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The Measles, Mumps and Rubella (MMR)
vaccine scare: the information needs and
information sources of parents

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Chapter Seven - Content Analysis

7.1 Introduction

Chapter Seven presents the background to content analysis and the methods and results of the content analysis which was carried out on newspaper and WWW news sources concerning the MMR vaccine scare. Section 3.7 in Chapter Three has outlined the methodology and methods of content analysis and addressed the qualitative/quantitative debate in content analysis.

The content analysis took the form of a retrospective study of newspaper and WWW news sources during a specific episode (i.e. the period during which the interview study was undertaken) in the MMR vaccine scare. It sought to examine specific information sources that were available to parents in a rigorous and in-depth manner, using both qualitative and quantitative methods.

The content analysis was undertaken retrospectively, examining the content of five different sources that referred to the MMR vaccine scare over a two week period, which coincided with increased media coverage of the MMR vaccine scare and also coincided with the data collection for the interview study. Therefore parents in the interview and questionnaire study may have had access to and read the actual sources analysed in this chapter.

7.1.1 Overview

Section 7.1 introduces the chapter. Section 7.2 describes the method of content analysis. Section 7.3 presents the results of the different analyses that were carried out on the data. Section 7.4 presents the validity and limitations of the study and finally section 7.5 summarises and concludes the content analysis. .

Content analysis is a method of analysing information that allows inferences to be made from the information. Content analysis uses both qualitative and quantitative methods. Quantitative content analysis is objective and systematic, (Berelson, 1952) replicable and valid (Krippendorff, 1980) and summarizing and quantitative (Neundorf, 2002).

However, qualitative content analysis is used to examine language, characterisation and imagery (Henderson et al., 2000) and the differences between manifest and latent content (Graneheim & Lundman, 2004). The content analysis undertaken here follows the definition of Schwandt, 1997 who stated that the key aspects of a content analysis study are “...a variety of means of textual analysis that involve comparing, contrasting and categorising a corpus of data” (Schwandt, 1997, p.21). The content analysis in this study reduced words and phrases into categories. These categories were then used in two distinct ways. The occurrence of categories was counted and frequencies of categories measured. In addition to this, qualitative analysis was undertaken on the categories. Finally, the research questions for the content analysis were addressed in light of the results of the content analysis and the results of the triangulation.

7.1.2 Rationale and Aims

The rationale for undertaking the content analysis was two fold. A content analysis of media portrayal of the questions relating to the safety of the MMR vaccine and the subsequent health scare allows a deeper examination into an important contributor to the MMR vaccine scare. Studies described in the literature review emphasised the media’s role in reporting the concerns about the safety of the MMR vaccine e.g. Pareek and Pattinson (2000) found that the media were the main source of parents’ information about side effects of the MMR vaccine and Evans et al. (2001) found that parents who were unsure about the MMR vaccine were heavily influenced by the mass media. These findings suggest that an examination of the reporting of the MMR vaccine in the mass media will provide an interesting insight.

In light of the importance of the mass media as an information source and as a potential contributor to the MMR vaccine scare, it was decided that a content analysis of key mass media information sources would illuminate this information source. The specific objectives of the content analysis were as follows:

- To develop a data collection tool for content analysis
- To use the tool to analyse the content of newspaper articles and WWW news articles from February 2002.
- To examine the coverage of the MMR vaccine in newspapers and WWW news sources?

7.2 Methods

Section 7.2 presents the methods of the content analysis in terms of the selection of information sources that were analysed, the design of the data collection tool and the methods of data analysis.

7.2.1 Selection of sources

7.2.1.1 Information source and format

The literature review indicated that there were a multitude of different information sources for parents and that these sources provided information in a variety of different formats. However, it was decided to concentrate upon newspapers and WWW news sources as results from the interview and questionnaire studies indicated that these sources were important for parents and also that the information that parents received from these sources differed from the information that they acquired from other, more traditional information sources.

7.2.1.2 Sampling

The sample of newspaper articles and WWW articles to be examined in this study was a stratified, convenience sample. It was decided that the newspapers to be analysed would be selected in order to gain a representative overview of media coverage. As Miles and Huberman (1994) stated, sampling strategies for research that has a qualitative element to it are best determined using a conceptual question rather than being determined by a desire for representativeness. Therefore, the sample included broadsheet and tabloid newspapers. The sample also reflected the political preference of the newspaper. The selected newspapers were The Guardian (broadsheet, left of centre), The Daily Telegraph (broadsheet, right of centre), The Daily Mail (tabloid, right of centre) and The Sun (tabloid, right of centre, but supportive of the Labour Government). In addition to this, news stories, which appeared on BBC News Online during the study period, were also sampled.

The choice of newspapers to analyse in the content analysis was also based upon the circulation figures for newspapers. These figures were collected from the Audit Bureau of Circulations (Audit Bureau of Circulations, 2004), which provides independent auditing of national newspaper circulation figures. The figures are updated monthly and retrospective access to circulation figures is not possible. Therefore, Table 7.1 shows the total average net circulation figures per issue for the UK in May 2004.

Table 7.1 - Circulation figures for newspapers

Newspaper	n
The Guardian	344846
The Daily Telegraph	871356
Daily Mail	2316514
The Sun	3184405
Total	6717121

The sample was limited by date in order to work with data collected during a specific episode of the MMR vaccine scare. The timeframe selected was January 1st 2002 to February 28th 2002. These dates were selected as they also represented the time period within which the interview study was carried out. As Lewis and Speers (2003) point out, the peak of media coverage about the MMR vaccine was January 28th 2002 to February 28th 2002.

7.2.2 Data collection

7.2.2.1 Accessing the sample

The sources to be analysed were all accessible via the Internet. Table 7.2 summarises the location of the sources to be analysed:

Table 7.2 - Location of sources

Newspaper	Source
The Guardian	Newsbank ¹
The Daily Telegraph	Newsbank
Daily Mail	Newsbank
The Sun	www.thesun.co.uk ²
BBC News Online	www.bbc.co.uk/news ³

7.2.2.2 Search strategy

The search strategy for the articles for the content analysis was based upon the aims of the content analysis. The search used the phrase 'MMR' in the full text search box. It was decided that this search would be sufficiently precise to ensure that all articles which mentioned the scare that surrounded the MMR vaccine would be retrieved. The search was also limited by date (January 1st 2002 - February 28th 2002).

7.2.2.3 Data collection - design

The foundation of the content analysis study was the results of the triangulation of the interview and questionnaire data. The triangulation led to the emergence of key information sources and parents' comments about them, and also led to a clearer view of parents' information needs.

It was essential that the data collection tool was generated from existing data so that it had a firm theoretical grounding. As Silverman (1993) advised "... *the terms counted are not determined by an arbitrary or common sense version of what may be interesting to count in a text*" (Silverman, 1993, p.128). Instead the data collection tool needs to be based on the research questions, the data from the interview and questionnaire studies and, as Cavanagh (1997) recommended, relevant literature and research findings.

Examination of the literature led to the decision that an *a priori* data collection tool would be developed (Schwandt 1997), which was based upon the themes highlighted in

¹ Newsbank is a searchable database of newspaper articles available via a WWW interface, which is available free through the University of Sheffield Library.

² Access to news articles from the Sun is via a subscription service with articles costing 40 pence.

³ News articles are available free via a searchable database.

the triangulation of the qualitative and quantitative data as well as on the research questions for the study and the literature review carried out. The development of this data collection tool was developed before the content was examined. However, restricting the content analysis by using solely an *a priori* data collection tool would have limited the data collected, so any emergent themes that were not included in the data collection tool were added to it and the data were reanalysed in light of these emergent themes. Therefore, data collection was both inductive and deductive. The deductive data are useful (in addition to the inductive data) as they indicate the themes that were not mentioned by parents or in the literature and allowed an examination of why these were not mentioned.

The key areas in the development of the data collection tool were:

- The content in the sources sampled
- The presentation of content in these sources
- The information that parents wanted/knew/did not know about the MMR vaccine
- Parents' comments on the nature of information sources

Table 7.3 shows the information in the data collection sheet and whether it was added as a result of the triangulation of results, the literature review or the research questions. A sample data collection sheet can be found in appendix 3.1.

Table 7.3 - Development of the data collection tool (T= triangulation, L = literature review, R= research question)

Content		Content	
Both "sides" of debate	R	Giving advice	R
Providing evidence that MMR vaccine is safe	R	Providing evidence that MMR vaccine is dangerous	R
Revealing 'cover up'	R	Attributing blame	R
Andrew Wakefield	T	Tony Blair	T
Chief Medical Officer (CMO)	L	Parent – Pro	T
Parent – Anti	T	Parent – Unsure	T
HCP – Pro	T	HCP – Anti	T
HCP – Unsure	T	Politician – Pro	T

Table 7.3 - Development of the data collection tool (T= triangulation, L = literature review, R= research question) (continued)

Politician – Anti	T	Politician – Unsure	T
Other– Pro	R	Other– Anti	R
Other– Unsure	R	Scientist – Pro	T
Scientist - Anti	T	Scientist - Unsure	T
Anecdotal - Individuals Pro	T	Anecdotal - HCPs Pro	T
Anecdotal – Individuals Anti	T	Anecdotal - HCPs Anti	T
Anecdotal - Individuals Unsure	T	Anecdotal - HCPs Unsure	T
Research - Pro	L	Research - Anti	L
Research - Unsure	L	Numerical - Opinion Polls	L
Disease outbreak – problem	T	Disease outbreak – no problem	T
Singles - Financial cost (individual)	T	MMR – Financial cost (individual)	T
Damaged child – measles	T	Wakefield research	T
Other research	T	Wakefield research ‘limited’	T
Leo Blair	T	Previous health scare – BSE	T
Previous health scare – Pertussis	L	Previous health scare - Pill	L
MMR necessary	T	MMR unnecessary	T
MMR is a risk	T	MMR is not a risk	T
MMR is effective	T	MMR not effective	T
Children who should have MMR	T	Children who shouldn’t have MMR	T
Ingredients of MMR	T	MMR ok worldwide	T
Singles (recommended)	T	Singles (not recommended)	T
How to arrange singles	T	Problem of low MMR uptake	T
Campaign to increase uptake	T	Autism related to MMR	T
Autism not related to MMR	T	Bowel disorders related to MMR	T
Bowel disorders not related to MMR	T	Damaged child – MMR	T
GP target payments	T	MMR – Financial cost to government	
Single vaccine - Financial cost to government	T	Media important for exposure	T
Media reporting is disturbing	T	Media reporting is sensationalist	T
Newspapers contain statistics to refer back to	T	Leaflets are influenced by government	T
Leaflets are insufficient in content	T	Leaflets are not widely available	T

Table 7.3 - Development of the data collection tool (T= triangulation, L = literature review, R= research question) (continued)

Government support of MMR is influenced by cost	T	Government support influenced by medical establishment	T
Government - unwilling to trust - previous health scares	T	Comments made by government are not in depth	T
Government are unwilling to replicate/carry out research	T	HCPs direct parents to more information	
HCPs do not provide information	T	HCPs are not well trained to meet needs	T
Different HCPs are conflicting	T	HCPs are biased towards MMR	T
HCPs are influenced by target payments	T	HCPs influenced by Government	T
HCPs are trustworthy	T	HCPs are useful	T
HCPs are accessible	T	HCPs provide information	T
Interpersonal sources supply support	T	Interpersonal sources supply information	T

7.2.2.4 Data collection - format

Two stages of data collection were carried out, to collect data about the information sources themselves and then to carry out the content analysis.

The first stage of data collection took the form of analysing the sample in terms of a number of key attributes including word counts and dates. These data were entered into SPSS 11.5 and descriptive statistics were produced. These aimed to measure the frequency of aspects of the MMR vaccine scare in the different sources. The format of the article was also measured using a framework recommended by McNamara (2003).

The second stage of data collection was the content analysis that consisted of reading the sample documents, highlighting important concepts and placing these into categories as appropriate, before recording the findings using the data collection tool. As previously discussed, if any emergent content became evident then this was incorporated into the data collection tool in the form of new categories and all documents were reanalysed using the new categories. This aimed to measure the

meaning of the MMR vaccine scare in different sources. The data from the data collection tool were then entered into SPSS 11.5 and analysed as detailed in section 7.2.4

7.2.2.5 Data collection - procedure

Before the articles from the newspapers and WWW sources were analysed, the articles had to be checked to ensure that there were no duplicate articles (i.e., articles entered into the database twice erroneously). Articles that reviewed the reporting of the MMR vaccine scare in other information sources, i.e., what other newspapers said, were weeded out. In the case of BBC News Online, any information that took the form of a review of newspaper stories, reporting of BBC News programmes or BBC Radio Programmes or links to information about the MMR vaccine was removed. In addition, in the case of BBC News Online, any articles available on the databases which were published on Sundays were removed, as The Guardian, The Daily Telegraph, The Daily Mail and The Sun are not available on Sunday.

7.2.2.6 Data collection - inductive categories

As discussed in section 7.2.2.3, inductive data were also collected in the content analysis. Any content that was not included in the *a priori* data collection tool was included in the form of categories and the articles were reanalysed using these categories. Table 7.4 presents these categories:

Table 7.4 - Inductive categories

MMR vaccine uptake figures
Demand for single vaccines
Single vaccines are a risk to health
Measles, mumps and rubella outbreaks – number of children affected
Herd immunity
Figure required to ensure herd immunity
Legal action against the DOH and MMR vaccine manufacturers

7.2.3 Data analysis

Once the quantitative data had been entered into SPSS 11.5, the data were analysed. The data analysis took the form of four stages, three of which were quantitative and one of which was qualitative. The first stage analysed the frequency of certain variables, the second stage examined the articles in terms of their stance, the third stage examined whether there were any associations between specific variables and the fourth stage took the form of a qualitative analysis of the data collected.

In the assessment of the stance of the article there were two assessments, a subjective assessment and an objective assessment. The subjective assessment was undertaken at the time of the data collection and consisted of noting whether an article was perceived to be positive or negative about the MMR vaccine. This was recorded onto the data collection sheet and entered into SPSS 11.5 as appropriate. The objective assessment consisted of recoding the presence or absence of 32 variables, which are presented in Table 7.5. These variables were divided into positive and negative variables. The positive variables formed a positive subscale (maximum score 16, minimum score 0) and the negative variables formed a negative subscale (maximum score 16, minimum score 0). The overall stance of the article was assessed by subtracting the negative variables from the positive variables. The higher the score on the overall scale, the more positive the article was about the MMR vaccine and the lower the score, the more neutral the article about the MMR vaccine. An article was considered to be negative if it was lower than or equal to the median score and considered to be positive if it was higher than the median score. These subscale and overall scale figures were then used to test for associations between the stance of the article and other key variables. The variables included in the scales are shown in Table 7.5, although it is important to note at this stage that inclusion of content did not automatically lead to an article being positive or negative.

Table 7.5 - Variables in the subscales

Positive subscale	Negative subscale
Proving the MMR vaccine is safe	Proving the MMR vaccine is dangerous
Parent – Pro MMR vaccine	Parent – Anti MMR vaccine
HCP – Pro MMR vaccine	HCP – Anti MMR vaccine
Politician – Pro MMR vaccine	Politician – Anti MMR vaccine
MMR necessary	MMR unnecessary
MMR is effective	MMR is not effective
MMR is not a risk	MMR is a risk
Autism is not related to MMR	Autism is related to MMR
Bowel disorders are not related to MMR	Bowel disorders are related to MMR
Disease outbreak is a problem	Disease outbreak is not a problem
Damaged child - measles, mumps and rubella	Damaged child – MMR
Anecdotal – individuals – pro	Anecdotal – individuals – anti
Anecdotal – HCP – pro	Anecdotal – HCP – anti
Research – pro	Research – anti
Disease outbreaks – children affected	Demand for single vaccines
Importance of herd immunity	Increase in autism

7.3 Results

This section presents the results of the content analysis. The results are presented in six sections. Section 7.3.1 presents the scope of the data collection. Section 7.3.2 presents descriptive statistics relating to the information sources. Section 7.3.3 presents item frequencies and associations related to the content analysis. Section 7.3.4 presents the assessment of the stance of the articles. Section 7.3.5 discusses the headlines of the articles analysed and section 7.3.6 examines the views presented by information sources about information sources.

7.3.1 Scope of data collection

Table 7.6 presents the number of newspaper and WWW articles regarding the MMR vaccine that were published between January 1st 2002 and February 28th 2002 before and after weeding. It can also be seen from Table 7.5 that the weeding procedure

(detailed in section 7.2.2.5) that was undertaken led to the removal of 118 articles. The majority of these (n=85) were removed as a result of errors in the database. These errors took the form of duplications of articles in the database, incorrect indexing and including articles published on a weekend day in the index of a newspaper that was published on a weekday. A total of 227 articles were therefore analysed in the content analysis.

Table 7.6 - Information sources (before and after weeding)

Source	Before weeding	Removed	After weeding
	n	n	n
The Guardian	96	43	53
The Daily Telegraph	39	1	38
The Daily Mail	44	11	33
The Sun	88	28	60
BBC News Online	78	35	43
Total	345	118	227

7.3.2 Information sources

This section presents descriptive statistics relating to the information sources that were reviewed in the content analysis.

7.3.2.1 Details of publication

The mean number of articles per information source over the period of January 1st 2002 - February 28th 2002 was 45 (median = 43, range 33-60).

The frequency of occurrence of articles relating to the MMR vaccine is presented in Table 7.7. The two-month period has been divided into four two-week phases.

Table 7.7 - Information sources by date of publication of articles

Dates	1 st - 15 th	16 th -31 st	1 st -14 th	15 th -28 th	Total
	January	January	February	February	n (%)
	n (%)	n (%)	n (%)	n (%)	
The Guardian	7 (13.2)	3 (5.7)	35 (66)	8 (15.1)	53 (100)
The Daily Telegraph	1 (2.6)	3 (7.9)	27 (71)	7 (18.5)	38 (100)
The Daily Mail	4 (12.1)	7 (21.2)	18 (54.5)	4 (12.2)	33 (100)
The Sun	4 (6.6)	4 (6.6)	48 (80.2)	4 (6.6)	60 (100)
BBC News Online	1 (2.3)	2 (4.6)	30 (69.8)	10 (23.3)	43 (100)

As Table 7.7 indicates, the MMR vaccine received the majority of coverage in the first two weeks of February. The day on which the five information sources produced the most articles was in these two weeks (Guardian - 9 articles on February 7th 2002, Daily Telegraph – 8 articles on February 8th 2002, The Daily Mail – 5 articles on February 8th 2002, The Sun – 10 articles on February 7th 2002 and BBC News Online – 10 articles on the February 6th 2002).

7.3.2.2 Word counts

The mean word counts for the articles in the different information sources are shown in Table 7.8. Data for the word counts for BBC News Online were not available. As shown in Table 7.8, the Daily Mail had the largest mean (1155 words) and median (1028 words) word counts. The overall mean word count was 653 words. The most prominent finding relating to word counts is the difference between the mean word count of articles in The Sun compared with all of the other information sources.

Table 7.8 - Word counts for articles in information sources

	Mean	SD	Range	Median
The Guardian	759	466	150-2948	703
The Daily Telegraph	698	399	134-1595	598
The Daily Mail	1155	596	384-2718	1028
The Sun	258	281	11-1233	156
All information sources	653	535	11-2948	535

7.3.2.3 Article focus and format

The focus of the articles as arranged by information source is presented in Table 7.9. Of the 227 articles, 168 (74.0%) had the MMR vaccine as the main focus of the article and 59 (26.0%) had the MMR vaccine mentioned in the article. In all of the information sources, the MMR vaccine was more likely to be the focus of the article than just being mentioned in the article which reflects the currency of the issue.

Table 7.9 - Focus of the article according to information source

	The Guardian n (%)	The Daily Telegraph n (%)	The Daily Mail n (%)	The Sun n (%)	BBC News Online n (%)
Focus of article	32 (60.4)	28 (73.7)	21 (63.6)	51 (85)	36 (83.7)
Mentioned in article	21 (39.6)	10 (26.3)	12 (36.4)	9 (15)	7 (16.3)
Total	53 (100)	38 (100)	33 (100)	60 (100)	43 (100)

There was a significant association between information source and the focus of the article ($\chi^2=9.72$, d.f. =4, $p=0.025$). The source that had the highest proportion of articles that were focused on the MMR vaccine was The Sun (51 out of 60 articles, 85%) and the source that had the lowest proportion of articles that were focused on the MMR vaccine was The Guardian (32 out of 53 articles, 60.4%). In addition The Sun had the lowest word count. It is suggested that shorter articles tended to be focused on the MMR vaccine whereas longer articles (The Guardian had the second highest mean word count) tend to address broader issues and mention the MMR vaccine scare in addition to focusing on it. This higher word count may indicate that more issues are being mentioned in the article or that the article is covering the issues in more depth.

The format of the articles is presented in Table 7.10. Articles are presented in terms of whether articles were focused on the MMR vaccine or whether they mentioned the MMR vaccine.

Table 7.10 - Format of article

Format	MMR vaccine focused n (%)	MMR vaccine mentioned n (%)	Total n (%)
News	100 (59.5)	13 (22.0)	113 (49.8)
Investigation	14 (8.3)	1(1.7)	15 (6.6)
Interview	1 (0.7)	5 (8.5)	6 (2.7)
Letter	31 (18.5)	9 (15.3)	40 (17.6)
Column	22 (13.0)	21 (52.5)	53 (23.3)
Total	168	59	227

There was a significant association between whether articles focused on the MMR vaccine or whether they mentioned the MMR vaccine in relation to the format of the article ($\chi^2=54.85$, d.f. =4, $p=0.001$). Of the 168 articles that focused on the MMR vaccine, 100 (59.5%) were news articles, compared with the 59 articles that mentioned the MMR vaccine, of which only 13 (22%) were news articles. In contrast, 21 (52.5%) of the articles which mentioned the MMR vaccine were column/comment articles whereas only 22 (13%) of the articles which focused on the MMR vaccine were column/comment articles. It could be suggested that the high proportion of comment/column articles in the articles which mentioned the MMR vaccine is related to the finding that reporting relating to the MMR vaccine was often mentioned in connection to anecdotal criticism of the Government and Tony Blair. In contrast, the high proportion of articles focused on the MMR vaccine that were news stories reflects the currency of the MMR vaccine scare.

7.3.3 Frequencies and associations

This section presents resulting relating to the categories mentioned in the content analysis study. There are two subsections to this section. Subsection 7.3.3.1 presents frequency distributions related to the content analysis. This subsection contains results relating to articles in which the MMR vaccine was mentioned and articles which focused on the MMR vaccine. Subsection 7.3.3.2 presents χ^2 and logistic regression results to assess the variables associated with a number of key categories.

7.3.3.1 Frequency distributions

These results are presented in three sections; themes, individuals/groups and content.

Themes

Of the 168 articles that were focused on the MMR vaccine, 101 articles had one theme and 67 articles had more than one theme. Of the 59 articles where the MMR vaccine was mentioned, six articles had no discernible theme, 48 articles had one theme and five articles had more than one theme. Therefore the total number of themes does not correspond to the total number of articles. The frequency with which themes were mentioned in the articles is presented in Table 7.11.

Table 7.11 - Themes

Key theme	Focused n (%)	Mentioned n (%)	Overall n (%)
Covering both “sides” of the MMR vaccine debate	34 (12.7)	1 (6.5)	35 (10.7)
Giving advice to parents	49 (18.3)	8 (13.1)	57 (17.3)
Describing a “cover up” about the MMR vaccine	25 (9.3)	19 (31.2)	44 (13.4)
Describing evidence that the MMR vaccine is dangerous	51 (19.0)	4 (1.7)	55 (16.7)
Describing evidence that the MMR vaccine is safe	44 (16.4)	7 (11.5)	51 (15.5)
Attributing blame for the MMR vaccine scare	65 (24.3)	22 (36.0)	87 (26.4)
Total	268 (100)	61 (100)	329 (100)

Individuals/groups

This section presents the frequencies of occurrence of specific individuals or groups of individuals and their stance on the MMR vaccine. Table 7.12 presents the frequency of articles in which key individuals are mentioned:

Table 7.12 - Individuals/groups

Key individuals	Focused n (%)	Mentioned n (%)	Overall n (%)
Andrew Wakefield	32 (7.4)	1 (1.7)	33 (6.8)
Tony Blair	56 (13.0)	27 (45.8)	83 (16.9)
CMO	30 (7.0)	2 (3.4)	32 (6.5)
Parent	66 (15.3)	5 (8.5)	71 (14.5)
HCP	65 (15.1)	4 (6.8)	69 (14.1)
Other Politician	82 (19.1)	13 (22.0)	95 (19.4)
Other Scientist	27 (6.4)	2 (3.4)	29 (6.1)
Other	72 (16.7)	5 (8.4)	77 (15.7)
Total	430 (100)	59 (100)	489 (100)

As Table 7.12 shows, 430 individuals/groups were mentioned in the 168 articles that focused on the MMR vaccine and 59 individuals/groups were mentioned in the 59 articles that mentioned the MMR vaccine⁴. There was a significant association between whether articles focused on the MMR vaccine or whether they mentioned the MMR vaccine in relation to individuals who were mentioned in the article ($\chi^2=73.78$, d.f. =7, $p=0.001$). Politicians were the most frequently mentioned individuals/groups in articles where the MMR vaccine was the focus and Tony Blair was the most frequently mentioned individual/group in articles where the MMR vaccine was mentioned. The finding that politicians were the most frequently occurring individuals in articles focused on the MMR vaccine and were the second most frequently occurring individuals in articles in which the MMR vaccine was mentioned provides an insight into the way in which the MMR vaccine was reported in the mass media. The MMR vaccine scare was presented as a political issue and politicians were often quoted in articles. The finding that parents and HCPs were the second and third most frequently mentioned groups is reassuring as (after children) they were the major stakeholders in the MMR vaccine scare.

Table 7.13 presents the number of times that individuals who are pro-MMR vaccination, anti-MMR vaccination and unsure about MMR vaccination were mentioned. The stance of individuals was assessed during the content analysis for parents, HCPs, politicians,

⁴ It is coincidental that the number of individuals that occurred in articles where the MMR vaccines is mentioned is the same as the number of articles

scientists and others. In the case of named individuals, Andrew Wakefield was considered to anti the MMR vaccine and Tony Blair and the CMO were considered to be pro the MMR vaccine:

Table 7.13 - Stance of individuals

Stance	Focused n (%)	Mentioned n (%)	Total n (%)
Pro MMR vaccine	249 (57.9)	43 (72.9)	292 (59.7)
Anti MMR vaccine	143 (33.3)	10 (16.9)	153 (31.3)
Unsure about MMR vaccine	38 (8.8)	6 (10.2)	44 (9)
Total	430 (100)	59 (100)	489 (100)

There was a significant association between whether articles focused on the MMR vaccine or whether they mentioned the MMR vaccine in relation to the stance of the article ($\chi^2=6.46$, d.f. =7, $p=0.05$). As Table 7.13 indicates, individuals/groups who were pro the MMR vaccine were a higher proportion of all individuals in articles which mentioned the MMR vaccine (43 out of 59 articles) than articles which focused on the MMR vaccine (249 out of 430 articles). These figures need to be interpreted with caution. As stated above, the occurrence of, e.g., Tony Blair in an article would lead to the article including an individual who was in favour of the MMR vaccine. However, the inclusion of Tony Blair in an article may be an indication that the article is adopting a negative stance towards Tony Blair with respect to his views about the MMR vaccine.

Content

Table 7.14 shows the frequency with which specific content was mentioned in the articles analysed.

Table 7.14 - Content

Topic	Subject	Focused n	Mentioned n	Total n
MMR vaccine	...is necessary	12	4	16
	...is effective	14	2	16
	...is not effective	2	1	3
	...is a risk	21	4	25
	...is not a risk	35	4	39
	... is used worldwide	15	2	17
	Ingredients of the MMR vaccine	2	1	3
	GP target payments for MMR vaccine	10	0	10
	Cost of the MMR vaccine to Government	4	0	4
	Cost of the MMR vaccine to individuals	2	0	2
	MMR vaccination status of Leo Blair	51	24	75
	Legal action against MMR manufacturers	5	0	5
	Uptake figures	51	0	51
	Herd immunity	27	0	27
Figure required for herd immunity	11	0	11	
Children	... who should have MMR	7	0	7
	... who shouldn't have MMR	17	0	17
	...damaged by the MMR vaccine	21	1	22
	...damaged by measles, mumps and rubella	44	1	45
Side effects	Autism is related to MMR	68	5	73
	Autism is not related to MMR	28	6	34
	Bowel disorders are related to MMR	52	1	53

Table 7.14 – Content (continued)

	Bowel disorders are not related to MMR	21	2	23
Single vaccines	... are recommended	48	2	50
	... are not recommended	23	1	24
	How to arrange single vaccines	15	1	16
	Demand for single vaccines	52	0	52
	Risk to health	21	0	21
	Financial cost to government	14	1	15
	Financial cost to individual	26	0	26
Low MMR uptake	... is a problem	50	1	51
	... campaign to increase MMR uptake	33	3	36
	Outbreaks (measles, mumps and rubella)	78	1	79
Disease outbreak	Not a problem	2	0	2
	Children affected	21	0	21
Research	Wakefield research	31	0	31
	Limits of Wakefield research	17	0	17
	Other research	32	1	33
Health scares	BSE	12	2	14
	Pertussis vaccine	10	0	10

The most frequently occurring content in all of the articles analysed was about the measles outbreaks that were occurring across England in January and February 2002 (n=78). These articles reflect the currency of the issue at the time. Articles also mentioned the problems of low MMR vaccine uptake (n=51), which is related to the measles outbreaks that were occurring.

The finding that the MMR vaccination status of Leo Blair was a frequently occurring theme (n=51) indicates how the reporting of the MMR vaccine scare was undertaken. All of the articles that mentioned Leo Blair were either neutral or negative about the

decision of Tony Blair not to reveal the MMR vaccination status of his youngest child on the grounds of privacy.

Fifty-one articles mentioned the uptake figures for the MMR vaccine as they were in January and February 2002. In addition, 50 articles mentioned the problem of low MMR vaccine uptake. These figures may have been presented for a variety of reasons, e.g., to indicate that falling MMR vaccine rates were dangerous or to suggest that that falling MMR vaccine rates indicated that there was a problem with the MMR vaccine. Issues regarding MMR vaccine uptake tended to be presented numerically which gave parents the opportunity to use factual information in their decision-making process.

The finding that there was a more frequent presentation of children who had been damaged by measles, mumps and rubella (n=44) than children who parents alleged had been damaged by the MMR vaccine (n=21) is interesting, in light of the mostly negative coverage that the MMR vaccine received in the articles analysed.

Related to the presentation of children who, parents alleged, had been damaged by the MMR vaccine was the issue of the relationship between the MMR vaccine and autism/bowel disorders which was proposed by Wakefield et al. (1998). There were a greater number of articles that mentioned the link between the MMR vaccine and autism (n=68) and the link between the MMR vaccine and bowel disorders (n=52) than refuted the link (autism=28, bowel disorders=21). This also reflects the nature of the reporting of the MMR vaccine scare, in that articles mentioned that the link between the MMR vaccine and autism/bowel stated that the link was 'alleged' but did not go into detail to refute the link. The research of Wakefield et al. (1998) was mentioned in 31 articles, but 17 of these mentioned the limitations of the research.

Articles included content that recommended single vaccinations against measles, mumps and rubella (n=48) and reported on the increased demand for single vaccinations (n=52). Only 21 articles mentioned the risk to health from single vaccines whereas 26 mentioned single vaccines as having financial implications for parents.

7.3.3.2 Associations

This section details the tests for association carried out on key variables associated with the reporting of the MMR vaccine scare. For these tests of association, α was set to $\alpha=0.01$ to account for multiple comparisons and to avoid Type I errors. The data presented here refer only to articles where the MMR vaccine was the focus of the article. As all the χ^2 analyses were carried out on 2x2 tables, the continuity correction was used.

Key themes

This section examines the key themes in the articles and analyses the content and individuals that are associated with them. No significant associations were found between the themes 'revealing a cover up' and content/individuals and 'attributing blame for the health scare' and content/individuals. Other significant associations that were found to be related to specific themes can be found in appendix 3.2.

Theme - Both sides of the MMR debate presented

Table 7.15 presents the individuals/content that were associated with articles where both sides of the MMR debate were mentioned.

Table 7.15 - Associations - Both sides of the MMR debate being mentioned and content/individuals

Individual/content	χ^2	d.f.	p
Andrew Wakefield	15.396	1	0.00
CMO	13.872	1	0.00
Low MMR vaccine uptake	7.182	1	0.01
Research by Andrew Wakefield	12.796	1	0.00
Leo Blair	6.658	1	0.01

Highly significant associations were identified between whether both sides of the MMR vaccine debate were mentioned or not and the mention of Andrew Wakefield and of the CMO. Of the 34 articles in which both sides of the MMR vaccine debate were presented, 15 (44.1%) included mention of Andrew Wakefield, compared with the 134

articles that did not mention both sides of the MMR vaccine debate in which 17 (12.7%) mentioned Andrew Wakefield. With reference to the CMO, of the 34 articles in which both sides of the MMR debate were presented, 14 (41.2%) included mention of the CMO, compared with the 134 articles that did not mention both sides of the MMR vaccine debate in which 16 (11.9%) mentioned the CMO. The finding that Andrew Wakefield and the CMO were more likely to appear in articles where both sides of the MMR vaccine debate are mentioned is not a surprising result as they have contrasting opinions regarding the MMR vaccine. In addition, the mention of the research that was carried out by Wakefield et al. (1998) was significantly associated with whether both sides of the MMR vaccine debate were being presented or not. Of the 34 articles in which both sides of the MMR vaccine debate were presented, 14 (41.2%) included mention of the research of Wakefield et al (1998), compared with the 134 articles that did not mention both sides of the MMR vaccine debate in which 17 (12.7%) mentioned the research of Wakefield et al (1998). It can also be seen from Table 7.15 that both sides of the argument being mentioned was significantly associated with the mention of low MMR vaccine uptake. Of the 34 articles in which both sides of the MMR vaccine debate were presented, 17 (50%) included mention of low MMR vaccine uptake, compared with the 134 articles that did not mention both sides of the MMR vaccine debate in which 33 (24.6%) mentioned low MMR vaccine uptake.

Theme – Providing evidence that the MMR vaccine is dangerous

Table 7.16 - Associations – Providing evidence that the MMR vaccine is dangerous and content/individuals

Individual/content	χ^2	d.f.	p
Andrew Wakefield	6.595	1	0.005
MMR is a risk	7.176	1	0.007
MMR is related to autism	10.138	1	0.001
Wakefield research	7.448	1	0.006
Wakefield research limited	11.048	1	0.001

There were a number of significant associations between the mention of content/individuals and whether an article provided evidence that the MMR vaccine is dangerous or not. Many of these associations are unsurprising. Of the 51 articles that presented evidence that the MMR vaccine is dangerous, 17 (33.3%) included mention of

Andrew Wakefield, compared with the 117 articles that did not present evidence that the MMR vaccine was dangerous, of which 15 (12.8%) mentioned Andrew Wakefield. Of the 51 articles that presented evidence that the MMR vaccine is dangerous, 12 (23.5%) included that the MMR vaccine is a risk, compared with the 117 articles that did not present evidence that the MMR vaccine was dangerous, of which 9 (7.7%) mentioned that the MMR was a risk. Of the 51 articles that presented evidence that the MMR vaccine is dangerous, 31 (60.8%) included mention of autism being related to the MMR vaccine, compared with the 117 articles that did not present evidence that the MMR vaccine was dangerous, of which 37 (31.6%) mentioned autism being related to the MMR vaccine.

Articles that had the theme of providing evidence that the MMR vaccine was dangerous were unsurprisingly associated with the research of Wakefield et al. (1998). Of the 51 articles that presented evidence that the MMR vaccine is dangerous, 17 (33.3%) included mention of the research of Wakefield et al. (1998), compared with the 117 articles that did not present evidence that the MMR vaccine was dangerous, of which 14 (12%) mentioned the research of Wakefield et al. (1998). However, a surprising significant association was found between articles that had the theme of providing evidence that the MMR vaccine was dangerous and mention of the limitations of the research of Wakefield et al. (1998). Of the 51 articles that presented evidence that the MMR vaccine is dangerous, 11 (21.6%) included mention of the limitations of the research of Wakefield et al. (1998), compared with the 117 articles that did not present evidence that the MMR vaccine was dangerous, of which 6 (5.1%) mentioned the limitations of the research of Wakefield et al. (1998). The inclusion of content relating to the research of Wakefield et al. (1998) being limited can be related to the finding that the research was mentioned in the articles and also the weaknesses of the research were often refuted by the presentation of children whom parents alleged were damaged by the MMR vaccine, therefore supporting the views of Wakefield et al. (1998) and providing evidence that the MMR vaccine was dangerous.

Individuals

This next section examines whether there is any association between the occurrence of individuals in the articles and content associated with them. No significant associations were found between mention of parents who were pro MMR vaccine and article

content, mention of parents who were unsure about the MMR vaccine and article content and mention of HCPs who were unsure about the MMR vaccine and article content.

Andrew Wakefield

Table 7.17 - Associations - Andrew Wakefield and content

Content/source of evidence	χ^2	d.f.	p
Autism related to MMR vaccine	17.825	1	0.00
Bowel disorders related to MMR vaccine	20.277	1	0.00
Wakefield research	98.505	1	0.00
Wakefield research limited	23.383	1	0.00

The associations between Andrew Wakefield and content related to the MMR vaccine were associations that would be expected. They addressed the links which Wakefield et al. (1998) had proposed existed between the MMR vaccine and autism/bowel disease. Of the 32 articles in which Andrew Wakefield was mentioned, 24 (75%) mentioned that autism was related to the MMR vaccine, compared with the 136 articles that did not mention Andrew Wakefield, of which 44 (32.4%) mentioned that autism was related to the MMR vaccine. With respect to the alleged bowel disease and MMR vaccination link, of the 32 articles in which Andrew Wakefield was mentioned, 26 (81.3%) mentioned that bowel disorders were related to the MMR vaccine compared with the 136 articles that did not mention Andrew Wakefield, of which 31 (22.8%) mentioned that bowel disorders were related to the MMR vaccine. Significant associations at $p=0.00$ were also found between the mention of Andrew Wakefield and both the mention of the research of Wakefield et al. (1998) and the mention of the limitations of this research.

Tony Blair

Table 7.18 - Associations - Tony Blair and content

Content/source of evidence	χ^2	d.f.	p
MMR OK worldwide	6.566	1	0.01
Leo Blair	76.050	1	0.00

As in the case of Andrew Wakefield, the associations that were found between the mention of Tony Blair and content relating to the MMR vaccine scare were expected. The mention of Tony Blair was associated with the mention of Leo Blair and also with the fact that the MMR vaccine is used worldwide. Of the 56 articles that mentioned Tony Blair, 10 (17.9%) mentioned that the MMR vaccine was used worldwide with no problems, compared with the 112 articles that did not mention Tony Blair of which 5 (4.5%) mentioned that the MMR vaccine was used worldwide with no problems. With respect to the mention of Leo Blair, of the 56 articles that mentioned Tony Blair, 42 (75%) also mentioned Leo Blair, compared with the 112 articles that did not mention Tony Blair, of which 9 (8%) mentioned Leo Blair.

Parent (Anti MMR vaccine)

Table 7.19 - Associations - Parent (anti MMR vaccine) and content

Content/source of evidence	χ^2	d.f.	p
Child damaged by MMR	32.485	1	0.00
Single vaccine – cost to individual	6.952	1	0.008

The mention of parents who were not in favour of the MMR vaccine was found to be associated with allegations that children had been damaged by the MMR vaccine but were also found to be associated with the mention of cost of the single vaccine to the individual. Of the 40 articles that mentioned parents that were anti MMR vaccination, 16 (40%) mentioned a child that was alleged to have been damaged by the MMR vaccine, compared with the 128 articles that did not mention parents that were anti MMR vaccination, of which 5 (3.9%) mentioned a child that was alleged to have been damaged by the MMR vaccine. With respect to the financial cost of single vaccines to individuals, of the 40 articles that mentioned parents that were anti MMR vaccination, 12 (30%) mentioned the cost of the single vaccines, whereas the cost of single vaccines was only mentioned in 14 (10.9%) of the articles that did not mention a parent that was anti MMR vaccination.

HCPs (Pro MMR vaccine)

Table 7.20 - Associations - HCP (pro MMR vaccine) and content

Content/source of evidence	χ^2	d.f.	p
Damaged child- measles	6.447	1	0.01

The mention of HCPs who were pro MMR vaccination was found to be associated with content relating to the mention of the conditions of measles, mumps and rubella. This emphasis on measles, mumps and rubella can be seen in the associations between the mention of HCPs who were pro MMR vaccine and the mention of children who had been damaged by measles. Of the 46 articles that mentioned a HCP who was pro MMR vaccination, 19 (41.3%) mentioned a child that was damaged by measles, compared with the 122 articles that did not mention an HCP who was pro MMR vaccination, of which 25 (20.5%) mentioned a child that was damaged by measles.

HCPs (Anti MMR vaccine)

Table 7.21 - Associations - HCP (anti MMR vaccine) and content

Content/source of evidence	χ^2	d.f.	p
Single vaccines recommended	9.255	1	0.002
How to arrange singles	8.046	1	0.005

The mention of HCPs who were anti the MMR vaccine was found to be associated with the mention of single vaccines. Of the 15 articles that mentioned an HCP who was anti MMR vaccination, 10 (66.7%) contained content that recommended single vaccines, whereas of the 153 articles that did not mention an HCP who was anti MMR vaccination, 38 (24.8%) contained content that recommended single vaccines. With reference to how to arrange single vaccines, of the 15 articles that mentioned an HCP who was anti MMR vaccination, five (33.3%) contained content that recommended single vaccines, whereas of the 153 articles that did not mention an HCP who was anti MMR vaccination, 10 (6.5%) contained content that recommended single vaccines. This is an interesting finding as it suggests that these HCPs are mentioned at the same time as single vaccines against measles, mumps and rubella and may reflect the stance of the article. However, the finding that HCPs and recommendations for single vaccines occurred in the same articles does not automatically suggest that HCPs are suggesting

single vaccines, however the finding that they are appearing in the same article may mean that this is the message that parents are receiving.

Logistic regression

This section presents the results of logistic regression analyses to identify factors independently associated with themes in the articles. Variables were included in the analysis if there was an association with the dependent variable at $p < 0.05$. All these variables were entered into the logistic regression model using a forced entry method. Table 7.22 present the results of the logistic regression analyses for the identifying factors associated with the theme Both sides of the MMR vaccine debate mentioned:

Table 7.22 - Logistic regression - Theme - Both sides of the MMR vaccine debate mentioned

Independent variable	Odds ratio	95% CI	p
Andrew Wakefield	5.476	1.201-24.975	0.028
CMO	4.094	1.490-11.249	0.006
Leo Blair	3.249	1.277-8.266	0.013
Disease outbreak problem	1.837	0.642-5.255	0.257
Problem of low vaccine uptake	2.486	0.860-7.181	0.093
Wakefield research	0.941	0.202-4.381	0.983

As can be seen from Table 7.22, the mention of Andrew Wakefield, the CMO and Leo Blair were each significantly more likely to be in articles in which the themes was both sides of the MMR vaccine debate than articles that did not mention both sides of the MMR vaccine debate. This suggests that these were the two individuals who were 'representing' the opposing sides of the MMR vaccine debate. It is noteworthy that Leo Blair was also associated with this theme. A possible reason for this could be that the negative reporting of the unwillingness of Tony Blair to reveal his sons' MMR vaccination status was linked with positive reporting in an attempt to provide a balanced story.

Table 7.23 present the results of the logistic regression analyses for the identifying factors associated with the theme "Giving advice".

Table 7.23 - Logistic regression - Theme - Giving advice

Independent variable	Odds ratio	95% CI	p
Other-anti MMR vaccination	4.953	1.684-14.573	0.004
Problem of low vaccine uptake	3.530	1.485-8.393	0.004
Disease outbreak – problem	1.350	0.580-3.140	0.486

The mention of other individuals who were anti the MMR vaccine and the problem of low MMR vaccine uptake were significantly more likely to be in articles in which the theme was giving advice than in articles where the theme was not giving advice. The finding related to the mention of low MMR vaccine uptake is expected as the advice in articles often took the form of warning parents of the consequences of not giving their child the MMR vaccine. However, it is unclear what characteristics that individuals who were not in favour of the MMR vaccine had that made their mention more likely to be associated with the theme of giving advice.

Table 7.24 present the results of the logistic regression analyses for the identifying factors associated with the theme “Providing evidence that the MMR vaccine is dangerous”.

Table 7.24 - Logistic regression - Theme - Providing evidence that the MMR vaccine is dangerous

Independent variable	Odds ratio	95% CI	p
Other – unsure	6.859	1.683-27.958	0.007
Damaged child – MMR vaccine	6.624	1.970-22.279	0.002
Other research	5.146	1.751-15.128	0.003
Wakefield research limited	4.415	0.997-19.553	0.05
MMR is a risk	2.342	0.705-7.781	0.165
Autism related to MMR	1.595	0.663-3.838	0.297
Wakefield research	0.510	0.087-2.986	0.455
Andrew Wakefield	1.350	0.289-6.294	0.703

The mention of other individuals who were unsure of the MMR vaccine, of children damaged by the MMR vaccine, of other research relating to the MMR vaccine and of the limitations of the research of Wakefield et al. (1998) were significantly more likely to be in articles which described evidence that the MMR vaccine is dangerous. The

association with mention of children whom parents allege had been damaged by the MMR vaccine was expected. However, the association with the limitations of the research of Wakefield et al. (1998) was less expected, but may be to do with the way in which the author of the article addressed the arguments of those who believed that there is no evidence that the MMR vaccine is dangerous, by stating acknowledging limitations of the research but supporting the research by presenting children alleged to have been damaged by the MMR vaccine.

7.3.4 Assessment of article stance

This section presents results relating to the stance of the article, i.e., whether it is pro MMR vaccine or anti MMR vaccine. The assessment of the stance of the article took the form of two measurements, a subjective measurement and an objective measurement. The two methods of assessing the article stance were undertaken to see if there was agreement between a brief, subjective assessment of an article and a more in-depth, objective assessment of the same article. The ways in which these were measured are presented in section 7.2.3.

7.3.4.1 Scales and subscales

Table 7.25 presents the subjective assessments of the 168 articles where the MMR vaccine was the focus:

Table 7.25 - Subjective stance

Stance	n (%)
Positive	84 (50)
Negative	84 (50)
Total	168 (100)

It can be seen from Table 7.25 that there were equal numbers of articles considered to be positive and negative when assessed subjectively, suggesting that there was a balance in the reporting of the MMR vaccine. This issue is further addressed in section 7.4.

Table 7.26 and Table 7.27 show the subscales for the objective assessment of article stance. Table 7.26 presents the scores for the articles on the positive subscale. Of the

168 articles, 147 (87.5%) registered a score on the positive subscale. The median score was 3, mean score was 3.48 and the modal score was 1. The maximum possible score was 16.

Table 7.26 - Assessment of article stance - positive subscale

Score	Number of articles n (%)
0	21 (12.5)
1	30 (20.4)
2	29 (19.7)
3	25 (17)
4	19 (12.9)
5	17 (11.6)
6	12 (8.2)
7	8 (5.4)
8	4 (2.7)
9	2 (1.4)
10	0 (0)
11	1 (0.7)
Total	147 (100)

Table 7.27 presents the scores for the articles on the negative subscale. Of the 168 articles, 134 (79.8%) registered a score on the negative subscale. The median score was 3, the mean score was 3.25 and the modal score was 3. The maximum possible score was 16.

Table 7.27 - Assessment of article stance - negative subscale

Score	Number of articles n (%)
0	34 (20.2)
1	27 (20.1)
2	23 (17.2)
3	28 (20.9)
4	26 (19.4)
5	13 (9.7)
6	12 (8.9)
7	3 (2.4)
8	1 (0.7)
9	1 (0.7)
10	0 (0)
11	0 (0)
Total	134 (100)

The overall score of article stance was calculated using the method outlined in section 7.2.3, i.e., the overall score was obtained by subtracting the negative subscale from the positive subscale. The results for the 115 articles that scored on both the negative and the positive subscales are presented in Table 7.28. The mean score was 0.4, the median score was 0.00 and the modal score was 1. The minimum possible score was -16 and the maximum possible score was 16. Articles were considered to be positive if they scored higher than the median score of 0 and were considered to be negative if they scored lower than or equal to the median score of 0.

Table 7.28 - Assessment of article stance - overall scale

Score	Number of articles	Categorised
	n (%)	
-5	2 (1.8)	Negative
-4	6 (5.2)	
-3	8 (7.0)	
-2	16 (13.9)	
-1	13 (11.3)	
0	13 (11.3)	
1	20 (17.4)	Positive
2	14 (12.2)	
3	9 (7.8)	
4	4 (3.5)	
5	6 (5.2)	
6	2 (1.8)	
7	1 (0.8)	
9	1 (0.8)	
Total	115 (100)	

7.3.4.2 Associations

Using the overall assessment of article stance, a number of associations were tested. Firstly, the assessment of the article was tested to see if there was an association between the subjective and objective assessments. These figures are presented in Table 7.29:

Table 7.29 - Association between subjective and objective assessments

Subjective assessment	Objective assessment		Total
	Positive n (%)	Negative n (%)	n
Positive	41 (71.9)	12 (20.7)	53
Negative	16 (28.1)	46 (79.3)	62
Total	57 (100)	58 (100)	115

There was a significant association between the subjective and the objective measurements of article stance ($\chi^2=30.378$, d.f. = 1, $p=0.00$). In 87 of the 115 assessments (75.7%) there was agreement between the subjective and objective assessment. While this figure does indicate relatively high agreement between the subjective and the objective assessments, there were still 28 articles where there was not agreement between the subjective and objective assessments. It can be suggested that this is related to the way in which the objective assessment was carried out as this placed an emphasis on the frequency of occurrence of content in the article, rather than looking at the strength of the argument relating to the MMR vaccine, which is likely to have been more of a factor in the subjective assessment.

Tests for association were carried out between the 87 articles where there was agreement between the subjective and objective assessments and characteristics relating to the article.

There was a significant association between information source and article stance ($\chi^2=24.094$, d.f. = 4, $p=0.00$). The figures are shown in Table 7.30.

Table 7.30 - Information source and article stance

Source	Positive n (%)	Negative n (%)	Total n (%)
The Guardian	12 (75)	4 (25)	16 (100)
The Daily Telegraph	2 (16.7)	10 (83.3)	12 (100)
Daily Mail	2 (15.4)	11 (84.6)	13 (100)
The Sun	6 (30)	14 (70)	20 (100)
BBC News Online	19 (73)	7 (27)	26 (100)
Total	41	46	87

Articles in The Guardian and on BBC News Online were more likely to adopt a positive stance and articles in The Daily Telegraph, The Sun and the Daily Mail were more likely to adopt a negative stance. These contrasts between the stance of the different sources are noteworthy, with sources traditionally viewed as being right wing being anti MMR vaccine and those traditionally seen as left wing being pro MMR vaccine. These findings may suggest that the political stance that the newspaper adopts is instrumental in shaping the approach that they take to major news stories. In terms of the

implications for parents, the findings presented in Table 7.30 suggest that if parents use a specific media source then they will be receiving a specific message. However, in choosing one information source over another, parents may be accepting the political stance that the source offers. In addition, parents may access more than one information source, so the information that they gain from one article may be counterbalanced by the information that they gain from another. However, sources that present highly polarised views may confuse parents and accessing another source that also presents highly polarised views may lead to confusion.

7.3.5 Headlines

This section examines the headlines of the articles that were analysed as part of the content analysis. There were 59 articles that mentioned the MMR vaccine. These articles may have mentioned the MMR vaccine briefly or more extensively, but the MMR vaccine was not the focus of the article. There were 168 articles that were focused on the MMR vaccine. The headlines were divided into those where people were the focus of the headlines and those where content was the focus of the headlines. Some headlines mentioned content; some mentioned people and some mentioned both content and people. Table 7.31 presents the themes within which the headlines were placed.

Table 7.31 - Issues mentioned in headlines

	Focused	Mentioned	Total
	n	n	n
Tony Blair	19	4	23
Andrew Wakefield	3	0	3
CMO	2	0	2
Parent (Anti MMR vaccine)	21	0	21
Parent (Unsure about MMR vaccine)	3	0	3
Scientist/Researcher	3	0	3
HCP	2	0	2
Autism groups	2	0	2
Politicians	6	10	16
Alan Milburn	5	0	5
MMR uptake	1	0	1
MMR – risk to children	6	5	11
Measles – risk to children	9	0	9
Measles outbreak	20	0	20
Vaccination	0	4	4
Row/debate about MMR vaccine	25	0	25
Research pro MMR vaccine	4	0	4
Research anti MMR vaccine	4	0	4
Campaign pro MMR vaccine	15	0	15
Campaign for single vaccines	23	0	23
Leo Blair	4	0	4
Rose Addis	0	10	10
Health Scares	0	6	6
Privacy	0	5	5
Miscellaneous	0	15	15

The most frequently mentioned issue in headlines of articles was the row/debate over the MMR vaccine. This indicates that the media were presenting the MMR vaccine scare as a dispute with two 'sides' and that this was reflected in the headlines of the articles. The most frequently mentioned individuals were parents who were anti the MMR vaccine, followed by Tony Blair. These two groups/individuals were mentioned noticeably more frequently than any other individuals which again highlights the

polarised debate about the MMR vaccine. In terms of content, disease outbreaks (which were occurring at the time of the content analysis) and the campaign for single vaccines were the two most frequently mentioned in article headlines. These two issues were the focus of the MMR vaccine scare at the time that the content analysis was undertaken so it was expected that they would occupy the headlines of the articles. Interestingly the campaign supporting the MMR vaccine also appeared relatively frequently in headlines, although this frequency does not indicate that the headlines surrounding the campaign were supportive of the campaign.

7.3.6 Views on information sources

Based upon the information that was given by parents in the interview and questionnaire studies, a number of opinions/comments about information sources were included in the data collection. This section presents these opinions and the frequency of occurrence of these opinions in the articles analysed in the content analysis. This was only undertaken on articles where the MMR vaccine was the focus of the article.

Table 7.32 - Views on information sources

Opinion	n	
Media reporting is	Disturbing for parents	8
	Sensationalist	5
The Government	Support the MMR vaccine due to cost	8
	Are influenced by HCPs	17
	Are not in depth	7
	Are unwilling to replicate research	8
	Are untrustworthy due to previous health scares	11
HCPs	Do not provide information	3
	Do provide information	3
	Conflict with one another	6
	Are biased towards the MMR vaccine	8
	Are influenced by the Government	5
	Are trustworthy	4

This examination of the way in which different information sources were presented in the media indicated the way in which the media were critical of themselves, in

indicating that parents were affected by the media information. The articles analysed also emphasised the perceived link between the Government and HCPs which had been noted by parents in the questionnaire and interview studies.

7.4 Discussion

In this section, the key findings to emerge from the content analysis are discussed and their implications for parents' use of media information sources are examined. In section 7.3, the results from the content analysis were discussed. This section then expands on this discussion to address key issues regarding the MMR vaccine scare.

7.4.1 Presentation of the MMR vaccine in articles

Of the 227 articles that included the MMR vaccine, 168 were focused on the MMR vaccine whereas 59 mentioned the MMR vaccine in passing. These different ways of reporting may reflect the approach that the author of the article is adopting to the reporting of the MMR vaccine scare. It was found that articles that mentioned the MMR vaccine (rather than exploring the issue in any depth) tended to be negative, opinion-based articles which used the MMR vaccine to criticise the Government. In contrast, articles that were focused on the MMR vaccine tended to examine the issues in more detail, for example, looking at the health implications of a measles outbreak.

The analysis of article content revealed the complexity in the reporting about the MMR vaccine and the MMR vaccine scare and that generalising about the stance of an article based upon the issue being reported may be misleading. For example, the inclusion of Tony Blair in an article means that an individual who is in favour of the MMR vaccine is being included in an article. However, the inclusion of Tony Blair may also have been in an article which is negative about the MMR vaccine, e.g., the failure of Tony Blair to reveal his sons MMR vaccination status. Another example would be the inclusion of Andrew Wakefield in an article, but the article is criticising his research, therefore counteracting the influence that having an individual who is anti the MMR vaccine may have on an article. The implication of this is that articles need to be viewed holistically, rather than in terms of their constituent parts. This may be how parents view articles and may also suggest why there was not total agreement in the subjective and objective assessments of the articles.

The MMR vaccine scare has been characterised in the mass media as a two-sided debate about the safety of the vaccine. The anti MMR vaccine 'side' base their argument on the research of Wakefield et al. (1998) and then support this by anecdotal evidence of children alleged to be damaged by the MMR vaccine. As this research was the trigger for the MMR vaccine scare, the pro MMR vaccine 'side' have had to address two issues, refuting the evidence of Wakefield et al. (1998) that the MMR vaccine poses a risk to children and promoting the MMR vaccine as an important way to deal with the diseases of measles, mumps and rubella. Both 'sides' of the MMR vaccine debate are presented in the media as having compelling arguments. However, Hargreaves et al. (2003) found that the burden of proof was placed on those who supported the MMR vaccine to prove that it was safe.

The message that parents receive about the MMR vaccine is influenced by the presentation of the MMR vaccine in articles. Parents may view articles in their entirety, or may focus on the constituent parts that interest them. People may be influenced by the overall stance of the article e.g. whether it is pro or anti MMR vaccine, but they may also be influenced by individual constituent parts, e.g. the incidence of measles in the population. These different ways in which people receive messages from the media suggests that looking at the presentation of the MMR vaccine in articles alone, cannot imply how parents are receiving the message about the MMR vaccine that the author of the article is trying to promote.

7.4.2 Key issues in the MMR vaccine scare

Bedford et al. (2002) reported that the media were at the forefront of the campaign for single vaccines and in many cases recommended them. This finding was supported by the content analysis which found that single vaccines were recommended in 21% of articles analysed. Single vaccines were presented by the media as an alternative to the MMR vaccine which parents were being refused by the Government and HCPs. This refusal was often related to perceived increased financial cost of single vaccines to the Government and was supported by the qualitative evidence of parents in the interview study:

I think because in the long run it costs them less money (Mary)

I always think that there's an agenda behind what's said and there are cost implications to what they say (Becky)

The key issue in the MMR vaccine scare was that the MMR vaccine caused autism and bowel disease in children. Pareek & Pattinson (2000) found that the mass media were the main source of information for parents about the perceived side effects of the MMR vaccine. This finding is supported by the discovery that 32% of all the articles analysed mentioned autism and 23% mentioned bowel disease. However, only 14% of articles mentioned the original research (Wakefield et al. 1998), which alleged this link. This meant that, in some articles, parents were being made aware of the alleged side effects of the MMR vaccine without being made aware of the research that suggested this link. The relative frequency with which the links were alleged influenced parents' perceptions of the 'risk' of the MMR vaccine:

You read all these things in the paper about people who think that their children have autism and it is directly because of this [MMR] (Susan)

HCPs are an important stakeholder in the MMR vaccine scare and this was reflected in the amount of media coverage that they received, as found in the content analysis. The content analysis revealed two different characterisations of HCPs, as questioners of the safety of the MMR vaccine and as supporters of the MMR vaccine. The first characterisation presented HCPs as questioning the safety of the MMR vaccine and in doing this, working for individual parents and children, either in terms of looking for evidence that the MMR vaccine is a risk (e.g., Andrew Wakefield) or providing parents with the option of single vaccines (e.g., Peter Mansfield). In contrast to this, the second characterisation was of HCPs supported the use of the MMR vaccine. Both the mass media (in the content analysis) and parents (in the interview and questionnaire studies) suggested that this support was motivated by reasons other than the best interests of children. This is not in line with the presentation of many of the articles included in the content analysis, which found that HCPs were recommending the MMR vaccine as it provided herd immunity for all children, or that low MMR vaccine uptake led to outbreaks of measles, mumps and rubella. The following are examples from the interview study:

All the information that you get from the surgery and from the health visitors is quite biased because they support the MMR (Jean)

... they weren't even willing to discuss an alternative point of view and they just said 'no it is perfectly safe' (Mary)

7.4.3 Decision-making

The frequency with which articles concerning the MMR vaccine scare appeared in the information sources analysed provides insight into the MMR vaccine scare. Parents were faced with a large number of articles in a very short space of time. In addition to the information provided by newspapers and WWW news sources, White (2002) discussed the increase in television and radio coverage during December 2001 and January/February 2002. The increase in information available to parents was compounded by the conflicting nature of the information that is provided to them, as found in the content analysis where an almost equal split was found between articles that were pro the MMR vaccine and articles that were anti the MMR vaccine. In addition, it is also important to note that the information provided was often in the format of opinion rather than fact. Parents clearly found the contradictory nature of media information a barrier to decision-making:

It is confusing and conflicting. In order for it to be informative you have to sift through the information (Naomi)

It was hard to know who or what to believe as there is so much conflicting information on the subject (Parent 108)

Thus parents were faced with increased information, but were also required to assess this information and make a decision about which of the polarised opinions about the MMR vaccine they were more inclined to use in their decision-making. Parents may also have decided to make a choice that they did not wish to use any of the media information provided when making a decision about the MMR vaccine. However, the number of articles presented in the newspapers would have meant that the MMR vaccine scare was hard to avoid (assuming that parents accessed newspapers), if parents were choosing this course of action, i.e., blunting the information that they were confronted with. (Miller, 1988). There are also implications for parents in terms of information overload (Case, 2002).

Evans et al. (2001) found that parents who were unsure about MMR vaccination were more likely to be affected by negative media reports about the MMR vaccine. This again emphasises the importance of the mass media in decision-making and the negative role that they can play.

7.4.4 Media and the Government

The interview and questionnaire studies found that parents did not view or use the Government as an information source. However, the content analysis revealed that the media present the Government as an source which withholds information from parents. This indicates the way in which the media were presenting the Government and reflects how parents in the interview and questionnaire studies viewed HCPs. This indicates the relationship between the Government and HCPs and that they are not independent from each other.

The mass media, especially newspapers have a relationship with the Government. Newspapers have traditionally adopted a specific political stance. In the content analysis, the Guardian (a left of centre newspaper) and BBC News Online contained a majority of articles that supported the MMR vaccine. The Daily Telegraph, the Sun and the Daily Mail contained a majority of articles that did not support the MMR vaccine. These three newspapers are all traditionally right of centre. This has to be viewed within the context of the current UK Government that is run by the left of centre New Labour. The sources that supported the MMR vaccine are broadly affiliated with the political stance of the current Government (who support the MMR vaccine) and the sources that did not support the MMR vaccine would consider themselves to have political stances that contrast with the Government.

The implications of this is that the media have an agenda when they are producing articles for inclusion in their newspaper or WWW source. As well as presenting information about the MMR vaccine scare, media sources also interpret this evidence and are selective about the evidence that they include depending upon whether, in the case of the MMR vaccine, they wish to support the Government. Thus parents will not get the same information regarding the same factual event from different sources, as these sources will have an agenda related to their political stance.

7.4.5 The nature of the media

The mass media differs from information sources such as leaflets in that it presents information on a wide variety of different issues in one format, e.g., a newspaper will address issues other than that of the MMR vaccine scare. The media are an information source, but in the context of the MMR vaccine scare, they have a very different role than other information sources such as leaflets. While the media are used as an information source, providing objective information to those who are using the information source is not the primary aim of the media. Rather the media aim to engage readers/listeners and, in the case of newspapers, to sell as many as possible to make money. The information they provide is often difficult to avoid and the format in which it is presented may influence individuals to adopt a particular stance or course of action.

Parents in the interview and questionnaire studies who felt that the information they received from HCPs was insufficient, turned to the media for an alternative viewpoint and information in a different format:

If I really want to start off getting a bit of background, I'd probably get a paper, a good paper and read the newspaper and get a good idea of where to go from there (Becky)

I think newspapers have quite a high influence because with newspapers I will cut the article out, read it and go back again in a couple of days and read it again (Helen)

The implications of this are that the media are an important information source for parents, as they fulfil a specific role in information provision for parents. This is interesting when seen in the context that the media in part, generated much of the mistrust in official information sources.

7.5 Limitations

The main limitations of the content analysis are related to the fact that only one researcher undertook the data collection. A major limitation was the scope of the data collection in that a relatively small number of articles (n=227) from five information sources were examined.

The fact that only one researcher undertook the data collection also limited the validity as it was impossible to check that the data that were being collected were accurate, i.e.,

that when categories were recorded, they were categories that existed and that the categories were represented accurately.

The results from the subjective and objective assessments of article stance were noteworthy and posed interesting questions about the procedures used to collect the data.

There was a clear statistical relationship between the subjective and objective scores, but this relationship could be evident because a relationship exists, or because the subjective and objective assessments were two different ways of interpreting the same data?

The subjective stance was measured by assessing the overall message that the article conveyed. While this was not a traditional, positivistic way to assess data, the familiarity that had been built up with the subject matter and the frequently polarised views that the article presented, meant that making a subjective assessment of an article was not problematic. However, it is important to recognise that the way in which a person views an article may not be the same as another person. However, key to the assessment of article stance was whether the article was broadly supporting or opposing the MMR vaccine. The extent to which this article may have potentially influenced behaviour was not an issue.

The objective stance was assessed using the frequency of key content. When the data collection tools were being designed, it was decided that a tool which examined frequency of anti and pro MMR vaccine content would be an accurate way of assessing the stance of an article, and in light of the results, this would seem the most accurate way of assessing articles in objective terms. However, the finding that articles tended to attempt to present a more balanced view of the MMR vaccine scare, may have led to these articles containing both pro and anti MMR vaccine content. This may have influenced the data collection, but the agreement between the subjective and objective assessments indicates that the presence of key content does contribute to the overall message conveyed.

The assessments of article stance may have been limited by the fact that the measurements for the objective framework were carried out by the same person that

carried out the measurements for the subjective framework. However, attempts were made to remedy this in that a time gap was left between subjective and objective assessments and care was taken to be objective throughout.

7.6 Conclusions

The content analysis took the form of an in depth examination of the selected information that is being supplied to parents. This information took the form of newspaper articles and articles that appeared on BBC News Online. This section will summarise the results and implications from the content analysis.

7.6.1 Summary

The content analysis, undertaken on 227 articles which included the MMR vaccine, found that the MMR vaccine was reported not only in terms of its safety, but also in a wider context, which looked at issues such as trust in politicians and the right to privacy of Tony Blair. The political implications of the MMR vaccine scare were reflected in the reporting that it received in the newspapers and WWW news source analysed.

The safety of the MMR vaccine was an issue that was often reported by the media, from the initial article that cast doubt on the safety of the MMR vaccine, to the present day. The media reporting has been characterised by specific events/episodes that have led to increased coverage relating to the MMR vaccine. At the time of the publication of the articles that were examined in the content analysis, the measles outbreaks that were occurring, and the refusal of Tony Blair to reveal the MMR vaccination status of his son were receiving substantial coverage in the media.

While the content analysis of articles that included the MMR vaccine revealed the themes, individuals and content that were included in and associated with these articles, this needs to be viewed within the context of the political affiliation of the sources analysed and the extent to which this affiliation influenced the way in which the MMR vaccine scare was reported. White (2002) examined the media interest in the MMR vaccine status of Leo Blair and found that the Daily Mail had carried out a “*campaign*” for a “*confession*” from Tony Blair (White, 2002, 120).

The attempt by the newspapers and WWW news sources to provide a balanced approach to the MMR vaccine could be seen in the subjective and objective assessments of the article stance. These indicated that often newspapers and WWW news sources are attempting to balance the evidence or coverage given to the two 'sides' in the MMR vaccine debate. However, as Clements & Ratzan (2003) argued, there is not an equal weight of evidence regarding the safety of the MMR vaccine and this raises the question of how articles present the MMR vaccine debate as a balanced argument. The subjective and objective assessments of article stance seemed to suggest that there are two distinct ways in which the debate is presented, either by the frequency of content within the article that was either pro or anti MMR vaccine, or the strength of the argument as constructed by the author of the article.

7.6.2 Implications

The content analysis has reinforced the nature of the concerns surrounding the safety of the MMR vaccine as a health scare as defined by Klaidman (1990) and Ward (2000), as in the media (and arguably in other information sources) there is incomplete information about risk, unpleasant consequences (the characterisation of children allegedly damaged by the MMR vaccine) and human interest stories with little scientific reinforcement.

The mass media are an information source for parents, as the questionnaire and interview study highlighted, but the aim of the mass media is not to provide its readers/viewers/listeners with objective information to allow informed decision-making. Rather the aim of the mass media is to entertain, reach a wide number of individuals and to make money (in the majority of cases). This provides a problem for parents as they are often making a decision based on media information, firstly because it is difficult to avoid information from the media and secondly because they do not trust the information that they are receiving from HCPs as they believe that this information is biased. However, the content analysis has indicated that the media biases and agendas also influence the way in which the MMR vaccine is presented in the media and it is important that parents, if they are making decisions based upon the mass media, are aware that the common division of tabloid/broadsheet oversimplifies the assessment of quality that people often make when assessing the information that they receive from the media.

The next chapter (Chapter Eight) concludes the PhD study, summarising the main findings from the data collection, addressing the research questions and suggesting further research to be undertaken.

Chapter Eight - Conclusions

8.1 Introduction

This chapter concludes the thesis by summarising the setting in which the thesis has been carried out, the findings of the study, the limitations of the study, and the implications of the study as well as providing areas in which possible future research could be carried out.

8.2 Summary of setting

The study was conceptualised and designed in Spring 2001. This was three years after the publication of the research of Wakefield et al (1998), the reporting of which was widely considered to have generated the MMR vaccine scare. Despite this, the issue remained of concern for parents and the currency of the MMR vaccine scare and the importance that it held for parents made this research worthwhile. The research by Wakefield et al. (1998) generated the media reporting which in turn generated the MMR vaccine scare. The most obvious manifestation of this has been in the falling vaccination rates which cannot be causally linked to the concerns regarding the safety of the MMR vaccine but suggest that the MMR vaccine scare has influenced parents. In 1998, the figures for MMR vaccination were 91% for the cohort of children reaching their second birthday. In 2001 when the research proposal was written the figures for MMR vaccination were 87% for the cohort of children reaching their second birthday. In 2002 when the interview study was carried out, the figures for MMR vaccination were 84% for the cohort of children reaching their second birthday and the most recent figures published in September 2004 indicate that MMR vaccination levels are continuing to fall with figures for MMR vaccination of 81.5% for children reaching their second birthday between April and June 2004. These figures indicate the decline in MMR vaccine rates which have been linked in the mass media and in research to the publication of the research of Wakefield et al. (1998) and the subsequent media reporting of this research.

The MMR vaccine scare is still a contemporary issue for parents and other stakeholders for a number of reasons. Since the publication of the research by Wakefield et al.

(1998), a number of episodes relating to the MMR vaccine scare have been reported in the mass media. These include the measles outbreaks of January and February 2002, the public retraction of their research by a number of the co-authors of Wakefield et al. (1998), continuing falling MMR vaccine rates and research that has either supported or refuted the research of Wakefield et al. (1998).

8.3 Findings of the PhD

This section summarises the findings of the three main data collection exercises and the literature review and the triangulation as these all make a contribution to the new knowledge that has been generated as a result of the research carried out. A number of key findings from the data collection are then identified and discussed with reference to previous research in the area.

8.3.1 Literature review

The literature review addressed a wide variety of issues surrounding information and the MMR vaccine scare. The scope of the literature review meant that issues as diverse as risk information, health information policy and Vaccine Information Pamphlets (VIPs) were addressed. However, the major contribution of the literature review was to bring together research which looked at the impact of the MMR vaccine scare on parents in terms of decision-making but also in terms of the role of information in decision-making. The empowerment of patients and the public with regard to decision-making is widely considered to be of benefit both to the individual making the decision but also for the HCP/HCPs who are involved with the patient. The importance of informed decision-making with reference to the MMR vaccine is less simple, as a result of the nature of the information that has surrounded the MMR vaccine as a result of the MMR vaccine scare. As the literature review explained, the impact of the MMR vaccine scare on parents has been widespread and has influenced their decision-making behaviour. Despite the widespread acknowledgement that the research of Wakefield et al. (1998) was flawed, research found that parents were experiencing information needs relating to the MMR vaccine on the basis that they believed that the research of Wakefield et al. (1998) provided questions regarding the safety of the MMR vaccine which were not being answered by the Government and HCPs.

The literature review identified a number of gaps in relation to information and the MMR vaccine. Parents' information needs were an area where there was considered to be a paucity of research and while research concerning the MMR vaccine scare was unlikely to have been published at the beginning of the study and has been subsequently researched (Hobson-West, 2003; Smailbegovic et al. 2003), there existed a gap relating to the impact of the MMR vaccine scare in terms of parents' information needs. In addition, it was considered important to address the information sources that parents used relating to the MMR vaccine and the impact that the MMR vaccine scare may have had on parents' perceptions of and use of, these information sources. The final gap identified addressed the role of information in decision making, especially during health scares and how parents' decision making was influenced by the concerns surrounding the safety of the MMR vaccine, especially in relation to information and the impact that it had on parents' decision whether to proceed with the MMR vaccine for their child.

8.3.2 Interview study

The interview study with parents of young children (n=17) generated qualitative data addressing the gaps identified through the review of literature. The interview study aimed to examine the information needs and preferred information sources of parents as a result of the MMR vaccine scare, the impact of key information sources on parents as a result of the MMR vaccine scare and the role of information in decision-making about the MMR vaccine.

The interview study found that it was possible to develop an understanding of types of information behaviour. Information for some parents was vital and there was a group of parents who sought all the information that they could obtain and made a decision based on this information, which Alcock (2002) found when looking at the experiences of one family. To contrast, other parents claimed that they had made their decision without the use of information. These parents suggested that no information that they were supplied with could influence the decision that they made. Raithatha et al. (2003) had a similar finding in that information about side effects was avoided when making a decision.

Most of the parents interviewed expressed mistrust in one or more information sources, which was also a finding of other research, published before and during the PhD study. In particular there was mistrust in health professionals. Evans et al (2001) also found

that parents were unwilling to use HCPs for information, perhaps as a result of the pressure they experienced from their GP to vaccinate their child with the MMR vaccine.

The mass media were used by parents in this study but were not trusted. Johnson and Joynes (2001) found that parents in rural areas were using the mass media as a response to their mistrust in HCPs. However, this use of the media can be problematic, as the falling MMR vaccine rates described by Mason and Donnelly (2000a) in response to a mass media campaign against the MMR vaccine shows. Bedford et al (2002) also found that parents were choosing to have their children vaccinated with single vaccines in response to the media coverage that the MMR vaccine had received.

In addition, parents could be grouped by their mistrust in the Government. Parents in the interview study felt that the BSE scare had led to them being unable to trust the Government, a finding shared with Hargreaves et al (2003) and Alcock (2002) who found that mistrust in one information source can lead to mistrust in another. The opinion of the Government was also influenced by the unwillingness of Tony Blair to reveal his sons MMR vaccination status. Hargreaves et al (2003) believed that this unwillingness may be sending a message to parents, which was a finding in this study, that whether or not parents wanted to know whether Tony Blair had allowed his son to have the MMR vaccination, they felt that by not disclosing this information, Tony Blair was giving a message to parents. Hobson-West (2003) also viewed this non-disclosure as untrustworthy.

The general message that all parents promoted was that their need was for information that was trustworthy and accessible. This was more important to them than the source or the format of the information although clearly source and format do influence perceptions of trustworthiness. Decision-making was found to be related to parents' perception of risk, which was in turn influenced by information but also personal experience. A group of parents who had experienced measles, mumps or rubella found the conditions to not be severe and therefore did not seek information to address their concerns relating to the MMR vaccine as their personal experience led them to believe that the MMR vaccine was unnecessary. There appeared to be no evident differences between parents who had chosen to give their child the MMR vaccine and parents who had chosen not to give their child the MMR vaccine in terms of their information needs,

preferred information sources and role of information in decision-making. Information appeared to be a very important factor for parents in decision-making.

8.3.3 Questionnaire study

The questionnaire study with parents of young children (n=112) generated quantitative data addressing the gaps identified through the review of literature and examining the findings of the interview study. The first aim of the questionnaire study was to generate quantitative data from a more diverse group of parents which could be generalised to provide a greater understanding of how parents were affected by the scare surrounding the safety of the MMR vaccine. The other aims of the questionnaire study were to examine which demographic, HBM related and information related factors influenced MMR vaccine uptake.

The sample of parents that completed the questionnaire were relatively homogenous, so the questionnaire study provided a greater understanding of the role of the HBM and information on a group of parents with similar demographic (i.e. White British) and socio demographic (i.e. relatively high NS-SEC based on occupation) characteristics and whose children were similar in terms of their MMR vaccination status (i.e. had proceeded with the MMR vaccine).

The results relating to the HBM showed that parents perceived a high level of risk for their children from the diseases of measles, mumps and rubella. Risk was also considered to be an important factor by Gill & Sutton, 1998, who would classify these parents as automatic immunisers. The risk presented by measles, mumps and rubella was a motivating factor in their decision-making as some parents questioned the safety of the MMR vaccine and indicated that they would opt for single vaccines if they were available, as did Bedford et al 2002. The finding that these factors did not influence decision-making was indicated by the high rates of MMR vaccination of children of parents participating in the questionnaire study.

Information was also an important factor for parents in the questionnaire study. Ramsay et al. (2002) found that parents tended to receive positive information about the MMR vaccine from their GP, which was a finding in common with this study, with the source from which most parents received information being the GP and the most frequently

mentioned content being about reasons for the MMR vaccine. The MMR vaccine scare generated information needs for a large majority of parents. However, only slightly over half of parents sought information to address these needs. Quantitative data indicated that parents used and trusted information from official sources over more informal information, which was found by Pareek and Pattinson 2002. The findings of Pareek and Pattinson emphasise how official sources are still being used as information sources, although their finding was that these official sources were being used for basic information about the MMR vaccine, rather than information about the side effects of the MMR vaccine. Personal experience and information from friends and family appeared to be the information sources that parents used most. The qualitative data confirmed the importance of these informal information sources and indicated a greater degree of scepticism about official sources of information than was indicated in the quantitative data collected. This mistrust was also reflected in the interview study and the literature that has addressed this, as discussed above.

8.3.4 Triangulation

The triangulation of the quantitative data from the questionnaire and the qualitative data from the interview and questionnaire studies aimed for confirmation of the qualitative data with the quantitative data and for the qualitative data from the questionnaire study to complete that of the interview study. Commonalities were found across much of the data. Confusion about the safety of the MMR vaccine was expressed in both the qualitative and quantitative data collected. This generated information needs for parents. In terms of satisfying these needs, parents in both the questionnaire and interview study emphasised the importance of interpersonal information sources and personal experience in guiding their behaviour. A level of scepticism was directed towards official sources of information in both studies. This level of scepticism was also directed at the mass media although parents indicated that they found it easier to assess the content that they received from the mass media. The evidence of delayed decision-making by parents in both studies suggested that information might have played a very important role in decision-making for parents. Seeking information, avoiding information, judging information and using information selectively were behaviours that parents in both studies exhibited.

8.3.5 Content analysis

The content analysis of newspaper and WWW news information sources generated data from 227 articles which either mentioned the MMR vaccine or were focused on the MMR vaccine. The aim of the content analysis was to look at the information that parents were provided with, and see if there were any commonalities between this data and data that parents presented about their own knowledge and information needs.

The content analysis revealed that the MMR vaccine scare was presented as a political issue and an issue of polarised opinions. The impression of the MMR vaccine scare was that there were two sides to the debate about the MMR vaccine, a finding shared with Clements & Ratzan (2003) and Hargreaves et al. (2003). One of these was the political side, which concentrated on ensuring herd immunity, using numerical arguments such as falling MMR vaccine figures and criticising the research that was undertaken by Wakefield et al. (1998). Individuals associated with this were Tony Blair, the CMO and HCPs supportive of the MMR vaccine. The other side of the MMR debate was more personal than political. This side concentrated on the MMR vaccine scare as a cover-up. The MMR vaccine was presented as a risk to children who were being denied the option of single vaccines by a Government who were more interested in the reduction of costs than the safety of children. The research undertaken by Andrew Wakefield was often presented alongside anecdotal evidence from individual parents or groups of parents about the damage that the MMR vaccine had caused their child.

The findings of the content analysis strengthened the findings relating to the opinions of the parents in the interview and questionnaire studies. The media presented a debate about the MMR vaccine and while some information that was presented was useful for parents, the nature of the debate did not allow for information to aid decision-making, which is related to the intrinsic nature of the media, as an entertainment source primarily. However, this does not mean that parents do not want information from the media to aid decision making, as found in the interview study and also in research by Evans et al. (2001).

8.3.6 Summary of findings

To categorise parents in terms of their information needs is complex. However there were some commonalities in the information needs of parents. Information needs tended to be based around the MMR vaccine rather than the conditions of measles, mumps and rubella. The process of making a decision about the MMR vaccine appeared to involve an assessment of the risk of the MMR vaccine to a specific child, taking into account the nature of the child as well as the nature of the MMR vaccine. Information needs did not appear to be related to the MMR vaccination status of children of parents, rather parents appeared to have similar needs for information upon which they made differing decisions. The MMR vaccine scare generated information needs for the majority of parents in the questionnaire study but parents did not always seek to meet these information needs, perhaps as a result of their perceptions of information sources. Parents' need for information was more related to how and from whom the information was provided, rather than the content of the information. In terms of information sources, parents were sceptical about the information that they received from the majority of sources. This scepticism seemed to be related to a number of issues, including previous experiences with the information source, the motivations with which they believed the source was supplying the information, the extent to which parents believed that they were being supplied with all the available information and that the information they were being supplied with was truthful and accurate and finally the extent to which the information that they received conflicted with other information. The confusion that parents experienced relating to information sources led them to emphasise interpersonal information and personal experience when making decisions about the MMR vaccine.

8.4 Limitations of the PhD

The PhD included three stages of data collection which had a number of limitations that related to undertaking research of this type. These limitations are discussed here.

8.4.1 Interview study

The interview study was a qualitative study of the experiences of parents in relation to the MMR vaccine scare. Thus the sampling strategy did not aim to generate a sample



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a changing health scare and is still a concern for the parents who are currently making a decision about whether to vaccinate their children with the MMR vaccine. While this adds value to the study in terms of the fact that the study has carried out research on a live issue, the currency of the MMR vaccine scare may have had a negative influence on response rates to the study. However, if the low response rates are related to the currency of the health scare and the nature of the research, this provides a valuable indication of the limitations of carrying out research in a 'live' situation.

8.5 Implications of the PhD

The PhD generated a lot of interesting data and a number of questions which this section addresses and attempts to answer.

8.5.1 Information needs

- Why did the research by Wakefield et al. (1998) generate a health scare?

The research by Wakefield et al. (1998) generated and sustained the health scare surrounding the MMR vaccine and even when the media and parents were concerned with issues that did not directly relate to the safety of the MMR vaccine, the research of Wakefield et al. (1998) was often mentioned. The awareness surrounding the research of Wakefield et al (1998) was due to the widespread media reporting of the research, which was both supportive and critical of the research. It is interesting to examine why research which was limited in its sample and methodology and which did not prove a link from the measles virus to the MMR vaccine created a health scare which has had such an effect on parents. Parents in the interview and questionnaire studies mentioned the BSE scare as influencing their trust of the Government and HCPs. This led to parents not trusting the information that refuted the research of Wakefield et al. (1998). Parents were also influenced by the dogmatic approach in dismissing the research of Wakefield et al. (1998) which parents believed meant that there was some information that was not being supplied to them. Parents wanted the Government and HCPs to acknowledge the research and address the concerns that Wakefield et al. (1998) raised, rather than simply dismissing the research. The mass media also played a role in influencing parents' response, by their frequent presentation of children that parents alleged were damaged by the MMR vaccine and by personalising the issue of the MMR

vaccine scare by repeatedly using the issue of the MMR vaccine status of Leo Blair to challenge the approach of the Government. Finally the awareness of parents of the concerns surrounding the MMR vaccine was exacerbated not only by the media but also by the informal social information networks that exist among parents.

- Why, when parents express increased information needs, do they not seek information to meet these needs?

In both the questionnaire and interview studies, parents expressed increased information needs as a result of the MMR vaccine scare. However, these increased information needs did not always translate into information seeking to address these needs. There are a number of possible explanations for this. Parents may have had a perception that the information they required was not available. Parents often expressed that the information that they wanted was not available e.g. a Government investigation into the findings of Wakefield et al. (1998). Thus parents were often unsure about seeking information, as they did not believe that the information they wanted was available. Related to this perception was the belief that the information available could not be trusted and as such parents only used information sources which they believed that they could trust. The use of more informal channels for information such as other parents or friends and family may not have appeared to parents to be information seeking. Parents may have believed that the informal conversations that they had with people may not have constituted an information transfer. Finally, although parents expressed information needs, they may have received sufficient information upon which to make a decision and while extra information may have confirmed this decision, the information that was available to parents may have met their needs.

8.5.2 Information sources

- Why do parents not trust information from official sources?

The questionnaire and interview studies and the content analysis all revealed scepticism of official information sources by parents. The sources that they were particularly unwilling to trust were HCPs and the Government as outlined above. This presents a problem for these groups as they have a responsibility to promote health through vaccination and through reaching targets for herd immunity but they also have a

responsibility to provide information to parents. However, parents were unwilling to trust this information as they felt it was being supplied in order to increase vaccine uptake and improve herd immunity. This creates a real problem for information providers and indicates why parents were more inclined to use information from the mass media and from interpersonal sources. It could be suggested that the best way for parents to regain trust in the information that these sources supply is to take an approach that utilises the interpersonal relationships that HCPs can have with parents. The extent to which parents trust HCPs was found to be influenced by the MMR vaccine scare. The issue of GP vaccine uptake payments fostered mistrust in parents relating to the information and advice that HCPs supplied to them.

- Why do parents rate information from friends and family so highly?

Friends and family were an important information source for parents in both the interview and questionnaire studies. It can be suggested that these sources were preferred because information could be gathered in a setting that parents felt comfortable in and because information could be framed within language that parents were more comfortable with. This indicates the importance of information as being seen in a wider context. The mistrust with which official sources were viewed by parents meant that parents required alternative sources of information, but information providers need to be aware of the importance with which parents hold information sources.

8.5.3 Information and decision-making

- How do parents want information presented to them?

The questionnaire and interview studies suggested that parents' acceptance of information depended upon a number of factors, of which trustworthiness was an important one. Parents wanted to know that the information they were receiving was supplied in order to enable them to make an informed decision rather than being supplied with the intention of influencing their behaviour. In terms of implications for information provision, parents need to believe that the information that is being supplied to them is not being supplied with an agenda attached to it and that they are free to make

a decision based on impartial information, which again emphasises the importance of trustworthiness in the information supplied.

- Why were there no discernible differences between parents who did vaccinate their children with the MMR vaccine and those who did not in terms of their information behaviour?

Parents' information behaviour did not appear to be related to their decision about the MMR vaccine. There were numerous factors that determined parents' decision about the MMR vaccine, including their perceptions of the risk of measles, mumps and rubella, the nature of their child and the extent to which they trusted information. Therefore the decision-making process was determined by a number of factors that diminished the importance of information. Parents were shown to exhibit a variety of different information behaviours and these could not be related to any characteristics of these parents.

8.6 Overview and future research

The three phases of data collection generated three distinct sets of data that have been used to complement and contrast with one another. The study has looked at the information that was supplied to parents as a result of the MMR vaccine scare from the perspective of parents and also from the perspective of the information that is supplied. While the overall PhD may have been limited because the study participants' characteristics may have differed from the population characteristics, it is acceptable to suggest that the diversity of information behaviour exhibited by parents and the commonalities in data collected may have been reflected in the wider population of parents.

Although the research undertaken has generated much useful information about the impact of the MMR vaccine scare, there are still a number of unanswered questions have emerged from the PhD. Central to these is the issue of trustworthiness and the impact that it has on parents in terms of the information sources that they use. Parents showed a reluctance to use official sources and the reasons for this and the motivations behind it are worthy of further research. The decision surrounding the MMR vaccine was complicated and it would be interesting to see what sort of information could be

used to aid decision-making as the information that parents in the two studies used was not allowing them to make an informed decision, rather it was making them feel coerced into a decision about which they felt unsure. This was mostly related to the lack of information that parents wanted when making the decision. It is clear that information plays a role in the MMR vaccine decision, but it would be interesting to look at this role in more depth in terms of the needs that require satisfaction and the sources that will enable parents to make an informed decision based upon the information that they want.

The PhD explored an area in which little research had been previously undertaken. The interview, questionnaire and content analysis studies have indicated the information needs of parents, how these could be met and the strengths and limitations of different information sources in meeting these needs. These findings would be useful for information providers and those concerned with assisting parents to make informed decisions about the MMR vaccine and may contribute to the current attempts to increase MMR vaccination rates.

References

Abbott, V.P. (2000). "Web page quality: can we measure it and what do we find? A report of exploratory findings". *Journal of Public Health Medicine*, 22 (2), 191-197.

Alaszewski, A. and Horlick-Jones, T. (2002). *Risk and Health: Review of Current Research and Identification of Areas for Further Research*. The Centre for Health Services Studies, University of Kent at Canterbury and the School of Social Sciences, Cardiff University.

Alaszewski, A. and Horlick-Jones, T. (2003). "How can doctors communicate information about risk more effectively". *BMJ*, 327, 728-731.

Alcock, S. (2002). "How parents decide on MMR" *BMJ*, 324, 492.

Allison, C., Roizen, J. and Olivier, P. (1997). "The 1995 Pill scare: women's perceptions of risk and sources of information". *The British Journal of Family Planning*, 23, 79-82.

Armstrong, J.L., Reid, M. and Bigrigg, A. (1995). "Scare over oral contraceptives." *BMJ*, 311, 1637.

Audit Bureau of Circulations (2004). *Newspaper Data* [Online]. Available from www.abc.org.uk [Accessed 27/09/04].

Austin, H. (2001). "Parents' perceptions of information on immunisations". *Journal of Child Health Care*, 5 (2), 54-59.

Baker, J.P. (2003). "The pertussis vaccine controversy in Great Britain, 1974-1986". *Vaccine*, 21, 4003-4010.

Bannister, B.A. (2000). *Infectious Disease*. Oxford: Blackwell Science: Second Edition.

Barry, C. (1998). "Choosing Qualitative Data Analysis Software: Atlas/ti and Nudist Compared". *Sociological Research Online*, 3 (3). Available from
[Accessed 23/5/04]

Bartlett, C., Sterne, J. and Egger, M. (2002). "What is newsworthy? Longitudinal study of the reporting of medical research in two British newspapers". *BMJ*, 325, 81-84.

Bates, A.S., Fitzgerald, J.F. and Wolinsky, F.P. (1994) "Reliability and Validity of an Instrument to Measure Maternal Health Beliefs" *Medical Care*, 32 (8), 832-846.

Baum, F. (1995). "Researching Public Health: Behind the Qualitative-Quantitative methodological approach." *Social Science & Medicine*, 40, 459-468.

Becker, H., Roberts, G. and Voelmeck, W. (2003). "Explanations for Improvement in Both Experimental and Control Groups." *Western Journal of Nursing Research*, 25 (6), 746-755.

Becker, M.H. (1979). "Psychosocial Aspects of Health-Related Behavior". In Freeman, H., Levine, S. and Reeder, L. (1979) *Handbook of Medical Sociology*. New Jersey: Prentice Hall: Third Edition.

Bedford, H., Moreton, J. and Elliman, D. (2002). "MMR vaccine: are health professionals missing the point?" *Community practitioner*, 75 (3), 100-103.

Beecham, L. (2003). "CMOs criticised over target payments for MMR". *BMJ*, 327, 72.

Bellaby, P. (2003). "Communication and miscommunication of risk: understanding UK parents' attitudes to combined MMR vaccination". *BMJ*, 327, 725-728.

Berelson, B. (1952). *Content analysis in communication research*. Hafner: New York.

Bolton, V. and Brittain, M. (1994). "Patient information provision: its effect on patient anxiety and the role of health information services and libraries." *Health Libraries Review*, 11 (2), 117-132.

Bond, L., Nolan, T., Pattison, P. and Carlin, J. (1998). "Vaccine preventable diseases and immunisations: a qualitative study of mothers perceptions of severity, susceptibility, benefits and barriers". *Australian and New Zealand Journal of Public Health*, 22 (4), 440-446.

Boss, L. (1997). "Epidemic Hysteria: A Review of the Published Literature". *Epidemiologic Reviews*, 19 (2), 233-242.

Bowling, A. (1997). *Research Methods in Health: Investigating Health and Health Services*. Buckingham: Open University Press.

Bradley, S. (1995). "Methodological triangulation in healthcare research". *Nurse Researcher*, 3 (2), 81-89.

Brazy, J.E, Anderson, B.M.H., Becker, P.T. and Becker, M. (2001). "How Parents of Premature Infants Gather Information and Obtain Support." *Neonatal Network*, 20 (2), 41-48.

Britten, N. (1995). "Qualitative Research: Qualitative Interviews in medical research". *BMJ*, 311, 251-253.

Brooks, J. and Finlay, F. (2002). "Lessons from an immunisation hotline". *Community practitioner*, 75 (3), 97-99.

Brown, P., Zavestoski, S., McCormick, S.M., Mandelbaum, J. and Luebke, T. (2001). "Print media coverage of environmental causation of breast cancer". *Sociology of Health & Illness*, 23 (6), 747-775.

Bruce-Quay, M. (1981). "The Calderdale Immunization Project". *Health Visitor*, 54, 359-362.

Bryman, A. (1984). "The debate about quantitative and qualitative research: a question of method or epistemology". *The British Journal of Sociology*, 35 (1), 75-92.

- Buckland, S. (1994). "Unmet needs for health information: a literature review". *Health Libraries Review*, 11 (2), 82-95.
- Burns, F. (1998). *Information for Health: an information strategy for the modern NHS 1998-2005*. Leeds: NHS Executive.
- Byström, K. and Järvelin, K. (1995). "Task complexity affects information seeking and use". *Information Processing and Management*, 31 (2), 191-213.
- Calman, K.C. (1996). "Cancer: science and society and the communication of risk". *BMJ*, 313, 799-802.
- Carter, H. (1985). "Improving Measles Vaccine Uptake." *Health Visitor*, 58, 287-289.
- Carter, K.F. and Kulbok, P.A. (2002). "Motivation for health behaviours: a systematic review of the nursing literature". *Journal of Advanced Nursing*, 40 (3), 316-330.
- Case, D. (2002). *Looking for Information: A survey of Research on Information Seeking, Needs and Behavior*. London: Academic Press.
- Cavanagh, S. (1997). "Content analysis: concepts, methods and applications". *Nurse Researcher*, 4 (3), 5-16.
- Chen, R. (1999). "The Safety of Vaccines". In Plotkin, S.A. and Orenstein, W.A. (eds.) (1999). *Vaccines*. 1144-1163. Philadelphia: W.B. Saunders: Third Edition.
- Clark, A. (1998). "The qualitative-quantitative debate: moving from positivism and confrontation to post-positivism and reconciliation". *Journal of Advanced Nursing*, 27 (6), 1242-1249.
- Clayton, E.W., Hickson, G.B. and Miller, C.S. (1994). "Parents' Responses to Vaccine Information Pamphlets". *Pediatrics*, 93 (3), 369-372.
- Clements, C.J. and Ratzan, S. (2003) "Misled and confused? Telling the public about MMR vaccine safety". *Journal of Medical Ethics*, 29, 22-26.

Cohen, J. (1992). "A Power Primer". *Psychological Bulletin*, 112 (1), 155-159.

Cutcliffe, J.R. (2000). "Methodological issues in grounded theory". *Journal of Advanced Nursing*, 31 (6), 1476-1484.

Data Protection Act (1998). *Data Protection Act, 1998*. Available from
[Accessed 23/5/04].

Deary, I.J., Whiteman, M.C. and Fowkes, F.G.R. (1998). "Medical research and the popular media." *The Lancet*, 351, 1726-1727.

Denzin N. and Lincoln, Y. (1994) "Competing Paradigms in Qualitative Research". In Denzin, N.K. and Lincoln, Y.S. (eds.) (1994). *Handbook of qualitative research*. 105-117. Thousand Oaks, California: Sage.

Department of Health (1989). *Working For Patients*. London: HMSO.

Department of Health (1992). *The Health of the Nation*. London: HMSO.

Department of Health (1999). *Patient and Public Involvement in the New NHS*. Wetherby: Department of Health.

Department of Health (2000). *Building the Information Core – Implementing the NHS Plan*. Available from <http://> [Accessed 14/8/02].

Department of Health (2001a). *The Expert Patient: A New Approach to Chronic Disease Management for the 21st Century*. Available from
[Accessed 5/9/02].

Department of Health (2001b). *Involving Patients and the Public in Healthcare*. Wetherby: Department of Health.

Department of Health (2002). *NHS Immunisation Statistics, England: 2001-2002*.

Available from

[Accessed 8/1/03].

Dervin, B. (1992). "From the Mind's Eye of the User: The Sense-Making Qualitative-Quantitative Methodology". In Glazier, J.D. and Powell R.R. (eds.), *Qualitative Research in Information Management*. 61-84. Englewood: Libraries Unlimited Inc.

Dittmann, S. (2001). "Vaccine safety: risk communication- a global perspective." *Vaccine*, 19, 2446-2456.

Dixon-Woods, M. (2001). "Writing wrongs? An analysis of published discourses about the use of patient information leaflets." *Social Science & Medicine*, 52, 1417-1432.

Dootson, S. (1995). "An in-depth study of triangulation." *Journal of Advanced Nursing*, 22 (1), 183-187.

Duffell, E. (2001). "Attitudes of parents towards measles and immunizations after a measles outbreak in an anthroposophical community". *Journal of Epidemiology and Community Health*, 55, 685-686.

Edwards, P., Roberts, I., Clarke, M., DiGuseppi, C., Pratap, S., Wentz, R. and Kwan, I. (2002). "Increasing response rates to postal questionnaires: systematic review". *BMJ*, 324, 1183-1192.

Elliman, D.A.C. and Bedford, H.E. (2001). "MMR vaccine- worries are not justified". *Archives of Disease in Childhood*, 85, 271-274.

Elliman, D. and Bedford, H. (2002). "Private Eye Special Report on MMR". *BMJ*, 324, 1224.

Entwistle, V. (1995). "Reporting research in medical journals and newspapers". *BMJ*, 310, 920-923.

Entwistle, V.A., Watt, I.S. and Johnson, F. (2000). "The case of Norplant as an example of media coverage over the life of a new technology". *The Lancet*, 355, 1633-1636.

- ESRC (1999). *The politics of GM Food: Risk, science & public trust*. Special Briefing No.5. Global Environmental Change Programme (E.G.E.C.). University of Sussex.
- Evans, M., Stoddart, H., Condon, L., Freeman, E., Grizzell, M. and Mullen, R. (2001). "Parents' perspectives on the MMR immunisation: a focus group study". *British Journal of General Practice*, 51, 904-910.
- Eysenbach, G. and Köhler, C. (2002). "How do consumers search for and appraise health information on the world wide web? Qualitative study using focus groups, usability tests and in-depth interviews". *BMJ*, 324, 573-577.
- Feather, J. (2000). *The Information Society: a study of continuity and change*. London: Library Association: Third Edition.
- Fine, P.E.M. and Clarkson, J.A. (1986). "Individual versus public priorities in the determination of optimal vaccination policies". *American Journal of Epidemiology*, 124 (6), 1012-1020.
- Finlay, F. and Lunts, E. (2000). "Readability of information materials for parents". *Community practitioner*, 73 (3), 510-511.
- Fitzgerald, T.M. and Glotzer, D.E. (1995). "Vaccine Information Pamphlets: More Information Than Parents Want?". *Pediatrics*, 95 (3), 331-334.
- Flett, G., Gurney, E., McKessock, L. and Reid, J. (1998). "Impact of the October 1995 pill scare in Grampian". *The British Journal of Family Planning*, 24, 18-20.
- Fontana, A. and Frey, J. (1994). "Interviewing. The Art of Science". In Denzin, N.K. and Lincoln, Y.S. (eds.) (1994). *Handbook of qualitative research*. 361-376. Thousand Oaks, California: Sage.
- Frazer, L. and Lawley, M. (2000). *Questionnaire design and administration: a practical guide*. Milton: Wiley.

Freed, G.L., Katz, S.L. and Clark, S.J. (1996). "Safety of Vaccinations: Miss America, the media and Public Health". *Journal of the American Medical Association*, 276 (23), 1869-1872.

Gangarosa, E.J., Galazka, A.M., Wolfe, C.R., Phillips, L.M., Gangarosa, R.E., Miller, E. and Chen, R.T. (1998). "Impact of anti-vaccine movements on pertussis control: the untold story". *The Lancet*, 351, 356-361.

Gann, R. (1991). "Consumer Health Information: The Growth of an Information Specialism". *Journal of Documentation*, 47 (3), 284-308.

Gellin, B.G., Maibach, E.W. and Marcuse, E.K. (2000). "Do Parents Understand Immunizations? A National Telephone Survey". *Pediatrics*, 106 (5), 1097-1102.

Gill, E. and Sutton, S. (1998). "Immunisation uptake: the role of parental attitudes". In Hey, V. (ed.) (1998). *Immunisation research: a summary volume*, 4-18. London: Health Education Authority.

Gore, P., Madhavan, S., Curry, D., McClung, G., Castiglia, M, Rosenbluth, S.A. and Smego, RA (1999) "Predictors of childhood immunization completion in a rural population". *Social Science & Medicine*, 48, 1011-1027.

Graneheim, U.H. and Lundman, B. (2004) "Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness". *Nurse Education Today*, 24, 105-112.

Grilli, R., Ramsay, C. and Minozzi, S. (2005). "Mass media interventions: effects on health service utilization" *The Cochrane Library*. Issue 2. Chichester: John Wiley and Sons Ltd.

Hammond, P.B. (1997). "Reporting pill panic. A comparative analysis of media coverage of health scares about oral contraceptives". *The British Journal of Family Planning*, 23, 62-66.

- Hargreaves, I., Lewis, J. and Speers, T. (2003). *Towards a better map: Science, the public and the media*. London: Economic and Social Research Council.
- Harrington, P.M., Woodman, C. and Shannon, W.F. (2000). "Low immunisation uptake: Is the process the problem". *Journal of Epidemiology and Community Health*, 54, 394-400.
- Harris, T., Gibbons, C.R., Churchill, M. and Copping, J.(2001). "Primary care professionals' knowledge of contraindications". *Community practitioner*, 74 (2), 66-67.
- Harrison, J.A.P., Mullen, P.D. and Green, L.W. (1992). "A meta-analysis of studies of the Health Belief Model with adults". *Health Education Research*, 7 (1), 107-116.
- Hatton, P. (1990). "Measles/mumps/rubella vaccine (MMR): an audit of Leeds health professionals' knowledge of contraindications and intention to vaccinate assessed by postal questionnaire". *Journal of Public Health Medicine*, 12 (2), 124-130.
- Hawe, P., McKenzie, N. and Scurry, R. (1998). "Randomised controlled trial of the use of a modified postal reminder card on the uptake of measles vaccination". *Archives of Disease in Childhood*, 79, 136-140.
- Haynes, S. (2000). "Health scares: unfair on the public and on health professionals". *Professional Care of Mother & Child*, 10 (2), 31-32.
- Henderson, L., Kitzinger, J. and Green, J. (2000). "Representing infant feeding: content analysis of British media portrayals of bottle feeding and breast feeding". *BMJ*, 321, 1196-1198.
- Hershey, J.C., Asch, D.A., Thumasathit, T., Meszaros, J. and Waters, V.V. (1994). "The Roles of Altruism, Free Riding and Bandwagoning in Vaccination Decisions." *Organizational Behavior and Human Decision Processes*, 59, 177-187.
- Hey, V. (1998). *Immunisation research: a summary volume*. London: Health Education Authority.

- Hobson-West, P. (2003) "Understanding vaccination resistance: moving beyond risk". *Health, Risk & Society*, 5 (3), 273-283.
- Huberman, M. and Miles, M. (1994). "Data Management and Analysis Methods". In Denzin, N.K. and Lincoln, Y.S. (eds.) (1994). *Handbook of qualitative research*. 428-445. Thousand Oaks, California: Sage.
- Hull, D. (1987). "Why children are not immunized." *Journal of the Royal College of Physicians of London*, 21 (1), 28-31.
- Huntingdon, P., Nicholas, D., Williams, P. and Gunter, B. (2002). "Characterising the Health Information Consumer: An Examination of Digital Television Users". *Libri*, 52, 16-27.
- Huws, J.C., Jones, R.S.P. and Ingledew, D.K. (2001). "Parents of Children with Autism using an Email Group: A Grounded Theory Study". *Journal of Health Psychology*, 6 (5), 569-584.
- Janz, N. and Becker, M. (1984). "The Health Belief Model: A Decade Later". *Health Education Quarterly*, 11 (1), 1-47.
- Johnson, A. and Joynes, E.V. (2001). "MMR vaccination uptake in a rural setting". *British Journal of General Practice*, 51, 408.
- Kai, J. (1996a). "What worries parents when their preschool children are acutely ill, and why: a qualitative study". *BMJ*, 313, 983-986.
- Kai, J. (1996b). "Parents' difficulties and information needs in coping with acute illness in preschool children: a qualitative study". *BMJ*, 313, 987-990.
- Kelle, U. (1997). "Theory Building in Qualitative Research and Computer Programs for the Management of Textual Data". *Sociological Research Online*, 2 (2). Available from [Accessed 23/05/03].

Kent, G. (1996). "Shared understandings for informed consent: the relevance of psychological research on the provision of information". *Social Science & Medicine*, 43, 1517-23.

Klaidman, S. (1990). "How Well the Media Report Health Risk". *Daedalus*, Fall, 119-132.

Klein, R. (2000). "The politics of risk: the case of BSE". *BMJ*, 321, 1091-1092.

Krikelas, J. (1983). "Information Seeking Behavior: Patterns and Concepts" *Drexel Library Quarterly*, 19 (2), 5-20.

Krippendorff, K. (1980). *Content Analysis: an introduction to its methodology*. California: Sage.

Kulenkampf, M., Schwatzman, J. and Wilson, J. (1974). "Neurological Complications of Pertussis Inoculation". *Archives of Disease in Childhood*, 49, 46-49.

Leask, J. and Chapman, S. (2000). *An Attempt to Swindle Nature: Anti Immunization Press Reports in Australia 1993-1997*. University of Sydney, Department of Public Health and Community Medicine.

Leask, J. and Chapman, S. (2002). "The cold hard facts: immunisation and vaccine preventable diseases in Australia's newsprint media 1993-1998". *Social Science & Medicine*, 54, 445-457.

Levy, V. (1999). "Maintaining equilibrium: a grounded theory study of the processes involved when women make informed choices during pregnancy". *Midwifery*, 15, 109-119.

Lewis, J. and Speers, T. (2003). "Misleading media reporting? The MMR story" *Nature Reviews: Immunology*, 3, 913-918.

Lincoln, Y.S. and Guba, E.G. (1985). *Naturalistic inquiry*. Beverley Hills, California, Sage.

- Guba, E.G. and Lincoln, Y.S. (1994). "Competing Paradigms in Qualitative Research". In Denzin, N.K. and Lincoln, Y.S. (eds.) (1994). *Handbook of qualitative research*. 105-117. Thousand Oaks, California: Sage.
- Lloyd, A.J. (2001). "The extent of patients understanding of the risk of treatments." *Quality in Health Care*, 10, i14-i18.
- Lunts, E. and Cowper, D. (2002). "Parents refusing MMR: do GPs and health visitors understand why?". *Community practitioner*, 75 (3), 94-96.
- Lupton, D. (1994). "Analysing news coverage". In Chapman, S. (ed) (1994). *The fight for public health: principles and practice of media advocacy*. 23-57. London: BMJ.
- Lydeard, S. (1991). "The Questionnaire as a Research Tool". *Family Practice*, 8 (1), 59-66.
- Mason, B. and Donnelly, P. (2000a). "Impact of a local newspaper campaign on the uptake of the measles, mumps and rubella vaccine". *Journal of Epidemiology and Community Health*, 54, 473-474.
- Mason, B. and Donnelly, P. (2000b). "Targeted mailing of information to improve uptake of measles, mumps and rubella vaccine: a randomised controlled trial". *Communicable Disease and Public Health*, 3 (1), 67-68.
- Matsuda, D. (2002). Beliefs About Immunization and Children's Health Among Childbearing Mothers in Nepal. MPhil Thesis. Stanford University.
- McGuire, C. (1997). "Childhood Immunisation: the Parental Perspective". *Children and Society*, 11, 264-267.
- Meadows, J. (2001). *Understanding Information*. Munich: Saur.
- Miller, S.M., Brody D.S. and Summerton J. (1988). "Styles of coping with threat, implications for health". *Journal of Personality and Social Psychology*. 54 (1), 142-148.

- Miller, L.A., Hoffman, R.E., Baron, A.E., Marine, W.M. and Melinkovich, P. (1994). "Risk Factors for Delayed Immunization Against Measles, Mumps and Rubella in Colorado Two-Year Olds". *Pediatrics*, 94 (2), 213-219.
- Mills, H. (2002). "Private Eye Special Report: MMR: The story so far". *Private Eye*.
- Mitchell, W. and Sloper, P. (2002). "Information that informs rather than alienates families with disabled children: developing a model of good practice". *Health and Social Care in the Community*, 10 (2), 74-81.
- Moreton, J., Bedford, H. and Elliman, D. (1998). "MMR: weighing up the risks-vaccine versus disease". *Community practitioner*, 71 (5), 169-171.
- Muhr, T. (1997). "ATLAS.ti: The Knowledge Workbench". Berlin: Scientific Software Development.
- Nasir, L. (2000). "Reconnoitering the Antivaccination Web Sites: News from the Front". *The Journal of Family Practice*, 49 (8), 731-733.
- National Health Service (1990). *NHS and Community Care Act*. London: HMSO.
- NHS Executive (1992). *Local Voices*. London: Department of Health.
- NHS Executive (1996). *Patient Partnership: Building a Collaborative Strategy*. London: Department of Health.
- National Health Service (2001). *The NHS Plan*. Available from [/nhsguide/home.htm](http://nhsguide/home.htm). [Accessed 5/9/02].
- National Health Service (2003). When should you vaccinate your child. Available from [Accessed 27/8/03].
- National Literacy Trust (2004). *How to write clearly: a style guide*. Available from [Accessed 28/5/04].

National Statistics (2001) Census 2001. Available from
[Accessed 26/4/2005]

Neuendorf, K.A. (2002). *The content analysis guidebook*. Thousand Oaks, California: Sage.

New, S.J. and Senior, M.L. (1991). "I don't believe in needles": Qualitative aspects of a study into the uptake of infant immunisation in two English Health Authorities". *Social Science & Medicine*, 33, 509-518.

Nicholas, D. and Marden, M. (1998). "Parents and their information needs. A case study: Parents of children under the age of five". *Journal of Librarianship and Information Science*, 30 (1), 35-47.

Nicholas, D., Huntington, P., Williams, P. and Jordan, M. (2002). "NHS Direct Online: its users and their concerns". *Journal of Information Science*, 28 (4), 305-319.

Nicoll, A. (2001). "Benefits, safety, and risks of immunisation programmes". *Interdisciplinary Science Reviews*, 26 (1), 20-30.

Norman, P. (1995). "Applying the health belief model to the prediction of attendance at health checks in general practice". *British Journal of Clinical Psychology*, 34, 461-470.

Norman, P. and Brain, K. (2001). *An application of the health belief model to the prediction of breast self-examination in a national sample of women with a family history of breast cancer*. Institute of Medical Genetics, University of Wales College of Medicine.

Office for National Statistics (2000). *Standard Occupational Class, 2000*. London: HMSO.

Oppenheim, A.N. (1996). *Questionnaire design, interviewing and attitude measurement*. London: Pinter Publishers Limited.

Owens, S. (2002). "Injection of confidence". *EMBO reports*, 3 (5), 406-409.

Pain, H. (1999). "Coping with a child with disabilities from the parents' perspective: the function of information". *Child: Care, Health and Development*, 25 (4), 299-312.

Pallant, J. (2001). *SPSS Survival Manual*. Maidenhead: Open University Press.

Pareek, M. and Pattison, H. (2000). "The two dose measles, mumps and rubella (MMR) immunisation schedule: factors affecting maternal intention to vaccinate." *British Journal of General Practice*, 50, 969-971.

Paunio, M., Virtanen, M., Peltola, H., Cantell, K., Paunio, P., Valle, M., Karenko, V. and Heinonen, O.P. (1991). "Increase of Vaccination Coverage by Mass Media and Individual Approach: Intensified Measles, Mumps, and Rubella Prevention Program in Finland." *American Journal of Epidemiology*, 133 (11), 1152-1160.

Petrovic, M., Roberts, R. and Ramsay, M. (2001). "Second dose of measles, mumps and rubella vaccine: questionnaire survey of health professionals". *BMJ*, 322, 82-85.

Petts, J. and Homan, J. (2001). *Risk Literacy and the Public*. Centre for Environmental Research and Training/ Department of Health . Available from
[Accessed 5/9/02].

Phillips, N. (2000). *The BSE Inquiry*. Available from www.bse.org.uk. [Accessed 5/9/02]

Pike, M., Henderson, D. and Krailo, M. (1983). "Breast cancer in young women and use of oral contraceptives". *The Lancet*, 2, 926-930.

Poland, G.A. and Jacobson, R. (2000) "Vaccine Safety: Injecting a Dose of Common Sense". *Mayo Clinic Proceedings*, 75 (2), 135-139.

Pyke-Grimm, K.A., Degner, L., Small, A. and Mueller, B. (1999). "Preferences for Participation in Treatment Decision Making and Information Needs of Parents of

Children With Cancer: A Pilot Study". *Journal of Pediatric Oncology Nursing*, 16 (1), 13-24.

Raithatha, N., Holland, R., Gerrard, S. and Harvey, I. (2003). "A qualitative investigation of vaccine risk perception among parents who immunize their children: a matter of public health concern". *Journal of Public Health Medicine*, 25 (2), 161-164.

Ramsay, M.E., Yarwood, J., Lewis, D., Campbell, H. and White, J.M. (2002). "Parental confidence in measles, mumps and rubella vaccine: evidence from vaccine coverage and attitudinal surveys". *British Journal of General Practice*, 52, 912-916.

Richards, T. and Richards, L. (1994) "Using Computers in Qualitative Research" in Denzin, N.K. and Lincoln, Y.S. (eds.) (1994). *Handbook of qualitative research*. 445-462. Thousand Oaks, California: Sage.

Riffe, D., Lacy, S. and Fico, F. (1998). *Analyzing Media Messages: Using Quantitative Content Analysis in Research*. Lawrence Erlbaum: New Jersey.

Roberts, R.J., Sandifer, Q.D., Evans, M.R., Nolan-Farrell, M.Z. and Davis, P.M. (1995). "Reasons for non-uptake of measles, mumps, and rubella catch up immunisation in a measles epidemic and side effects of the vaccine". *BMJ*, 310, 1629-1632.

Roberts, K.A., Dixon-Woods, M., Fitzpatrick, R., Abrams, K.R. and Jones, D.R. (2002). "Factors affecting uptake of childhood immunisation: a Bayesian synthesis of qualitative and quantitative evidence". *The Lancet*, 360, 1596-1599.

Rose, V. (1998). "MMR immunisation: what advice should we give to parents?". *Professional Care of Mother & Child*, 8 (3), 58-59.

Sampson, D. (1998). "Immunisation: identifying and resolving the ethical issues". *Community practitioner*, 71 (4), 133-135.

Schmidt, K. and Ernst, E. (2003). "MMR vaccination advice over the Internet". *Vaccine*, 21, 1044-1047.

- Schwandt, T. (1997). *Qualitative inquiry: A dictionary of terms*. California: Sage.
- Scowen, P. (1996). "The facts about the phthalates scare". *Professional Care of Mother & Child*, 6 (5), 126-127.
- Shannon, C. and Weaver, W. (1949). *The Mathematical Theory of Communication*. Urbana, Illinois: University of Illinois Press.
- Shih, F.J. (1998). "Triangulation in nursing research: issues of conceptual clarity and purpose". *Journal of Advanced Nursing*, 28 (3), 631-641.
- Showalter, E. (1997). *Hystories*. London: Picador.
- Silverman, D. (1993). *Interpreting Qualitative Data: Methods for Analysing Talk, Text and Interaction*. London: Sage.
- Simpson, N., Lenton, S. and Randall, R. (1995). "Parental refusal to have children immunised: extent and reasons". *BMJ*, 310, 225-227.
- Smailbegovic, M.S., Laing, G.J. and Bedford, H. (2003). "Why do parents decide against immunization? The effect of health beliefs and health professionals". *Child: Care, Health & Development*, 29 (4), 303-311.
- Spier, R.E. (2002). "Perception of a risk of vaccine adverse events: a historical perspective". *Vaccine*, 20, S78-S84.
- Sporton, R.K. and Francis, S-A. (2001). "Choosing not to immunize: are parents making informed decisions?" *Family Practice*, 18 (2), 181-188.
- Stallings, R. (1990). "Media Discourse and the Social Construction of Risk". *Social Problems*, 37 (1), 81-94.
- Strecher, V.J. and Rosenstock, I.M. (1997). "The Health Belief Model". In Glanz, K., Lewis, F. and Rimer, B. (1997). *Health Behavior and education: theory, research and practice*. San Francisco: Josey Bass: Second Edition.

Strobino, D., Keane, V., Holt, E., Hughart, N. and Guyer, B. (1996). "Parental Attitudes Do Not Explain Underimmunization". *Pediatrics*, 98 (6), 1076-1083.

The Edward Jenner Institute for Vaccine Research (2003). *Edward Jenner (1749-1823)*. Available from [Accessed 27/01/04].

Thompson, D. (ed.) (1992). *The Pocket Oxford Dictionary of Current English*. Oxford: Clarendon Press: Eighth Edition.

Thrower, D. (2001). *MMR and late onset autism (autistic enterocolitis) – a briefing note*. Available from [Accessed 27/01/04].

Tuma, J.N., Smith, S.M., Kirk, R.H., Hagmann, C.E. and Zemel, P.C. (2002.) "Beliefs and attitudes of caregivers toward compliance with childhood immunisations in Cameroon". *Public Health*, 116, 55-61.

Virdee, D. and Causer, P. (2003). "Region in Figures – Yorkshire and the Humber". Available from [Accessed 26/3/04].

Wakefield, A.J., Murch, S.H., Anthony, A., Linnell, J., Casson, D.M., Malik, M., Berelowitz, M., Dhillon, A.P., Thomson, M.A., Harvey, P., Valentine, A., Davies, S.E. and Walker-Smith, J.A. (1998). "Ileal-lymphoid-nodular hyperplasia, non specific colitis, and pervasive developmental disorder in children". *The Lancet*, 351, 637-641.

Walter, V.A. (1994). "The Information Needs of Children". *Advances in Librarianship*, 18, 111-129.

Ward, B.J. (2000). "Vaccine adverse events in the new millennium: is there reason for concern?". *Bulletin of the World Health Organisation*, 78 (2), 205-215.

Weatherall, M. (1996). "The 'pill scare' of October 1995, the media and the public understanding of science". *The British Journal of Family Planning*, 22, 151-153.

Weber, R. (1990). "Basic Content Analysis". In Lewis-Beck, M. *Research Practice*. California: Sage. Second Edition

Wellings, K. (1985). "Help or hype: an analysis of media coverage of the 1983 'Pill scare'". *The British Journal of Family Planning*, 11, 92-98.

White, C. (2002). "Open season on MMR". *BMJ*, 324, 120.

Whittemore, R., Chase, S.K and Mandle, C.L (2001). "Validity in Qualitative Research." *Qualitative Health Research*, 11 (4), 522-537.

Wilson, T.D. (1999). "Models in information behaviour research." *Journal of Documentation*, 55 (3), 249-270.

Wilson, T. (1997). "Information Behaviour: An Interdisciplinary Perspective" *Information Processing and Management*, 33 (4), 551-572.

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Appendix One - Interview Study

1.1 Letter to Nursery Leaders



U N I V E R S I T Y O F S H E F F I E L D

DEPARTMENT OF INFORMATION STUDIES

Postal address: Western Bank, Sheffield

Location: Regent Court, 211 Portobello Street, Sheffield

Tel.

E-mail:

Work tel -

Home tel -

Mobile tel -

11th February 2002

Dear (Insert name)

Thank you very much for agreeing to assist me with the research that I am undertaking. I enclose the letter and information sheet that I have placed in the envelopes for distribution to the parents.

Please can you distribute a letter to all parents who have a child aged between 12 months and 3½ years? It is important that only this age group's parents receive the letters.

Please could you distribute the letters to the parents as soon as possible, preferably by the end of this week (15th February)? If the parents ask you any questions about the study, please refer them to me.

It is important that I know how many letters have been distributed. Therefore, would it be possible for you to return all the letters that have not been distributed? Please could you return them to me by 26th February? I enclose a large stamped addressed envelope for this purpose. Thank you again for your help. If you have any questions then please feel free to contact me (details above).

Yours Faithfully,

Louise Guillaume

1.2 Letter to parents (Nursery Schools)



UNIVERSITY OF SHEFFIELD
DEPARTMENT OF INFORMATION STUDIES

Postal address: Western Bank, Sheffield

Location: Regent Court, 211 Portobello Street, Sheffield

Tel.

E-mail: |

Work tel - |

Home tel -

Mobile tel -

11th February 2002

Dear Parent,

I am writing to you to ask if you would be prepared to help me with some research that I am doing. My name is Louise Guillaume and I am doing a research degree at the University of Sheffield. My area of interest is in the information needs and information seeking behaviour of parents. The study that I am undertaking is part of a wider project examining the role of information during health scares. I am particularly interested in examining the role of information in the health scare that has surrounded the Measles, Mumps and Rubella (MMR) vaccine.

This health scare has had an impact on parents' behaviour, with many deciding not to vaccinate their children, while others have continued to vaccinate their children. The study that I am asking you to take part in would look at the role of information in making this decision.

If you would like to participate in the study, I would like to interview you, at a time and in a location that suits you. The interview would take between 1 and 1½ hours and would consist of a number of questions asking you about the role of information in the health scare, your information needs and preferred information sources. I would be able to come to your home to undertake the interview or if you prefer, I could interview you at the University. If neither of these is acceptable to you, I am sure that we could arrange an alternative location to meet.

Please could you read the attached information sheet, and if you are interested in taking part in the study, please telephone me on any of the telephone numbers above or e-mail me and we can arrange an interview at your preferred time, date and location. I am hoping to undertake the interviews within the next few weeks, therefore if you would like to take part, please could you contact me as soon as possible.

Yours Faithfully,

Louise Guillaume

1.3 Letter to parents (Toddler Groups)



U N I V E R S I T Y O F S H E F F I E L D

DEPARTMENT OF INFORMATION STUDIES

Postal address: Western Bank, Sheffield

Location: Regent Court, 211 Portobello Street, Sheffield

Tel.

E-mail:

Work tel -

Home tel -

Mobile tel -

March 2002

Dear Parent,

I am attending the toddler group today to ask if you would be prepared to help me with some research that I am doing. My name is Louise Guillaume and I am doing a research degree at the University of Sheffield. My area of interest is in the information needs and information seeking behaviour of parents. I am particularly interested in examining the role of information in the health scare that has surrounded the Measles, Mumps and Rubella (MMR) vaccine. I am interested in looking at the impact that this scare has had on parents in terms of their information needs and the influence that this has had on the decision about whether to vaccinate.

If you would be interested in participating in the study, I would like to interview you, at a time and in a location that suits you. The interview would take between ½ hour and 1 hour and would consist of a number of questions asking you about the role of information in the MMR vaccine scare.

I would be able to come to your home to undertake the interview or if you prefer, I could interview you at the University. If neither of these are acceptable to you, I am sure that we could arrange an alternative location to meet. Please could you read the attached information sheet, and if you are interested in taking part in the study, please either speak to me in person today, telephone me on any of the telephone numbers above or e-mail me and we can arrange an interview at your preferred time, date and location.

Yours Faithfully,

Louise Guillaume

INFORMATION SHEET

You are being asked to take part in a research study. Before you decide whether you want to take part, it is important that you understand why the study is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. Please contact Louise Guillaume (details on covering letter) if you have any questions about the study or if there is anything that is not clear.

What is the purpose of the study?

Health scares have become a mass media phenomenon and often concern children's health, for example the Measles, Mumps and Rubella (MMR) vaccination scare. This study will look at the effect that these scares have on the parents of children under the age of five. In particular the study will look at the information that parents need, the sources that they use for information and how they go about getting information.

Why have I been chosen?

Because we would like to talk to parents who have children between the ages of 12 months and 3¹/₂ years.

What will be involved if I decide to take part in the study?

You will be interviewed by the researcher (Louise Guillaume). The interview should last between one and one and a half hours. You will also be asked to complete a brief questionnaire. This will be fully explained during the interview.

Can I withdraw from the study?

Yes. You do not have to take part in the study. If you agree to take part and then change your mind then that is fine. If there are certain issues that you do not wish to discuss then we will not discuss them

What other information will be collected from me?

None. The only information that we require is the questionnaire and the interview. The interview will be tape-recorded. All information that is collected from you will be confidential and kept securely.

What will happen to the results of this study?

They will be used in the researchers' PhD study. They will be reported using false names. The findings may also be used in articles, which will be published in journals. If you request it, you can also have a copy of the interview.

I want to take part, what do I do now?

Please telephone Louise Guillaume to arrange a time, date and location for the interview (see covering letter for contact details).

What if I wish to complain about the way in which the study has been conducted?

If you have any complaints, please contact the study leader Louise Guillaume (contact details on covering letter) or the study supervisor, Dr Peter Bath at the Department of Information Studies (address on covering letter, tel:

1.5 Information Sheet (Toddler Groups)

INFORMATION SHEET

You are being asked to take part in a research study. Before you decide whether you want to take part, it is important that you understand why the study is being done and what it will involve. Please read the following information carefully and discuss it with others if you wish. Please contact Louise Guillaume (details on covering letter) if you have any questions about the study or if there is anything that is not clear.

What is the purpose of the study?

Health scares have become a mass media phenomenon and often concern children's health, for example the Measles, Mumps and Rubella (MMR) vaccination scare. This study will look at the effect that these scares have on the parents of children under the age of five. In particular the study will look at the information that parents need, the sources that they use for information and how they go about getting information.

Why have I been chosen?

Because I would like to talk to parents who have children between the ages of 12 months and 4 years.

What will be involved if I decide to take part in the study?

You will be interviewed by the researcher (Louise Guillaume). The interview should last between half an hour and an hour. The interview will be tape-recorded. You will also be asked to complete a brief questionnaire. This will be fully explained during the interview.

Can I withdraw from the study?

Yes. You do not have to take part in the study. If you agree to take part and then change your mind then that is fine. If there are certain issues that you do not wish to discuss then we will not discuss them.

What other information will be collected from me?

None. The only information that we require is the questionnaire and the interview. The interview will be tape-recorded. All information that is collected from you will be confidential and kept securely.

What will happen to the results of this study?

They will be used in the researchers' PhD study. They will be reported anonymously. The findings may also be used in articles, which will be published in journals. If you request it, you can also have a copy of the interview.

I want to take part, what do I do now?

Please contact Louise Guillaume to arrange a time, date and location for the interview (see covering letter for contact details).

What if I wish to complain about the way in which the study was conducted?

If you have any complaints, please contact the study leader Louise Guillaume (contact details on covering letter) or the study supervisor, Dr Peter Bath at the Department of Information Studies (address on covering letter, tel:

1.6 Interview Schedule

INTRODUCTION

Thanks for agreeing to take part in this study and for giving up your time.

I'll tell you a bit of background about the study. I am doing a research degree at the University of Sheffield in the Department of Information Studies.

My research concerns information and parents. I am looking at parents' information needs, both generally and in relation to health. I am also looking at information issues surrounding the MMR vaccine and health scares.

I would like to ask you a series of questions about information and how it affects you as a parent.

If there is anything that you are unhappy talking about, then just tell me and we won't talk about it.

I don't want you to think that there is any right or wrong answer to the questions that I am going to ask you; I am interested in your views and opinions.

As I explained in the information sheet, I am going to record the interview; I hope that this is ok.

Have you got any questions about anything that I have said so far?

Before we start, can we complete this consent form? I will read through the questions with you and will sign both copies. Can you also sign one copy and I will leave it with you and take the other copy with me

Ok, let's start.

HEALTH INFORMATION

I would like to start by looking at information in its broadest sense.

What do people use information for?

What kind of sources can you get information from?

Looking more specifically at your role as a parent, what kind of information do you need relating to your child in terms of:

- Their health (illness and general health)
- Their development and behaviour (speech and language)
- Child care/schooling

And where do you get it from?

Are there any other kinds of information that you need that haven't been covered in the list above?

Specifically to your child's health:

What are the sources that you use for health information?

- Formats (Paper, audio-visual)
- Interpersonal

On what occasions do you need health information?

- Emergencies- examples
- Everyday - examples

MMR – THE DISEASES

As the main focus of this interview is on the MMR vaccine, I would like to have a look at information about the diseases and the vaccines.

Could you tell me what you know about the diseases of:

- Measles
- Mumps
- Rubella

i.e. how are they transmitted, what are the symptoms, what are the consequences?

Where and when did you get the information concerning these diseases?

- Interpersonal
- Media

What do you think about the quality of these sources?

- Interpersonal
- Media

Is there any more information surrounding the diseases that you want to know?

- If so, have you tried unsuccessfully to access the information?

MMR – THE VACCINE

I am also interested in finding out what you know about the MMR vaccine.

What do you know about the vaccine (not the problems that have been associated with it)?

- Timing of vaccination?
- Reasons for vaccination?
- Side effects?

Where did you get this vaccine information from?

When did you get this vaccine information and was it at the correct time for you?

Was there any information about the vaccine that you wanted which was not provided to you i.e. is there anything else that you need to know?

Can you tell me a bit about the decision making process regarding the MMR vaccine

- In terms of your concerns?

- The influence of information?
- Your final decision?

Did the information that you received influence your decision about whether to get your child vaccinated?

Did you feel that you had made an informed decision?

MMR – IN THE NEWS

As I am sure you are aware, there has been a lot of media coverage surrounding the MMR vaccine. I would like to ask you a few questions about it.

Initial Scare

First, we will look at the stories which made the news a couple of years ago

Can you remember when you first heard about the controversy?

Can you remember the content of the stories?

Where did you find out about the controversy surrounding the vaccine from?

What information did these news stories make you want?

What sources did you use to get this information?

How did the following make you feel at the time of the scare?

- TV
- Newspapers and journalists
- Politicians and Officials
- Health Care Professionals
- Friends and Family.

When did you want information?

- At the time you were made aware of the scare OR
- At the time of your child's vaccination
- OR both?

Outbreaks

Now we will have a look at the outbreaks of measles that have been reported in the media.

Can you remember when you first heard about the outbreaks?

Where did you find out about the outbreaks from?

I am interested in knowing whether these recent outbreaks have changed your information needs or preferred information sources

- What information did these news stories make you want?

- What sources did you use to get this information?

How did the following make you feel at the time of the outbreaks?

- TV
- Newspapers and journalists
- Politicians and Officials
- Health Care Professionals
- Friends and Family.

If there were an outbreak of measles local to Sheffield

- Would the information that you need be different?
- Would the sources that you use be different?
- What would be your preferred sources of information?

Why do you think that the government are promoting MMR so strongly?

Do you have any suggestions as to why the government seem to be responding more to the current scare than the scare of a few years ago?

HEALTH SCARES

The controversy that has surrounded the MMR vaccine has been described as being a 'health scare'

Could you tell me some examples of health scares that you can think of?

How do you think health scares come about?

- Specialist media to mass media
- Public health events
- Intervention of government
- Lack of information/unclear information
- Local/national effects.

Where do you find out about health scares from?

At the time of health scares

- Do you understand all of the information that is provided?
- Which sources do you find it easiest to understand?
- Are you happy with the amount of information that you can access?

How did the following make you feel at the time of the scare?

- TV
- Newspapers and journalists
- Politicians and Officials
- Health Care Professionals
- Friends and Family.

What information would you like to see provided for parents during health scares and who would you like to see provide it?

It has been suggested that the Chief Medical Officer make a public broadcast on national television addressing issues about the MMR scare. What information do you think that he could say that would make a difference to parents?

How do you think your/other parent's confidence could be restored in the MMR vaccine?

CONCLUSION

I will briefly summarise what we have discussed. Summarise. (Health information, MMR vaccine and diseases, MMR scare, health scares in general)

Is there anything that you would like to add?

Can I just ask you, do you know anyone whose child has had a reaction to the MMR vaccine, either long term or short term or do you have any strong feelings concerning the diseases?

Thank you for your time and your help.

Can I please ask you a few questions that will help me to build a picture of the people who have taken part in the study? These details will not be used to identify you, will be kept securely and will be treated confidentially.

Would you like a copy of the transcript of the interview that we have just undertaken? If yes then take their address and tell them how long it will take to send them the transcript.

Thanks again!

1.7 Consent Form

Title of project - An examination of how health scares affect the information needs and information seeking behaviour of parents?

Name of Researcher - Louise Guillaume

1. I confirm that I have agreed to take part in the above study.

2. I agree to this interview being tape recorded.

3. I agree to these tape recordings being transcribed from tape to paper

4. I understand that all the information I provide will be anonymous and that during the transcription I will be assigned a false name.

5. I understand that all of the data generated from the study will be kept safely locked away

Name of Participant

Signature of Participant

Date

Name of Researcher

Signature of Researcher

Date

1.8 Demographic Questionnaire

Please answer the following questions about yourself, your family and your child/children. Please only answer the questions that are relevant. All information that you supply will be strictly confidential.

Yourself

1. Sex Female Male

2. Age 18-24 45-54
 25-34 55+
 35-44

3. Marital Status Single Divorced
 Married/Living with partner Widowed

4. Ethnic Origin White Afro-Caribbean
 Asian Other*
 *Please specify _____

5. Are you in full-time employment? Yes No
 If yes, what is your job title _____

6. If you are not employed but your spouse works full time, what is your spouses job title? _____

7. If neither you nor your spouse is currently working, what was the job title of the most recent job held by either yourself or your spouse? _____

8. If neither you nor your spouse has had a job, what was the job title of the most recent job held by your father? _____

Your child(ren)

9. How old is your child/children?

Child One months
 Child Two months
 Child Three months

10. Has your child/children been immunised with the MMR vaccine?

CHILD ONE Yes 13 month vaccine? Why not?
 No Pre-school vaccine _____

CHILD TWO Yes 13 month vaccine? Why not?
 No Pre-school vaccine _____

CHILD THREE Yes 13 month vaccine? Why not?
 No Pre-school vaccine _____

11. If your child is old enough, but hasn't been immunised with the pre-school vaccine, why is this?

Child ill at time of vaccine?

Child allergic to vaccine?

If other, please explain

1.9 Demographic Data

Response rates

Location	Letters distributed (n)	Responses (n)	Response rate (%)
Nursery School One	24	1	4.2
Nursery School Two	40	3	7.5
Toddler Group One	23	5	21.7
Toddler Group Two	9	3	33.3
Toddler Group Three	19	5	26.3

Location of interview

Parents home	14
Other	3

Sex

	n (%)
Female	16 (94.1)
Male	1 (5.9)
Total	17 (100)

Age

	n (%)
18-24	1 (5.9)
25-34	9 (52.9)
35-44	7 (41.2)
Total	17 (100)

Marital Status

	n (%)
Married/Living with partner	17 (100)

Ethnic Group

	n (%)
White	16 (94.1)
Other	1 (5.9)
Total	17 (100)

Employment

NS-SEC	n (%)
Higher managerial and professional occupations	3 (17.6)
Lower managerial and professional occupations	9 (52.9)
Intermediate occupations	4 (23.5)
Not classified	1 (6)
Total	17 (100)

Participant Employment	n (%)
Yes	2 (11.8)
No	9 (52.9)
Part Time	3 (17.6)
Maternity Leave	3 (17.6)
Total	17 (100.0)

Spouse Employment	n (%)
Yes	13 (76.5)
Missing	4 (23.5)
Total	17 (100.0)

Children

Number of children	n (%)
One	7 (41.2)
Two	8 (47.1)
Three	2 (11.8)
Total	17 (100.0)

	n (months)	Minimum (months)	Maximum (months)	Mean (months)	SD (months)
Child One	17	6	156	40.94	33.23
Child Two	10	3	132	28.00	38.79
Child Three	2	24	30	27.00	4.24

MMR status

Child One	n (%)
Yes	12 (70.6)
No	5 (29.4)
Total	17 (100.0)
Child Two	n (%)
Yes	6 (60)
No	4 (40)
Total	10 (100)
Child Three	n (%)
Yes	1 (50)
No	1 (50)
Total	2 (100)

1.10 Validity (Letter to participants)



U N I V E R S I T Y O F S H E F F I E L D
DEPARTMENT OF INFORMATION STUDIES

Postal address: Western Bank, Sheffield

Location:

Tel.

E-mail:

Dear Parent,

In the spring this year you volunteered to be interviewed as part of a study that I am undertaking on the Measles, Mumps and Rubella (MMR) vaccine and the scare that has surrounded it. I have completed the research that I was undertaking and am in the process of writing the research up, as part of my PhD.

I am writing to ask for your assistance in providing feedback on the results that I have produced from the interviews that I carried out.

Please could you read the attached summary of the results of the interviews that I undertook with you and other parents in Sheffield and fill in the attached evaluation sheet with your opinions about the study.

I enclose a stamped addressed envelope for your reply.

Thank you very much for your help

Yours sincerely,

Louise Guillaume.

1.11 Validity (summary of interviews)

Summary of Interviews

This is the summary of the results from interviews carried out with parents of young children in Sheffield in Spring 2002. The results are presented within the following three themes and sub themes, generated from the interview results.

Themes

1. Being a parent

- a) *Parents and information*
- b) *Parenting Issues*
- c) *Parenting and children's health*

2. Health Scares

- a) *Definitions and Examples*
- b) *Information sources*
- c) *Impact of health scares*

3. The MMR scare

- a) *The MMR vaccine*
- b) *Information about the MMR scare*
- c) *What parents do*
- d) *What parents want*
- e) *Response to MMR scare*

Results

1. Being a parent

a) *Parents and information*

- Information was used in a variety of situations
- Information received in any situation was not always useful and some information led to parents feeling overloaded and overwhelmed.

b) *Parenting Issues*

- Traditional sources of information about parenting were frequently viewed as insufficient and parents tended to seek information from other sources
- Other parents were useful for obtaining information about children
- The issue of development was an area in which information from books had to be supplemented by information from other parents.
- The Children's Information Service was a useful source of information about schooling and activities for children.
- The Link magazine and Chatterbox were useful sources of information.
- Parents found it hard to obtain information about allergies and specific diets.

c) *Parenting and children's health*

- Health Visitors could be accessed at any time (via the telephone) but they often provided insufficient information.
- The Internet was used heavily as a source of parenting information.
- Parents found leaflets provided by the GP useful for information about their children's health.

2. Health Scares

a) Definitions and Examples

- Health scares were defined in terms of how they were dealt with by the government and the media.
- The health scares that were identified centred around four issues: food, children, environmental issues and health care services.
- The food scares that were mentioned were salmonella, BSE, botulism, e-coli and additives.
- The scares that were mentioned that concerned children were formula milk, whooping cough vaccine, MMR vaccine and disease outbreaks (meningitis and TB).
- Environmental scares focussed on the link between pollution and asthma and the link between radiation and childhood cancers.
- Health care service scares were centred on incorrect test results and the incorrect administration of drugs.

b) Information sources

- Initial source of information about health scares tended to be the media.
- This information was not considered to be useful
- Parents thought that follow up information from reputable sources was hard to find and when they did access it, it was seldom useful.

c) Impact of health scares

- Health scares made parents less willing to trust health care professionals and the government, particularly in relation to health issues.

3. The MMR scare

a) The MMR vaccine

- Parents knew a lot of basic information about the vaccine, such as the age at which it was given and the format of the triple vaccine.
- Parents were informed about the conditions of measles, mumps and rubella. Most of the information had come from their experiences of the conditions.
- Measles was viewed to be the most serious of the conditions.

b) Information about the MMR scare

- Initial information about the scare came from the media.
- The print and broadcast media were considered to be biased and sensationalised.
- Despite this, the media were still considered to be a useful information source.
- Broadsheet newspapers were trusted more than tabloids in terms of the information that they provide.
- Important information also came from friends and family.
- Health care professionals did not provide as much information as parents wanted. They were viewed as being constrained by their links to the government.
- Health care professionals gave conflicting advice to parents, with some parents being advised to vaccinate their child by one professional but being advised against the MMR by another.
- Parents who were in favour of the MMR vaccine believed that the research that had been undertaken by Dr Andrew Wakefield was flawed.
- Parents who were against the MMR vaccine accepted the evidence of Dr Andrew Wakefield and of parents whose children had developed problems, arguably as a result of the MMR vaccine.
- As a result of the scare, parents wanted information that was honest and straightforward
- Some parents expressed that additional research findings might influence any future decision that they have to make about MMR vaccination.
- Parents wanted information to be made available in sufficient time for them to make an informed decision before their child was due to receive the MMR vaccine.

- The most popular format of information was written. Parents appreciated being able to refer back to written sources when appropriate.
- c) *What parents do*
- Parents found the decision about whether to vaccinate their children difficult.
 - All parents used some form of information to make their choice.
 - Parents who decided to vaccinate their children did so for the following reasons: evidence proposed against the MMR was insufficient and that the risk of the diseases outweighed any potential risk of the vaccine.
 - Parents who decided not to vaccinate their children cited the following reasons: child with allergies; MMR vaccine made in egg; child perceived to be 'high risk' and a desire to build up natural immunity.
- d) *What parents want*
- The majority of the parents interviewed believed that single vaccines should be offered to interested parents. This was because parents believed they should have a choice about the MMR vaccine.
 - The most important aspect of information that parents wanted was that it should be honest and truthful. Content was more important to parents than format.
 - Parents wanted information from public figures that they felt they could trust.
- e) *Response to MMR scare*
- Parents were sceptical of the government response to the scare and did not trust the information that they received. This impression of dishonesty was compounded by the decision of Tony Blair not to disclose his son, Leo's, vaccination status. This issue concerned some parents, but others stated that they were not affected by the issue surrounding Leo Blair.
 - Parents response to the scare had been shaped by previous scares, most notably BSE.

1.12 Validity (Evaluation Sheet)

MMR Interview Study – Spring 2002

Name.....

Date of Interview.....

Please tick the following boxes as appropriate:

1. Do you think that the results presented include aspects of the discussion that we had?

Yes

No

2. Do you think that these aspects presented are an accurate representation of the discussion that we had?

Yes

No

3. Do you have any further comments to make?

.....
.....
.....
.....
.....
.....
.....

Thank you very much. Could you please post this form back to me in the enclosed stamped addressed envelope?

Appendix Two - Questionnaire Study

2.1 Ethical Approval (South Sheffield Research Ethics Committee)

South Sheffield Research Ethics Committee

South Sheffield Ethics Office
307 Western Bank
Sheffield

Telephone:
Email:

Chair: Professor C. Taylor
Acting Administrator: Ms N. Frookas



SSREC/03/128 - Please quote this number on all correspondence

Dr. P A Bath
Lecturer
Department of Information Studies
Western Bank
Sheffield

24/10/03

Dear Dr. Bath

Research Protocol: SSREC/03/128 - An investigation of the impact of the MMR vaccine scare on parents information needs and preferred information sources: a questionnaire study utilising the Health Belief Model

The Chair of South Sheffield Research Ethics Committee has considered the amendments submitted in response to the Committee's earlier review of your application on 10/07/03 and 16/10/03 as set out in our letters dated 11/07/03 and 17/10/03. The documents considered were as follows:

Registration pages, dated 24/06/03
Letter to General Practices, version 1, dated May 2003
Information sheet for General Practices, version 1, dated May 2003
Follow-up letter to General Practices, version 1, dated May 2003
Letter to parents, version 1, dated May 2003
Information sheet for parents, version 1, dated May 2003
Consent form, version 1, dated May 2003
Letter to pilot participants, version 1, dated May 2003
MMR Questionnaire, version 1, received 25/06/03
Pilot study evaluation form, version 1, dated May 2003
Follow up letter to parents, version 1, dated May 2003
Protocol, version 1, received 25/06/03
CV (Louise Guillaume), received 25/06/03
Peer review letter, dated 23/06/03

Modified/New Documents
Letter to parents, information sheet, consent form, questionnaire
Letter to nursery leaders, letter to pilot participants, pilot study evaluation sheet
Protocol
CV
Copy of peer review letter from the appropriate body
Registration pages, dated 30/09/03

Modified/New Documents
Protocol, version 2, October 2003

The Chair, acting under delegated authority, is satisfied that these accord with the decision of the Committee and has agreed that there is no objection on ethical grounds to the proposed study I am,

Bath 03-128 24-1003 doc

An advisory committee to South Yorkshire Strategic Health Authority

therefore, happy to give you the favourable opinion of the committee on the understanding that you will follow the conditions set out below.

Conditions

- You do not undertake this research in an NHS organisation until the relevant NHS management approval has been gained as set out in the Framework for Research Governance in Health and Social Care.
- You do not deviate from, or make changes to, the protocol without prior written approval of the REC, except where this is necessary to eliminate immediate hazards to research participants or when the change involves only logistical or administrative aspects of the research. In such cases the REC should be informed within seven days of the implementation of the change.
- You complete and return the standard progress report form to the REC one-year from the date on this letter and thereafter on an annual basis. This form should also be used to notify the REC when your research is completed and in this case should be sent to this REC within three months of completion.
- If you decided to terminate this research prematurely you send a report to this REC within 15 days, indicating the reason for the early termination.
- You advise the REC of any unusual or unexpected results that raise questions about the safety of the research.
- If you carry out any research at the Northern side of the city, the North Sheffield REC must be informed, please contact the office on 0114 271 4011 for further details.

A full record of the review undertaken by the REC is contained in the attached REC Response Form. The project must be started within three years of the date on which REC approval is given.

Yours sincerely,

Professor C. J. Taylor
Chair
South Sheffield Research Ethics Committee

cc
Ms L Guillaume
Student
Department of Information Studies
Western Bank
Sheffield

Enclosures
REC Response Form
List of Members Present
Report Form (to be completed 1 year from approval)
Amendment request form

2.2 Ethical Approval (North Sheffield Research Ethics Committee)



North Sheffield Ethics Office
1st Floor Vickers Corridor

Direct Line:
Fax:
Email:

Northern General Hospital
Herries Road
Sheffield

CMHN/AD/01/12/03

Bath/NS2003 12 1812

Please quote this number on all correspondence

31st October 2003

Dr Peter Bath
Senior Lecturer
Department of Information Studies
The University of Sheffield
Western Bank
SHEFFIELD

Dear Dr Bath

An investigation of the impact of MMR vaccine scare on parents' information needs and preferred information sources: a questionnaire study utilising the Health Belief Model.

SSREC Ref: 03/128

Our Ref: NS03 12 1812

Thank you for your letter dated 30th October 2003 requesting reciprocal approval for the above study, which has been approved by South Sheffield Research Ethics Committee. The following documents have been received:

- Project registration pages dated 30th September 2003
- C.V of applicant.
- Proof of peer review dated 29th September 2003.
- Certificate of insurances from University of Sheffield dated 26th June 2003.
- Protocol version 2 dated October 2003 containing the following:
 - Letter to parents.
 - Information sheet
 - Consent form
 - Questionnaire.
 - Letter to nursery leaders.
 - Letter to pilot participants

An advisory committee to South Yorkshire Strategic Health Authority

Bath/NS2003 12 1812/31-10-03

- Pilot study evaluation sheet

In accordance with reciprocal arrangements, I can confirm approval of this project on behalf of the North Sheffield Research Ethics Committee.

Yours sincerely

Dr C M H Newman
HONORARY SECRETARY – NORTH SHEFFIELD ETHICS COMMITTEE
Senior Lecturer in Cardiology/Honorary Consultant Physician

Cc Ms L Guillaume, South Sheffield Research Ethics Committee

2.3 Research Governance Approval (Sheffield Children's Trust)

Research Office

Tracy Elliott
Research Manager

Fiona Kyle
Admin Support

Sheffield Children's



NHS Trust

Western Bank
Sheffield

Telephone

Dr Louise Guillaume
Department of Information Studies

03 November 2003

Dear Louise

SCH/03/055 An investigation of the impact of the measles, mumps and rubella (MMR) vaccine scare on parents information needs and preferred information sources: a questionnaire study utilising the Health Belief Model

Further to the Trent South Sheffield Research Ethics Committee approval for the above study, I am pleased to confirm Trust management approval for you to proceed in accordance with the agreed protocol, the Trust's financial procedures for Research and Development and the Research Governance Framework.

Please supply the following to Tracy Elliott Research Manager:

- copy of ethics approval letter (*Already received*)
- final version of the protocol (*Already received*)
- the actual start and end dates of this study (**before the study commences**)
- details of any publications arising from this research project
- a final report and a report **every six months** if the study duration is greater than six months
- notification of any adverse event or changes to the protocol or if the trial is abandoned

Please note that approval for this study is dependent on full compliance with all of the above conditions. This letter must be stored securely with the documentation relating to this study.

I would like to take this opportunity to wish you every success with this study.

Yours sincerely

J Bonham
Director of Audit Research and Effectiveness



THEO THE BEAR HOSPITAL MASCOT



INVESTOR IN PEOPLE

2.4 Certificate of Insurance for Non-Clinical Trials (Sheffield University)

UNIVERSITY OF SHEFFIELD

DEPARTMENT OF FINANCE

To Louise Guillaume **Date** 26-Jun-03

Department Information Studies

Certificate of Insurances (non clinical trial)

Trial Number NCT02/437

Department Information Studies

Title of Trial The MMR vaccine scare, parents and information: a questionnaire study

Name of Investigators L Guillaume, Dr Peter Bath

Commencement Date Jul-03

The University has in place insurance against liabilities for which it may be legally liable and this cover includes any such liabilities arising out of the above research project/study

.....
C.F. Jackson, Financial Accountant (Insurances)

- Please Note**
1. If not already provided please forward a copy of the Ethics Committee Approval as soon as possible
 2. A record of the names of all participants, copies of signed Consent Forms and G.P.'s approvals should be retained by the Department.

NCT

2.5 Letter to parents

**Community Paediatrics Headquarters
Centenary House
55 Albert Terrace Road
SHEFFIELD**

**Secretary: Lesley Revill
Fax:
e-mail:**

Date typed

Dear Parent/Guardian

I am writing to ask for your permission to be included in a research project investigating parents needs for information about the MMR vaccine. This study is being led by Ms. Louise Guillaume, a postgraduate research student at Sheffield University. Your child is one of several hundred pre-school children whose names have been selected from the Child Health computer database which is held at the Sheffield Children's Hospital. As the data is protected (i.e. confidential), Ms. Guillaume is not allowed to contact you herself directly, which is why I am writing to you instead. The study will involve completing a short questionnaire from Ms. Guillaume, which is included in this envelope. Your child will not be involved in the study. A brief summary of the aims and content of the study is enclosed in the form of an information sheet.

If you are willing to take part, will you please read the attached information sheet and then complete the attached consent form and questionnaire and return them to her in the enclosed envelope? Please could you return the consent form and questionnaire as soon as possible and no later than [DATE]. Please feel free to contact her if you wish to discuss any aspect of this research (Tel: Email: ac.uk).

If you do not wish to take part, please ignore this letter and no further action will be taken. Please note that both you and your child will continue to be offered the same health services whether or not you take part in the study.

Yours sincerely,

DR. JANET CHAPLAIS
Consultant Community Paediatrician/ Custodian of Child Health Computer Data

INFORMATION SHEET

You are being asked to take part in a research study. Before you decide whether you wish to do so, it is important that you know why the research is being done and what it will involve. Please read the following information and discuss it with others if you wish. If you have any questions, please contact Ms Louise Guillaume (details overleaf)

What is the purpose of the study?

Health scares have become more common in the mass media and are often about children's health, for example the MMR vaccination scare. This research will look at the effect that these scares have on parents, such as you. In particular the study will look at the information parents need, the information sources they use and how parents go about getting information. We hope that this study will let health care professionals know a bit more about the information you want.

Why have I been chosen?

Your name has been chosen at random from the Child Health computer database at the Children's Hospital in Sheffield. You have been chosen because you have a child between the ages of one and two years. If you have previously received this questionnaire as part of a pilot study then please do not return this questionnaire.

Do I have to take part?

No, participation in the study is voluntary. If you do decide to take part, then please read the rest of the information sheet carefully and if you wish to proceed complete the questionnaire and consent form. If you do not decide to take part, then please ignore this information sheet and the letter.

What will be involved if I decide to take part in the study?

After you have read the information that has been provided, please complete the questionnaire and consent form and return them in the stamped addressed envelope. No further contact will be required. All the information you provide will be stored securely in a locked office and on a password protected computer.

Can I withdraw from the study?

Yes. You do not have to take part in the study. No-one will be told that you have withdrawn from the study, just as no-one will be told that you have taken part in the study.

What other information will be collected from me?

None. The only information that we require is the questionnaire and the consent form. No further contact will be required.

What will happen to the results of this study?

They will be used in the researchers PhD study. The findings may also be used in articles, which will be published in journals. You will not be identified in the study.

Has the study been reviewed?

Yes, the research has been reviewed and given ethical approval to proceed by the North and South Sheffield Ethics Committees and the Sheffield Children's NHS Trust Research Office

2.7 Consent Form

Consent Form - MMR, Parents and Information Questionnaire

Please tick

I have read and understood the information sheet

I am willing to take part in the study

I have completed the questionnaire

I would like a summary of the results of the questionnaire
and have written my address on the back of this form

Signed:Parent/Guardian

Name:Parent/Guardian

Please return to Ms. Louise Guillaume with the questionnaire in the enclosed stamped
addressed envelope. Thank you very much for your help

2.8 Original Questionnaire

MMR, Parents and Information Questionnaire

Please read the following instructions and then complete the questionnaire. Please try and answer all of the questions. All your answers will be completely confidential.

This questionnaire asks you some questions about you and about your child. It also asks your views about the diseases of Measles, Mumps and Rubella and about the MMR vaccine.

You are being asked to think about 'information' in this questionnaire. We want you to think about **all** types of information. This could be written information from any source, spoken information from people or information from other sources (e.g. TV, newspaper, magazine, Internet).

About you:

1. How old are you?years

2. Are you

Female

Male

3. Please tick the box that most closely represents your background

White British

White Other

Black British

Black Other

Asian British

Asian Other

Mixed Race

Any other (note below)

.....
4. Are you in full-time employment? Yes

No

If no, go to Question 5.

If yes, what is your job title?Please go to Question 7

5. If you are not employed and you have a partner, is your partner in full time employment?

Yes

No

If no, go to Question 6

If yes, what is their job title?.....Please go to Question 7

6. If neither you nor your partner currently works, do you consider yourselves long-term unemployed?

Yes

No

Please go to Question 7

About your child(ren):

7. How many children do you have?

8. How old is (are) your child (ren)?

Child One	<input type="text"/>	Years	<input type="text"/>	Months
Child Two	<input type="text"/>	Years	<input type="text"/>	Months
Child Three	<input type="text"/>	Years	<input type="text"/>	Months
Child Four	<input type="text"/>	Years	<input type="text"/>	Months

If you have more than four children, please note their ages here

9. Are they female or male?

Child One	Female	<input type="text"/>	Male	<input type="text"/>
Child Two	Female	<input type="text"/>	Male	<input type="text"/>
Child Three	Female	<input type="text"/>	Male	<input type="text"/>
Child Four	Female	<input type="text"/>	Male	<input type="text"/>

If you have more than four children, please note their genders here

10. Has (have) your child(ren) been given the MMR vaccine?

Child One	Yes	<input type="text"/>	No	<input type="text"/>	Will be in future	<input type="text"/>
Child Two	Yes	<input type="text"/>	No	<input type="text"/>	Will be in future	<input type="text"/>
Child Three	Yes	<input type="text"/>	No	<input type="text"/>	Will be in future	<input type="text"/>
Child Four	Yes	<input type="text"/>	No	<input type="text"/>	Will be in future	<input type="text"/>

If you have more than four children, please note whether they have had the MMR vaccine here.....

11. If your child(ren) has (have) not been given the MMR vaccine, why is this?

Child One	Single vaccines	<input type="text"/>	No vaccination	<input type="text"/>
Other (please explain).....				
Child Two	Single vaccines	<input type="text"/>	No vaccination	<input type="text"/>
Other (please explain).....				
Child Three	Single vaccines	<input type="text"/>	No vaccination	<input type="text"/>
Other (please explain).....				
Child Four	Single vaccines	<input type="text"/>	No vaccination	<input type="text"/>
Other (please explain).....				

12. For which of your children have you had to make the decision about whether to have the MMR vaccine most recently? **Please tick one only.**

Child One	<input type="checkbox"/>
Child Two	<input type="checkbox"/>
Child Three	<input type="checkbox"/>
Child Four	<input type="checkbox"/>

If it was not any of the above, for which child have you had to make the decision most recently?

Please consider the child for whom you have **most recently** made the decision about whether to have the MMR vaccine. Please answer the rest of the questionnaire with **this child** in mind

Please consider each of the following statements and the extent to which you agree or disagree with them. Please tick the box that most closely represents what you think.

Measles, Mumps and Rubella:

13. Without being vaccinated, my child is likely to catch measles

Strongly agree Agree Disagree Strongly disagree Don't know

14. Without being vaccinated, my child is likely to catch mumps

Strongly agree Agree Disagree Strongly disagree Don't know

15. Without being vaccinated, my child is likely to catch rubella

Strongly agree Agree Disagree Strongly disagree Don't know

16. Without being vaccinated, which of the conditions do you think your child is **most** likely to catch? Please tick one only

Measles Mumps Rubella
Equally likely None of them

17. Measles would be a serious disease for my child

Strongly agree Agree Disagree Strongly disagree Don't know

18. Mumps would be a serious disease for my child

Strongly agree Agree Disagree Strongly disagree Don't know

19. Rubella would be a serious disease for my child

Strongly agree Agree Disagree Strongly disagree Don't know

The MMR vaccine:

20. It is important that my child is protected against measles

Strongly agree Agree Disagree Strongly disagree Don't know

21. It is important that my child is protected against mumps

Strongly agree Agree Disagree Strongly disagree Don't know

22. It is important that my child is protected against rubella

Strongly agree Agree Disagree Strongly disagree Don't know

23. It is likely that the MMR vaccine will protect my child against measles, mumps and rubella

Strongly agree Agree Disagree Strongly disagree Don't know

24. The MMR vaccine poses a risk to my child's health

Strongly agree Agree Disagree Strongly disagree Don't know

25. If the choice were available on the NHS, would you opt for single vaccines against measles, mumps and rubella?

No, choose the MMR Measles only Rubella only
Yes, all three singly Mumps only

26. Other than vaccination, do you think that there are other ways that you can protect your child against measles, mumps and rubella?

Yes No

27. Vaccination is important because it protects other children and adults against measles, mumps and rubella

Strongly agree Agree Disagree Strongly disagree Don't know

Please think about the time when you were deciding whether you were going to vaccinate your child or not. Please answer the following questions with this in mind.

28. What made you realise that you had to **make the choice** about whether to give your child the MMR vaccine? **Please tick all that apply.**

	Yes	No
Experience with other children	<input type="checkbox"/>	<input type="checkbox"/>
Reminder card from NHS	<input type="checkbox"/>	<input type="checkbox"/>
Conversation with GP/Health Visitor	<input type="checkbox"/>	<input type="checkbox"/>
Conversation with friends and family	<input type="checkbox"/>	<input type="checkbox"/>
Media	<input type="checkbox"/>	<input type="checkbox"/>
Other, please detail here.....		

29. At the time when you made the decision about the MMR vaccine, did you receive any information about it?

Yes No Don't know

If yes, please go to Question 30 If no or don't know, please go to Question 32

30. What format did you get this information in? **Please tick all that apply.**

	Yes	No
Leaflet from GP/Health Visitor	<input type="checkbox"/>	<input type="checkbox"/>
Conversation with GP/Health Visitor	<input type="checkbox"/>	<input type="checkbox"/>
Other written information	<input type="checkbox"/>	<input type="checkbox"/>
Communication with others	<input type="checkbox"/>	<input type="checkbox"/>
Media information	<input type="checkbox"/>	<input type="checkbox"/>
Other, please detail here		

31. What was this information about? Please tick all that apply

Reasons for the vaccine	<input type="checkbox"/>	Ingredients of the vaccine	<input type="checkbox"/>
Safety of the vaccine	<input type="checkbox"/>	Other	<input type="checkbox"/>
Other, please detail here.....			

32. Did you try to find any **extra** information about the MMR?

Yes No

If yes, please go to Question 33 If no, please go to Question 34

33. Where did you try and find this information from? Please tick all that apply.

	Yes	No
GP/Health Visitor	<input type="checkbox"/>	<input type="checkbox"/>
Leaflet	<input type="checkbox"/>	<input type="checkbox"/>
Television/radio	<input type="checkbox"/>	<input type="checkbox"/>
Newspaper	<input type="checkbox"/>	<input type="checkbox"/>
Magazines	<input type="checkbox"/>	<input type="checkbox"/>
Internet	<input type="checkbox"/>	<input type="checkbox"/>
Friends/Family	<input type="checkbox"/>	<input type="checkbox"/>
Other, please detail here	<input type="checkbox"/>	<input type="checkbox"/>

34. Do you think that the information available allowed you to make an **informed choice** about whether to give your child the MMR vaccine?

Yes If yes, please go to Question 37

No If no, please go to Question 35

35. Was this because ...? Please tick all that apply.

There wasn't enough information available

There was information available, but not the information I wanted

The information I wanted was available but I didn't believe it

Other, please detail here.....

36. What were your most and least **useful** sources of information about the MMR vaccine? Please rate the following sources with **1 being the most useful and 6 being the least useful**. Use each number once only. Please put a X if you didn't use the information source

GP
Health Visitor
Leaflets/other information from the NHS
Friends/Family
Television/Newspaper/radio
Internet

37. If you used another source of information about the MMR vaccine, please detail here and indicate how useful you found it.....

.....

38. What were your most and least **trusted** sources of information about the MMR vaccine? Please rate the following sources with **1 being the most trusted and 6 being the least trusted**. Use each number once only. Please put a X if you didn't use the information source

- GP
- Health Visitor
- Leaflets/Information from the NHS
- Friends/Family
- Television/Newspaper
- Internet

39. If you used another source of information about the MMR vaccine, please detail here and indicate how trustworthy you found it.....

40. How did the media coverage that the MMR vaccine received make you feel?

- I wanted more information
- I wanted less information
- It had no impact on me in terms of information

41. Did the negative media coverage have any impact on your decision about the MMR vaccine?

- Yes, I didn't go ahead with vaccination
- Yes, I decided to go for single vaccines
- Yes, I delayed my decision about vaccination
- No, I went ahead with vaccination
- No, I changed my mind for other reasons (please detail below)

.....

42. If you have any more comments to make about issues that have been raised in the questionnaire then please make them here.....

Thank you very much for completing the questionnaire.
 Please return it in the stamped addressed envelope provided.

2.9 Revised questionnaire

MMR, Parents and Information Questionnaire

Please read the following instructions and then complete the questionnaire. Please try and answer all of the questions. All your answers will be completely confidential. This questionnaire asks you some questions about you and about your child. It also asks your views about the diseases of Measles, Mumps and Rubella and about the MMR vaccine. You are being asked to think about information in this questionnaire. We want you to think about **all** types of information. This could be written information from any source, spoken information from people or information from other sources.

A. About you

A1. How old are you?years

A2. Are you Female Male

A3. Please tick the box that most closely represents your background

White British	<input type="checkbox"/>	White Other	<input type="checkbox"/>
Black British	<input type="checkbox"/>	Black Other	<input type="checkbox"/>
Asian British	<input type="checkbox"/>	Asian Other	<input type="checkbox"/>
Mixed Race	<input type="checkbox"/>	Any other (note below)	

.....
.....

A4. Are you in employment? Full time Part time No
What is your job title?

A5. If you have a partner, is your partner in employment?

Full time Part time No
What is their job title?

A6. If neither you nor your partner currently works, do you consider yourselves long-term unemployed? Yes No

B. About your child(ren)

B1. How many children do you have?

B2. How old is (are) your child (ren)?	Child One	Years	<input type="checkbox"/>	Months	<input type="checkbox"/>
	Child Two	Years	<input type="checkbox"/>	Months	<input type="checkbox"/>
	Child Three	Years	<input type="checkbox"/>	Months	<input type="checkbox"/>
	Child Four	Years	<input type="checkbox"/>	Months	<input type="checkbox"/>

If you have more than four children, please note their age(s) here

B3. Are they female or male?

Child One	Female	<input type="checkbox"/>	Male	<input type="checkbox"/>
Child Two	Female	<input type="checkbox"/>	Male	<input type="checkbox"/>
Child Three	Female	<input type="checkbox"/>	Male	<input type="checkbox"/>
Child Four	Female	<input type="checkbox"/>	Male	<input type="checkbox"/>

If you have more than four children, please note their gender(s) here

B4. Which type of measles, mumps and rubella vaccination has (have) your child(ren) had?

	Triple MMR vaccine	Single Vaccines	Intending to vaccinate (MMR)	Intending to vaccinate (singles)	None
Child One	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Child Two	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Child Three	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Child Four	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have more than four children, please which type of vaccine they have had here

B5. For which of your children have you had to make the decision about whether to have the MMR vaccine most recently? **Please tick one only. Please write in which child you have had to make the decision about most recently if you have more than four children.**

Child One	Child Two	Child Three	Child Four	Child.....
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please consider the child for whom you have most recently made the decision about whether to have the MMR vaccine. Please answer the rest of the questionnaire with this child in mind

C. Measles, Mumps and Rubella

Please consider each of the following statements and the extent to which you agree or disagree with them. **Please tick the box that most closely represents what you think.**

C1. Without being vaccinated, my child is likely to catch measles

Strongly agree Agree Disagree Strongly disagree Don't know

C2. Without being vaccinated, my child is likely to catch mumps

Strongly agree Agree Disagree Strongly disagree Don't know

C3. Without being vaccinated, my child is likely to catch rubella

Strongly agree Agree Disagree Strongly disagree Don't know

C4. Without being vaccinated, which of the conditions do you think your child is **most** likely to catch? **Please tick one only**

Measles Mumps Rubella Equally likely of them

C5. Measles would be a serious disease for my child

Strongly agree Agree Disagree Strongly disagree Don't know

C6. Mumps would be a serious disease for my child

Strongly agree Agree Disagree Strongly disagree Don't know

C7. Rubella would be a serious disease for my child

Strongly agree Agree Disagree Strongly disagree Don't know

D. The MMR vaccine

Please consider each of the following statements and the extent to which you agree or disagree with them. **Please tick the box that most closely represents what you think.**

D1. It is important that my child is protected against measles

Strongly agree Agree Disagree Strongly disagree Don't know

D2. It is important that my child is protected against mumps

Strongly agree Agree Disagree Strongly disagree Don't know

D3. It is important that my child is protected against rubella

Strongly agree Agree Disagree Strongly disagree Don't know

D4. It is likely that the MMR vaccine will protect my child against measles, mumps and rubella

Strongly agree Agree Disagree Strongly disagree Don't know

D5. The MMR vaccine poses a risk to my child's health

Strongly agree Agree Disagree Strongly disagree Don't know

D6. If the choice were available on the NHS, would you opt for single vaccines against measles, mumps and rubella?

No, choose the MMR Measles only Rubella only
Yes, all three singly Mumps only

D7. Other than MMR vaccination, do you think that there are other ways that you can protect your child against measles, mumps and rubella?

Yes No If yes, please detail here
.....

D8. MMR vaccination is important because it protects other children and adults against measles, mumps and rubella

Strongly agree Agree Disagree Strongly disagree Don't know

E. The MMR decision

Please think about the time when you were deciding whether you were going to vaccinate your child or not. Please answer the following questions with this in mind

E1. What made you realise that you had to decide whether to give your child the MMR vaccine? **Please tick all that apply.**

- Experience with other children
- Reminder card from NHS
- Conversation with GP/Health Visitor
- Conversation with friends and family
- Media
- Other, please detail here.....

E2. **At the time** when you made the decision about the MMR vaccine, were you given any information about it?

- Yes No Don't know
- If **yes**, please go to Question E3
If **no** or **don't know**, please go to Question E5

E3. Where did you get this information from? **Please tick all that apply.**

- Leaflet from GP/Health Visitor
- Conversation with GP/Health Visitor
- Other written information
- Communication with others
- Media information
- Other, please detail here.....

E4. What was this information about? Please tick all that apply

- Reasons for the vaccine
- Ingredients of the vaccine
- Safety of the vaccine
- Other, please detail here.....

E5. Did you try to find any information about the MMR vaccine **yourself**?

Yes

No

If **yes**, please go to Question E6

If **no**, please go to Question E8

E6. Where did get this information from? **Please tick all that apply.**

GP/Health Visitor

Magazines

Leaflet

Internet

Television/radio

Friends/Family

Newspaper

Other, please detail here

E7. What was this information about? Please tick all that apply

Reasons for the vaccine

Ingredients of the vaccine

Safety of the vaccine

Other, please detail here.....

E8. Do you think that the information you used allowed you to make an **informed decision** about whether to give your child the MMR vaccine?

Yes

No

If **yes**, please go to Section F

If **no**, please go to Question E9

E9. Why couldn't you make an informed decision?

There wasn't enough information available

There was information available, but not the information I wanted

The information I wanted was available but I didn't believe it

Other, please detail

here.....

F. Your opinion on information about the MMR vaccine

F1. What were your most and least **useful** sources of information about the MMR vaccine? Please rank the following sources with 1 being your most useful and 6 being

your least useful. Please put an X if you didn't use the information source. **USE EACH NUMBER ONCE ONLY**

- GP
- Health Visitor
- Leaflets/other information from the NHS
- Friends/Family
- Television/Newspaper/Radio
- Internet

If you used another source of information about the MMR vaccine, please detail here and indicate on the scale of 1-6 how useful you found it.....

F2. What were your most and least **trusted** sources of information about the MMR vaccine? Please rank the following sources with 1 being your most trusted and 6 being your the least trusted. Please put an X if you didn't use the information source. **USE EACH NUMBER ONCE ONLY**

- GP
- Health Visitor
- Leaflets/Information from the NHS
- Friends/Family
- Television/Newspaper/Radio
- Internet

If you used another source of information about the MMR vaccine, please detail here and indicate on the scale of 1-6 how trustworthy you found it.....

F3. How did the scare about the MMR vaccine make you feel?

- I wanted more information
- I wanted less information
- It had no impact on me in terms of information

F4. What was your final decision about the MMR vaccine?

- I went ahead with the MMR vaccine anyway
- I delayed my decision about vaccination then went for the MMR vaccine
- I decided to go for single vaccines
- I delayed my decision about vaccination then went for single vaccines

I didn't go ahead with vaccination



F5. If you have any other comments to make about issues that have been raised in the questionnaire, please make them

here.....
.....
.....
.....
.....
.....
.....

Thank you very much for completing the questionnaire.

Please return it in the stamped addressed envelope provided.

2.10 Letter to nursery leaders (Pilot study)



U N I V E R S I T Y O F S H E F F I E L D

DEPARTMENT OF INFORMATION STUDIES

Postal address: Western Bank, Sheffield

Location: Regent Court, 211 Portobello Street, Sheffield ;

Tel.

E-mail:

January 2004

Dear Parent,

My name is Louise Guillaume and I am a research student at the University of Sheffield. I am writing to you to ask if you would be prepared to assist me with some research that I am doing.

I am looking at the impact that the controversy surrounding the MMR vaccine has had on parents in terms of their information needs and the sources of information that they prefer to use.

I am hoping to undertake a questionnaire study with around 400 parents in Sheffield, looking at the above issues. However, before I can distribute the questionnaire to a larger sample of parents, I need to test whether the questionnaire is accessible and understandable to parents. This is why I am writing to you.

Would it be possible for you to assist me with this study by distributing enveloped to parents at your nursery school? These envelopes would contain a letter, a copy of the questionnaire that I am hoping to use, a copy of the information sheet that I am hoping to use and an evaluation form about the questionnaire. There would also be a stamped addressed envelope included.

I would need 10 envelopes to be distributed to parents of your choice, the only restriction being that they have at least one child between the ages of one and two years.

I hope that you will be able to help me. Please could you complete the form attached and return it to me in the stamped addressed envelope included as soon as possible. If you would like any further information then please contact me using the details above.

Yours Faithfully,

Louise Guillaume

2.11 Letter to parents (Pilot study)



U N I V E R S I T Y O F S H E F F I E L D
**DEPARTMENT OF INFORMATION
STUDIES**

Postal address: Western Bank, Sheffield

Location: Regent Court, 211 Portobello Street, Sheffield

Tel.

E-mail:

October 2003

Dear Parent,

Thank you very much for agreeing to take part in this pilot study for research that is being undertaken in the Department of Information Studies at the University of Sheffield. My name is Louise Guillaume and I am the lead investigator in the project.

You are being asked to take part in the pilot stage of a research study. A pilot study allows us to test the information that is being given to people who are taking part in the study and also to test the questionnaire that is being given to participants.

Please could you please have a look at the information sheet and then complete the questionnaire. Please try and complete this as honestly as possible and as if you were taking part in the actual study. The information that you send back to us will not be used in the final study, only to test the study.

Once you have read the information sheet and completed the questionnaire, please could you complete the evaluation form about your understanding of the study?

Then could you please post the completed questionnaire and evaluation form back to me in the stamped addressed envelope enclosed? All the information you provide will be treated confidentially.

If you have any questions about the study then please contact me (details at the top of the letter). The supervisor of this research, Dr Peter Bath can be contacted on 0114 2222636 or p.a.bath@sheffield.ac.uk.

Yours Faithfully,

Louise Guillaume

3. Any other comments?

Please add any other comments about the study as a whole here

.....
.....
.....
.....
.....
.....
.....
.....

Please return this evaluation form and the questionnaire in the stamped addressed envelope provided.

Thank you very much for your help.

2.13 Tables

Demographic characteristics – All children

Age	n (%)
0-1 years	10 (4.9)
1-2 years	101 (49.5)
3-5 years	20 (9.8)
6-8 years	41 (20.1)
9 + years	32 (15.7)
Total	204 (100)

Mean age	53 months (SD=4.91)
Median age	1.83 months
Age range	1-300 months

Gender	n (%)
Female	93 (47)
Male	105 (53)
Total	198 (100)

Vaccination Status		n (%)
MMR vaccine	Triple MMR vaccine	175 (86)
	Intending to vaccinate (MMR)	12 (5.9)
	Sub total	187 (91.9)
Not MMR vaccine	Single vaccines	6 (2.9)
	Intending to vaccinate (single vaccines)	2 (1)
	No vaccination	9 (4.2)
	Sub total	17 (8.1)
Total		204 (100)

Health Belief Model

Susceptibility - Without being vaccinated, my child is likely to catch (n, %)			
	Measles	Mumps	Rubella
Strongly agree	31 (27.7)	25 (22.3)	23 (20.5)
Agree	59 (52.7)	66 (58.9)	60 (53.6)
Disagree	11 (9.8)	12 (10.7)	13 (11.6)
Strongly disagree	2 (1.8)	1 (0.9)	2 (1.8)
Don't know	9 (8)	8 (7.1)	14 (12.5)
Total	112 (100)	112 (100)	112 (100)

Severity – The disease would be serious for my child (n, %)			
	Measles	Mumps	Rubella
Strongly agree	64 (57.1)	35 (31.3)	45 (40.2)
Agree	39 (34.8)	63 (56.3)	43 (38.4)
Disagree	5 (4.5)	10 (8.9)	14 (12.5)
Strongly disagree	1 (0.9)	1 (0.9)	1 (0.9)
Don't know	3 (2.7)	3 (2.7)	9 (8)
Total	112 (100)	112 (100)	112 (100)

Benefits - It is important that my child is protected against (n, %)			
	Measles	Mumps	Rubella
Strongly agree	77 (68.8)	65 (58)	66 (58.9)
Agree	33 (29.5)	40 (35.7)	39 (34.8)
Disagree	1 (0.9)	5 (4.5)	2 (1.8)
Strongly disagree	1 (0.9)	1 (0.9)	1 (0.9)
Don't know	0 (0)	1 (0.9)	4 (3.6)
Total	112 (100)	112 (100)	112 (100)

Benefits - It is likely that the MMR vaccine will protect my child against measles, mumps and rubella (n, %)	
Strongly agree	56 (50)
Agree	49 (43.8)
Disagree	1 (0.9)
Strongly disagree	1 (0.9)
Don't know	5 (4.5)
Total	112 (100)

Vaccination is important because it protects other children and adults against measles, mumps and rubella ... (n, %)	
Strongly agree	50 (44.6)
Agree	48 (42.9)
Disagree	6 (5.4)
Strongly disagree	0 (0)
Don't know	7 (6.3)
Total	111 (100)

Information

Source of received information and content of received information				
Association	Test	Value	d.f.	p
Source = Leaflet from GP Content = Reasons for MMR	Pearson χ^2	5.154	1	0.023
Source = Leaflet from GP Content = Safety of MMR	Pearson χ^2	3.681	1	0.05
Source = Conversation with GP Content = Safety of MMR	Pearson χ^2	4.403	1	0.036

Source of received information and source of sought information				
Association	Test	Value	d.f.	p
Source received = Conversation with GP Source sought = Leaflet	Pearson χ^2	4.086	1	0.028
Source received = Other communication Source sought = Friends and Family	Pearson χ^2	3.951	1	0.047
Source received = Media Source sought = TV/Radio	Pearson χ^2	9.266	1	0.002
Source received = Media Source sought = Newspaper	Pearson χ^2	7.318	1	0.007

Source of received information and content of sought information				
Association	Test	Value	d.f.	p
Source received = conversation with GP Content sought = Reasons for MMR vaccine	Pearson χ^2	7.284	1	0.007
Source received = other written information Content sought = Reasons for MMR vaccine	Pearson χ^2	4.236	1	0.04

Content of received information and source of sought information				
Association	Test	Value	d.f.	p
Content received = ingredients of MMR Source sought = TV/Radio	Pearson χ^2	4.889	1	0.027
Content received = ingredients of the MMR Source sought = newspaper	Continuity Correction	4.124	1	0.042
Content received = safety of MMR Source sought = internet	Continuity Correction	4.971	1	0.026

Useful Source	Useful Source	Direction	Strength	p
Leaflet	GP	Negative	Large	0.001
Trusted Source	Trusted Source	Direction	Strength	p
GP	Leaflet	Negative	Medium	0.002
Useful Source	Trusted Source	Direction	Strength	p
GP	GP	Positive	Large	0.000
GP	Leaflet	Negative	Large	0.000
Health Visitor	Health Visitor	Direction	Strength	p
Leaflet	GP	Negative	Medium	0.006
Leaflet	Leaflet	Positive	Large	0.000
Friends and Family	Friends and Family	Direction	Strength	p
Media	Media	Positive	Medium	0.008
Internet	Internet	Direction	Strength	p
Internet	Media	Negative	Medium	0.009
Internet	Internet	Positive	Large	0.000

Rankings of information sources

Useful information sources - Frequency (%)						
Rank	GP	Health Visitor	Leaflet	Friends and Family	Media	Internet
1	10 (27.8)	6 (16.6)	10 (27.8)	5 (13.9)	1 (2.8)	4 (11.1)
2	9 (25)	9 (25)	8 (22.2)	5 (13.9)	1 (2.8)	4 (11.1)
3	8 (22.2)	9 (25)	7 (19.4)	5 (13.9)	5 (13.9)	2 (5.6)
4	3 (8.3)	7 (19.4)	6 (16.6)	10 (27.8)	7 (19.4)	3 (8.3)
5	4 (11.1)	2 (5.6)	4 (11.1)	4 (11.1)	14 (38.9)	8 (22.2)
6	2 (5.6%)	3 (8.3)	1 (2.8)	7 (19.4)	8 (22.2)	15 (41.7)

Trusted information sources - Frequency (%)						
Rank	GP	Health Visitor	Leaflet	Friends and Family	Media	Internet
1	17 (47.2)	4 (11.1)	6 (16.6)	5 (13.9)	1 (2.8)	3 (8.3)
2	5 (13.9)	17 (47.2)	9 (25)	2 (5.6)	2 (5.6)	1 (2.8)
3	5 (13.9)	8 (22.2)	12 (33.3)	7 (19.4)	1 (2.8)	3 (8.3)
4	5 (13.9)	1 (2.8)	6 (16.6)	13 (36.1)	1 (2.8)	10 (27.8)
5	3 (8.3)	4 (11.1)	1 (2.8)	4 (11.1)	17 (47.2)	8 (22.2)
6	1 (2.8)	2 (5.6)	2 (5.6)	5 (13.9%)	14 (38.9)	11 (30.6)

Appendix Three – Content Analysis

3.1 Data collection sheet

ID Number (Number)		
MMR focus of article		MMR mentioned in article
Format of the article (One of the following)		
News		Editorial
Investigation		Letter
Interview		Column/Comment
Key themes in the article (As many as appropriate, Yes or No)		
Both “sides” of debate		‘Proving’ MMR dangerous
Giving advice		‘Proving’ MMR is safe
Revealing ‘cover up’		Attributing blame
Who is mentioned in the article? (Number of times mentioned)		
Andrew Wakefield		Politician – Pro
Tony Blair		Politician – Anti
Chief Medical Officer		Politician – Unsure
Parent – Pro		Other– Pro
Parent – Anti		Other– Anti
Parent – Unsure		Other– Unsure
HCP – Pro		Scientist – Pro
HCP – Anti		Scientist - Anti
HCP – Unsure		Scientist - Unsure
Who is quoted in the article? (Number of times mentioned)		
Andrew Wakefield		Politician – Pro
Tony Blair		Politician – Anti
Chief Medical Officer		Politician – Unsure
Parent – Pro		Other– Pro
Parent – Anti		Other– Anti
Parent – Unsure		Other– Unsure
HCP – Pro		Scientist – Pro
HCP – Anti		Scientist - Anti
HCP – Unsure		Scientist - Unsure
Content – Related to MMR vaccine (Number of times mentioned)		
MMR necessary		MMR unnecessary
MMR is effective		MMR not effective
Autism related to MMR		Autism not related to MMR
MMR is a risk		MMR is not a risk
Bowel disorders related to MMR		Bowel disorders not related to MMR
Singles (recommended)		Singles (not recommended)
How to arrange singles		Damaged child – MMR
Children who should have MMR		Children who shouldn’t have MMR
Problem of low vaccine uptake		Campaign to increase vaccine uptake
Ingredients of MMR		MMR ok worldwide

Content – Other (Number of times mentioned)			
MMR – Financial cost to government		MMR – Financial cost to individual	
Single vaccine - Financial cost to government		Single vaccine - Financial cost to individual	
Disease outbreak – problem		Disease outbreak – no problem	
Wakefield research		Wakefield research ‘limited’	
Other research		GP target payments	
Damaged child – measles		Leo Blair	
Previous scare – BSE		Previous scare – Whooping cough	
Source of ‘evidence’ (Number of times mentioned)			
Anecdotal - Individuals Pro			
Anecdotal – Individuals Anti			
Anecdotal - Individuals Unsure			
Anecdotal - HCPs Pro			
Anecdotal - HCPs Anti			
Anecdotal - HCPs Unsure			
Research - Pro			
Research - Anti			
Research - Unsure			
Numerical - Opinion Polls			
Information sources – The media (Number of times mentioned)			
Media is important for exposure of stories like MMR			
Reporting in the media is disturbing			
Reporting in the media is sensationalist			
Information sources – Government (Number of times mentioned)			
Support of MMR is influenced by cost			
Support of MMR is influenced by medical establishment			
Comments made are not in depth			
Unwilling to replicate/carry out research			
Unwilling to trust because of previous health scares			
Information sources – Newspapers (Number of times mentioned)			
Contain statistics to refer back to			
Information sources – HCPs (Number of times mentioned)			
They do not provide enough information			
They are not well trained to meet needs			
Different HCPs are conflicting			
They are biased towards MMR			
They are influenced by target payments			
They are influenced by government			
They are trustworthy			
They are useful			
They are accessible			
They provide information			
They direct parents to more information			
Information sources – Leaflets (Number of times mentioned)			
They are insufficient in content			
They are not widely available			
They are influenced by government			
Information sources – Interpersonal (Number of times mentioned)			

Supplier of information		
Supplier of support		
General view (As many as appropriate, tick one or the other)		
	Positive	Negative
The MMR vaccine		
Measles, mumps and rubella		
Individuals		
Individuals		
Individuals		
Other		
Overall view of the MMR vaccine (tick one or the other)		
Positive		
Negative		

3.2 Tables

Associations

Giving advice and content/individuals

Individual/content	χ^2	d.f.	p
Other individuals anti MMR vaccine	8.301	1	0.001
Low MMR vaccine uptake	13.554	1	0.00
Disease outbreak – problem	6.957	1	0.008

Proving MMR is safe and content/individuals

Individual/content	χ^2	d.f.	p
Damaged child measles	7.752	1	0.005