase study using qualitative and quantitative methods was developed and undertaken as described in previous chapters. The research questions were specifically answered in 'Chapter 13 Overview of the Results'.

Results are now further refined into four original key findings which reveal the effect of deprivation on the triggers and rates of GPs cardiology outpatient referrals in Sheffield.

Key finding 1

Possible cardiac pathology and complex needs of patients were found to be referral triggers for GPs working throughout Sheffield to cardiology; but other **patient** factors were also found to strongly influence GP referral triggers and varied with practice deprivation.

Most deprived areas: Fear, health literacy and 'doctor-led' decisions.

Least deprived areas: Articulate, high expectations and 'patient-led' decisions.

Key finding 2

GPs working in all areas of deprivation described a lower threshold to make referrals if they did not have access to investigations, were less experienced, had limited time or were stressed and fatigued.

Key finding 3

GPs working in all areas of deprivation described interactions with colleagues both at the practice and with specialists as influencing their triggers for referrals. Participants were keen to improve the quality of referrals especially through educational conversations. Referrals monitoring and feedback by the **Health Care System** were seen as inevitable by GPs, but more meaningful data disseminated sensitively would be welcomed, especially for GPs working in deprived areas.

Key finding 4

Collaboration with medical statisticians produced an innovative analysis of referrals data. Binary logistic regression showed a **positive relationship between deprivation and cardiology referrals** for patient's ≤ 70 years; beyond 70 years there was no statistically significant relationship. A **positive relationship** was also found between **all-speciality outpatient referrals** and deprivation for all age groups. A **funnel plot** revealed 8 practices with unusual elective cardiology referral patterns with no trend for deprivation

14.3 Discussion of Key Findings and Implications for practice

Key finding 1

Possible cardiac pathology and patients complex needs were found to be referral triggers for GPs working throughout Sheffield to cardiology; but other **patient** factors were also found to strongly influence GP referral triggers and varied with practice deprivation.

Most deprived areas: Fear, health literacy and 'doctor-led' decisions.

Least deprived areas: Articulate, high expectations and 'patient-led' decisions.

Patient factors that trigger referrals from all areas:

Possible cardiac pathology: Classic and atypical signs, symptoms and investigations results were found to be triggers for referrals.

Complex needs: medication issues, patient and family reassurance and young age were also found to be triggers for referrals.

Patient factors influencing referral triggers from most deprived areas:

Fear: patients were described as being fearful to accept referrals at times.

Health literacy: communication and navigation of the health care system were described as presenting difficulty for some patients.

Doctor-led decisions: patients were generally described as being deferential to GPs and their decisions.

Patient factors influencing referral triggers from least deprived areas:

Articulate: Patients were described as presenting their symptoms clearly and also clearly expressing views on future management.

High expectations: GPs felt demand from patients in a variety of ways.

Patient-led: patients were described as being keen to be involved with decision-making.

Triggers for referrals to elective cardiology outpatient clinics were the same for GPs working in least and most deprived areas of Sheffield with regard to possible cardiac pathology and complex needs of patients. GPs were particularly aware of the importance of exertion when consulting with a patient who has undifferentiated chest pain. This is in keeping with research evidence showing this to be an important feature when differentiating atypical chest pain from cardiac chest pain (Goodacre et al 2002). At times GP referrals were triggered for help with interpretation of investigations such as ECGs and future management, especially if the patient had other needs for specialist care such as a complex medication regime, was young, needed reassurance or the doctor needed reassurance; all of which have been cited as triggers for referrals by previous authors (Coulter 1998; Newton 1991).

Where the findings of the qualitative part of this research are original are with respect to the *differences* discovered between GPs working in least and most deprived areas when considering referrals. A theme of 'Context and Patient Culture' was situated under the meta-theme of patient factors (Section 7.2). This theme was the most revealing of the differences of patient influences on GP referrals between GPs working in contrasting areas.

Patients 'fear' as a factor influencing referral decisions for GPs working in most deprived areas resonates with Richards et al's (2002) findings from a study comparing patients responses to chest pain from deprived and affluent areas of Glasgow. Richards et al found patients from deprived areas had a greater sense of vulnerability to heart disease, experience of illness and report negative experiences of health care, which could lead to fear and guilt about behaviours such as smoking.

Participants in this research also highlighted 'patient fear' as a potential cause of delayed presentation. This also fits with the findings of Tod et al

(2001) and Gardner and Chapple (1999) who found barriers to patients seeking help for cardiac symptoms before they see the GP.

Fischer and Ereaut (2012) discuss patient fear as a driver of the dynamic of a consultation and propose that it can manifest itself as three main forms:

1. An Existential anxiety, of being told you are unwell
2. An Interaction anxiety, of the encounter with the doctor
3. Entitlement anxiety, of being able to present myself as possibly ill when I may not be

The findings of this study fit predominantly with the first fear of existential anxiety. GPs working in the more deprived areas described patients delaying presentation; they speculated that the patient fear derived from a fear of being told they had a disease. The quote below is from a GP who works in the most deprived area of Sheffield and illustrates her role with patients who may be reluctant to accept help for their symptoms:

“there is the feeling about protecting people bit from that (ignoring symptoms) and about needing to be aware that they may normalise it and shrug it off and just maybe need that, sort of, helping hand to say, actually, it’s OK to got and do something about this and not just accept this and that I might die prematurely, but something can be done about it”. (GP2 MD)

Eisenberg (1977 pg 9) made the distinction between patients suffering an “illness” and doctors diagnosing and treating “diseases”. This may have relevance to the findings of this study for participants living in more deprived areas. Bury (1982) in his qualitative study of patients with rheumatoid arthritis, found that participants did not involve others in their

experience until relatively late in the disease process. Some patients hid symptoms from their family for long periods even after presenting to doctors and gaining a referral to specialist care. Bury (1982) speculated that this could be due to pain being a common symptom in the general population leading to issues with recognising and legitimising an illness. This could be of relevance to the patients living in more deprived areas in this study where GPs also described late presentations and a higher prevalence of coronary heart disease.

Sen (2002) states that an individual's perception of illness varies with literacy and education and this can create tension between patient and doctor. The concept of health literacy was described previously as part of the Theoretical Influences (Section 4.6) on this research. Health literacy is used here as a term to combine themes from GPs working in deprived areas who describe difficulties their patients experience with communication and navigation of the health care system; this was especially relevant for patients for whom English was not a first language. This again echoed the communication difficulties found by Gardner and Chapple (1999) between doctors and patients in Liverpool, even with English as a first language.

Poor health literacy was also shown in this study to lead to problems negotiating the health care system itself. Barriers such as making phone calls or reading letters regarding referrals for patients were found to be part of the GPs role in more deprived areas. This advocacy role was especially relevant for GPs working with patients for whom English is not a first language. This could be one explanatory factor contributing to inequalities for women of south Asian origin living in Sheffield regarding cardiac services. A study by Sheffield Hallam University, also cited an inability to read and dependence on others as one of many barriers for Pakistani women to uptake specialist cardiology services (Chowbey et al 2010).

This research found GPs working in more deprived areas described decision-making to be more 'doctor-led' than GPs working in least deprived areas, who described patients as being more involved with decision-making. Croskerry et al (2014) describe in their paper about decision-making, that clinical decision-making is a complex process. When clinicians are presented with a problem in a straightforward manner, this facilitates good decision-making. As the issues described above, involving difficulties with communication and literacy, are more common for patients living in more deprived areas, this could make decision-making a more challenging process for GPs working there. GPs working in more affluent areas described patients who presented in an articulate manner with clear views on future management. This may facilitate the GP working in an affluent area to make easier and quicker decisions about referrals. Thus, potentially allowing time for sharing decisions in a time limited encounter. Time has been shown to be a barrier to shared decision-making (Kaplan and Frosch 2005) and this could add to the evidence that GPs working in more deprived areas need more time for consultations (Mercer et al 2007).

A negative case analysis of this proposal was considered when analysing interviews from GPs working with patients who were new to a primary care system working in more deprived areas. Participants working in areas with patients new to the gatekeeping system, found these patients to be clear in requests for investigations and referrals. This seemed to be an exceptional circumstance and not in keeping with the majority of other cases and examples presented by GPs working in more deprived areas.

GPs in least deprived areas also described high patient expectations for referrals at times, and being influenced by patients' high expectations as typical. Both these themes were also cited by Imison and Naylor (2010 pg 21) in a report on Referral Management; the authors conclude that GPs

need support to strike an appropriate balance between patients rights for referrals and subsequent pressure this could place on the GP.

To conclude this discussion of Key Finding 1, many triggers for cardiology referrals were found to be the same for GPs working in most and least deprived areas of Sheffield regarding classical and some non-classical patient factors. However, many factors involving patient context and culture influencing GPs referral triggers were found to be different between GPs working in most and least deprived areas as listed above and are summed up by this illustrative quote from a participant below:

“I suspect one just has to be really cautious and careful as a doctor to not, to counter internal stuff that makes you a bit more likely to dismiss one type of person and listen to another type of person and, actually, you’ve just got to keep listening.” (GP7 AD)

Key finding 2

GPs working in all areas of deprivation described a lower threshold to make referrals if they did not have access to investigations, were less experienced, had limited time or were stressed and fatigued.

Lack of access to Investigations: participants described making referrals to cardiology if their practice did not have access to 24 hour ECGs or Cardiac Memo devices.

Limited experience: GPs earlier in their careers, were described as having lower thresholds to make cardiology referrals.

Limited time: Participants described scenarios where time shortages lowered their referral thresholds.

Stress and fatigue: Participants described situations where feeling stressed and fatigued lowered their referral thresholds. GPs in least deprived areas also demonstrated an awareness of litigation as potentially influencing referral decisions.

Access to cardiac investigations, were found to be variable between general practices and influencing GP referral decisions. Factors for this variability could be due to technical reasons, such as incompatibility with computer software (GP8LD), or due to a view by the GP that investigations such as ECGs, should be interpreted by a specialist rather than a generalist (GP2MD). Access to 24 hour ECGs reduced the need for GPs to refer patients that would have needed a referral in order to access this test in the past. However, Jeyaseelan et al (2006) found that when GPs interpret 12 lead ECGs, 5.6% of patients with heart failure are missed who should have been referred onwards for echocardiography. This led to the conclusion that there is heterogeneity in GPs ability to interpret ECGs. Although it is obviously different interpreting a 12 lead ECG to a 24 hour ECG, the principle of considering GPs access to more specialist investigations is the same: it is be important to consider the skills and acceptability of interpreting investigation results with GPs, and also in relation to patient safety.

The RCGP Curriculum for GP Trainees includes a section on cardiovascular health (RCGP, The Clinical Example on Cardiovascular Health, 2010) and states *“Accurate diagnosis of symptoms that may potentially be caused by cardiovascular causes is a key competence for general practice”*. The document also states that GPs are now expected to understand and utilise 12-lead ECG, echocardiogram and 24-hour ECG monitoring. It may be that interpretation of these investigations used to be secondary care based, but with time GPs may feel more confident in interpreting these previously specialist tests, as they are listed as a core competency by the RCGP.

Less experienced GPs were described by participants as having lower thresholds to make cardiology referrals. This study did not look at the quality or outcomes of referrals, or whether less experienced GPs did actually make more referrals. Therefore it is not known when participants

speculated that less experienced, locum and salaried colleagues may have been acting in a more clinically appropriate manner than 'older colleagues', is an anecdotal myth. It could be speculated that if this group of doctors do make more referrals, there could be several reasons for this. These could include a potential lack of experience to differentiate between atypical symptoms and cardiac pathology or that they actually have a better clinical acumen. Other reasons could be that less experienced GPs have less ability to cope with risk and uncertainty or want access to more investigations before making a diagnosis or ruling out pathology. Heath (2014) states in an essay "*perhaps especially young doctors, are learning to be afraid of uncertainty.*"

A survey study in Brighton examined the relationships between age, gender and special interests and actually found no relationship with referral rates (Brighton and Hove 2010). Also, a comprehensive review of the literature by O'Donnell (2001) found no evidence of a relationship between referral rates and the age of GPs or years of experience. Therefore, further research would be needed in Sheffield to state whether the anecdotal belief of less experience being associated with higher referral rates is true or not. A confounder in future research could be more senior GPs checking less experienced colleagues referrals, which was described by participants in this study.

Participants also described scenarios where lack of time lowered their referral thresholds. If GPs are under time pressure, then there is less capacity to not only organise and interpret tests results in the community, but also spend time listening to a detailed history and carefully examine the patient. All these factors may make a GP less likely to take the 'risk' of not making a referral. Future research could examine the impact of consultation times on referrals. If it was found that longer consultation times reduce referral rates and increase quality of referrals, this would be

more evidence to support the current campaign to invest in General Practice (RCGP, Put Patients First 2013).

Participants described situations where feeling stressed and fatigued also lowered their referral thresholds. General practice currently receives 8.39 % of the UK NHS budget, which represents an historic low point (RCGP, Put Patients First 2013). With this budget GPs undertake three hundred million consultations each year, representing 90% of all NHS contacts.

“general practice is reaching breaking point. Ballooning workloads, declining resources and an overstretched workforce are placing a huge strain on services that remain the primary point of access to NHS care for millions of people.” (RCGP, Put Patients First 2013)

The BMA (2011) found two thirds of GPs (65.5%) to report the amount of work-related stress they experience as heavy but manageable, but 10.7% report it as heavy and unmanageable. If 10% of GPs in the UK feel their work related stress is heavy and unmanageable, then considering the finding of this research that GPs reported being stressed as increasing their possibility of making a referral, then this could be having a large effect on increasing referral rates.

GPs in least deprived areas also demonstrated an awareness of litigation as potentially influencing referral decisions. This reflects the sentiments described by Heath (2014 pg 20) in her Essay:

“Doctors work every day in the fear of missing a serious diagnosis and precipitating an avoidable tragedy for one of their patients. In our increasingly punitive societies, with all the easy talk of naming and shaming, doctors are also afraid of being publically pilloried.”

A postal questionnaire of GPs by Summerton (1995) found that 63.8% of GPs increased their referral rate in response to the possibility of a patient complaint and if fearful of being sued, and describes this as negative defensive practice. Unfortunately, Summerton does not comment on the effect of deprivation on negative defensive practice, this could be an area of future research.

Key finding 3

GPs working in all areas of deprivation described interactions with colleagues both at the practice and with specialists as influencing their triggers for referrals. Participants were keen to improve the quality of referrals especially through educational conversations. Referrals monitoring and feedback by the **Health Care System** were seen as inevitable by GPs, but more meaningful data disseminated sensitively would be welcomed, especially for GPs working in deprived areas.

Educational conversations: Communication to build supportive relationships, both between GPs and with specialists were seen as valuable to enhance the quality of referrals.

Referrals monitoring feedback: from managers about referrals from GPs to secondary care, was seen as inevitable in the current financial climate.

More meaningful data, sensitively disseminated: Participants were sceptical about the quality of referrals data regularly fed back to them from managers, especially for GPs working in deprived areas. Some participants working in deprived areas revealed strong negative emotion about the monitoring and feedback of their referrals data.

As explained in the overview of the qualitative results (Section 7.2), participants also discussed referrals generally, in addition to specific references to cardiology referrals. This data is included as it provides a relevant discussion to GPs and the wider NHS, as referral monitoring and management is being used increasingly and at times controversially, throughout the UK.

The first aspect of Key Finding 3 to be considered is the concept of **educational conversations**. Participants in this study showed enthusiasm and commitment to improving the quality of referrals by using several strategies previously described in the qualitative results of this thesis (Section 10b). Participants were especially keen to engage in educational conversations with specialist colleagues, and each other, to improve the quality of their referrals. Educational initiatives connecting primary and secondary care clinicians, is not a new concept. A Delphi study twenty years ago also found GPs enthusiastic to reduce referral variation through educational initiatives such as referral meetings and also observation in hospital clinics (McColl et al 1994).

Rathod et al (2014) recently found that GPs who used a 'Chest Pain Symptom Scoring' system for patients with possible stable angina, improved the diagnosis of true angina pain, improved referral quality and reduced referrals allowing for shorter wait times. The authors claim that introducing such a scoring system would not need any financial investment or GP training. However, passive dissemination of guidelines has been shown to be ineffective in changing GP referral behaviour (Imison and Naylor 2010). Nonetheless, Rathod et al's (2014) chest pain scoring system could be a useful point of discussion at a joint educational meeting between primary and secondary care; with the impacts upon referrals monitored by commissioners using Rathod et al's methodology.

Evans et al (2011) showed that regular meetings between primary care teams and hospital specialists, reduced variation and numbers of referrals. Meetings involved discussing referrals in relation to local guidelines and pathways. The findings of this thesis showed participants were keen to embrace this as a positive strategy to improve the quality of referrals. However, lack of time was perceived as a barrier to participating or organising such events.

The second aspect to consider within key finding 3 is that of **referrals monitoring**. This is different to referrals management which is the active control commissioners can take over GP referrals and can take various forms, including triage; monitoring is merely the collecting of referrals data, but can be part of a referrals management process.

At the time of the data collection for this thesis, Sheffield PCT used a system called the 'Referrals Information Service' (RIS). All GPs had been encouraged to send outpatient referrals via the RIS or via Choose and Book, rather than directly to hospital specialists. The initial aim was to monitor referrals rather than to act as a triage service (Sheffield LMC 2009). The understanding of variation and the benchmarking of performance both locally and nationally, are seen to important in any strategy to improve the quality and costs of referrals (Imison and Naylor 2010). The House of Care Model (Coulter 2013) also sees quality assurance and monitoring as one of the key roles of commissioners. It appears sensible and necessary to measure referrals activity in view of the substantial costs to the NHS.

However, Imison and Naylor (2010) through several case studies of referral management centres in England, found that their main aim was primarily to divert patients away from hospitals; with secondary aims to improve quality and patient choice only at some centres. In 2008 Sheffield GPs were asked directly in a letter from the then PCT to consider their

referrals activity in relation to costs (Appendix E). Participants in this study generally saw the monitoring and feedback of referrals as inevitable in the current financial climate, but were sceptical about referrals management initiatives to reduce referrals to cut costs. Participants were sceptical due to fears about patient safety (Qualitative Results, Section 11.2).

To summarise, GPs were seen in this study and the wider literature to be keen to embrace strategies to improve the quality of referrals through educational initiatives, while being aware of financial pressures. However, commissioners and financial managers are directly accountable for keeping CCGs within budget, thus will primarily focus upon numbers of referrals while being aware of the importance of quality. Both parties are subject to differing pressures, each of which is equally important. GPs can be seen to be libertarian: defending the rights of the individual; with managers serving a utilitarian viewpoint: providing services for the greatest number while facing the difficult challenges of commissioning in the modern NHS. It may be helpful to recognise this tension between roles prior to commencing future referral management initiatives.

Moving on to the final element of key finding 3: **meaningful referrals data**. This is a concept that will be discussed further under Key Finding 4 and in the discussion of strengths and limitations of the quantitative aspects of this project (Section 14.5). However, it is appropriate to include reference to meaningful data here as the qualitative findings showed GPs to be sceptical about the meaning of the data presented to them by the then PCT. Participants were less positive regarding initiatives to encourage them to reduce the numbers of referrals without an educational component or without appreciation of the quality or appropriateness of referrals.

In a BMJ editorial Jiwa (2010) summed up one aspect of the difficulties about referrals monitoring:

“We do not know the extent to which people who are denied access to specialist services by the gatekeeper are disadvantaged. Some may be denied timely access to experts who are best placed to help. Alternatively, others may be harmed by unnecessary diagnostic tests and interventions. Therefore, the appropriate referral of cases to secondary care has economic, quality, and safety ramifications that resonate across the health sector and the globe.” (pg 1172)

Therefore, when a GP refers a patient to a specialist clinic, or conversely does not refer a patient this could potentially be considered a patient safety issue. An individual GPs referral rates and monitoring may be meaningless if patients are referred unnecessarily; and other patients who could benefit are denied access.

Berwick’s (2013) summary of problems and solutions in relation to patient safety within the NHS are relevant to consider in relation to referrals monitoring and management.

Problems

- 1 Patient safety problems exist throughout the NHS
- 2 NHS staff are not to blame
- 3 Incorrect priorities do damage
- 4 Warning signals abounded but were not heeded
- 5 Responsibility is diffused and therefore not clearly owned
- 6 Improvement requires a system of support
- 7 Fear is toxic to both safety and improvement

The Solutions

- 1 Recognise with clarity and courage the need for wide systemic change
 - 2 Abandon blame as a tool
 - 3 Reassert the primacy of working with patients and carers to set and achieve health care goals
 - 4 Use quantitative targets with caution
 - 5 Recognise transparency as essential
 - 6 Ensure responsibility for functions related to safety and improvement are vested clearly and simply
 - 7 Give the people of the NHS career-long help to learn, master and apply modern methods of quality control, quality improvement and quality planning
 - 8 Make sure pride and joy in work, and not fear, infuse the NHS
- (Berwick 2013, lecture slides 3 and 4)

The key message of Berwick's lecture was "*put the experience of the patient first – the patient comes first, no matter who you are in the system,*" (2013 pg 7). This fits again with the libertarian viewpoint. However, the wider patient community is itself can be considered a priority, which is financially constrained: the utilitarian viewpoint. This presents a challenge for commissioners, managers and GPs.

In the problem list above, number 3 is regarding incorrect priorities: pressure on GPs to 'reduce' referrals could represent an incorrect priority, despite best intentions to serve the wider patient community. Focusing on quality improvement through educational conversations, as evidenced by Evans et al (2011), may not only be more palatable for GPs, with their libertarian approach, but also provide a safer way of reducing referrals, decreasing variation and improving quality, rather than issuing a blanket instruction to reduce the quantity of referrals (Appendix E).

Berwick (2013) also states one of the problems with patient safety generally in the NHS, has been that blame has been used as a tool to attempt to improve patient safety. The passionate responses of the participants in this study about referrals monitoring in Sheffield and its feedback, are evidence of the negative response this activity can engender in GPs. There is currently a lack of evidence surrounding the psychological effects of monitoring and referrals feedback on GPs. Identifying GPs either as very low or high referrers could be seen as using 'blame' as a tool, and as such a problem. This needs to be balanced however with Berwick's other point of the need to recognise 'transparency' about data.

Berwick (2013) suggests that quantitative targets should be used with caution with regard to patient safety. Imison and Naylor (2010 xi) also recommend that "*financial incentives to drive blanket reductions in referral numbers should not be introduced.*" So it would appear, that while monitoring of referrals is seen inevitable there is little evidence on how this information should be analysed or disseminated to GPs. If Berwick's (2013) and Imison and Naylor's (2010) recommendations are to be heeded, and the strong negative emotion monitoring revealed in participants from this study acknowledged, then 'league table' style exposure of GPs referrals, and focusing 'negative' attention on the practices at the extremes may not be the most effective method of reducing referrals, reducing variation in referrals or improving quality.

Love et al (2004) state that as general practices represent small numbers for any one condition that this "*presents challenges in measuring clinical performance*" (pg 160); the authors conclude that rather than focusing on extremely high referring practices that quality improvement should be used across all general practices to produce the most effective results. The concept was also introduced by Mathers and Usherwood (1992), in a

revisit to the gatekeeper and wizard: the Gatekeeper explains this as 'The Theory of Continuous Improvement': *"This works because it focuses on the average Gatekeeper and his or her efficiency, not just the bad apples. A Small increase in the efficiency of the majority of Gatekeepers results in an enormous increase in the efficiency of the whole system"* (pg 970)

While Berwick (2013) supports transparency about data, he also greatly values the training of NHS professionals in quality improvement and capacity building. The evidence from this study shows that participants would find this educational approach appealing, and are accepting of the need for transparency regarding their referrals data. However, participants would welcome feedback being delivered with greater acknowledgement of its potential flaws and sensitivity to the context of their practice, especially if deprived.

To conclude the discussion of Key Finding 3, this quote from O'Donnell (2000) is extremely relevant:

"targeting high or low referrers through clinical guidelines may not be the issue. Rather, activity should concentrate on increasing the number of appropriate referrals, regardless of the referral rate. Pressure on GPs to review their referral behaviour through the use of guidelines may reduce their willingness to tolerate uncertainty and manage problems in primary care, resulting in an increase in referrals to secondary care. The use of referral rates to stimulate dialogue and joint working between primary and secondary care may be more appropriate." (pg 462)

Key Finding 4

Collaboration with medical statisticians produced an innovative analysis of referrals data. Binary logistic regression showed a **positive relationship between deprivation and cardiology referrals** for patient's ≤ 70 years; beyond 70 years there was no statistically significant relationship. A **positive relationship** was also found between **all-specialty outpatient referrals** and deprivation for all age groups. A **funnel plot** revealed 8 practices with unusual elective cardiology referral patterns with no trend for deprivation.

Consideration of referrals to specialist secondary care cardiology services, are an important aspect of GPs management for patients with possible cardiac pathology (NICE 2010). Firstly to gain a definitive diagnosis and to also consider revascularisation options alongside medical treatments. Ziada and Moliterno (2014) have summarised the evidence for revascularisation procedures in a recent BMJ editorial. Traditional percutaneous coronary interventions (PCI) are known to relieve the symptoms of angina and improve quality of life for patients with stable disease, and improve survival in acute coronary syndromes. Coronary artery bypass grafting (CABG) is known to significantly reduce mortality if ischaemia is significant. More recently it has been found that even for patients with stable CHD, PCI procedures can prolong survival if modern second generation drug eluting stents are used (European Myocardial Revascularisation Collaboration 2014). Therefore, alongside the important medical management for patients with CHD, which is known to improve symptoms and survival and is usually managed within primary care, referrals to secondary care for consideration of the above options are also an important aspect of care.

As deprivation has been shown to significantly affect morbidity and mortality (Dalstra et al 2005; Marmot 2010) it would therefore be expected that deprivation would demonstrate a positive relationship with referral

rates from GPs for specialist attention. Prior to this research, the effect of deprivation upon Sheffield referral rates was not known. As the overall aim of this project was to consider if GP referrals activity contribute to health inequity in Sheffield, an assessment of referrals data was needed. This led to the binary logistic regression analysis assessing the effect of deprivation on referral rates. Later in the project, shaped by the qualitative data analysis, a further quantitative analysis in the form of a funnel plot was produced in response to participants requests for more meaningful data regarding referrals.

Evidence of inequity related to CHD outcomes and secondary care services were presented in the introduction (Section 2.5). In summary, Sheffield data shows that directly age standardised rates of premature mortality from CHD are more than double for people living in the most deprived areas of Sheffield, as compared with the least deprived (National General Practice Profiles 2008/09); it is also known that although patients from most deprived areas experience more elective admissions, than their least deprived neighbours, they also experience proportionally more admissions as emergencies than electively (National General Practice Profiles 2008/09) and this can be considered as a worse outcome for people living in more deprived areas. It has also been shown that people from deprived communities are less likely than those from least deprived areas, to receive interventional revascularisation procedures (Payne and Saul 1997; Hippisley-Cox et al 2000).

Prior to this thesis it was not known whether GPs elective referral rates were contributing to the above inequities. One of the original findings of this thesis was that as the deprivation score of a practice increase, this positively influences a patient's chance of an elective referral to cardiology, if aged seventy years or younger. This is an encouraging finding and could be interpreted as evidence that there is *not* an obvious

inverse care law in Sheffield regarding elective cardiology referrals from GPs for patients ≤ 70 years.

The reasons why the positive relationship between deprivation and cardiology referrals were lost for older patients (>70 years) is worthy of consideration and is informed by the qualitative research findings of this project (Qualitative Result Chapter 8, section 8.2 d). One of the themes from participants who work in more deprived areas was regarding elderly frail patients who were described as not wanting referrals; this contrasted with participants from least deprived areas, who felt this was less common with their patients. This fits with the findings of McBride et al (2010) who conclude that inequalities regarding age exist for referrals from primary to secondary care.

The exact cause of the weakening of the positive effect of deprivation on referrals activity with age found in this analysis is not clear. Gardener and Chapple's (1999) qualitative work in a deprived area of Liverpool may provide some explanation; the authors found that patients living in this very deprived area perceived themselves as "old" at a young age, had limited expectations of treatment and felt unworthy of attention. Richards et al's (2003) qualitative study of patients from affluent and deprived areas of Glasgow experiencing exertional chest pain, found that patients from deprived areas were more likely to blame themselves and fear doctors blaming them for lifestyle choices such as smoking. Richards et al (2003) suggest that this can lead to patients becoming demoralised and delaying presentation. These factors could impact upon a GPs decision-making about an elective referral to secondary care. Closer to Sheffield, Tod et al's (2001) research in South Yorkshire coalfields found transport difficulties and chronic ill health had an effect on patients reporting of symptoms and seeking help. Both of these issues could be more significant in older people living in deprived areas compared to affluent,

and thus lead to a weakening of the positive effects of deprivation on elective referrals with age.

The concept of people living in less deprived areas benefiting from extra disability-free, life expectancy (Marmot 2010) could also present an explanation for the decreasing positive relationship with age. Bowling (2001) found that patients >75 years were less likely to undergo exercise testing and cardiac catheterisation, and concluded that older patients may be being discriminated against. However, research in 2006 found that doctors did not exhibit ageism with regard to decision-making for patients with CHD; so ageism does not seem to provide an explanation for this finding (Adams et al 2006) and thus the concept of patients becoming more frail in deprived areas may be more relevant. Breeze et al (2005) found that the quality of life scores are lower for older people who either live in an area of higher deprivation or have lower social class scores, than for more affluent older people. Adamson et al (2008) responded to the evidence that age was affecting access to cardiac services, and investigated whether older people were consulting with GPs; they found that older patients were willing to consult with their GPs, that it is not the patients illness behaviour that is affecting access; unfortunately the authors do not address the issue of patients being willing to consult with their GP, but not wanting referrals.

Attempts have been made in the past decade to tackle inequalities in cardiovascular health within Sheffield. The Sheffield 'City wide Initiative for Reducing Cardiovascular Disease' (CIRC) was implemented partly due to the findings of local research showing that interventional cardiology services demonstrated an inverse care law (Payne and Saul 1997). Absolute levels of health have improved throughout the city over time, and national measures such as the smoking ban in 2007 most likely have also influenced this improvement. Majeed and Solijak (2014) suggest in their editorial measures such as 'Sure Start' and the 'New Deal for

Communities', will have certainly had an impact on smoking behaviour and activity levels and can act as confounding factors when trying to assess the impact of extra resources for the NHS in areas of social exclusion. However, the CIRC project is thought to have reduced the overall premature mortality from CVD by 60% and reduced the gap in mortality between least and most deprived by 45%, through improvements in primary and secondary prevention, for the period 2004-06 (Wight and Soady 2013). However, these were unpublished data and despite these encouraging trends witnessed by Public Health in Sheffield, patterns of health inequalities persist in Sheffield as demonstrated by the difference in outcomes of coronary heart disease between affluent and deprived neighbourhoods (NHS Sheffield and Sheffield City Council 2010; Sheffield Neighbourhood Health and Wellbeing Profile 2008/09).

It could be argued that although there is no obvious inverse care law, the absence of a strongly positive care law regarding referrals is enough to reveal inequalities for deprived groups especially for the elderly.

CHD remains a major cause of death in England despite reductions in mortality (The NHS Atlas of Variation 2011). The National Service Framework for CHD (2000) set standards for GPs and primary care teams to,

“identify all people with established cardiovascular disease and offer them comprehensive advice and appropriate treatment to reduce their risks” and “identify all people at significant risk of cardiovascular disease but who have not developed symptoms and offer them appropriate advice and treatment to reduce their risks.”

(pg 4)

This was with the aim that by identification of patients, and active management, the risk of disease progression is reduced and hospital

admissions and premature death could be avoided (The NHS Atlas of Variation in Healthcare, 2011). The NHS Atlas of Variation has produced data comparing the QOF reported prevalence of CHD by GPs with public health estimated prevalence (The NHS Atlas of Variation in Healthcare, 2011 pg 120). The data for the map was collected in 2009/10 and showed Sheffield to be one of the areas with the highest rates of identifying patients with CHD as compared to public health data about expected prevalence. The Atlas authors suggest that improved identification can result from local strategies and that GPs need to take the opportunity of consultations to assess for CHD. It would appear that Sheffield GPs have taken these opportunities and have identified patients with CHD. Unfortunately this has not eliminated inequity regarding premature mortality from CHD between people living in least and most deprived areas (Introduction, Section 2.5).

The social determinants of health are likely to be the major contributors inequity arising from CHD for the outcomes for patients in Sheffield, and GP referral behaviour cannot adjust for the impact of these factors. This could reflect Macleod et al's (2000) findings that women living in affluent areas did not receive better NHS care than women living in deprived areas, but that the greater comorbidity associated with living in poorer areas generally lead to poorer health outcomes for patients.

Sheffield GPs are emailed monthly referrals reports comparing their practices current referrals activity with the previous year and other practices within the CCG. CCG analysts adjust their raw referral numbers for deprivation and age by using a national 'Fair Shares Formula' (Department of Health 2011/12). One of the themes that emerged from the qualitative analysis of this project, was around confusion amongst GPs about the meaning of referrals data as presented by the CCG and more meaningful data would be welcomed. This resulted in a further collaboration with medical statisticians to consider if an alternative method

of presentation could be found to demonstrate variability in GP referrals activity. Peer comparison is an important driver for clinicians to reduce inter-practice variability (Howe et al 2012). Funnel plots use peer comparison and this is a novel way of presenting variation in GP referrals activity and was undertaken to produce an example that could be evaluated in the future regarding acceptability to GPs. As none of the practices found to have unusual referrals activity showed any trend for deprivation, this is evidence against there being an inverse care law regarding cardiology referrals.

All speciality outpatient referrals were also considered as part of this analysis, as it was thought important to consider cardiology referrals within the wider context of elective referrals generally in Sheffield. Again a positive relationship between deprivation and all speciality referral rates were found and reflect findings from nearby Nottinghamshire (Hippisley-Cox et al 1997). This was also an encouraging finding, and could be interpreted as evidence of a lack of an obvious inverse care law in Sheffield regarding elective all speciality referrals from GP.

As explained in the introduction to this thesis, the concept of the inverse care law has developed from Dr Tudor Harts (1971) original explanation of good medical care varying inversely with a populations needs, to Professor Watt's 'modern-day' interpretation of the law: more affluent patients being more likely to benefit from evidence based medicine (Watt 2002). This is thought to be partly due to GPs working in affluent areas having less extreme workloads than those working in deprived areas and also patients in affluent areas experiencing less psychosocial problems and multimorbidity than in more deprived areas (Mercer and Watt 2007).

In this research the term inverse care law has been interpreted as meaning a negative relationship between referral rates and deprivation. There are limitations to the quantitative analysis and these are discussed

later (Section 14.5), but the statistically significant positive relationship between deprivation and cardiology referrals for patients ≤ 70 years and all speciality referrals demonstrates a lack of an inverse care law.

In a needs-based system, health care activity increases in proportion to need. The increased referrals activity in deprived areas in this study shows activity in the correct direction, but it is not sophisticated enough to show if referrals are actually proportionate to need nor any assessment of the 'appropriateness' of referrals – this study does not show if the 'correct' patients who need specialist care are being referred from each practice. Therefore, this analysis does not absolutely show that inequalities of referrals do not exist and it could be argued that the magnitude of the 'positive care' shown by this analysis regarding referrals is not strong enough, in the light of previously outlined inequalities in Sheffield between socio-economic groups regarding CHD (Sheffield Neighbourhood Health and Wellbeing Profiles 2008/09).

One of the recommendations of the 'Deep End' project, which is a collaborative work formed by GPs working in the most deprived areas of Glasgow, is that GPs working in very deprived areas need more time for consultations (Watt 2012). GPs working in these high demand areas are thought to be just about 'keeping afloat', trying not to perpetuate the inverse care law. Sheffield has a high proportion of training practices in very deprived areas (Map of Training Practices in Sheffield, no date); this may allow patients longer consultation times, which could impact upon referrals activity and may have led to the positive effects seen in this analysis.

This research found that an inverse care law did not exist in Sheffield regarding outpatient cardiology referrals for people aged ≤ 70 years, and all speciality outpatient referrals for people in 2008/09. A funnel plot analysis also did not show GPs working in deprived areas having unusual

referral activity. These findings demonstrate that Sheffield GPs cardiology referral activity is not obviously implicated in health inequity for patients with CHD. This contrasts with data from Glasgow (Tomlinson 2008) which do not show a relationship between deprivation and referral rates, and the authors interpreted this a possible result of a healthcare system less able to deliver intervention early in the disease process.

The author suggests a potential 'positive care law' may have been observed regarding elective cardiology referrals for people ≤ 70 years old and for all age groups with regard to all speciality outpatient referrals in Sheffield (2008/09). This could be defined as those with a greater need i.e. those people living in deprived areas with higher rates of premature mortality from CHD and morbidity, were more likely to gain a referral to specialist services than areas with lower need. It would be naïve to propose that elective referrals to hospital clinics can reverse the inevitable effects of social deprivation on health. However, for the majority of patients with new onset suspected angina, prompt and accurate diagnosis via a specialist service is considered best practice (NICE [CG95] 2010). Therefore, analysis of referral patterns are an important and measurable entity to consider when trying to evaluate inequalities; this is one factor that GPs as 'gatekeepers' can control for the future health of a patient, unlike so many of the other more challenging social determinants of health. It cannot be stated that the referral activity reported here was proportional to need, and the magnitude of any positive care law in view of the poor outcomes of patients with CHD in deprived areas may be less than expected. However, these are encouraging findings that GPs in Sheffield, at least for this short time period, with respect to elective referrals, are making good medical care available to those most in need.

14.4 Conceptual Framework

Figure 19:

CONCEPTUAL FRAMEWORK CARDIOLOGY REFERRALS: Triggers and Influences		
Patient	<ul style="list-style-type: none"> • Signs, symptoms, results suggestive of cardiac pathology • Medication issues • Patient and/or Family Reassurance • Young age* 	
	<ul style="list-style-type: none"> • Articulate • High expectations • Elective Referrals • Private Referrals • Patient-led Decisions 	<ul style="list-style-type: none"> • Fear, Reluctance and Deference • Emergency Referrals • Health Literacy: Communication & Navigation • Changing Populations
GP	<ul style="list-style-type: none"> • Doctor-led Decisions* 	
	<ul style="list-style-type: none"> • Medico-legal pressures* 	<ul style="list-style-type: none"> • Clinical uncertainty, resource shortages (time, investigations and experience) • Personality & Situation (stress and fatigue)
Practice	<ul style="list-style-type: none"> • Influence of colleagues referral behaviour & knowledge • Strategies to improve quality of referrals 	
REFERRALS MONITORING & MANAGEMENT THEMES		
Health Care System	<ul style="list-style-type: none"> • Inevitability • GPs keen to improve the quality of referrals through educational relationships and communication between primary and secondary care; fearful of financial pressures to reduce referrals • Requests for clear and more meaningful referrals data 	
	<p>Negative experience of referrals monitoring: feelings of criticism of clinical decision-making and threat to autonomy</p>	

*Themes arising from GPs working in all areas of Sheffield

*Themes arising from GPs working in Least Deprived areas

*Themes arising from GPs working in Most Deprived areas

Figure 20: LINKS WITH THEORETICAL FRAMEWORK

1 DOCTOR DECISION-MAKING	2 CONSULTATION THEORY	3 PATIENT CULTURE	4 PRAGMATIC CONTEXT
<p>GP decision-making is influenced by factors beyond the expected biomedical triggers for cardiology referrals; influences differ for GPs working with patients from contrasting socio-economic positions.</p> <p>Decision-making may be more challenging when working in areas of higher deprivation due to complex patient presentation.</p>	<p>Complementing core generic skills, GPs working with people living in more deprived areas need skills to empower patients who may have health literacy issues, with the aim of promoting an environment for the sharing of decisions.</p> <p>GPs working with patients from least deprived areas require strong negotiation skills in order to maximise the potential for sharing decisions.</p>	<p>Patients from contrasting socio-economic positions with the same symptoms can present differently to GPs.</p> <p>Patients from more deprived areas can be more fearful, reluctant and deferent: leading to doctor-led decisions and GPs acting as ‘navigators’ as well as ‘gatekeepers’ of care.</p> <p>Patients from least deprived areas are more articulate with high expectations of GPs: leading to patient-led decisions and GPs acting as gatekeepers.</p>	<p>GPs are tasked to reduce health inequity, but are also subject to workload pressure and pressure to reduce the costs of referrals.</p> <p>This is especially challenging for GPs working in areas of high deprivation and for GPs working with vulnerable or socially excluded patients.</p>

Links with theoretical framework

Below is a discussion of how the findings of this project fit with the initial theoretical framework presented in Section 4.6.

1 Doctor Decision-making

GP decision-making is influenced by factors beyond the expected biomedical triggers for cardiology referrals; influences differ for GPs working with patients from contrasting socio-economic positions.

Decision-making may be more challenging when working in areas of higher deprivation due to complex patient presentation.

This research found the themes influencing cardiology referral triggers can be different for GPs working in most and least deprived areas. Croskerry (2014) described that diagnostic ease and accuracy depend upon the patient presenting with typical symptoms of a condition, and that decision-making is more challenging if the clinician is distracted from the presenting problem with other information which the authors describe as “noise”. This is relevant to the findings of this research as patients from least deprived areas were described as articulate, clearly explaining their problems and wishes for future care. This contrasted with GPs working in most deprived areas who described fearful and reluctant patients often with health literacy needs. The contrasting presentations of patients from different socio-economic positions could potentially influence the GP decision-making. The added disease burden of patients from deprived areas (Mclean et al 2014) makes decision-making more challenging for GPs working in areas with more vulnerable patients.

The findings of this study also have relevance to ‘Shared Decision-making’ (SDM). As described in Section 4.6, SDM is a term used in the academic literature as a principle of helping patients to make decisions where there is more than one treatment of equal efficacy. SDM is essentially an

approach of fully informing patients and promoting patient engagement in decision-making. However, these principles are also highlighted as core communication skills need for effective consulting, as described by Pendleton et al (1984) and Kurtz et al (1998) and as such are speculated to be incorporated to many GP encounters with patients.

Joseph-Williams et al (2014) claim that power imbalance in the clinical encounter inhibits shared decision-making; Rowlands (2012) states that the power balance lies with the practitioner due to a mismatch of health literacy. Patients from lower socio-economic backgrounds are known to have lower health literacy (Sihota 2004) and are therefore at risk of being subject to power imbalance with GPs during consultations with less opportunity for sharing decisions in brief clinical encounters.

Increased resources to provide GPs working in extreme areas of deprivation have been shown to improve patient enablement (Mercer and Watt 2007). More time with patients in areas of extreme deprivation to address power imbalance and to effectively work 'with' patients rather than GPs leading decision-making would be desirable. Participants in this study were aware of these issues as evidenced through their descriptions of fear, reluctance, deference and doctor-led decision-making in most deprived areas. Interestingly, more time for consultations as shown in Mercer et al (2007) led to decreased stress levels for the GP; this could have implications for referral rates as GPs from all areas in this study described how stress and fatigue could lower their threshold to make a referral.

2 Consultation Theory

Complementing core generic skills:

GPs working with people from more deprived areas need skills to empower patients who may have health literacy issues, to promote an environment for sharing decisions.

GPs working with patients from least deprived areas require strong negotiation skills to maximise potential for sharing decisions.

Clinicians and their governing bodies have shown enthusiasm to attempt to reverse health inequalities and have pledged through a document 'Working for Health Equity: The Role of Health Professionals' (Allen 2013) to investigate patients social and economic circumstances as well as the biomedical history when assessing patients. The authors highlight the importance of mandatory training in the social determinants of health in medical education and professional development activity for clinicians. In essence, this means that if existing models of the consultation are considered to be best practice when consulting with patients, then an awareness of a different emphasis when working with patients from contrasting socio-economic positions may be valuable. For GPs working with more vulnerable patients, more usually found in more deprived areas but can be encountered in practice anywhere, the skills of 'empowerment' and the proactive care of patients who may have health literacy issues, will be essential. Whereas the skills needed when working in least deprived areas may require a greater emphasis on strong negotiation skills, to maximise the potential for SDM.

Macleod and Gill (2014 pg 3) challenge the concept of all patients being "equal in terms of need" and "we may have greater responsibilities to some than to others". The authors recognise the discomfort this may cause the clinician, attempting to balance the needs of the individual patient against the wider needs of the community. This research examined GPs working with patients from the extremes of deprivation in Sheffield,

but many GPs will work in areas where disadvantage is witnessed either more or less frequently. An understanding of the issues and challenges faced by vulnerable patients is seen as extremely important.

There were many examples in the data from this project of the participants wanting to raise expectations, identifying literacy issues and also working as advocates which resonate with the description by Macleod and Gill (2014) of the role of general practice to 'work for' and 'work with' patients from disadvantaged groups.

3 Patient Culture

Patients from contrasting socio-economic positions with the same symptoms can present differently to GPs.

Patients from more deprived areas can be more fearful, reluctant and deferent: leading to doctor-led decisions, and GPs acting as 'navigators' as well as 'gatekeepers' of care.

Patients from least deprived areas are more articulate with high expectations of GPs: leading to patient-led decisions and GPs acting as 'gatekeepers'.

There have been efforts to change the culture of a community to make healthier decisions. Lay people from 'hard to reach' community groups have been trained to become, 'Health trainers' and were evaluated by Ball and Nasr (2011) and found to have a wide-ranging and positive impact on health, and could be one way of encouraging healthy behaviour in a community.

The prize winning 'Altogether Better' project has tapped into communities to appoint local residents as 'Health Champions'. The project worked alongside volunteers on projects of interest to the 'Champions' themselves. The project has been shown to increase empowerment, confidence, skills and knowledge of the health champions and also improve the health of communities.

Health literacy is now being cited as one of the social determinants of health (Rowlands 2012). Research in this field is in the early stages but working on improving health literacy of more vulnerable patients could present an exciting and practical opportunity to attempt to decrease inequity and empower people living in more deprived areas (Rowlands 2014 RCGP Conference Workshop).

Norbury et al (2011), in a similar stance to Mercer et al (2007), propose that GPs working with deprived communities actually need more 'Time to Care' with longer consultation times, multiprofessional practice teams with improved communication and appropriate remuneration and redistribution of resources to where they are needed most. Also, Popay et al (2007) found the role of the GP in very deprived areas to help people deal with social problems and improving the GPs capacity for this with better communication and social prescribing. The role of the GP when working in deprived areas is an extended role, including 'advocacy' skills which can be considered as *"working for disadvantaged people"* and also serves a role of *"working with disadvantaged people"* to *"raise expectations in relation to the opportunities that they can expect for their lives"*. (Macleod and Gill 2014 pg 13).

4 Pragmatic Context

GPs are tasked to reduce health inequity, but are also subject to pressure to reduce the costs of referrals. This is especially challenging for GPs working in areas of high deprivation and for GPs working with vulnerable or socially excluded patients.

Professor Sir Michael Marmot states in his forward to the document 'Working for health equity' (Allen et al 2013 pg 3):

“action on the social determinants of health should be core part of health professionals’ business, as it improves clinical outcomes, and saves money and time in the longer term. But, most persuasively, taking action to reduce health inequalities is a matter of social justice”.

The Royal College of GPs also states in its 'Vision for General Practice in the Future NHS' document that the College aims for “*reduced health inequalities and increased community self-sufficiency*” (2013a, pg 8).

However, there are significant workload challenges facing general practice (RCGP 2013b pg 19). GPs provide at least three hundred million consultations every year. The rates of consultation are rising along with rates of chronic disease and multimorbidity. This increase in workload is seen as currently “unsustainable” and could lead to an increase in the inverse care law (RCGP 2013b). This could be due to:

“GPs are increasingly offering longer times in the consultation – but with increasing consultation rates and complexity, this can only be achieved by reducing access or increasing work” (pg 27).

As has been described previously GPs working in deprived areas are working with patients who suffer higher rates of multimorbidity and psychosocial distress (Mercer and Watt 2007). It can be seen therefore

that GPs working in more deprived areas, vulnerable or socially excluded patients, will experience extra workload challenges and it is difficult to perceive how they can effectively address the social determinants of health, as well as their principle role of the delivery of “high quality primary care to people irrespective of their circumstance” (Macleod and Gill 2014) with limited resources.

The Carr-Hill formula introduced in 2005 to calculate the global sum of payments allocated to a practice income, while considering a number of demographic factors such as the age of patients and long-standing illness aged under 65 years, does not fully ‘appreciate’ the impact of deprivation or ethnicity on workload. This along with current changes to QOF payments and the possibility of the loss of the Minimum Practice Income Guaranteed has led to a number of practices working in deprived areas considering shutting down (Gould 2014).

The themes revealed in Section 8.3 ‘Morbidity and Mortality’ of the community, show participants to be acutely aware of the effects of deprivation on the health of their patients. Also, the distress and anger fuelled by managers commenting on GPs referral rates in most deprived areas of Sheffield was also revealed as shown in the quotes below.

“we are a high referring practice and we have had the PCT come and tell us off about it, really, which was a horrible meeting ... we were told that we are one of the highest referring practices in Sheffield and that referrals and disease incidence has nothing to do with deprivation and that we shouldn’t, we should be not referring, we shouldn’t be referring anymore than the average” (GP3 MD)

“we’re slightly suspicious that monitoring of referrals is a cost-driven exercise and we’re almost, you know, bristling up at that, aren’t we,

you know, if I want to refer somebody, I'll bloody refer somebody and I don't want some sodding manager up at the PCT telling me not to refer." (GP1 MD)

GPs are being tasked to balance reducing health inequity against a backdrop of decreasing resources and pressure to reduce referrals: this dilemma represents the difficult pragmatic context for GPs of this thesis.

Vignette illustrating patient factors influencing triggers for referrals for GPs working in a most deprived area

Dr Jones* has been a partner at her practice for 22 years in the north of Sheffield in a very deprived area of the city. The number of patients registered with the practice is 5,498 of which 6% of patients are diagnosed with coronary heart disease on the practice QOF register. The majority of patients' registered with the practice have non-professional jobs and there are high levels of unemployment.

Dr Jones' feels her patients are aware that chest pain can be a serious symptom, but she has known many patients who only seek help late in their illness, and this leads to her making emergency and urgent referrals. Dr Jones thinks her patients don't always present to the GP for several reasons. Some patients 'normalise' their symptoms due to high prevalence of disease in the area while others are fearful of seeking diagnosis and subsequent treatment. Patients fear can be of the hospital itself and potentially unpleasant investigations. Dr Jones speculates this may have been handed down through generations, as the hospital is on the site of the workhouse. Also, she thinks that as many of her patients suffer from multimorbidity and psychosocial problems, the burden of this can distract from any new physical symptoms.

Dr Jones often has to see her patients over several consultations to sort a complex presentation of symptoms and also reassure fearful patients that a referral to hospital is needed. Once patients have been referred, they will often need help to negotiate the system as letters, phone calls and booking online can all present challenges to her patients. These difficulties are magnified for patients who do not have English as a first language or have low health literacy. Dr Jones patients rarely demand referrals from her, and are usually happy to be led by her decisions.

*Fictitious name

Summary vignette to illustrate the patient factors influencing triggers for referrals for GPs working in a least deprived area

Dr Smith* has been a partner in his practice for 11 years in an affluent area of Sheffield. The number of patients registered with the practice is 5,561 of which 3.6% of patients are diagnosed with coronary heart disease on the practice QOF register. Many of Dr Smiths' patients are professionals either retired or still working, and a high proportion hold University degrees. Patients are generally well informed about their symptoms or illnesses through reading in the media and online. Often they have discussed symptoms with family members or friends, many of whom are also professionals and have helped interpret their symptoms.

The majority of referrals he makes to cardiology are elective rather than as emergencies, and doesn't have an awareness of many patients being admitted as emergencies through accident and emergency. He does not keep records of the numbers of private referrals, but feels they are significant number - he estimates between 10 and 20% of all the practices referrals are private.

Dr Smith describes his patients as generally knowing what course of action they would like to take about their symptoms and are keen to be involved with decision-making. Often requests for referrals would be articulated in an initial consultation.

Patients can have high expectations of Dr Smith and his colleagues at the practice; some doctors have left the practice due to the level of expectations from patients. He carefully considers patients wishes while making his own diagnostic decisions, but feels the pressure at times of patients expectations. Dr Smith has noticed that if he shows any uncertainty, patients are keen to seek an opinion from a specialist, so referrals can be 'patient-led' at times.

*Fictitious name

Vignette illustrating GP factors lowering thresholds for referrals

Dr Smith and Dr Jones consult with between forty and sixty patients a day either at the surgery, on home visits or over the telephone. Dr Smith is unable to organise 24-hour tape investigations from his practice and has to make a referral to obtain this result for a patient with palpitations, unlike Dr Jones who can access this investigation from the community.

Both doctors feel that more experienced GPs refer less often than either more junior doctors or locum GPs. They speculate about the reasons for this, as potentially being due to a lack of knowledge by the older GPs or resulting from more junior colleagues consulting patients presenting with more 'acute' symptoms.

The doctors feel that decisions regarding referrals can be variable and are affected at times by their ability to cope with uncertainty. Both doctors find that at times of pressure or stress, if running late, feeling tired or after experiencing challenging events, this can affect their ability to muster the energy to either allay anxious patients fears or resist a forceful patients request for a referral.

Dr Smith has noticed that disruption within the team, due to two of his partners becoming unwell, has reduced the threshold of the remaining partners to make referrals. Dr Smith describes that at times he feels defensive and his referral decisions are based on not wanting to put himself at risk of litigation. He considers whether he sometimes refers patients even if he feels it is very unlikely that they have any pathology, either due to patient pressure or his own need for reassurance.

Vignette illustrating health care system factors influencing triggers referrals for GPs

Dr Smith and Dr Jones are both keen to embrace strategies to improve the quality of their referrals and increase clinical knowledge. Strategies they have implemented at the practice have included double signing referral letters, holding referral letter review meetings, using expertise 'in house' for a second opinion prior to making a referral, informal follow-up of referrals and using mental check lists prior to making referrals.

Dr Smith and Dr Jones were keen to encourage educational conversations between GPs and consultants, to review cases and referral letters in a supportive environment. The importance of meetings being educational and supportive was emphasized, as the potential for embarrassment and humiliation was a concern even for 'in-house' meetings. At Dr Jones's practice a consultant physician visits the practice quarterly and joins the clinical staff for lunch followed by a focused case discussion about patients with complex problems. Dr Jones feels this avoids patients being referred to specialist clinics. Dr Smith sees the value in educational conversations and the subsequent improved relationships and communication, but is unable to arrange this for his practice due to time constraints for GPs and specialists.

Dr Jones and Dr Smith view the monitoring of their referral activity as inevitable due to the financial pressures the NHS is facing. However, they feel the data sent regularly to them by their CCGs could have greater meaning with respect to deprivation and GPs circumstances; and should be representative of patterns over longer time periods. Dr Jones felt especially upset by meeting with managers to discuss her referrals. She felt that little appreciation was given to her of working in a very deprived area and the associated poverty and ill health.

14.5 Strengths and Limitations of the research

Firstly the strengths of this thesis are presented followed by an account of its limitations. Research can be flawed by its methodological approaches. However, by adhering to accepted qualitative and quantitative methods, the rigour of a pragmatic project such as this can be defended. The core strength underpinning this thesis lies within its systematic qualitative and quantitative methods, to fulfil its aim and answer the research questions as presented in the 'Overview of Results' (Chapter 13). This section discusses these issues in relation to this project in detail.

The strengths of the qualitative aspects of project are discussed below, using the five principles of rigour in qualitative research as presented by Lincoln and Guba (1985). These principles were highlighted as paramount influences within the planning, data collection and subsequent analysis.

Credibility is considered to be the equivalent of internal validity in quantitative research (Lincoln and Guba 1985 pg 300), and as such ensures the researcher is measuring what has been set out to measure through the research question. The qualitative data collection in this project involved a prolonged and persistent observation of Sheffield GPs and their descriptions of experiences when making cardiology referral decisions, through interviews (n=12) and a focus group (n=5). By using two different methods of data collection, and peer debrief of results and analysis, triangulation of the data was achieved. The focus group also acted as a way presenting the preliminary analysis of themes identified from the interviews, as preliminary conclusions were "*tested with members of those stakeholding groups from whom the data was originally collected*" and "*is the most crucial technique for establishing credibility.*" (Lincoln and Guba 1985, pg 314)

Clinicians adopting the role of qualitative researchers have been shown to lead to data collection which is, "*broader in scope and provided richer and*

more personal accounts of attitudes and behaviour in clinical practice” (Chew-Graham et al 2002). As the author of this thesis is a practising GP this can be viewed as contributing to the credibility of the data collected. Also the consistency of approach as the author was a single-handed researcher would also contribute to credibility. Although, the potential limitations of the researcher being known to be a GP to participants, and the sole researcher is also discussed under the limitations section below.

Peer debrief of the qualitative analysis with colleagues at Sheffield University also added to the credibility of this analysis, especially as they were both Sheffield GPs alongside their academic roles. Presentations were also made of preliminary results to a multidisciplinary team meeting and a patient participation group at Sheffield practices. Both these meetings were useful in refining the researchers presentation of the results and themes.

An awareness of negative case analysis was also considered important for credibility. For example, interview participants GP12 and GP8 (LD) were asked about levels of demand from their patients. This theme was included in the topic guide in response to previous interviews with GPs working in least deprived areas who used the adjective ‘demanding’ to describe their patients. GP12 and GP8 both denied that they found their patients ‘demanding’. However, GP12 proceeded to describe a patient who had been especially persistent of a referral pathway considered inappropriate by the clinical team, to which the GPs eventually conceded to; and GP8 described his referrals being very much influenced by his patients as shown in this quote:

“You know, if I’m hearing from them that they’re going to want referral, I’m very likely to refer them, whatever it is, If I’m hearing from them that they’re going to want referral and just all their non

verbal cues are telling me that, then I will almost certainly refer them”

These examples from GPs in least deprived areas were compared with cases from GPs in more deprived areas (GP4 MD, GP7 AD, GP2 MD, GP5 AAD) who cited examples of patients who did not fully understand the gatekeeping role of primary care; but GPs working in more deprived areas described being able to deflect what they perceived as inappropriate requests for referrals or investigations more easily than GPs in affluent areas. With peer researchers, and discussions with supervisors, this negative case analysis led to identifying a theme of ‘high expectations’ from patients from least deprived compared to most deprived practices in Sheffield.

Dependability is the equivalent of reliability, and was ensured in this project through systemic audit of the research process with supervisors, peer researchers. Also, through regular discussion of the analysis and themes arising from it with an Intercalated Medical student who assisted with the focus group aspect of the project, greater reliability of the data was achieved through having a second researcher working on this aspect of the project.

One aspect of dependability of qualitative research is ‘saturation’. Unlike quantitative research, where there is a predetermined sample size for each study, data collection in qualitative research continues until no new themes emerge from data collection with participants (Kuper et al 2008). In this research interviews were undertaken until a saturation of themes was achieved and no new themes were emerging from the interviews with GPs. The sample size of 12 GPs interviewed and 5 GPs participating in the focus group was small, but as saturation of themes was achieved this should support the dependability of the findings.

Training in interviewing, prior to the interviews, was undertaken by the author at the NatCen Social Research unit in London. Also the author observed a colleague facilitating a focus group and was an interview participant in several other research projects to gain experience of the process.

Transferability can be a contentious issue in qualitative research. By its nature qualitative research is an in depth picture of participants who have been purposively sampled, and so the data gathered may not be generalizable to other settings. However, this project purposively sampled and recruited a balanced mix of GPs working with a contrasting mix of patients from varied socio-economic groups (Section 7.3). Due to initial difficulties with recruitment, the subsequent convenient sampling recruited two GPs (GP7 and GP8) who worked with of patients more mixed socio-economic positions. This led to interesting results as these participants described experiences with patients from more varied backgrounds within the same practice area. This thesis describes the GPs experience of referrals to cardiology in Sheffield. However, it could be argued that key findings from this project would be relevant to other urban areas in the UK and beyond, as the challenges of health inequity are ubiquitous.

Confirmability and the reduction of bias in this project, were achieved by keeping a reflexive log and regular audits of the research process with supervisors and peers. The qualitative analysis was undertaken systematically and iteratively using the framework approach outlined by Ritchie and Lewis (2003). After initial familiarisation with the data collected from the interviews and focus group, initial themes were organised into a draft framework. The data was then revisited and indexed using the framework. Themes were then charted with examples of quotes under each thematic heading. The themes were then interpreted through mapping and links made between themes. Finally the meta analysis of themes was constructed as presented in Chapter 7.2. This process was

overseen by the projects supervisor and peers in the academic department.

Authenticity is the fifth and final principle of rigour in qualitative research. Authenticity is unique to naturalistic research and does not have an equivalent term in positivist terms (Guba and Lincoln 1989; Tobin and Begley 2004). A range of realities and the complexity of the influences upon GPs triggers for referrals, has been appreciated by the author and have been presented through negative case analysis and careful consideration of the data. One aspect of authenticity is the translation of theory into action: the author plans to disseminate the findings of the research to managers at Sheffield CCGs, medical statisticians, cardiologists and GPs with the aim of promoting a more collaborative approach to the referral process. This has the potential to act as 'tactical authenticity' as dissemination of the key findings of this thesis, could provide a forum for empowerment of any of the above stakeholders through a greater appreciation of each others skills and roles to contribute to improving the quality and measurement.

The strengths of quantitative aspects of project result from systematic data collection, organisation and analysis. Collaboration with an expert medical statistician, Professor MJ Campbell from Sheffield University, led to an innovative approach to the presentation of referrals data in response to the research questions using binary logistic regression and funnel plot analysis. Binary logistic regression has been shown to be a reliable alternative to traditional methods of age standardising rates (Roalfe 2008 et al) and allowed for the initial quantitative research questions to be answered regarding the association between deprivation and referral rates in Sheffield. The funnel plot analysis of referral rates was undertaken after themes from the quantitative analysis arose surrounding a need for a more meaningful analysis of data by GPs. Funnel plots are considered by statisticians to be flexible, simple to implement and have the benefit of

avoiding ranking of data into spurious league tables (Spiegelhalter 2005 pg 1185).

Logistic regression has been described as being rarely used in health services research, despite cruder methods of standardising rates being shown to be unreliable when based on small numbers (Roalfe et al 2008). The author could not find any evidence in the literature of funnel plots being used previously to analyse referrals data either, despite a plethora of literature surrounding variation in GP referrals and the cost to the NHS. A barrier to using binary logistic regression and funnel plots, could potentially arise from the sophisticated statistical knowledge to undertake the analysis; although Spiegelhalter (2005) describes them as simple to implement, this may not be so for clinicians or analysts within CCGs. Although, collaboration could be seen as a weakness of the author's statistical skill; it has led to a more meaningful analysis of referrals. This is the start of a dialogue between clinicians, academic statisticians and managers in Sheffield, which alongside the qualitative findings of this research, could lead to more a meaningful and sensitive interpretation of GP referrals data in the future.

As with every research project there are limitations to this thesis. Firstly the **limitations relating to the qualitative phase** are presented. Inevitable challenges arose through the research process, and were discussed in detail with supervisors and colleagues experienced in undertaking qualitative and quantitative research. In addition the author's departmental 'peer researchers development group' independently commented on issues as they arose, which provided further quality assurance of the analysis after the focus group.

With hindsight when planning this project, although there were many senior researchers and clinicians who acted as advisors and supervisors to the project, the author feels that actually meeting as an 'advisory' group

would have been beneficial in several ways. Gaining data from Sheffield PCT took 18 months, and perhaps if a colleague from the PCT or Public Health was formally invited to be part of the advisory group on the project, the data may have been accessed more quickly. Also, the group would have given the author who at the start of this project was naïve of the research process, experience of the discussions that inevitably occur between professionals when working on a project, rather than many individual and at times conflicting views about how the project should proceed.

Moving on to limitations arising from a small sample size for the qualitative data collection. A sample of only 12 GPs were interviewed and 5 GPs participated in the focus group. This is a small sample, in spite of the rigour of the methodology and methods described above. Despite the interview participants demonstrating a balanced range of deprivation scores, the focus group was less balanced and with a bias towards more deprived practices (Section 7.3). Resource limitations, from being a single handed part time researcher, led to decisions regarding choice of methods which could be argued as influencing the key findings of this research. However, interviews were conducted until a saturation of themes had been achieved so it could be argued that despite the small sample size, the results were dependable.

During the initial part of the interview participants were asked to present two cases of patients they had referred to cardiology. This was to develop an understanding of the research process for participants through a medium that doctors are very familiar with: case presentation. Unfortunately, this could have led to participants 'Cherry picking' of cases which either reflected well on their skills or were memorable to them. An example of this arose from GP8 (LD) who had not had time to prepare the cases from a list of recent referrals prior to the interview. Initially he

discussed patients from memory and when his secretary delivered a list of patient's names he had referred to electively to cardiology he stated:

"I don't remember the rest of these, I'm going to find some worse referrals in here, I tell you! These are the good ones that stand out, definitely" (GP8 LD)

Other participants had prepared cases prior to the interview, and presumably had chosen cases from a similar list. A more credible and dependable method of selecting cases to discuss at the interviews, would have been to ask the GPs administrators to find the two most recent referrals that GP had made. Also, although the research question focused upon elective outpatient cardiology referrals as described in the qualitative results, participants discussed a wide range of referral pathways, triggers and the influences upon them. This resulted in a broad discussion and deeper understanding but could be argued that the analysis deviated from the original research question.

Confirmability of the research can be challenged as the GPs who participated could be considered to be a particularly motivated group of individuals, interested in referrals. Also, 6 out of the 12 interview participants and 3 of the 5 focus group participants described themselves as having a special interest in medical education or training, which supports the idea of this being an 'unusual' group of GPs disproportionately interested in education. A third (31 out of 91) of general practices in Sheffield are training practices for GP speciality training (Latif 2014) and just under a third of practices (30 out of 91) also host medical students (Bessen 2014). There is no data available listing the number of Sheffield GPs interested in training or education so it is difficult to say whether this is a representative sample.

Research regarding health inequity can “reinforce unhelpful stereotypes and contribute to the very processes of exclusion that it seeks to address” (Salway 2002 p2). The aim of the presentation of the illustrative vignettes in this discussion was not to add to stereotyping; they have been based upon a rigorous analysis of the data, with the aim of increasing knowledge of the challenges faced by GPs, and their patients, when working in least and most deprived areas.

Limitations of the quantitative aspects of this project are discussed below in relation to *chance, bias and confounding variables*. Also, the methods used to limit any random variation caused by chance and any systematic errors in measurement potentially leading to bias are also described, along with a consideration of any confounding factors potentially leading to misinterpretation of the results.

As the sample included all the cardiology and total speciality out patient referral numbers in age groups for the each of the 91 general practices in Sheffield, the effect of chance was minimal. However, as the study period was relatively short at one year natural variation in referral rates could have arisen from chance due to random differences. Roland and Abel (2012) stated that greater interpretation of referrals data is possible, if it is collected over longer time periods. Also, the referrals data used in this project were only analysed for one city and Roland and Abel (2012) also suggest that data over larger areas is needed to meaningfully comment on variation.

To avoid bias the logistic regression analysis was undertaken in a stepwise manner, with validation of the model established through examination of outliers through residuals. Initial analysis of residuals showed a normal distribution and the model to be appropriate. The observed rates of referrals by practice showed only one outlier, and this

was included in the analysis as it had only a small weight on the overall model.

Potential bias to the findings could have arisen from the lack of data regarding private referrals. Unfortunately, no systematic data exists in Sheffield regarding private referrals and consequently information regarding private referrals could not be included in the analysis. This could have influenced the logistic regression by revealing a less positive association between deprivation and referrals, as patients in more affluent areas may be receiving more referrals than the PCT data alone showed. Future research could access private referral rates by contacting the private hospitals or collecting data directly from practices in the region studied.

Bias in the form of the ecological fallacy could also have arisen from using the IMD scores of practices rather than individual patient postcode data. Ideally more accurate deprivation scores for each patient referred to cardiology would have been used as McLean et al (2008) found that using the practice rather than patient postcode deprivation scores, underestimated the relationship between deprivation and ill health. To avoid this, future projects could use home postcodes from patients' hospital data to find out the IMD score for each patient referred to outpatients. However, in this study time and resources did not permit using this postcode data.

Bias could also have been introduced to this analysis through the use of QOF CHD prevalence data rather than the 'true' incidence of CHD data. Incidence rather than prevalence data would have been advantageous in the interpretation of whether referrals were in proportion with the 'need' of a practice, but unfortunately to the author's best knowledge CHD incidence data is not currently available. Furthermore, bias could have arisen through the indication for cardiology referrals not always arising

from patients with CHD, but other cardiac pathology. However, it had to be assumed that the majority of referrals would be related to CHD. Future work could consider the reasons for referral, and investigate if this assumption is correct and also potentially assess outcomes for patients in relation to need.

A further confounding factor could have arisen from patients who are unknown to GPs who may need referral, as these patients would not be on the practice CHD register. Future work could address this by looking at patients who are admitted as emergencies with CHD and their preceding care and contact with primary and secondary care. This could establish the proportion of patients with CHD, that a practice may not be providing effective care for.

Considering the funnel plot, it is not possible to interpret this graph for individual GPs as the whole practice referral rate was used and not individual GP data, as this is not routinely collected. There may be wide variation, even between doctors working in the same practice, regarding referral rates. So even if a practice is identified with very unusual referral activity by a funnel plot, it would be difficult to identify within that practice which individuals are leading to that unusual activity unless it was a single handed practice. Finally, the funnel plot in this project was produced as an example of potentially more meaningful data as requested by participants at the focus group. Future research would be needed to investigate if this presentation was possible for CCG analysts to produce, and acceptable for clinicians to receive.

To summarise the limitations of the quantitative aspects of this thesis, the research questions have been approached systematically and fully answered, but the answers present only one part of increasing understanding about cardiology referrals in Sheffield, and wider questions about whether referrals are truly proportionate to need remain

unanswered. This analysis used data for one year, to one speciality at one location. Goddard and Smith (2001) state that while small-scale research can provide good quality evidence describing the influences upon inequity regarding one aspect of access to health care; caution is needed for interpretation of small-scale projects such as this when the data on referrals are for short time periods and for single specialities. This leads naturally on to avenues for future research, which are presented in the next section.

14.6 Avenues for future research

This study provides a substantial contribution to the evidence surrounding GP decision-making when making referrals, specifically when working in the extremes of deprivation. It also provides a move towards more meaningful referrals data for GPs to potentially consider when reflecting on their referrals activity, during educational conversations. The findings show GPs to be enthusiastic about improving the quality of their referrals, whilst being mindful of the financial implications of the decisions they make. Finally it provides preliminary evidence that referrals activity in Sheffield does not obviously show an inverse care law. However, through the discussion above of key findings, many ideas for future research have been prompted to further understand in the fields of GP referral and health inequity.

This thesis demonstrates that GPs experience contrasting and complex challenges, depending on the socio-economic position of their patients, when making referral decisions. However, alternative methodologies could be employed to confirm its findings. One example could be to directly observe GPs and patients during consultations, and use either video or voice recording to undertake a conversation analysis. A limitation of this could be the Hawthorne effect, but this could be limited with advances in technology – video links for example. Another limitation for such an approach could be the time consuming nature of data collection if a referral to a specific speciality was being observed. However, through this more immersive approach of direct observation, further evidence of factors relating to inequity may be revealed. Such a study may be revealing of possible power imbalance in the consultation, and the influence of this dynamic upon sharing decisions as raised by Joseph-Williams et al (2014).

Prompted by Key Finding 2, future work could also be pursued examining the links between stress and GP referral rates and quality. High stress and

workload are associated with poorer performance; conversely increasing consultation time and less stress are associated with better performance (Homborgh et al 2009). A study investigating stress and GP referrals which included a cost benefit analysis, could have important implications for future CCG strategy on referral management.

Key finding 3 reported that participants would welcome more meaningful referrals data. However, it is a complex task to analyse variation in GP referral rates fairly and decipher which variation is bad and good. Not all variation is as a result of negligence and bad practice; some variation can be due to patient choice and doctor experience. However, this scrutiny is inevitable in the face of the current financial shortfall of the NHS (Mulley 2010). Information from a range of resources can be useful, and true understanding of the data takes time and collaboration. If unwarranted variation is to be tackled, or at least understood, it would be useful for GPs, commissioners, statisticians, policy makers and researchers to collaborate to find out the answers to the following research questions:

- What referrals data are actually useful to each group of stakeholders?
- What is the reliability, validity and limitations of referrals data and its analysis?
- What is the optimum way of presenting data to each group of stakeholders?

Identifying the causes of variation is the next step after summarising data (Appleby 2011). Due to individual GPs' circumstance's, the factors affecting variations in referral rates are complex (O'Donnell 2000). Therefore, it is hoped that when looking for the causes of variation in referral activity between practices this would be an opportunity for education, collaboration and teamwork between clinicians and governing bodies. It could be very destructive to treat outliers as 'bad' practices to be

punished. One service improvement study in Wales showed that educational sessions between primary and secondary care, discussing referrals at weekly meetings were found to reduce outpatient referrals and variation in referrals behaviour (Evans et al 2011). This could be a very positive way to tackle variation in referrals and was supported as a concept by the qualitative findings of this project. It would also be important to examine any interventions and attempts to change practices with unusual referrals activity on patient experience, shared decision-making, doctor satisfaction and stress.

Educational conversations would also contribute to GPs professional development essential for appraisal and subsequent revalidation. Meetings could be multi professional and include: GPs, consultants, hospital administrators, specialist nurses, practice nurses, CCG managers, CCG analysts, public health and medical statisticians. The aims of the meetings could be to attempt to decrease health inequity and improve quality of referrals, against the backdrop of decreasing resources in the NHS. The chest pain scoring system in the study by Rathod et al (2014) could be the basis of an educational conversation and replicated in Sheffield. The quality or appropriateness of referrals to other specialities could also be defined and then audited. There would also be scope for research to explore the effects of feedback about referrals upon GPs, and the acceptability of alternative types of presentation of the data such as funnel plots. More research would also be needed to assess their validity over longer time frames, more specialities and practices.

Greater transparency, and investigation of the reliability and validity of referrals data fed back to GPs, could be a positive way to engage clinicians and analysts as qualitative results from this study showed GPs to be sceptical about the current data. Acknowledging issues about bias within the data and clearly explaining the 'Fair Shares' formula (Department of Health 2011) with respect to deprivation, may help GPs

and analysts create more meaningful data. Collaborations with medical statisticians may help to improve referrals data through accurate modelling of the 'true' incidence of disease and therefore more accurately defining an expected number of referrals for specific conditions.

A study examining the rates of private referrals would be useful as this data is not collected routinely. If a baseline were known, this potentially could be incorporated into referrals analysis and feedback for GPs. This was another aspect in the current analysis of referral rates that was thought to be unfair by participants to GPs working in more deprived areas; as GPs working in more affluent areas, by making more private referrals, are thought to make less NHS referrals and subsequently appear to be making less referrals than GPs in more deprived areas.

Community and patient groups could be involved in research to develop strategy to reduce health inequity in Sheffield. An innovative 'Social Prescribing' project described at the RCGP conference this year by Dr Dirk Pilat (2014), could be initiated with the involvement of patients. Key findings could be discussed to community groups and patient groups to explore the themes more deeply especially with people living in more deprived areas. Future research would greatly benefit from being planned through conversations with the public and patients.

An alternative way of examining health inequity from CHD in Sheffield would be to retrospectively examine the care of patients who present as emergencies with CHD or who die prematurely. A retrospective study could follow a patients contact with primary and secondary care to explore if there are any 'gaps' in care which could have been avoided. A prospective cohort study of patients from least and most deprived areas, could also be undertaken to examine the effect of CHD in two groups of patients.

14.7 Summary of Recommendations for Policy and Practice

This section provides a summary of recommendations for policy and practice, many of which have already been described in the above discussion. It is hoped that despite its limitations, this project will lead to further research over longer time frames, for larger areas describing whether inverse or positive care laws operate regarding elective referrals. Highlighting inequalities is important when planning educational programmes for GPs and to help shape the strategy of public health initiatives within an area. However it is also important, as in this project, that if positive care law are revealed that the work of GPs is celebrated as this could have positive impacts on morale and motivation.

GP's may wish to consider:

1. The socio-economic position of their patient carefully, and acknowledge the consequences for health, and potential influences on their referrals decisions. This study found the influences described by GPs working in most deprived areas included fear, health literacy and 'doctor-led' decisions. The influences described by GPs working in least deprived areas were articulate patients with high expectations and 'patient-led' decisions. Proactive history taking about home situations, which is already a core component of the consultation, and its implications for the health of a patient could identify patients who could benefit from longer consultation times.
2. Allowing longer consultation times for vulnerable and socially excluded patients to encourage patient empowerment, address fears, undertake an advocacy role and facilitate sharing decisions.
3. Collaborating and speaking at local meetings with CCG analysts, CCG managers, other clinicians, public health, academic medical statisticians and primary care academics to produce referrals data

that is meaningful for all stakeholders. Generally GPs aim to improve the quality of referrals, managers need to fulfil financial budgets and academics require statistically sound data in order to influence future policy. Acknowledgement of all perspectives could be incorporated to produce more meaningful referrals data and assess the impact of any interventions.

4. Meeting for educational conversations with other GPs and specialists to discuss clinical topics. Examples could include the discussion of chest pain scoring systems as part of the referral process to rapid access chest pain clinics, as described by Rathod et al (2014); health inequity and the different challenges faced by GPs working in contrasting areas of the city, to share decisions with patients, another topic. The aims of such meetings would not only be professional development, but also to create networks of communication and support. Stress was described as influencing GPs to make more referrals in this study, such groups could potentially decrease stress and be influential in curtailing the recent rise in referral rates. Other topics could be covered such as how to define 'quality' and 'appropriateness' with regard to referrals to different specialities. Discussions could be led by interested GPs with the aim of increasing knowledge, and subsequently improving the quality of referrals, and also providing research data to measure improvements after any intervention.
5. Involving their patients in public and patient participation of research projects and initiative to reduce health inequity. Examples could be projects replicating the Tower Hamlets 'Social Prescribing' initiative (Pilat 2014) or the national 'Altogether Better' (2014) project.

6. Discussing with local academic departments the education of upcoming generations of undergraduate and postgraduate health professionals about health inequity, and its impact with regard to access, treatments and outcomes, as witnessed through daily interactions with patients. A key role could be for GPs to ensure health inequity and the care of vulnerable and socially excluded people is on the local curriculum. Also for consideration, Rinberg et al (2014) conclude their BJGP paper that medical education should incorporate more about medical decision-making and coping with professional uncertainty and shared decision-making as this may reduce variation.

Local Clinical Commissioners may wish to consider:

1. Supporting practices to provide longer consultation times for vulnerable and socially excluded patients with the aim of decreasing health inequity.
2. Facilitating educational conversations as outlined in point 3 for GPs to consider.
3. Collaborating with medical statisticians, Public Health Sheffield, local GPs and The Academic Unit of Primary Medical Care at Sheffield University to create more meaningful referrals data for all stakeholders. Examples of collaborations could include the collection of private referrals data from Sheffield GPs, and the consideration of different approaches to feedback of referrals data to GPs. Analysis of the reliability and validity of different statistical analysis and also the methods of feedback, would be of research and practical interest. To improve the validity of statistical analysis it is important to continue to explore methods of analysing whether referral rates are proportionate to the true 'need' for an area.

Calculating the 'true' need for referrals is a concept in which more research is needed. Follow-up studies would also be important to examine if inequalities can be reversed after interventions, or positive or negative care laws are consistent over time.

4. Investing in public and patient engagement for local communities to engage with initiatives and research with the aim of reducing health inequity as in point 5 above.

Patients may wish to consider:

1. Taking part in local patient and participation research, health literacy and community initiatives.
2. Consider their role in the consultation and the capacity of the consultation with a GP to share and make decisions.

14.8 Reflexivity Revisited

As described in the Methodology Chapter (Section 5.1) the reflexive approach described by Wilkinson (1988) has been adopted in relation to this project and thesis. Revisiting reflexivity at the end of the research process and thesis enables reflection of the researchers role through personal, professional and broader perspectives on their work.

Personal Reflexivity Revisited

The account of my personal reflexivity (Section 5.1) described the development of a strong sense of social justice throughout my life. Witnessing inequity first hand as a GP ignited this research project. Undertaking this project part-time alongside my clinical GP role and starting a family, my feelings of injustice for vulnerable and socially excluded groups of people has grown. The experience of being a part time researcher has at times been challenging, although the subject matter has helped keep these difficulties in perspective. There have been times during personal supervision with a distant Professor (a clinician not associated with the project) and during presentations, when I have been surprised to experience a flavour of the power imbalance some patients feel during consultations. I tried to channel the feelings of frustration and inadequacy after these difficult meetings, into greater motivation to finish this work and support truly vulnerable people in our community.

Becoming a mother has helped me appreciate how crucial pregnancy and a child's early experiences are to development and health. During a presentation of my work to local salaried GPs, the inevitable question/statement arose from a member of the audience, blaming the lifestyle choices of people living in more deprived areas as causing the higher rates of morbidity and mortality from CHD. It seems to me that as many health outcomes are determined in utero and as a child, these should not be labelled as 'lifestyle' choices. This again fuelled my passion to finish this project.

Functional Reflexivity Revisited

I have felt very privileged to be awarded funding to undertake the reading and attend conferences necessary to deepen my understanding of health inequity and write this thesis. This has allowed me to learn more about the causes of inequity, possible solutions and the contribution health care workers can make. It has been inspiring to be able to watch and learn from academics and individuals who are also passionate about reducing inequity.

This could have influenced the research process of this project, but I hope only in a positive way to enrich the analysis and discussion. The GPs who participated in this project worked at the extremes of deprivation in Sheffield; many GPs will work in much more mixed practices. For example the most vulnerable patients in the semi-rural practice where I am a salaried GP, are the very elderly; people with mental health problems; and people with learning difficulties who can become very socially isolated, more so than in some urban areas at times. This has helped me appreciate that GPs work with vulnerable patients in every practice, and need support to create consultations where problems can be best disentangled and resolved, while GPs working in the most deprived areas need the most support.

This project has always proved to be a popular topic of discussion with fellow GPs and this has provided a valuable resource for me while trying to shape the analysis into a logical schema. One particularly memorable discussion was with a GP who works in a very affluent area of Derbyshire. He described one of his patients who was elderly and refused to go to hospital for an ECG. The practice ECG machine was broken, so the patient bought the practice a new model – this highlighted for me the theme of patients from least deprived areas having very clear ideas about their management!

Recruiting GPs was challenging, as found by other primary care researchers. It seemed easier to recruit GPs from the most deprived areas than least deprived areas. One could speculate that this was due to them feeling more pressured to reduce referrals than GPs in less deprived areas, or to be more interested in the topic of CHD and inequity, but the reasons are not absolutely clear. During supervision with Professor Mathers, in the midst of the recruitment process, I described an incident where a GP offered to rearrange his voluntary session at Sheffield homeless shelter to come to participate in the focus group; which contrasted with a GP who worked in a very affluent area who sent apologies as he could not attend due to a clash with an art class. This is obviously completely anecdotal, but may reflect a wider point of the personalities of GPs who work in very deprived areas being more open to research.

Collaboration has been a very useful and productive activity in the production of this thesis, and I now aspire to bringing GPs, commissioners and medical statisticians together, with the aim of creating more meaningful and transparent referrals data. It has not always been easy to collaborate, the swine flu incident in 2008/09 meant the PCT as it was, and Public Health were very busy and could not assist with providing me with raw referrals data. I have learnt many negotiation skills throughout the research process.

I would also like to develop the teaching of health inequity issues at Sheffield University and am delivering a lecture in 2015 to second year medical students on this topic.

Disciplinary Reflexivity

Andrew Lansley's introduction of the Health and Social Care Act in 2012 is one of the biggest challenges to the structure and morale of the NHS since its inception. This along with the current recession, has led to the

challenges facing vulnerable and socially excluded people's health being greater than even at the start of this project. However, many GPs are aware of the challenges and potential opportunities for the future of general practice, and the core values of continuity, compassion and teamwork, which are most needed by the most vulnerable patients, should be fiercely protected.

14.9 Conclusion

The pragmatic health services research methodology employed by this research has allowed for the exploration of GPs experiences with regard to the influences upon GPs referral triggers and rates when working in the most and least deprived areas of Sheffield. Like the majority of health services research, this project has been driven by a pre-existing problem; in this case, health inequity for people living in the most deprived areas of Sheffield, which is especially visible through the increased rates of premature mortality from coronary heart disease compared with people living in more affluent areas.

The qualitative findings illustrate the complex array of factors influencing GP referral decisions and provide further understanding of the contrasting pressures affecting GPs working with patients from the extremes of socio-economic circumstance.

The author suggests a potential 'positive care law' may have been observed regarding elective cardiology referrals for people ≤ 70 years old and for all elective outpatient referrals in all age groups within Sheffield (2008/09) which needs further investigation. This encouraging finding may have resulted, at least in part, from citywide initiatives to reduce inequity from coronary heart disease.

Finally, after considering many viewpoints regarding GP referrals, including those of patients, GPs, consultants, specialist trainees, locum GPs, GPs with special interests, commissioners, CCG analysts, CCG finance directors, academics, quality improvement and patient safety experts, it seems that referrals monitoring and transparency regarding the data are inevitable. However, analysis of referrals data to produce meaningful results regarding variation and equity is a complex challenge. The use of binary logistic regression and funnel plot analysis, as used in

this project, represent innovative steps towards more meaningful analysis of referrals data rather than the current 'league table' style of presentation.

The most useful outcome of producing meaningful referrals data, may be to bring the above stakeholders together in supportive educational conversations, appreciative of each other's roles. It must not be used as a tool to 'blame' clinicians for their clinical decision-making.

Commissioners may wish to consider providing a forum for educational conversations between primary and secondary care clinicians, who wish to improve the quality of referrals; increased consultation times to promote the sharing of referral decisions, especially in deprived areas; and finally initiatives to reduce stress and fatigue of GPs through investment in primary care teams, as a strategy to reduce referrals and their variation, to fulfil budget requirements.

It is possible to make a difference to health inequity through local initiatives, and this research is to be the foundation of further collaborative work in Sheffield. This thesis is a small contribution to improving the quality of care for more vulnerable patients with heart disease, cared for by inner city general practice in the United Kingdom.

REFERENCES

- Adams A, Buckingham CD, Arber S, McKinlay JB, Marceau L and Link C. (2006) The influence of patient's age on clinical decision-making about coronary heartdisease in the USA and the UK. *Ageing & Society* 26:303–321
- Adamson J, Donovan J, Ben-Shlomo Y, Chaturvedi N, Bowling A. (2008). Age and sex interaction in reported help seeking response to chest pain. *British Journal of General Practice*. 58(550):318-23
- Akbari A, Mayhew A, Al-Alawi MA, Grimshaw J, Winkens R, Glidewell E, Pritchard C, Thomas R, Fraser C. Interventions to improve outpatient referrals from primary care to secondary care. (2008) *Cochrane Database of Systematic Reviews*, Issue 4. Art. No:CD005471. DOI: 10.1002/14651858.CD005471.pub2.
- Altogether Better Project. <http://www.altogetherbetter.org.uk>. [Accessed: 4th November 2014].
- Allen M, Allen J, Hogarth S, Marmot M. (2013) *Working For Health Equity: The Role Of Health Professionals*. London: UCL Institute of Health Equity.
- Allmark P J and Salway S. (2009). Reducing Health Inequalities Implementation Theme. Briefing paper 1: Why health inequalities matter. Discussion Paper. South Yorkshire, Collaborations for Leadership in Applied Health Research and Care (CLAHRC)
- Appleby J, Raleigh V, Frosini F, Bevan G, Gao H, Lyscom T. (2011) *Variations in Health Care, the good, the bad and the inexplicable*. London: The Kings Fund.
- Arber S, McKinlay J, Adams A, Marceau L, Link C and O'Donnell A. (2007) Patient characteristics and inequalities in doctors' diagnostic and management strategies in relation to CHD: A video-simulation experiment. *Social Science & Medicine*, 62(1):103 - 115
- Aristotele. *Politics*. Penguin Classics 1981.
- Asaria P, Fortunato L, Fecht D, Tzoulaki I, Abellan J J, Hambly P, De Hoogh K, Ezzati M & Elliott P. (2012) Trends and inequalities in cardiovascular disease mortality across 7932 English electoral wards, 1982-2006: Bayesian spatial analysis. *International Journal of Epidemiology*, Dec;41(6):1737-49; discussion 1750-2.

Bajekal M, Scholes S, Love H, Hawkins N, O'Flaherty M, Raine R and Capewell S. (2012) Analysing Recent Socioeconomic Trends in Coronary Heart Disease Mortality in England, 2000–2007: A Population Modelling Study. *PLoS Med* 9(6): e1001237. doi:10.1371/journal.pmed.1001237

Balint M. (2000). *The Doctor his Patient and The Illness*. Churchill Livingstone. Oxford

Ball L and Nasr N. (2011). A qualitative exploration of a health trainer programme in two UK primary care trusts. *Perspectives in Public Health*. 131(1):24-31.

Bambra C, Smith K. E, Garthwaite K, Joyce K E and Hunter D J. (2011). A labour of Sisyphus? Public policy and health inequalities research from the Black and Acheson Reports to the Marmot Review. *Journal of Epidemiology & Community Health*, 65(5):399-406

Bartley M. *Health Inequality: An introduction to concepts, theories and methods*. Oxford, Polity Press 2003.

Bartley M. (2012) Explaining health inequality: evidence from the UK. *Social Science & Medicine*. 74(5) March:658-60

Becker M H and Maiman L A. (1975). Sociobehavioral determinants of compliance with health and medical care recommendations. *Medical Care*. 13(1):10-24

Berne E. (1964). *Games People Play*. Penguin, London

Berwick D N. (1989) Continuous Improvement as an Ideal in Health Care. *New England Journal of Medicine*. 320 (1):53-56.

Berwick D. (2013) *A Promise to learn – A commitment to Act: Improving the safety of patients in England*. The King's Fund, Department of Health ran lecture. [Online] Available from: <http://www.kingsfund.org.uk/audio-video/don-berwick-improving-safety-patients-england-full-presentation>. [Accessed 6th November 2014].

Bessen, L. (2014) Teaching Secretary, Academic Unit of Primary Medical Care, Sheffield University. Personal Communication, email. 31/10/2014

Bevan A. (1948) A Message to the medical profession from the Minister of Health. in *British Medical Journal*. (1998):317:72.

Bowling A, Bond M, McKee D, McClay M, Banning A P, Dudley N, Elder A, Martin A, Blackman I. (2001) Equity in access to exercise tolerance testing, coronary angiography, and coronary artery bypass grafting by age, sex and clinical indications. *Heart*. 85(6):680-6

Bourdieu P. (1984) *Distinction: A Social Critique of the Judgement of Taste*. London, Routledge.

Breeze E, Jones D A, Wilkinson P, Bulpitt C J, Grundy C, Latif A M, Fletcher A E. (2005) Area deprivation, social class, and quality of life among people aged 75 years and over in Britain. *International Journal of Epidemiology*. 34(2): 276-83

Brighton and Hove and Integrated Care Service. (2010) *Understanding variation in referral practice; a qualitative survey of general practices in Brighton and Hove* [Online] Available from:
http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCkQFjAB&url=http%3A%2F%2Fwww.bics.nhs.uk%2FEasysiteWeb%2Fgetresource.axd%3FAssetID%3D387197%26type%3Dfull%26service%3DAttachment&ei=qcBYVOKSIY_e7AbE4YDQCw&usq=AFQjCNFJOKubtKMDq-p2R13i9azJmPgwmw&sig2=UOKPpK59uU0TTmFY8ZCi1A&bvm=bv.78677474,d.ZGU. [Accessed: 4th November 2014].

British Medical Association Health Policy and Economic Research Unit. (2009) Factors capable of influencing an increase in GP referral rates to secondary care (England only). [Online] Available from:
<http://www.sheffield-lmc.org.uk/OG09/Factors%20Capable%20of%20Influencing%20an%20increase%20in%20GP%20Referral%20Rates%20to%20Secondary%20Care.pdf>. [Accessed: 10th November 2014].

British Medical Association. (2011) *National Survey of GP Opinion*. London: BMA.

Britton A, Shipley M, Marmot M and Hemingway H. (2004). Does access to cardiac investigation and treatment contribute to social and ethnic differences in coronary heart disease? Whitehall II prospective cohort study. *British Medical Journal*. 329:318.

Bruyninckx R, Van Den Bruel A, Hannes K, Buntinx F and Aertgeerts B. (2009). GPs' reasons for referral of patients with chest pain: a qualitative study. *BMC Family Practice*. 10:55

Byrne P S, Long B E L. (1976). *Doctors talking to patients*. HMSO, London

Bury M. (1982) Chronic illness as a biographical disruption. *Sociology of Health and Illness*. 4 (2) 167-182.

Campbell M J, Jacques R M, Fotheringham J, Pearson T, Maheswaran R and Nicholl J. (2012) Developing a Summary Hospital Mortality Index: retrospective analysis in English hospitals over five years. *British Medical Journal*. 344:e1001.

Campbell S M and Roland M O. (1996). Why do people consult the doctor? *Family Practice*. Feb;13(1):75-83

Carlsen B, Aakvik A and Norheim O F. (2008). Variation in practice: a questionnaire survey of how congruence in attitudes between doctors and patients influences referral decisions. *Medical Decision Making*. Mar-Apr;28(2):262-8

Carr L T. (1994). The strengths and weaknesses of quantitative and qualitative research: what method for nursing? *Journal of Advanced Nursing*. Oct;20(4):716-21

Cherryholmes C H. (1992). Notes on Pragmatism and Scientific Realism. *Educational Researcher*. 21(6):13-17

Chew-Graham C A, May C R and Perry M S. (2002). Qualitative research and the problem of judgement: lessons from interviewing fellow professionals. *Family Practice*. 19(3): 285-9

Chowbey P, Piercy H, Willis L, Soady J, Salway S. (2010). *Care Pathway to revascularization: experiences of Pakistani women and healthcare practitioners in Sheffield*. Report of a consultation study conducted for NHS Sheffield. Sheffield Hallam University, December 2010.

Colwell B, Mathers N, Ng, CJ, Bradley A. (2012). Improving recruitment to primary care trials: Some lessons from the use of modern marketing techniques. *British Journal of General Practitioners*. 62(602):496-498

Cooper A, Calvert N, Skinner J, Sawyer L, Sparrow, K, Timmis A, Turnbull N, Cotterell M, Hill D, Adams P, Ashcroft J, Clark L, Coulden R,

Hemingway H, James C, Jarman H, Kendall J, Lewis P, Patel K, Smeeth L, Taylor J. (2010). Chest pain of recent onset: Assessment and diagnosis of recent onset chest pain or discomfort of suspected cardiac origin. London: *National Clinical Guideline Centre for Acute and Chronic Conditions*

Congdon P. (2008) Estimating CHD prevalence by small area: integrating information from health surveys and area mortality. *Health & Place*. Mar;14(1):59-75.

Coulter A. (1998). Managing demand at the interface between primary and secondary care. *British Medical Journal*. 316:1974-6

Coulter A and Ellins J. (2006). Patient-focused interventions. A review of the evidence. *Quest for Quality and Improved Performance*. London: Picker Institute Europe.

Coulter A, Robert S and Dixon A. (2013). *Delivering better services for people with long term conditions*. London: The Kings Fund

Cox J M, Steel N, Clark A B, Kumaravel B and Bachmann M O. (2013). Do referral-management schemes reduce hospital outpatient attendances? Time-series evaluation of primary care referral management. *British Journal of General Practice*. Jun;63(611):e386-92

Creswell J W. (2009). *Research Design. Qualitative, Quantitative and Mixed Methods Approaches*. Los Angeles: SAGE.

Crookes P and Davies S. (1998). *Research into Practice. Essential Skills for Reading and Applying Research in Nursing and Health Care*. London: Balliere Tindall.

Cromarty I. (1996). What do patients think about during their consultations? A qualitative study. *British Journal of General Practice*. Sep;46(410):525-8

Crombie D L and Fleming D M. (1988). General practitioner referrals to hospital: the financial implications of variability. *Health Trends*, 20(2):53-6

Croskerry P, Petrie D A, Reilly J B, Tait G. (2014). Deciding about Fast and Slow Decisions. *Academic Medicine*. 89(2):197-200

Crotty M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*, London: SAGE Publications

Dahlgren G, Whitehead M. (1991) *Policies and Strategies to Promote Social Equity in Health*. Stockholm, Sweden: Institute for Futures Studies

Dalstra J A, Kunst A E, Borrell C, Breeze E, Cambois E, Costa G, Geurts J J, Lahelma E, Van Oyen H, Rasmussen N K, Regidor E, Spadea T, Mackenbach J P. (2005). Socioeconomic differences in the prevalence of common chronic diseases: an overview of eight European countries. *International Journal of Epidemiology*. 34(2):316-26

Daniels K. (2012) *Heart Disease Referrals and Heart Disease Prevalence in Sheffield*. MSc in Statistics with Medical Applications, Thesis. Department of Probability and Statistics. The University of Sheffield.

Daly E. (2013). *Jamie Oliver and Martin Lewis on eating well and spending less - video* [Online]. Available: <http://www.radiotimes.com/news/2013-09-02/jamie-oliver-and-martin-lewis-on-eating-well-and-spending-less---video> [Accessed 20/10/2013]

Davies E, Mak V, Ferguson J, Conaty S and Moller H. (2008). Using funnel plots to explore variation in cancer mortality across primary care trusts in South-East England. *Journal Of Public Health (Oxford)*. 30(3):305-12

Davies P, Pool R and Smelt G. (2011). What do we actually know about the referral process? *British Journal of General Practice*. 61(593):752–753.

Davies P G. (2010). Referral management centres. Time for free flow of care. *British Medical Journal*. 341:c4714

Delamothe, T. Founding principles. (2008a). *British Medical Journal*. 336:1216

Delamothe, T. Universality, equity, and quality of care. (2008b.) *British Medical Journal*. 336:1278-81

Dempsey O P and Bekker H L. (2002) 'Heads you win, tails I lose': a critical incident study of GPs' decisions about emergency admission referrals. *Family Practice*. 19(6):611-6

Denzin N K. (1978). *Sociological methods: A Source Book*. New York: McGraw-Hill

Department for Education and Skills. (2003). *The Skills for Life Survey. A national needs and impact survey of literacy, numeracy and ICT skills*. London: HMSO.

Department of Health (1998). *Independent Inquiry into Inequalities in Health – Report*. London: HMSO

Department of Health. (1999a). *Reducing health inequalities: An action report*. London: HMSO.

Department of Health. (1999b). *Saving Lives: Our Healthier nation*. London: HMSO

Department of Health (2007). *Our NHS, our future*. NHS next stage review interim report. London: HMSO

Department of Health. (2007). *Tackling Health Inequalities: 2004-06 data and policy update for 2010 National Target*. London: HMSO

Department of Health. (2011) *Practice-Based Commissioning: budget guidance for 2011/12. Methodological Changes and toolkit guide*. London: HMSO

De Silva D. (2012). *Evidence: Helping people share decision making. A review of evidence considering whether shared decision making is worthwhile*. London: The Health Foundation.

Dewalt D A, Berkman N D, Sheridan S, Lohr K N and Pignone M P. (2004). Literacy and health outcomes: a systematic review of the literature. *Journal of General Internal Medicine*. 19(12):1228-39

Dixon A L G, Henderson J, Murray R, Poteliakhoff E. (2003). Is the NHS equitable? A Review of the evidence. *Health and Social Care Discussion Paper No 1*. London School of Economics.

Dixon A, Le Grand J, Henderson J, Murray R and Poteliakhoff E. (2007). Is the British National Health Service equitable? The evidence on socioeconomic differences in utilization. *Journal of Health Services Research & Policy*. 12(2):104-9

- Docherty M J, Choudhury M and Littlejohns P. (2011). Referrals to secondary care. NICE "referral advice" recommendations database. *British Medical Journal*. 342:d129
- Doran T, Fullwood C, Kontopantelis E and Reeves D. (2008). Effect of financial incentives on inequalities in the delivery of primary clinical care in England: analysis of clinical activity indicators for the quality and outcomes framework. *Lancet*, August 30;372(9640):728-36
- Dorling D. (2011). *Injustice; Why Social Inequality persists*. Bristol: The Policy Press
- Duffy K. (1995) *Social Exclusion and Human Dignity in Europe*. Background Report for the proposed initiative by the Council of Europe. Strasburg: Council of Europe.
- Duffy R A S. (2001). Variance in Practice Emergency Medical Admission Rates: Is it Due to Patients Doctors or Society? in Davies H T O, Tavakoli M, Malek, M. (eds.) *Quality in Health Care. Strategic Issues in Health Care Management*. Farnham: Ashgate Publishing Ltd.
- Eayres D. (2008) *Commonly used public health statistics and their confidence intervals. Technical Briefing 3*. Association of Public Health Observatories. National Center for Health Outcomes Development.
- Eddy D M. (2005). Evidence-based medicine: a unified approach. *Health Affairs*, 24(1): 9-17
- Eisenberg L. (1977) Disease and Illness. Distinctions Between Professional and Popular Ideas of Sickness. *Medicine and Psychiatry*, 1(1):-23.
- Ellaway A, Benzeval M, Green M, Leyland A and Macintyre S. (2012). "Getting sicker quicker": does living in a more deprived neighbourhood mean your health deteriorates faster? *Health & Place*. 18(2):132-7
- Elstein A S, Shulman L S, Sprafka S A. (1978). *Medical Problem Solving: An Analysis of Clinical Reasoning*. Cambridge, Mass: Harvard University Press.
- English Public Health Observatories. (2012). Health Profile 2012 – Sheffield.

European Myocardial Revascularisation Collaboration. (2014). Revascularisation versus medical treatment in patients with stable coronary artery disease: network meta-analysis. *British Medical Journal*. 348:11

Evans E, Aiking H and Edwards A. (2011). Reducing variation in general practitioner referral rates through clinical engagement and peer review of referrals: a service improvement project. *Quality in Primary Care*. 19(4):263-72

Feder G, Crook A M, Magee P, Banerjee S, Timmis A D, Hemingway H. (2002) Ethnic Differences in invasive management of coronary disease: prospective cohort study of patients undergoing angiography. *British Medical Journal*. 324(7336):511-6.

Finlay L and Gough B.(eds) (2003). *Reflexivity. A Practical Guide for Researchers in Health and Social Sciences*. Oxford: Blackwell Science Ltd.

Fischer M and Ereaut G. (2012). *When doctors and patients talk: making sense of the consultation*. London. The Health Foundation

Gabe J, Bury M and Elston M. (2004). *Key Concepts in Medical Sociology*., London: SAGE.

Gardner K. and Chapple A. (1999). Barriers to referral in patients with angina: qualitative study. *British Medical Journal*. 319:418-21

Glaser Barney G and Strauss Anselm L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine Publishing Company

Goddard M and Smith, P. (2001). Equity of access to health care services: theory and evidence from the UK. *Social Science & Medicine*. 53(9):1149-62

Goodacre S, Locker T, Morris F and Campbell S. (2002). How useful are clinical features in the diagnosis of acute, undifferentiated chest pain? *Academic Emergency Medicine*. 9(3):203-8

Goodyear-Smith F and Buetow S (2001). Power issues in the doctor-patient relationship. *Health Care Analysis*. 9(4): 449-462.

Gould M. (2014) GPs braced for shut down after 'toxic mix' of loss of funds and high demand. [Online] Available from: <http://www.theguardian.com/society/2014/apr/16/gps-surgeries-shutdown-loss-funds-high-demand-nhs>. [Accessed: 6th November 2014].

Grace J F and Armstrong D. (1987). Referral to hospital: perceptions of patients, general practitioners and consultants about necessity and suitability of referral. *Family Practice*. 4(3): 170-5

Greene J, Hibbard J H, Sacks R and Overton V. (2013). When seeing the same physician, highly activated patients have better care experiences than less activated patients. *Health Affairs*, 32(7):1299-305.

Guba E G and Lincoln Y S. (1989) *Fourth Generation Evaluation*. California: Sage Newbury Park.

Hamer L J, B. Flowers J, Johnstone F. (2003). *Health Equity Audit Made Simple: A briefing for Primary Care Trusts and Local Strategic Partnerships*. NHS, Health Development Agency, Public Health Observatories: London

Hani M A, Keller H, Vandenesch J, Sonnichsen A C, Griffiths F and Donner-Banzhoff N. (2007). Different from what the textbooks say: how GPs diagnose coronary heart disease. *Family Practice*. 24(6):622-7

Hart, J. T. (1971). The inverse care law. *Lancet*. 1:405-12

Health Profile: Sheffield (2012) [Online] Available at: <http://www.apho.org.uk/resource/item.aspx?RID=117065> [Accessed 13th November 2013].

Heath I. (2014) Role of fear in overdiagnosis and overtreatment. *British Medical Journal*. 349.

Heckathorn D D. (2011) Comment: Snowball versus respondent-driven sampling. *Sociological Methodology*. 41(1):355-366.

Helman C G. (1981). Diseases versus illness in general practice. *Journal of the Royal Society of General Practitioners*. 31:548-52

Heron J. (2001) (first published 1975). *Helping the Client. A Creative Practical Guide*. London: SAGE publications

Hibbard J H, Greene J and Overton V. (2013). Patients with lower activation associated with higher costs; delivery systems should know their patients' 'scores'. *Health Affairs*. 32(2):216-22.

Hippisley-Cox, J., Hardy, C., Pringle, M., Fielding, K., Carlisle, R. & Chilvers, C. (1997). The effect of deprivation on variations in general practitioners' referral rates: a cross sectional study of computerised data on new medical and surgical outpatient referrals in Nottinghamshire. *British Medical Journal*. 314:1458.

Hippisley-Cox J and Pringle M. (2000). Inequalities in access to coronary angiography and revascularisation: the association of deprivation and location of primary care services. *British Journal of General Practice*. 50:449-54

Hochbaum G M. (1958). *Public Participation in Medical Screening Programs*. Washington, D.C. U.S. Department of Health Education and Welfare. Public Health Service Communication.

House of Commons Select Committee (2010) Background to the Nicholson Challenge. <http://www.publications.parliament.uk/pa/cm201011/cmselect/cmhealth/512/51208.htm> [Accessed 8th August 2011)

Howe A, Mathers N, Steel N. Doing quality: an agenda for GP leadership to improve patient care. (2012). *Quality Primary Care* [Editorial]. 20(5):313-5

Imison C & Naylor C. (2010.) *Referral Management, Lessons for success*. London: The Kings Fund

Ingram J C, Calnan M W, Greenwood R J, Kemple T, Payne S and Rossdale M. (2009). Risk taking in general practice: GP out-of-hours referrals to hospital. *The British Journal of General Practice*. 59:e16-24

Jeyaseelan S, Struthers A D, Goudie B M, Pringle S D, Sullivan F M and Donnan P T. (2006). The accuracy of ECG screening by GPs and by machine interpretation in selecting suspected heart failure patients for echocardiography. *British Journal of Cardiology*. 13(3): 216-18.

Jiwa M. (2010). Referral from primary to secondary care. *British Medical Journal*. 341; 1172-1173

Jones M, Ramsay J, Feder G, Croo, A M and Hemingway H. (2004). Influence of practices' ethnicity and deprivation on access to angiography: an ecological study. *British Journal of General Practice*. 54:423-8.

Joseph-Williams N, Edwards A, Elwyn G. (2014). Power imbalance prevents shared decision making. *British Medical Journal*. 348:17-18.

Kaplan R M and Frosch D L (2005). Decision making in medicine and health care. *Annual Review Clinical Psychology*. 1:525-56.

Keele University MMedSci course. (2012). *Research methods in health* (HLT-40001-2012SEM1-A). Lecture - Theoretical perspectives, delivered by Dr Kay Mohanna on 11 October 2012

Kesson EM, Allardice GM, George WD, Burns HJG and Morrison DS. (2012) Effects of multidisciplinary team working on breast cancer survival: retrospective, comparative interventional cohort study of 13 722 women. *British Medical Journal*. 344:e2718.

Kuhn T. (1996) (originally published 1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.

Kuper A, Lingard L and Levinson W (2008). Critically appraising qualitative research. Six key questions will help readers assess qualitative research. *British Medical Journal*. 337:a1035.

Kuper H, Marmot M and Hemingway H. (2002). Systematic review of prospective cohort studies of psychosocial factors in the etiology and prognosis of coronary heart disease. *Seminars In Vascular Medicine*. 2(3):267-314

Kurtz S M, Silverman J and Draper J. (1998). *Teaching and Learning Communication Skills in Medicine*. Oxford: Radcliffe Medical Press.

Landy R, Walsh D and Ramsay J. (2012). Do socio-economic, behavioural and biological risk factors explain the poor health profile of the UK's sickest city? *Journal of Public Health*. 34(4):591-8

Latif L (2014) GP Specialist Training Administrator, Academic Unit of Primary Medical Care, Sheffield University. Personal Communication, email. 31/10/2014

Lawlor D A, Davey Smith G, Patel R and Ebrahim S. (2005). Life-course socioeconomic position, area deprivation, and coronary heart disease: findings from the British Women's Heart and Health Study. *American Journal of Public Health*. 95(1):91-7

Le Grand J. (1991). *Equity and Choice: An Essay in Economics and Applied Philosophy*., London, Harper Collins Academic.

Lincoln Y. (1990). *The making of a constructivist: A remembrance of transformations past*. in Guba EG (Ed.) *The paradigm dialog*, Newbury Park: SAGE

Lincoln Y and Guba E G. (1985). *Naturalistic inquiry*. Beverly Hills: SAGE.

Loudon I. (2008). The principle of referral: the gatekeeping role of the GP. *British Journal of General Practice*, 58:128-30; discussion 130

Love T, Dowell A C, Salmond C and Crampton P. (2004). Quality Indicators and variation in primary care: modelling GP referral patterns. *Family Practice*. 21(2):160-165.

McBride D, Haroon S, Walters K, Gilmour S, Raine R. (2010). Explaining variation in referral from primary to secondary care: cohort study. *British Medical Journal*. 341. doi:10.1136/bmj.c6267.

McLean G, Guthrie B, Watt G, Gabbay M and O'Donnell C A. (2008). Practice postcode versus patient population: a comparison of data sources in England and Scotland. *International Journal of Health Geographics*. [Online] Glasgow ePrints Service 7:37 Available from: <http://eprints.gla.ac.uk>. [Accessed 16th July 2008].

McLean G, Gunn J, Wyke S, Guthrie B, Watt G C, Blane D N, Mercer S W. (2014) The Influence of Socio-economic deprivation on multimorbidity at different ages: a cross sectional study. *British Journal of General Practice*. [Online] Glasgow ePrints Service 64(624):440-447. Available from: <http://eprints.gla.ac.uk/94817/>. [Accessed 9th November 2011].

McCull E, Newton J and Hutchinson A. (1994). An agenda for change in referral--consensus from general practice. *British Journal of General Practice*. 44:157-62.

McGregor A. (2014) *Altogether Better Practice health champions: what they mean for general practice. Tapping in to the resourcefulness of patients and communities*, [Lecture to Delegates of the RCGP conference]. RCGP Conference Liverpool. 3rd October 2014.

McKinsey. 2009. Achieving World Class Productivity in the NHS 2009/10-2013/14: Detailing the size of the opportunity. Available: http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_116521.pdf [Accessed 16 January 2011].

McLennan D, Barnes H, Noble M, Davies J, Garratt E and Dibben C. (March 2011). *The English Indices of Deprivation 2010*. Social Disadvantage Research Centre, Oxford Institute of Social Policy, University of Oxford and University of St Andrews. Department for Communities and Local Government. www.communities.gov.uk.

McMurray. (2008) *Letter to all Doctors in Sheffield*. {See Appendix E}.

MacLeod M C, Finlayson A R, Pell J P and Findlay I N. (2000). Geographic, demographic, and socioeconomic variations in the investigation and management of coronary heart disease in Scotland. *Heart*, 81(3):252-6

Macleod U, Ross S, Twelves C, George WD, Gillis C and Watt GC. (2000) Primary and secondary care management of women with early breast cancer from affluent and deprived areas: retrospective review of hospital and general practice records. *British Medical Journal*. 320 (7247): 1442-5

Macleod U and Gill P. (2014). General Practice, health inequalities and social exclusion. In: Gill P, Wright B and Brew I (eds). *Working with RCGP Vulnerable Groups. A clinical handbook for GPs*. London. Royal College of General Practitioners. Charlesworth Press. pp. 1-14.

MacRae K. (1994) Commentary: Socioeconomic deprivation and health and the ecological fallacy. *British Medical Journal*. 309:1478.

Mackenbach J P. (2005). Socio-economic differences in the prevalence of common chronic diseases: an overview of eight European countries. *International Journal of Epidemiology*. 34(2):316-26.

Mackenbach P. (2010). Has the English strategy to reduce health inequalities failed? *Social Science & Medicine*, 71(7):1249-53; discussion 1254-8

Majeed A and Soljak M. (2014) Can NHS spending in deprived areas reduce health inequalities? Yes, but housing, education and employment matter too. *British Medical Journal*. 348:8

Map of training practices in Sheffield:
<http://maps.google.co.uk/maps/ms?msid=202852062393566593340.0004b88763fad8e50fe7f&msa=0>. Accessed 25/03/2013

Marmot M and Wilkinson R. (2006). *Social Determinants of Health*, Oxford, Oxford University Press.

Marmot M. (2010). Fair Society, healthy lives - The Marmot Review; Strategic Review of Health Inequalities in England post-2010. UCL Institute of Health Equity

Masseria C and Allin S. (2008). Methodological note: Relative and Absolute inequalities in health. The London School of Economics and Political Science.

Mathers N and Hodgkin, P. (1989). The Gatekeeper and the Wizard: a fairy tale. *British Medical Journal*. 298:172-4

Mathers N and Usherwood T. (2004) The Gatekeeper and the Wizard Revisited. *British Medical Journal*. 304(6832):969-971.

Medical Careers, 2014. Available from: www.medicalcareers.nhs.uk. Accessed 16/10/2014.

Mercer S W, Fitzpatrick B, Gourlay G, Vojt G, McConnachie A and Watt, G. C. (2007). More time for complex consultations in a high-deprivation practice is associated with increased patient enablement. *British Journal of General Practice*. 57:960-966.

Mercer S W and Watt G C. (2007). The inverse care law: clinical primary care encounters in deprived and affluent areas of Scotland. *Annals of Family Medicine*, 5(6):503-510

Ministry Of Health. (1944). A National Health Service (Cmd 6052). London: HMSO.

Misselbrook D. (2014). An A-Z of medical philosophy: O is for ontology. *The British Journal of General Practice*. 64(620):144

Mohanna K. (2012). *Theoretical perspectives*. Lecture notes distributed as part of Research methods in health, MMedSci course at Keele University, on 11 October 2012.

Morgan D L. (2007). Paradigms Lost and Pragmatism Regained. *Journal of Mixed Methods Research*, 1(1):48-76

Morris R W, Whincup P H, Papacosta O, Walker M and Thomson A. (2005). Inequalities in coronary revascularisation during the 1990s: evidence from the British regional heart study. *Heart*. 91(5):635-40

Moscrop A. (2012). Health inequalities in primary care: time to face justice. *The British Journal of General Practice*. 62:428-9

Moulton L. (2007). *The Naked Consultation. A practical guide to primary care consultation skills*. Oxford: Radcliffe Publishing Ltd.

Mulley A G. (2010). Improving productivity in the NHS. *British Medical Journal*, 341:c3965

National General Practice Profiles (2008/09). Available from: <http://fingertips.phe.org.uk/profile/general-practice>. [Accessed 19th August 2010]

National Health Service (2012) *Choose and Book* [Online]. Available: <http://www.chooseandbook.nhs.uk/> [Accessed 11th November 2013]

National Service Framework. (2000) *Coronary Heart Disease: National Service Framework – Modern standards and service models*. [Online] Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/198931/National_Service_Framework_for_Coronary_Heart_Disease.pdf. [Accessed 9th November 2014].

Naylor C and Imison C. (2010). Referral management. Rational ways to rein in referrals. *Health Services Journal*, 120(6230):22-3.

Neighbour R. (1987). *The Inner Consultation*. Oxford: Radcliffe Publishing, 2nd Edition.

Nettleton S. (2006). *The Sociology of Health and Illness*. Cambridge: Polity Press.

Newton J, Hayes V I C and Hutchinson A. (1991). Factors Influencing General Practitioners' Referral Decisions. *Family Practice*, 8(4):308-31

NHS Choices. *Cardiovascular Disease* [Online]. Available: <http://www.nhs.uk/conditions/Cardiovascular-disease/Pages/Introduction.aspx> (Accessed 4 November 2013)

NHS Employers and General Practitioners Committee, British Medical Association. (2008). *Quality and Outcomes Framework, guidance for GMS contract 2008/09. Delivering investment in general practice*.

NHS Sheffield and Sheffield City Council. (2010). Fairer Sheffield, Healthy Lives. Health Inequalities Action Plan 2010-2013. UCL Institute of Health Equity

NICE. National Institute for Health and Care Excellence (2010) Chest pain of recent onset: Assessment and diagnosis of recent onset chest pain or discomfort of suspected cardiac origin. NICE guidelines [CG95].

Norbury M, Mercer S W, Gillies J, Furler J. and Watt G C. (2011). Time to care: tackling health inequalities through primary care. *Family Practice*. 28(1):1-3

Nunukoosing K. (2005). The Problems With Interviews. *Qualitative Health Research*. 15(5): 698-706

O'Cathain A, Murphy E and Nicholl J. (2010). Three techniques for integrating data in mixed methods studies. *British Medical Journal*. 341:c4587

O'Donnell C A. (2000). Variation in GP referral rates: what can we learn from the literature? *Family Practice*. 17(6):462-71

O'Donnell C A. (2001) Variations in General Practitioner Referral Rates: Are there Lessons in the Literature? *In: H T O Davies and Manouche Tavakoli (ed.) Quality in Health Care. Strategic issues in health care management*. Ashgate Publishing Ltd, Farnham

Office for National Statistics. Population density, local authorities in the United Kingdom. Table QS102UK. www.ons.gov.uk [Accessed 03/11/2013]

Office for National Statistics (1997). *Health Inequalities: Decennial Supplement (Series DS)*. London: HMSO

Office of National Statistics. (2009) *Health Expectancy at Birth*. London.

Office of National Statistics. (2009) *Health Expectancy at Birth*. [Online] Available from: <http://www.statistics.gov.uk> [Accessed 17th September 2013].

Office for National Statistics. (2010). *Neighbourhoods, Statistical Release. The English Indices of Deprivation*. London: HMSO

Office for National Statistics. (2010) *The National Statistics Socio-economic classification (NS-SEC rebased on the SOC2010)*. [Online] Available from: <http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/soc2010-volume-3-ns-sec--rebased-on-soc2010--user-manual/index.html> [Accessed on 3rd September 2013].

Oliver, R. (2008) *RE: NHS Sheffield forecast financial year end positions*. {See Appendix E}.

Oxford English Dictionary, (2013). Available: <http://oxforddictionaries.com/definition/english/equity> [Accessed 17/09/2013]

Oxford Healthcare Associates. (2009). *Access to Cardiac Care the UK. A Report on Recent Trends, Variations in Access & Future Need – UK by Country and English Strategic Health Authority*.

Patton M Q. (1987). *How to use Qualitative Methods in Evaluation*. London: SAGE.

Payne N and Saul C (1997). Variations in use of cardiology services in a health authority: comparison of coronary artery revascularisation rates with

prevalence of angina and coronary mortality. *British Medical Journal*. 314:257.

Peacock M and Bissell P. on behalf of the Reducing Health Inequalities Implementation Management Group (2011). Briefing Paper 3: The social determinants of health inequalities: implications for research and practice. *In* South Yorkshire, Collaborations for Leadership in Applied Health Research and Care (CLAHRC)

Pendleton D, Schofield T, Tate P, Havelock P. (1984). *The Consultation: an Approach to Learning and Teaching.*, Oxford: Oxford University Press.

Pilat D. (2014) Tapping into the Resourcefulness of patients and communities: Social Prescribing. [Lecture to Royal College of General Practitioners Conference], Liverpool. 3rd October 2014.

Popay J, Kowarzik U, Mallinson S, Mackian S, Barker J (2007). 'Social problems, primary care and pathways to help and support: addressing health inequalities at the individual level. Part I: The GP perspective'. *Journal of Epidemiology and Community Health* 61 (11): 966–71).

Pope C and Mays N. (1995). Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research. *British Medical Journal*. 311:42-5

Pope C and Mays N. (Eds) (2008). *Qualitative Research in Health Care*. Oxford: Blackwell Publishing

Protheroe J, Nutbeam D and Rowlands G. (2009). Health literacy: a necessity for increasing participation in health care. *British Journal of General Practice*. 59:721-3

Quality and Outcomes Framework (QOF) 2008/2009. NHS The Information Centre for Health and Social Care. www.hscic.gov.uk/qof. [Accessed 23/04/2010]

Raine R, Wong W, Scholes S, Ashton C, Obichere A and Ambler, G. (2010). Social variations in access to hospital care for patients with colorectal, breast, and lung cancer between 1999 and 2006: retrospective analysis of hospital episode statistics. *British Medical Journal*. 340; b5479.

Rathod K S, Ward H and Farooqi F. (2014). Chest Pain symptom scoring can improve the quality of referrals to Rapid Access Chest Pain Clinic. *BMJ Quality Improvement Report*. [Accessed 6th November 2014]

Reynolds G A, Chitnis J G and Roland M O. (1991). General practitioner outpatient referrals: do good doctors refer more patients to hospital? *British Medical Journal*, 302:1250-2

Richards H, Reid M and Watt G. (2003). Victim-blaming revisited: a qualitative study of beliefs about illness causation, and responses to chest pain. *Family Practice*. 20:711-6

Richards H M, Reid M E and Watt G C. (2002). Socioeconomic variations in responses to chest pain: qualitative study. *British Medical Journal*. 324:1308

Ringberg U, Fleten N, Førde OH. (2014). Examining the variation in GPs' referral practice: a cross sectional study of GPs reasons for referral. *British Journal of General Practice*. 64:345-346

Ritchie J and Spencer L. (1994). *Qualitative Data Analysis for Applied Policy Research*. London: Routledge.

Ritchie J and Lewis J. (2003). *Qualitative Research Practice*, London: SAGE.

Rivett G. (1998). *From Cradle to Grave. Fifty years of the NHS.*, London: Kings Fund.

Roalfe A K, Holder R L and Wilson S. (2008). Standardisation of rates using logistic regression: a comparison with the direct method. *BMC Health Services Research*. [Online] Available from: <http://www.biomedcentral.com/1472-6963/8/275> [Accessed 9th November 2014].

Robinson WS. (1950) Ecological Correlations and the Behaviour of Individuals. *American Sociological Review*. 15 (3): 351-357.

Roland M and Abel G. (2012). Reducing emergency admissions: are we on the right track? *British Medical Journal*. 345:e6017

Rosen R, Florin D and Hutt R. (2007). *An Anatomy of GP Referral Decisions*. London: The Kings Fund.

Rotter J B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological monographs: General and Applied*. 80:1-28.

Rowlands G, Willis S and Singleton A. (2001). Referrals and relationships: in-practice referrals meetings in a general practice. *Family Practice*, 18(4):399-406

Rowlands G. (2012). Health literacy and public health: a framework for developing skills and empowering citizens. *Perspectives in Public Health*. 132(1):23-4

Rowlands, G. (2014) Health Literacy Workshop. Chair Iman Rafi. [Lecture to Royal College of General Practitioners Conference] Liverpool. 3rd October 2014.

Rowlingson K. (2011). *Does income inequality cause health and social problems?* Joseph Rowntree Foundation: University of Birmingham
<http://www.jrf.org.uk/sites/files/jrf/inequality-income-social-problems-full.pdf>

Royal College of General Practitioners. (2008) Addressing Health Inequalities. A Guide for General Practitioners. Health Inequalities Standing Group

Royal College of General Practitioners. (2010, revised 2014) Cardiovascular Health RCGP Curriculum. 3.12 The Clinical Example on Cardiovascular Health. [Online] Available from:
http://www.gmcuk.org/3_12_Cardiovascular_health_May_2014.pdf 56885381.pdf. [Accessed 4th November 2014].

Royal College of General Practitioners. *Put Patients First*. [Online] Available from: <http://www.rcgp.org.uk/campaign-home.aspx>. [Accessed 8th November 2014].

Royal College of General Practitioners. (2013a) *The 2022 GP A Vision for General Practice in the Future*. NHS: London.

Royal College of General Practitioners. (2013b) *The 2022 GP Compendium of Evidence*. NHS: London.

Rumble C and Pevalin D J. (2013). Widening inequalities in the risk factors for cardiovascular disease amongst men in England between 1998 and 2006. *Public Health*, 127(1):27-31

Salway S, Allmark P and Todd A. (2010). Reducing Health Inequalities Implementation Theme. Briefing Paper 2: How to incorporate attention to inequality in CLAHRC (SY) Activity. Sheffield Hallam University. [Online] Available from: <http://shura.shu.ac.uk/1489/> [Accessed 9th November 2014].

Saxena S, Car J, Eldred D, Soljak M and Majeed A. (2007). Practice size, caseload, deprivation and quality of care of patients with coronary heart disease, hypertension and stroke in primary care: national cross-sectional study. *BMC Health Services Research*, 7:96
<http://www.biomedcentral.com/1472-6963/7/96>

Scarborough P. (2010). British Heart Foundation health Promotion Research Group. *Coronary Heart Disease Statistics: Department of Public Health*. Oxford: The University of Oxford.

Schardt C, Adams M B, Owens T, Keitz S and Fontelo P. (2007). Utilization of the PICO framework to improve searching PubMed for clinical questions. *BMC Medical Informatics and Decision Making*, 7:16
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1904193/>

Sekhri N, Timmis A, Chen R, Junghans C, Walsh N, Zaman J, Eldridge S, Hemingway H and Feder G. (2008). Inequity of access to investigation and effect on clinical outcomes: prognostic study of coronary angiography for suspected stable angina pectoris. *British Medical Journal*, 336:1058-1061

Sen A. (2002) Health: perception versus observation. Self reported morbidity has severe limitations and can be extremely misleading. *British Medical Journal*, 324: 860-1.

Sheffield City Council (2010) Poverty and Deprivation in Sheffield.

Sheffield City Council (2013) *City Profile Introduction* [Online]. Available: <https://http://www.sheffield.gov.uk/your-city-council/sheffield-profile/introduction.html> [Accessed 3rd November 2013].

Sheffield Fairness Commission (2012). Making Sheffield Fairer. Commissioned by Sheffield City Council.

Sheffield First Partnership. (2013) State of Sheffield 2013. [Online] Available from: www.sheffieldfirst.com [Accessed: 13th November 2014].

Sheffield Neighbourhood Health and Wellbeing Profile (2008/09). Neighbourhood Health Profiles. Available from: <https://www.sheffield.gov.uk/caresupport/health/health-wellbeing-board/what-the-board-does/JSNA/health-and-wellbeing-across-sheffield/neighbourhoods-health-and-wellbeing-profiles.html> [Accessed 23rd April 2010: updated for 2012 data at time of writing thesis].

Sheffield Local Medical Committee Newsflash. (2009) Referrals Information Service: Newsflash. 25th March 2009.

Sheffield Primary Care Trust. Personal Correspondence. Elective cardiology and all outpatient GP referral numbers 2008/09 supplied on 25/05/2010

Siegler V L A and Johnson B. (2008). Regional differences in male mortality inequalities using the National Statistics Socio-economic Classification, England and Wales, 2001-03. *Health Statistics Quarterly*. 40;Winter 2008

Sihota S and Lennard L. (2004) *Health Literacy: Being Able to Make the Most of Health*. National Consumer Council, London.

Simpson C R, Hannaford P C and Williams D. (2005). Evidence for inequalities in the management of coronary heart disease in Scotland. *Heart*, 91(5):630-4

Spiegelhalter D J. (2005). Funnel Plots for comparing institutional performance. *Statistics in Medicine*. 24(8):1185-1202

Spiegelhalter D J. (2005). Handling over-dispersion of performance indicators. *Quality and Safety in Health Care*. 14(5):347-51

Spring B. (2008). Health decision making: lynchpin of evidence-based practice. *Medical Decision Making*. 28(6):866-74

Stafford M and Marmot M. (2003). Neighbourhood deprivation and health: does it affect us all equally? *International Journal of Epidemiology*, 32(3):357-66

Starfield B and Horder J. (2007). Interpersonal continuity: old and new perspectives. *The British Journal of General Practice*. 57:527-9

Stott N C H and Davis R H. (1979). The exceptional potential in each primary care consultation. *Journal of the Royal Society of General Practitioners*. 29:201-205

Strauss A and Corbin J. (1998) *Basics of Qualitative Research. Techniques and Procedures for Developing Grounded Theory*. London: Sage Publications.

Stringhini S, Sabia S, Shipley M, Brunner E, Nabi H, Kivimaki M and Singh-Manoux A. (2010). Association of socioeconomic position with health behaviors and mortality. *Journal of the American Medical Association*. 303(12):1159-66

Sullivan C O, Omar R Z, Ambler G and Majeed, A. (2005). Case-mix and variation in specialist referrals in general practice. *British Journal of General Practice*. 55:529-33

Summerton N. (1995). Positive and negative factors in defensive medicine: a questionnaire study of general practitioners. *British Medical Journal*. 310:27-9

Tate P. (1994). *The Doctors Communication Handbook*. Oxford: Radcliffe Publishing.

The Equality Pledge: Post Election Analysis (2010). [Online]. Available: <http://www.equalitytrust.org.uk/news/equality-pledge-post-election-analysis> [Accessed 14th October 2013]

The NHS Atlas of Variation in Healthcare. (2011) Reducing unwarranted variation to increase value and improve quality. Right Care. [Online] Available from: <http://www.rightcare.nhs.uk/index.php/nhs-atlas/> [Accessed 9th November 2014].

Timmins N. (1995). *The Five Giants. A biography of the welfare state*. Harper Collins, London.

Tobin G A and Begley C M. (2004). Methodological issues in Nursing Research. Methodological rigour within a qualitative framework. *Journal of Advanced Nursing* 48(4):388-396.

Tod A M, Read C, Lacey A and Abbott J. (2001). Barriers to uptake of services for coronary heart disease: qualitative study. *British Medical Journal*. 323:214

Tomlinson J, MacKay D, Watt G, Whyte B, Hanlon P, Tannahill C. (2008). *The Shape of Primary Care in NHS Greater Glasgow and Clyde*. Glasgow Centre for Population Health. [Online] Available from: http://www.gcph.co.uk/assets/0000/0423/The_Shape_of_Primary_Care_FinalFull.pdf [Accessed 9th November 2014].

Torjesen I. (2014). Analysis shows "postcode lottery" in access to GPs in England. *British Medical Journal*. 348:g3688

Townsend P and Davidson N. (1982). *Inequalities in Health: The Black Report*, Penguin, London.

UCL Institute of Health Equity. *Working for health equity: the role of health professionals*. London: UCL, 2013

University and College Union. (2009). *Location, Location, Location - the widening education gap in Britain and how where you live determines your chances* [Online]. Available: <http://www.ucu.org.uk/locationlocationlocation> [Accessed 04/11/2013]

University Of Southampton School Of Geography. *Geographical Referencing Learning Resources, Townsend Deprivation Index* [Online]. Available: http://www.geog.soton.ac.uk/geo-refer/go3_142_c15p19819999snew.html. [Accessed 13th September 2013]

Van den Bruel A, Thompson M, Buntinx F and Mant D. (2012). Clinicians' gut feeling about serious infections in children: observational study. *British Medical Journal*. 345:e6144

Van den Hombergh P, Künzi B, Elwyn G, van Doremalen J, Akkermans R, Grol Rand Wensing M. (2009) High workload and job stress are associated with lower practice performance in general practice: an observational study in 239 general practices in the Netherlands. *BMC Health Services Research*. 9:118.

Vogels E A, Lagro-Janssen A L and Van Weel C. (1999). Sex differences in cardiovascular disease: are women with low socioeconomic status at high risk? *The British Journal of General Practice*. 49:963-6

Walsh D, Bendel N, Jones R, Hanlon P. (2011). *Investigating a 'Glasgow Effect': why do equally deprived UK cities experience different health outcomes?* [Online]. Glasgow: Glasgow Centre for Population Health. Available:
http://www.gcph.co.uk/assets/0000/0087/Investigating_a_Glasgow_Effect_for_web.pdf.

Watt G. (2002). The inverse care law today. *Lancet*. 360:252-4.

Watt G. General Practitioners at the Deep End. (2012). *The experience and views of general practitioners working in the most severely deprived areas of Scotland*. Royal College of General Practitioners, Occasional Paper 89

Watt G. (2013). What can the NHS do to prevent and reduce health inequalities? *The British Journal of General Practice*. 63:494-5.

Wennberg JE and Thomson PY. (2011) Time to tackle unwarranted variations in practice. *British Medical Journal*. 342:d1513.

Whitehead M. (1988). *The Health Divide*, London, Pelican Books.

Whitehead M. (1992) *Inequalities in Health: The Black Report and the Health Divide*. London. Penguin

Whitehead M and Dahlgren G. (2006). Concepts and principles for tackling social inequities in health: Levelling up Part 1. *Concepts and principles for tackling social inequities in health*. Copenhagen: World Health Organisation.

Whyte W E. (1982). *Interviewing in Field Research*. in Burgess RG, (ed) *Field Research: A Source and Field Manual*. London: George Allen and Unwin.

Wight, J. (2009) Director of Public Health Annual Report. Sheffield Where Everyone's Health Matters.

Wight, J. (Sheffield Director of Public Health), Soady J (Health Improvement Principle): *Outcomes of the CIRC project*. April 2013, Personal Communication - email.

Wilkinson, A. (2010) Commissioning means learning to say 'no', GPs told. *BMA News*. 25.9.10.

Wilkinson R. and Pickett K. (2009) *The Spirit Level: Why More Equal Societies Almost Always Do Better*. Penguin Books Ltd, London.

Wilkinson S. (1988). The role of reflexivity in feminist psychology. *Women's Studies International Forum*. 11(5):493-502

World Health Organisation. Glossary of terms. [Online] Available from: <http://www.who.int/hia/about/glos/en/index1.html>. [Accessed 29th August 2013].

Ziada K and Moliterno D J. (2014). Revascularisation for patients with stable coronary artery disease. CABG and contemporary PCI can both reduce mortality. *British Medical Journal*. 348:9

Zola I K. (1973). Pathways to the doctor-from person to patient. *Social Science & Medicine*. 7(9):677-89.

APPENDIX A

LITERATURE SEARCH STRATEGY

First Formal Search

2nd March 2009

Medline via Ovid, 1950 onwards

Search Terms

Referral\$	73176
Referral\$ AND General Prac\$	4658
Coronary Heart Disease	202276
Coronary Heart Disease AND General Prac\$ AND Referral\$	54*
Limited to English and Humans	47
Duplicates	0
Number of papers relevant using inclusion criteria	2

Second Search

16th September 2009

Medline via Ovid, 1950 onwards

Search Terms

1	Family Practice	55790
2	Coronary Artery Disease	23056
3	Referral and Consultation	42071
4	Social class/ OR Socio-economic Factors	101388
5	4 AND 1 AND 3 AND 2	0
6	4 AND 1 AND 3	134
7	1 AND 3 AND 2	0
8	Expand Cardiovascular diseases/OR coronary artery disease 1547382	
9	8 AND 4 AND 1 AND 3	4
10	8 AND 1 AND 3	241
11	From 10 – keep 241	241*
	Duplicates	0
	Number of papers relevant using inclusion criteria	2

Third search

30th July 2013

Medline via OVID 1950 onwards

Search Terms

1	expand heart diseases/or coronary disease	884196
2	expand Referral and Consultation	56237
3	expand Socio-economic Factors	338811
4	expand Health status disparities	7442
5	1 and 2 and 3 and 4	0
6	1 and 2 and 3	57* (2 relevant)
7	1 and 2 and 4	1* (0 relevant)
8	2 and 4	37* (1 relevant)
9	Health status disparities (limited 5 years, humans, GB)	457* (28 relevant)
10	2 and 3 and 4	10* (1 relevant but duplicate)

Duplicates 24 (step 6 = 2) + (step 8 = 3) + (step 9 = 15) (step 10 = 4)

Total number of papers found excluding duplicates 538

Numbers of paper relevant using inclusion criteria 31 (step 6=2) + (step 8=1) + (step 9=28)

*papers whose abstracts were considered using inclusion and exclusion criteria

Inclusion Criteria for Literature Search

Any research literature, reports and publications with using the MeSH terms of coronary heart disease, general practice, referrals and health disparities were included. There was very little literature focusing specifically upon cardiology referrals from general practice in relation to deprivation or inequalities, so it was decided to keep the literature search strategy as open as possible. As substantial literature was found regarding inequalities within cardiology services in secondary care was found and this was summarised as it was relevant to the background information for this project.

Exclusion Criteria for Literature Search

Non UK based research, reports and publications were excluded, unless of particular importance or relevance, as health care systems outside of the UK are organised very differently and patients do not always need to a GP prior to accessing specialist elective care and therefore have limited relevance to this research.

The start date for the search was kept at 1950 as to allow the numbers of papers identified using the search terms manageable: 54, 241 & 538 papers were identified for each of the three literature searches respectively. The numbers of papers found relevant to this project were: 2, 2 and 31 from each of the literature searches.

In the third literature search (30th July 2013) step 9 of the search was looked for papers under the MeSH heading of 'Health status disparities' as limited papers had been found with the combinations of previous search terms. As this was a broader search with many more references the time was limited to the past 5 years and location limited to GB to allow a manageable number of papers to be identified for review. A search was also made of the terms 'Referral and Consultation' and 'Socio-economic Factors'. This brought up 3063 papers and the first 100 were reviewed and found to be irrelevant, therefore this search was ended.

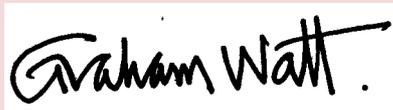
APPENDIX B

Review of Research Proposal

On my visit to The Department of General Practice and Primary Care at Glasgow University in March 2009, I discussed my potential methods with Professor Graham Watt and Dr Kate O'Donnell whom are both experienced researchers in the field of GP referrals and Health Inequalities. Professor Watt wrote this piece to support my application to the RCGP, Scientific Foundation Board Fund:

I have met Liz Walton on two occasions and am impressed by her enthusiasm, commitment and promise, as a GP researcher. The proposal is soundly based on her experience of witnessing different types of GP and practice, while working as a GP locum. Her background should also help in establishing professional rapport with GP interviewees. The discipline of setting qualitative interviews in the precise context of an epidemiological analysis of variation on GP referral rates for CHD, comparing observed with expected and including the effects of patient, GP and practice factors, is sound, and sets the agenda for the interviews to begin. With this approach, I expect that the results of the project will be generalisable within the research literature and acceptable to other service GPs.

Signed

A handwritten signature in black ink that reads "Graham Watt". The signature is written in a cursive style with a prominent initial 'G' and a trailing flourish.

The research proposal was also reviewed by senior researchers from The Academic Unit of Primary Medical Care, University of Sheffield: Professor CJ Ng, Dr Caroline Mitchell and Dr Joanne Thompson. Dr Jonathon Boote, Professor Mike Campbell also gave valuable input into the projects design from SCHARR, at University of Sheffield.

I also presented the research proposal to a meeting of Sheffield Cardiologists, with a follow-up discussion of potential methods with Dr Alison Morton, one of the consultant cardiologists.

APPENDIX C

Aim and Objectives

To ensure a thorough investigation of the research question the following aim and objectives were set:

Aim

To explore potential health inequalities between groups of patients from contrasting socio-economic backgrounds, with regard to cardiology referrals from primary to secondary care in Sheffield.

Phase 1: Qualitative

Objective 1

To explore the evidence through literature searching regarding:

- National and regional data about access to cardiac services
- General Practitioners referrals-factors involved, inequalities
- Qualitative Research Methods

Objective 2

Purposively sample practices from differing extremes of economic background and referral rates, and approach to take part in qualitative research.

Objective 3

Through Qualitative data collection, in the form of semi-structured interviews and a focus group with GPs explore:

- The “trigger” moment when a GP decides to make a referral
- The factors leading to a referral
- Feelings surrounding the referral
- Pressures from different sources regarding referrals

Objective 4

To analyse the data collected using Thematic Analysis to search for emerging themes until saturation is reached.

Objective 5

To compare the themes between GPs working in different socio-economic environments.

Phase 2: Quantitative:

Objective 6

Through Quantitative data collection find out local data about cardiology referrals:

- Methods of presenting data regarding referral rates to GPs demonstrating firstly the relationship with deprivation and secondly variation between practices.
- Classify each general practice in Sheffield according to a nationally accepted measure of deprivation
- Obtain data showing observed rates age standardized referrals for each general practice in Sheffield to cardiology services.
- Through collaboration with medical statisticians explore the evidence for a relationship between referral rates and deprivation regarding cardiology and all outpatient referrals in Sheffield
- Through collaboration with medical statisticians explore a new method of presenting variation in GP referral rates

APPENDIX D

Concepts and Indicators

Phase 1: Qualitative Concepts and Indicators

Qualitative Research Question:

What influences¹General Practitioners² cardiology elective referral³ decisions when working in the least and most deprived areas⁴ of Sheffield⁵?

The five concepts:

1. Influences
2. General Practitioners
3. Elective outpatient cardiology referrals
4. Least and most deprived areas
5. Sheffield

Qualitative Research Question: Concepts, Indicators and Data Sources

Concept	Subdivision	Definition	Indicator	Data Source
Influences		The factors involved in a General Practitioners decision to refer a patient.	Semi structured interview and focus group topic guide	Participants
Elective outpatient cardiology referrals	Elective	Planned, not emergency		
	Outpatient	Clinics in hospital/secondary care		
	Cardiology	The medical specialism dealing with disorders of the heart and related problems		
	Referrals	A communication between a general practitioner/primary care and secondary care consultant asking for a patient to be seen in an outpatient clinic.		
General Practitioners		Individual doctors who have trained in the medical specialism of General Practice or Family Medicine and are based in practices in a community rather than hospital setting.	List of Sheffield General Practitioners	The Yorkshire and Humber Public Health Observatories, Practice Profiles and practice websites for the names of specific GPs
Least and most deprived areas	Least deprived	Needs met, no lack of resources including financial.	Index of Multiple Deprivation Score for each General Practice postcode in Sheffield	The Yorkshire and Humber Public Health Observatories, Practice Profiles
	Most deprived	Unmet needs caused by a lack of resources of all kinds not just financial.		
	Areas	The postcode of the practice where the General Practitioner works.		
Sheffield		City and metropolitan borough of South Yorkshire. Practices registered at Sheffield PCT.	91 Sheffield General Practices	

Phase 2: Quantitative Concepts and Indicators

Quantitative research questions 1 & 2:

1. Do elective outpatient cardiology referrals¹ from Sheffield² General Practice³ demonstrate a relationship⁴ with deprivation⁵?
2. Do elective all speciality outpatient referrals¹ from Sheffield² General Practice³ demonstrate a relationship⁴ with deprivation⁵?

The five concepts:

1. Elective outpatient cardiology/all speciality referrals
2. Sheffield
3. General Practice
4. Relationship
5. Deprivation

Quantitative Research Questions 1 & 2 : Concepts, Indicators and data sources

Concept	Subdivision	Definition	Indicator	Data Source
Elective outpatient cardiology/all speciality referrals	Elective	Planned, not emergency	Data set of referral numbers from all 91 Sheffield General Practices to cardiology clinics and all speciality clinics	Data analysts at Sheffield PCT
	Outpatient	Clinics in hospital/secondary care		
	Cardiology	The medical specialism dealing with disorders of the heart and related problems.		
	All speciality	All the subdivisions of medical specialities grouped together		
	Referrals	A communication between a general practitioner/primary care and secondary care consultant asking for a patient to be seen in an outpatient clinic		
Sheffield		City and metropolitan borough of South Yorkshire. Practices registered with Sheffield PCT	Data set of all Sheffield General Practices	
General Practice		A place where family doctors treat patients in the community rather than a hospital		
Relationship		Odds of one variable having an effect on another variable	Binary logistic regression	Results of binary logistic regression analysis, produced in collaboration with medical statisticians at SchARR
Deprivation		Unmet needs caused by a lack of resources of all kinds not just financial	IMD Score for each Sheffield General Practice	The Yorkshire and Humber Public Health Observatories, Practice Profiles

Quantitative Research Question 3

Is there an **alternative** to the **current methods**¹ of presenting **Sheffield referrals data**² to **demonstrate variation**³ in **elective cardiology referrals**⁴ to **General Practitioners**⁵?

The five concepts:

1. Alternative/current methods
2. Sheffield referrals data
3. Demonstrate variation
4. Cardiology referrals
5. General Practitioners

Quantitative Research Question 3: Concepts, Indicators and data sources

Concept	Subdivision	Definition	Indicator	Data Source
Alternative /Current Methods (of presenting Sheffield referrals data)	Alternative	Available as another possibility	Funnel plot using cardiology referrals data from Sheffield General practices	Referrals data obtained from data analysts at Sheffield PCT. Funnel plot produced in collaboration with medical statisticians at SCHARR
	Current	Of the present time	Description of referrals reports currently sent to Sheffield General Practices	Sheffield General practitioners and practice managers
	Methods	A particular way of analysing and presenting data	Funnel plot as an alternative and description of current referrals reports	
Sheffield		City and metropolitan borough of South Yorkshire		
Referrals data		Numbers of communications between a general practitioners and secondary care consultants asking for a patient to be seen in an elective outpatient clinic		Data analysts at Sheffield PCT
Demonstrate variation		Reveal general practices which have unusual referrals activity compared with other Sheffield practices	Funnel plot showing practices who have unusual cardiology referrals activity compared with other Sheffield General practices	Referrals data obtained from data analysts at Sheffield PCT. Funnel plot produced in collaboration with medical statisticians at SCHARR
Elective Cardiology Referrals	Elective	Planned, not emergency	Data summarised on spreadsheet	Data analysts at Sheffield PCT
	Cardiology	The medical specialism dealing with disorders of the heart and related problems.		
	Referrals	A communication between a general practitioner/primary care and secondary care consultant asking for a patient to be seen in an outpatient clinic		
General Practitioners		A doctor who is trained in general medicine and who treats patients in a local community rather than at a hospital		

Appendix E Letters to Sheffield Practices



722 Prince of Wales Road
Darnall
Sheffield
S9 4EU

Telephone: 0114 305 1011
Fax: 0114 305 1376
Email: richard.oliver@gp-c88039.nhs.uk

28 July 2008

Letter to all GP's

RE: NHS Sheffield and forecast year end financial position

Dear Dr

I am writing to inform you about predicted financial pressures which are becoming apparent within NHS Sheffield. You will be aware from previous correspondence and from messages within the consortia that a large proportion of this financial burden arises out of the increasing rate of referrals from primary care to secondary care, to date this is 9% more than the similar period last year. I have encouraged practices to actively review referral activity and have suggested a number of methods which have proved successful at some practices i.e. formal referral review meetings, support / control of locum and registrars referrals, better use of primary care based services including specialist nurse support.

Those practices which have actively engaged have demonstrated an impressive reduction in referral numbers. Despite this the pressure equates to an estimated £8 million overspend. There is no reserve to cover this overspend and it is likely if this rate of referral is not significantly reversed then we will have to review our current plan of investments in order to achieve financial balance. Your help in addressing all aspects of our expenditure is urgently required and in particular I would like you to ensure that your referral practice is reflecting Sheffield best practice. Please contact me or your consortium lead if there is anything in relation to this that we can help you further with.

You will be receiving more information about your practice referral activity in the next few weeks and we will continue to provide such data on a regular basis and further develop options to manage demand, which we will share with you shortly.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Richard Oliver', written over a white rectangular background.

Dr Richard Oliver

Chairman Tony Pedder

Chief Executive Jan Sobieraj

NHS Sheffield is the Sheffield Primary Care Trust

IMPORTANT: NEW INFORMATION ON REFERRAL PROCESS



722 Prince of Wales Road
Darnall
Sheffield
S9 4EU
Dial - 0114 3051085

20 March 2009

Dear Dr

Re: The Referral Information Service for Sheffield Commencing Monday 6 April 2009

Like many health economies, Sheffield has seen a marked increase in GP (and other primary care) referrals this financial year. An analysis of GP referrals by working day (adjusting for weekends and bank holidays) highlights that referrals have increased across specialties, but that there is quite a lot of variation within Sheffield, both between GP practices within a PBC consortium and across PBC consortia, as well as by specialty.

In response to this position, Sheffield PCT through the Sheffield Demand Management Group (chaired by myself as Joint PEC Chairman of the PCT), and following involvement and review by the Local Medical Committee and Practice Based Commissioners, has commissioned a Referral Information Service.

In summary this service will:

- Provide reports and information on referral data on a near real-time basis
- Provide a validation of activity against hospital data
- Give GPs the option of the Referral Information Service making the choose and book referral for them

Currently the PCT and PBC consortia receive information on referrals from the Sheffield NHS providers in arrears on a 6 weekly basis. Added to this is the fact that data on referrals becomes available only once the appointment has occurred, which may be a number of weeks after the referral was first made. We expected the Referral Information Service to provide near real-time analysis of GP and other primary care referrals by GP practice, PBC consortia, and by speciality. This will enable a fuller understanding of the trends in referrals on a more real-time basis and allow practices and consortia to review and react more quickly to changes in referral patterns and to assess any initiatives that have been implemented, encouraging clinical learning across primary care to achieve a consistent best practice approach to the management of referrals.

With the RIS team comprising Patient Choice Advisors (PCAs), the use of choose and book can be made by the PCA on behalf of the GP practice. This will require the RIS team to have proxy access to the GP practice's Choose & Book log-in.

The new service will also provide a validation check against information on referrals provided by the NHS Trusts for which the commissioners are billed for. This should improve the confidence that the GP practice, PBC consortia, and the PCT have in that data and enable it to be more robustly challenged as necessary.

Where appropriate the RIS will provide real benefits to patients who want a comprehensive discussion on the choice of providers available to them for their expected clinical intervention. It should also result in practice based commissioners being better informed and thus able to direct resources and make commissioning decisions that best meet the clinical need of the patients they serve.

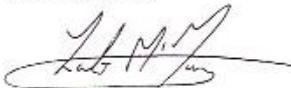
Enclosed is a Frequently Asked Questions leaflet, which outlines how the Referral Information Service will operate. There will be a helpline set up for GP practice staff to contact the RIS team in the first two months of the service being in operation. During March the RIS is being piloted by a number of practices.

The RIS will start in all practices on Monday 6 April 2009.

**The phone number of the RIS helpline for Practices is 0114 226 2411
The RIS number for all other enquiries (including patients) is 0114 305 1300
The fax number for use by Practices is 0114 305 1301.**

If you have any immediate questions on this, please do not hesitate to contact my colleague Deborah Dewsbury on 0114 3051258.

Yours sincerely



Dr Zak McMurray
Joint PEC Chairman and Chairman of Sheffield Demand Management Group

PBC Consortia Clinical Leads:

Dr Margaret Ainger, SONIC PBC Consortium clinical lead
Dr Eithne Cummins, Hallam & South PBC Consortium clinical lead
Dr Ollie Hart, Central PBC Consortium clinical lead
Dr Charles Heatley, Central PBC Consortium clinical lead
Dr Andy Hilton, Hallam & South PBC Consortium clinical lead
Dr StJohn Livesey, Hallam & South PBC Consortium clinical lead
Dr John Poyser, West PBC Consortium clinical lead
Dr Ted Turner, SONIC PBC Consortium clinical lead

cc Ian Atkinson, Director of Performance
Dr Mark Durling, Sheffield LMC
Dr Richard Oliver, Joint PEC Chairman
Steven Haigh, Assistant Director of Strategy

APPENDIX F

Ethics Favourable Opinion and NHS Permission to Start



National Research Ethics Service

Sheffield Research Ethics Committee

1st Floor Vickers Corridor
Northern General Hospital
Herries Road
Sheffield
S5 7AU

Telephone: 0114 271 4011
Facsimile: 0114 256 2469

03 June 2010

Dr Elizabeth Walton
Academic Unit of Primary Care
Room 243
Samuel Fox House
Northern General Hospital
S5 7AU

Dear Dr Walton

Full title of study: Are the "triggers" for patients to be referred to cardiology out patient appointments, from primary to secondary care, different between General Practitioners working in affluent and deprived areas of Sheffield?

REC reference number: 09/H1308/112

Thank you for your letter of 01 June 2010. I can confirm the REC has received the documents listed below as evidence of compliance with the approval conditions detailed in our letter dated 13 October 2009. Please note these documents are for information only and have not been reviewed by the committee.

Documents received

The documents received were as follows:

Document	Version	Date
Participant Information Sheet: Interviews	3	25 May 2010
Participant Consent Form: Interviews	3	25 May 2010

You should ensure that the sponsor has a copy of the final documentation for the study. It is the sponsor's responsibility to ensure that the documentation is made available to R&D offices at all participating sites.

09/H1308/112 Please quote this number on all correspondence

Yours sincerely

Mrs April Dagnall
Committee Co-ordinator

E-mail: april.dagnall@sth.nhs.uk

Copy to: University Research Department

This Research Ethics Committee is an advisory committee to Yorkshire and The Humber Strategic Health Authority
The National Research Ethics Service (NRES) represents the NRES Directorate within
the National Patient Safety Agency and Research Ethics Committees in England



National Research Ethics Service

Sheffield Research Ethics Committee

1st Floor Vickers Corridor
Northern General Hospital
Herries Road
Sheffield
S5 7AU

Telephone: 0114 271 4011
Facsimile: 0114 256 2469

13 October 2009

Dr Elizabeth Walton
Academic Unit of Primary Medical Care
Room 243
Sam Fox House,
Northern General Hospital
Herries Road
Sheffield
S5 7AU

Dear Dr Walton

Study Title: Are the "triggers" for patients to be referred to cardiology out patient appointments, from primary to secondary care, different between General Practitioners working in affluent and deprived areas of Sheffield?
REC reference number: 09/H1308/112

Thank you for your letter of 29 September 2009, responding to the Committee's request for further information on the above research [and submitting revised documentation].

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation [as revised], subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

This Research Ethics Committee is an advisory committee to Yorkshire and The Humber Strategic Health Authority
The National Research Ethics Service (NRES) represents the NRES Directorate within
the National Patient Safety Agency and Research Ethics Committees in England

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at <http://www.rdforum.nhs.uk>. Where the only involvement of the NHS organisation is as a Participant Identification Centre, management permission for research is not required but the R&D office should be notified of the study. Guidance should be sought from the R&D office where necessary.

Sponsors are not required to notify the Committee of approvals from host organisations. [Other conditions specified by the REC – optional. Indicate here final versions of documents should be provided to the committee for information, e.g. information sheet]

1. In the information sheets, provide a contact name and contact phone number for the independent complaints.

2. There is still no reference in the information sheet as to how long the tapes will be kept before they are destroyed. Please add this information to the information sheets.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Focus group topic guide	1	06 August 2009
Non-clinical trials insurance statement		29 July 2009
CV for student		
Letter of invitation to participant	1	06 August 2009
Interview Schedules/Topic Guides	1	06 August 2009
Letter from Sponsor		28 July 2009
Protocol	1	06 August 2009
Investigator CV		
REC application		07 August 2009
Participant Information Sheet: Focus Groups	2	29 September 2009
Participant Information Sheet: Interviews	2	29 September 2009
Participant Consent Form: Focus Groups	2	29 September 2009
Participant Consent Form: Interviews	2	29 September 2009
Questionnaire: Demographics for Focus Group	2	29 September 2009
Questionnaire: Demographics for interviews	2	29 September 2009
Response to Request for Further Information		29 September 2009

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

This Research Ethics Committee is an advisory committee to Yorkshire and The Humber Strategic Health Authority

The National Research Ethics Service (NRES) represents the NRES directorate within The National Patient Safety Agency and Research Ethics Committees in England

After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

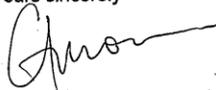
The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

09/H1308/112

Please quote this number on all correspondence

Yours sincerely



Dr C A Moore
Chair

Email: april.dagnall@sth.nhs.uk

Enclosures: "After ethical review – guidance for researchers" [SL-AR1 for CTIMPs, SL- AR2 for other studies]

Copy to: Professor Nigel Mathers, University of Sheffield
University of Sheffield R & D Department

This Research Ethics Committee is an advisory committee to Yorkshire and The Humber Strategic Health Authority

The National Research Ethics Service (NRES) represents the NRES directorate within
The National Patient Safety Agency and Research Ethics Committees in England



Sheffield Health and Social Care **NHS**
NHS Foundation Trust

MEDICAL DIRECTORATE

Research Development Unit

14 July 2010

Professor Nigel Mathers
Unit Director and General Practitioner
Academic Unit of Primary Medical Care
University of Sheffield, Sam Fox House
Northern General Hospital, Herries Road
Sheffield S5 7AU

Fulwood House
Old Fulwood Road
SHEFFIELD
S10 3TH

Tel: (0114) 2718804
Fax: (0114) 2716736
E-mail: shsrc@shsc.nhs.uk
www.shsrc.nhs.uk

Dear Professor Mathers

CSP ID: 22841

Full Project Title: Are the "triggers" for patients to be referred to cardiology out patient appointments, from primary to secondary care, different between General Practitioners working in affluent and deprived areas of Sheffield?

I can confirm on behalf of NHS Sheffield (formerly known as Sheffield PCT) that you now have **NHS Permission** to start research as described in documentation you have supplied to us.

We also advise you of the following conditions which apply to all given NHS Permission to start research through this office:

1. Please inform us of the actual project start date immediately you do start and at that time inform us also of the expected end date.
2. We recommend the attached format for maintenance of your project site file to ensure all documentation is readily accessible.
3. You will also need to seek approval for every future change to protocol or project title.
4. As Chief Investigator, you have an obligation to report all research-related Serious Adverse Events (SAEs).
5. As Chief Investigator, you are reminded of your obligations in relation to the Mental Capacity Act 2005. See the following web reference for details:
www.rforum.nhs.uk/docs/mca_guidance.doc

We wish you every success with the project and please feel free to contact us if you need further assistance from this office.

Yours sincerely

Dr Adrian Carr
Director

K:\Research Data\Shared\Projects\CSP studies\SPCT\22841\14.07.2010\F CSP 22841 NHS Permission letter.doc

APPENDIX G

Interview and Focus Group Paperwork

Participant Information Sheet (interview documents only included here, focus group documents substitute the word interview for focus group)



School
Of
Medicine
& Biomedical Sciences.

Participant Information Sheet	Academic Unit of Primary Medical Care Professor Nigel Mathers, Unit Director Dr Liz Walton, In Practice Fellow Samuel Fox House Northern General Hospital Herries Road Sheffield S5 7AU
	Telephone: +44 (0) 1142269856,07734051971 Fax: +44 (0) 114 271 5915 Email: e.walton@sheffield.ac.uk

Research Project Title:

Are the triggers for patients to be referred to cardiology out patient appointments, from primary to secondary care, different between GPs working in affluent and deprived areas of Sheffield?

Before you decide whether you would like to take part, please take time to read this information and discuss it with other people if you wish. Please don't hesitate to contact us, using the details above, if there is anything that is not clear or that you would like more information about. Thank you for reading this.

Who is organising and funding the research?

The project is the basis of an MPhil project for a practising GP Retainer (Dr Liz Walton) who has an interest in research and has a 2-year part time contract with the University of Sheffield, funded by The National Institute of Health Research as an In-Practice Fellow.

Funding has been awarded to undertake the project itself by:

- The Royal College of General Practitioners, Scientific Foundation Board
- Faculty of Medicine at Sheffield University, Research and Innovation Grant

Everyone in the research team is supervised and the research project has been reviewed Sheffield Research Ethics Committee.

Background of the research project



Triggers for Cardiology Referrals, Interview Info Sheet, V3, 25.5.10

There is a wide gap in life expectancy between the most and least affluent people living in Sheffield. Differing rates of cardiovascular disease are thought to be the main cause of this inequality between different socioeconomic groups in the city. There are several factors influencing this, and many are beyond the control of the GP. However, one factor where GPs may be contributing to inequalities, are rates of referrals to specialist clinics. Anecdotally amongst many doctors, it is believed affluent patients gain referrals more easily than deprived patients despite the incidence of coronary heart disease being much lower in the more affluent group. Many factors affect referral rates between GPs, this study is attempting to explore reasons for these differences.

This project has 2 aspects. Firstly, the researchers will find out if patients from Sheffield are referred to Cardiology clinics in appropriate numbers for the expected incidence of disease for the area of Sheffield in which they live. Secondly, through interviews and a focus group the researcher hopes to explore GPs thoughts and views about the triggers/reasons for cardiology referrals in their area, to see if there are differences between socioeconomically contrasting areas of the city.

Why has this GP practice been chosen for this project?

We are trying to explore GPs views working in contrasting areas to try and ensure we obtain a range of views. To do this we have sampled for practices in the extremes of deprivation within Sheffield by using a measure of socioeconomic status called the Index of Multiple Deprivation (IMD). All practices in Sheffield will be ranked according to IMD then split into 5 groups. Within the least and most deprived groups the highest and lowest referring practices will be asked to take part in this project.

Do I have to take part?

You do not have to take part - it is voluntary.

What will happen to me if I take part?

If you do decide to undertake an interview, please read the enclosed interview schedule that lists some of the things the researcher would like to ask you about. If there are any questions you do not want to answer, then you do not have to. Please then contact the researcher using the details provided above and he/she will book a date and time for the interview that suits you. If you book an interview but change your mind about taking part, you are still free to withdraw from the project at any time and can do so by contacting us, without needing to give a reason. We will then cancel your interview appointment.

Before the interview you will be sent a short question sheet to fill in and bring along to the interview. It asks some questions about you and your background. Also, you will be asked to find or think about 2 referrals you have made to Cardiology from your practice. The interviewer does not want any personal details about the patient, but during the interview it would be useful to discuss your reasons for referring the patient and the consultation.

The interview will take place in a location that suits you and will take about 45 minutes. The researcher is a practising GP who is undertaking this project as the basis of a Masters degree. The interviewer is not a member of staff at the practice or PCT so we hope that this would help you to feel that you could speak frankly about your experiences and views. The interview will be an opportunity for you to express your opinions, feelings and experiences of referring patients and triggers for referrals during your consultations.

Will my taking part in this research project be kept confidential?

Yes. All of your information will be kept **anonymous**. We will replace your name with an ID number and only members of the research team will have access to your information. Staff at your general practice will not be told whether you took part in an interview or the answers you gave. All the documents, tapes and computer files will be kept locked away.

In the unlikely event that bad practice is revealed as part of this research, we would have a duty as a researcher to act on this appropriately after discussing this with the participant first.

The researcher will ask if he/she can tape your interview to make sure he/she doesn't lose important information, but your interview does not have to be taped. The researcher would be happy to make notes instead if that was more comfortable for you. If you do agree to being taped, the researcher will type up the conversation on paper and remove any information that could identify you. No other use will be made of the tape without your written permission and no one outside of the research team will be allowed access to the recording. All tapes will be destroyed after 3 years.

What will happen to the results of the research project?

The researchers will write reports on the project and its findings. These reports will describe:

- Whether referral rates to outpatient cardiology clinics correspond with the expected incidence of heart disease for different areas of Sheffield.
 - Explore the triggers for referrals in socioeconomically varied areas of Sheffield
- If you wish, we can send you a copy of the final report once the project is completed.

Contact for Independent complaints

In the unlikely event of you wanting to voice concerns or complain about the research in any way, participants would be asked to approach the research team directly in the first instance. If you do not receive an appropriate response you would then be asked to contact Professor Stuart Parker at The Sheffield Institute for Studies on Ageing, Sam Fox House, Northern General Hospital, Herries Road, Sheffield, S7 5AU and/or The University of Sheffield Registrar and Secretary.

Thank you for reading this information sheet. If you would like to ask anything about this research project then please don't hesitate to contact us. We will be more than happy to answer your questions.

Demographic Questionnaire

To be completed prior to starting focus group

PARTICIPANT NO.Date.....

Age	
Male or female	
Year of qualification from GP vocational training	
Year of qualification with medical degree e.g. MBBS	
MRCGP	YES / NO
Diplomas in specialist topics e.g. DFFP, DCH, DRCOG.	YES / NO If yes please specify :
Other graduate degrees or postgraduate e.g. Masters of Arts, BSc.	YES / NO If yes please specify :
Any special interests or other roles?	
Practice details	
Practice population	
Number of principals	
Number of non-principals	
Participants employment status within practice	
Ethnic minority population size	
Ethnic minority population types e.g. Pakistani, South Asian, Afro-Caribbean.	Please specify:
Population over 55y (approx).	
Any other special features about practice eg in house ecg/24 hr tape/GPSI cardiology	Please specify:
Who manages referrals within practice, any meetings/numbers?	
% private referrals (would it be possible to find out from practice manager)	



School
Of
Medicine
& Biomedical Sciences.

Title of Project: Are the "triggers" for patients to be referred to cardiology out patient appointments, from primary to secondary care, different between General Practitioners working in affluent and deprived areas of Sheffield?

Participant Identification Number:

Interview Topic Guide

Introductions

My name, GP retainer, NIHR IPF

Background to Research Project & structure of interview today

This is a mixed methods project looking at referral rates and trying to understand reasons for difference. In the interview today we will explore your triggers and factors involving in referring patients to secondary care from this practice.

Today the interview will take about 45 mins

The interview is in 3 parts:

- Firstly we are going to talk about your cases - remember anonymous
- Then reasons for any missed or inappropriate referrals
- Finally a discussion around monitoring referrals

Consent and Confidentiality

So if you are happy to go ahead lets fill in the consent form

Go through consent form

Demographic Questionnaire

Lets complete the demographic questionnaire

Leave a spare form with SAE if can't answer all the questions and forward later

Start tape

CASES

- Tell me about one of your cases...
- Could you describe the consultation itself when you decided to refer the patient...
- Was there a specific moment when you decided to refer, if so what was the trigger?
- Were there any other factors or issues involved in the referral?
- Do you think the patient had any expectations of the consultation?
- Would you have done anything differently in retrospect?
- What do you think was good about the referral?
- Were there any negative or bad points about the referral?
- Tell me about your 2nd case...
- Was there a specific moment in this case when you decided to refer?
- Are there similarities between cases?
- Are there any differences between cases?

GENERAL CASE QUESTIONS:

- Are these cases typical of people you would refer from this area?
- In what ways were they typical?"
- Are there variations from this stereotype?
- Start here if unable to think of cases:
 - o What are the typical case histories of people you would refer from this practice to cardiology
 - o Are there any variations from this stereotype

MISSED/INAPPROPRIATE REFERRALS

- Do you think any patients who need a cardiology referral are missed in this area?
- What could be the reasons why referrals may be missed?
- Can you think of any real life cases where opportunity for referral was missed?
- Do you think patients in this area are ever referred inappropriately?
- What would you say constitutes an inappropriate referral?
- Tell me a bit more about why you think inappropriate referrals may be made?

TO END WITH, THINKING MORE BROADLY ABOUT REFERRALS...

- Have you ever felt your referrals are being monitored either within practice, or by the PCT or by the consortium?
- Do you have referral meetings?
 - i. if yes -what do you hope to achieve by having meetings, have you fulfilled these objectives?
 - ii. if no-why don't you have meetings was it a conscious decision or just not thought about it?
- Do you fu patients you have referred?
- Do you monitor locum/registrar referrals?
- What do you think of monitoring GP referrals eg RIS?

FINAL QUESTION

If I find through my quantitative analysis that there are differences in referral rates between areas which aren't in keeping with the expected levels of disease for those areas, have you got any ideas or thoughts on how to tackle those inequalities?

COMMENTS

That's the end of all my questions now, is there anything else you would like to add before I switch the tape off...

Topic Guide: Focus Group

Topic Guide

Introduction

Aims of the session:

1. To explore the experiences and views of GPs on the topic of referrals including:
 - Patient and GP factors affecting referral decisions for coronary heart disease
 - Referral management systems
 - Strategies to improve quality of referrals
2. To compare the themes with existing literature on the topic
3. To begin to member check the key findings and analysis of the interviews from the Triggers project

All GPs introduce themselves:

- What's your name
- What's your place of work, type of practice- Affluent/Deprived
- What interested you in the research
- What we would you like to get out of the session

Background to the study:

- Why is this being researched?
- How is it being researched?

Results of the interviews:

Patient factors:

Affluent:

- patient pressure
- Medico-legal awareness
- private referrals
- demands for referrals
- patient expectations

Deprived:

- fear
- reluctance
- deference towards doctors

Questions

- Do the GPs agree or disagree with these themes?
- Can you elaborate with your views on these themes?
- Any cases you can refer to?

Referral management systems:

- Irritating
- Inevitable in current NHS

- Strong negative emotions
- Criticism of GP decision making
- Threat to autonomy

Questions

- Do the GPs agree or disagree with these themes?
- How are you being presented referrals data at the moment?
- Do different consortia do different things?
- Has your behavior changed due to referral monitoring

Strategies to improve referrals:

- Double signing
- Referral Meetings In House and with Consultants
- In house referrals between GPs
- Personal relationship with consultants
- Follow up of referrals - informal and formal
- Mental Checklists

Question

- Does anyone in this group use these strategies?
- What's your opinion on these strategies?
- Any different strategies people use or would like to use?

Health Reforms:

Final question

"How do you think the consortia will cope with working as a team...say your neighbouring practice is really spending loads of money on referring to a certain specialty, how do you think the consortia are going to manage that sort of conflict between Practices?" - [Final Question]

APPENDIX H

Overview of NVIVO Coding

The screenshot displays the NVivo software interface. The top menu bar includes File, Home, Create, External Data, Analyze, Query, Explore, Layout, and View. The main workspace is divided into several panes:

- Navigation View:** Contains icons for Find, Quick Coding, and Workspace.
- Window:** Includes Dock All, Undock All, Bookmarks, and Close.
- Coding:** Features List View, Coding Stripes, and Highlight.
- Links:** Includes Annotations, See Also Links, Relationships, and Framework Matrix.
- Reference:** Contains Previous, Next, and Color Scheme.
- Visualization:** Includes Node Matrix and Report.

The **Nodes** pane on the left shows a tree structure of nodes. The main pane displays a **Tree Nodes** table with the following columns: Name, Sources, References, Created On, Created By, and Modified On.

Name	Sources	References	Created On	Created By	Modified On
001 Metatheme of Patient Factors influencing referral triggers	15	512	25/05/2014 12:06	EW	02/06/2014 10:27
Cases presented by GPs	15	512	17/07/2012 15:58	EW	02/06/2014 10:28
a Classic biomedical triggers ie symptoms, prev history, fh, examination finding, investigation finding, medication issues	14	68	11/01/2011 11:29	EW	02/06/2014 16:52
b Atypical biomedical triggers	11	24	30/04/2012 14:26	EW	02/06/2014 10:32
c Patient Age or Frailty	7	17	30/04/2012 13:47	EW	02/06/2014 10:32
d Pt expectation,demand, reassurance	14	64	11/01/2011 11:40	EW	02/06/2014 10:32
e Pt fear,deference,reluctance,disorganisation	10	50	11/01/2011 11:45	EW	02/06/2014 10:33
f number of consultations needed before decision to refer	8	13	02/07/2012 10:13	EW	02/06/2014 10:34
g context and culture of patients presentatin	14	246	11/01/2011 12:23	EW	02/06/2014 10:38
002 Metatheme of GP Factors influencing referral triggers	0	0	25/05/2014 12:07	EW	25/05/2014 17:56
a Diagnostic Uncertainty as Trigger for referral	9	14	09/01/2012 14:59	EW	26/05/2014 21:13
b Relationship with Specialist Services	2	2	25/05/2014 13:03	EW	25/05/2014 17:54
c Personality of GP need for reassurance, risk taking ability	6	16	11/01/2011 11:42	EW	01/06/2014 11:37
d Previous Experiences	5	6	11/01/2011 11:43	EW	26/05/2014 21:04
e Medico Legal Pressure	4	9	30/04/2012 13:45	EW	01/06/2014 11:07
f Views on Patient Rights to referral	3	5	30/04/2012 14:27	EW	26/05/2014 17:05
g GP response to patients and decision making	14	125	25/05/2014 18:03	EW	16/06/2014 14:38
h GP Interest in referrals and future research	4	5	25/05/2014 13:20	EW	26/05/2014 21:24
003 Metatheme of Practice Factors influencing referral triggers	1	1	25/05/2014 12:07	EW	26/05/2014 16:33
a Atypical practices - practice with GPSI	3	6	11/01/2011 11:47	EW	29/05/2014 20:18
b Pack pressure or culture of the practice	8	13	11/01/2011 11:48	EW	01/06/2014 11:37
Follow up of Referrals	6	9	25/05/2014 13:20	EW	23/07/2012 14:07
Opinion about own practices referral rates	4	7	25/05/2014 13:20	EW	01/06/2014 11:47
004 Metatheme of Health Care System influencing referral triggers	14	173	25/05/2014 12:08	EW	17/06/2014 11:24
a GP experience of referral monitoring	13	79	02/07/2012 11:18	EW	17/06/2014 11:23
b NHS as market	13	44	11/01/2011 12:14	EW	17/06/2014 11:23
c Communication between GP and specialist	11	26	25/05/2014 13:20	EW	17/06/2014 11:23
d Practical pt and GP Barriers to referral eg communication, mobile phones	2	2	25/05/2014 13:00	EW	17/06/2014 11:23
e Referral Pathways	8	21	25/05/2014 13:20	EW	17/06/2014 11:23

The bottom status bar shows 'EW 136 Items' and a Windows taskbar with various application icons.

APPENDIX I

Conference Presentations

Liz Walton, Brigitte Colwell, Helen Twohig, Aarti Bansal. Sharing Evidence Based Ideas for the Future of General Practice. Workshop. Regional Conference of The Society of Academic Primary Care, Lincoln, March 2014.

Liz Walton, Kate Daniels, Nigel Mathers and Mike Campbell. Do Meaningful Referrals Data Exist for General Practitioners? Funnel Plots may help reveal practice variation. Poster Presentation. National Conference of The Royal Society of General Practitioners, Harrogate, October 2013.

Liz Walton. Triggers for Referrals - Are they different for General Practitioners working in deprived compared with affluent areas of Sheffield? Oral Presentation. National Conference of The Royal College of General Practitioners, Liverpool, October 2011.

Liz Walton. Triggers for Referrals - Are they different for General Practitioners working in deprived compared with affluent areas of Sheffield? Poster Presentation. National Conference of The Society of Academic Primary Care, Bristol, July 2011.

Liz Walton and James Fenton. NIHR funding for Primary Care: In Practice and in Reality. Workshop and Oral Presentation. Regional Conference of The Society of Academic Primary Care, Sheffield March 2011.

Five Papers in Preparation for Submission:

1. Do meaningful referrals data exist for General Practitioners? Funnel plots reveal unusual referral activity.
2. Does a positive care law exist? A retrospective analysis of Sheffield referrals.
3. Are the triggers for cardiology referrals different for GPs working in least and most deprived areas of Sheffield? A qualitative study.
4. Potential strategies used by GPs to improve referrals quality; Avenues for future research.
5. What is the evidence for Continuity, Compassion and Teamwork in General Practice?

APPENDIX J

Funding

Funding: Application for Research and Innovation Grant (11 of 24)   Move | Copy | This message to

Delete | Reply | Reply to All | Forward | Redirect | Message Source | Save as | Print Back to Funding

Date: Wed, 20 May 2009 14:51:35 +0100
From: Clare Vielle <c.vielle@sheffield.ac.uk> 
To: 'Elizabeth Walton' <E.Walton@sheffield.ac.uk> 
Cc: j.a.bingham@sheffield.ac.uk 
Subject: Application for Research and Innovation Grant

Dear Liz

Thank you for your application for a Research and Innovation Grant from the Faculty of Medicine, Dentistry and Health. These were judged by the Faculty Research and Innovation Committee and I am pleased to inform you that have been awarded £1,300.00 to support your request.

Jean Bingham in Finance will contact you with a grant code.

Good luck with your studies and in due course I look forward to hearing how the Research and Innovation Grant has helped. I will contact you later in the year for an update.



Royal College of
General Practitioners

16th November 2009

Dr Elizabeth Walton
Academic Unit of Primary Medical Care
University of Sheffield
Sam Fox House
Northern General Hospital
Herries Road
Sheffield
S5 7AU

Dear Dr Walton,

Thank you very much for submitting your proposal to the Scientific Foundation Board. The Board were very impressed by your proposal and would like to support your proposal on condition that you revise the bid in the following ways:-

1. We would like reassurance that you have robust arrangements for support for the qualitative elements of this study.
2. We would like you to draw clearer links between the quantitative and qualitative elements of this study and in particular to specify exactly what the purpose of the quantitative elements is.
3. We would like you to clarify what the main focus of the study is (we believe it to be the qualitative element but would like you to confirm this).
4. We would like you to acknowledge the limitations of your quantitative data and analysis for example the confounding between deprivation and ethnicity.

On receipt of these clarifications we would be happy to support your proposal.

Please contact Paul Jennings, Clinical Innovation and Research Centre, Royal College of General Practitioners (Email pjennings@rcgp.org.uk Tel. 0203 170 8244) for details on how to access the grant and information about our reporting and monitoring procedures.

Congratulations on this proposal.

With best wishes,

Professor Helen Lester
Secretary, Scientific Foundation Board



14 July 2008

Dr Elizabeth Walton
Top Croft
Aston Lane
Aston
Derbyshire
S33 6RA

Dear Dr Walton

NIHR In-Practice Fellowship: Application IAT08/I-PF/012

Thank you for your recent application for an In-Practice Fellowship, and I am delighted to inform you that the In-Practice Fellowship Review Panel recommended you for an award, though this is conditional on you providing further information regarding the research methods training component of your proposed Fellowship, and clarification of your practice arrangements and continuity for the duration of the Fellowship.

In discussions at the selection meeting, the Panel identified the following points that I hope that you will find useful feedback:

The Applicant

- Good candidate, but proposal slightly unstructured.

The Training

- Little content of proposed research programme, though research area is an interesting one.

Additional Comments

- Precise details concerning ^① research methods training component unclear, and ^② clarification required from applicant regarding planned practice arrangements and continuity for the duration of the Fellowship. Both must be submitted prior to take up of the award.

I will be in touch shortly to advise you of the next steps relating to the administration of your award. If you wish to contact me in the meantime, I can be reached using the contact details above.

Yours sincerely

John Barker
National Awards Manager

Appendix K

Definitions of Key Qualitative Methodological Terms:

1. Ontology: the nature of the world and what we know about it.
Commonly subdivided into realism and idealism.
2. Epistemology: the theory of how knowledge is acquired about the world.
3. Paradigm: A broad worldview from which beliefs can influence actions.
4. Theoretical Perspective: Philosophical stance informing the methodology.
5. Methodology: The strategy supporting the methods,
6. Methods: The techniques used to gather and analyse the data.
7. Reflexivity: the researcher being used as an instrument of research and being transparent about their motivations and attitudes through explicitly stating them through personal, functional and disciplinary reflexivity.
8. Axiology: the role of values and beliefs of the researcher upon the research.

**Epistemology, Paradigms and Theoretical Perspectives are all subdivided differently in the literature, but essentially they are broadly divided into either positivistic or naturalistic approaches.*