Chapter 1

Introduction

This thesis addresses an issue of fundamental importance to public health: the links between evidence and public health policy issues. It does so in the context of the use of systematic reviews in evidence-based policymaking to address breastfeeding support and breastfeeding inequalities in England and the U.S. On a global scale these two countries have some of the lowest rates of breastfeeding initiation and/or duration among developed countries. Although there have been overall increases in rates of breastfeeding England and the U.S., breastfeeding inequalities have persisted in spite of a growing evidence base and expanded evidence-based policymaking. This has brought renewed attention to the impact of social determinants of breastfeeding and the sources of those determinants on infant feeding, first recognised in England and the U.S. in the early 1900's, and the connections between public health policy, breastfeeding support, breastfeeding inequalities and health inequalities.

A social determinants model of health is increasingly framing policy at national and international levels (Kelly et al, 2007; Arkin, DeForge and Rosen, 2009; Koh et al, 2010) with the World Health Organization (WHO) a leader in bringing this concept to the forefront of policymaking. The role of a social determinants model of health in policymaking to address health inequalities places policy to address the social determinants of breastfeeding, breastfeeding support and breastfeeding inequalities in the wider field of public health (Carlisle, 2000; Navarro and Shi, 2001; Siegrist and Marmot, 2004; Wood et al, 2006). A clear definition of the concept of social determinants of health is essential to understanding the conceptual basis of this thesis.

The WHO defines social determinants of health as:

> *...the conditions in which people are born, grow, live, work and age, including the health system. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels, which are themselves influenced by policy choices. The social determinants of health are mostly responsible for health inequities - the unfair and avoidable differences in health status seen within and between countries* (World Health Organization, 2012b).

In a report for the WHO Commission on Social Determinants of Health, Solar and Irwin developed a conceptual framework for action on social determinants of health to address global issues of health equity and health inequalities (Solar and Irwin, 2007). A broad definition of social determinants of health was adopted in the report as one that '…encompasses the full set of social conditions in which people live and work' (p. 4). The authors state, however, that the importance of determinants in the model is unequal, and that hierarchical distinctions among determinants would reveal relationships between '… underlying determinants of health inequities and the more immediate determinants of individual health' (p. 4). This concept of hierarchical relationships describes the conceptual approach taken in this thesis, in which the socio-political and economic sources of social determinants of breastfeeding, and the socio-cultural and health care determinants of breastfeeding themselves, form a framework to guide analyses.

In their report, Solar and Irwin examine the evolution of social determinants models of health and the historical context in which these models have impacted policy agendas in different countries around the world. This contextualization of the model across time and place [space] reveals the effects of socio-political and economic power on policy, and how differentials in power bring about differentials in health that create or mitigate health inequity and ultimately health inequalities. Similarly, this thesis contextualizes evidence-based policy to address breastfeeding support and breastfeeding inequalities within the evolution and power of socio-political and economic sources of determinants of breastfeeding, and the history of infant feeding and policy in England and the U.S., and the evolution of the use of systematic reviews in evidence-based policymaking, are used as a starting point.

The history of infant feeding and policymaking in England and the U.S. is similar, and recognition of the positive contribution of breastfeeding to public health and the negative public health consequences of artificial feeding have come full circle in the two countries since the early 19th century. More recently recognised, however, are connections between the social determinants of health, health inequalities and infant nutrition. The persistent gap in rates of breastfeeding within and between groups in England and the U.S. may indicate a parallel gap between evidence and policy, bringing to the forefront the need to examine how evidence can and should inform policy, and if and how evidence from systematic reviews is being used in public health policy, in this case to support breastfeeding and address breastfeeding inequalities. From a more global perspective, this gap points to the need for critical discourse on the rationale and structure for evidence-based policymaking, an examination of barriers and facilitators to the use of evidence from systematic reviews in policymaking, and the contribution of systematic reviews to evidence-based policy addressing public health issues and health inequalities. With evidence-based policy using systematic reviews in its infancy, we have the opportunity, and an obligation, to critically examine and monitor closely the evolution of the process and its effects early on.

Systematic reviews of the effects of health care interventions have advanced the use of evidence-based practice, and public health policymakers are increasingly turning to evidence from systematic reviews to guide policy decisions (Fox, 2005; Asthana and Halliday, 2006; Exworthy et al, 2006; Sweet and Moynihan, 2007; World Health Organization, 2008b). Systematic reviews offer policymakers the same advantages as they do practitioners: the available evidence on a topic can be found in one place, and findings from meta-analyses are generally considered to be more reliable than those from any one study (Lavis et al, 2004). But the conduct of systematic reviews specifically designed to answer public health policy questions is being outpaced by their use in policymaking (Lavis et al, 2004).

Differences exist between policy and practice in the process and context of decision-making that can affect evidence-based policymaking. In clinical practice, the process of decision-making involves gathering information by focusing on a specific problem in a particular person through direct interactions, clinical exams and diagnostic evaluations, and the application of theoretical knowledge with clinical experience to determine an individual diagnosis and plan of care. The context of clinical practice decision-making is provider-patient specific, based on a tradition of differential diagnosis, and framed within an established system of collaborative consultation and referrals.

By contrast, the processes in which policy decisions are made involve negotiation and compromise among competing interests, balancing socio-political priorities, economic goals and public health objectives, and the pragmatic use of information from sources other than research (Elliott and Popay, 2000; Petticrew et al, 2004; Brownson et al, 2006). The context of policymaking involves relatively short time frames dictated by shifting political opinion and election schedules, the need to incorporate current public opinion and socially-mediated priorities in decisions, and constraints imposed by economic and organizational structures of government, agencies and departments (Harries, Elliott and Higgins, 1999; Rigby, 2005; Wright, Parry and Mathers, 2007).

Another issue is that the information needed by policymakers is different from that needed by practitioners. Health care providers need to know what works best in a given clinical situation with a particular type of practitioner, treating a particular type of patient with a particular problem to bring about a particular outcome. For instance, an obstetrician or a general practitioner may need to know the most effective course of treatment for a breastfeeding woman with mastitis in order to cure her infection and allow continuation of breastfeeding, whereas a paediatrician may need to know the most effective plan of care for a 2-week-old breastfeeding infant having difficulty latching on to a hard breast swollen from mastitis.

A policymaker, on the other hand, needs to know answers to questions that address broad issues in a larger context, such as the most effective solutions to the most pressing public health problems, the most effective way to implement solutions in complicated health care systems at multiple levels and across different groups, and the costs, advantages and disadvantages of implementing one solution over another (Lomas, 2005; Lavis et al, 2006). In the example of mastitis and early discontinuation of breastfeeding, policymakers may be interested in differences in rates of early breastfeeding discontinuation between groups receiving the same intervention shown to be effective from findings of systematic reviews and the characteristics unique to each group that may explain differences in outcomes.

It is important to note that if designed and reported with policy decisions in mind, systematic reviews of interventions are capable of giving policymakers information they can use. For instance, if the systematic review of antibiotics for mastitis was able to and did include a sub-group analysis of low-income women with mastitis and found higher rates of breastfeeding discontinuation in this group compared to women in middle- or high-income groups despite receiving the same intervention shown to be the most effective, and data related to the source and use of health care between groups were available, analysed, and reported, policymakers would be more likely to have information they could use. The issue is, when possible, to include determinants and outcomes important to policymakers in systematic reviews of interventions.

Unless information about differences between and within groups or settings is available, included in analyses, and reported in systematic reviews, policymakers are left to determine which findings may be relevant to their purpose, population and situation (Bowen and Zwi, 2005; Asthana and Halliday, 2006). The time, expense and expertise required for sifting findings of a systematic review can be untenable within the process of policymaking, and may compel policymakers to look at recommendations rather than results in systematic reviews for the information they need. This creates a risk for using recommendations that do not take into account any potential differences.

Also at issue is that recommendations from systematic reviews can be ambiguous or based on inconclusive or unreliable statistical results and often do not consider basic policy issues of applicability and transferability within the context of public health (Petticrew et al, 2004). The use of recommendations by policymakers without awareness of the evidence behind the recommendation or the congruence between evidence and recommendations in a review may compromise the integrity of policy decisions and may jeopardize policy effectiveness. Not surprisingly, these are considered some of the most significant barriers to the appropriate and effective use of systematic reviews in policy to reduce health inequalities (Lavis et al, 2004; Rigby, 2005; Asthana and Halliday, 2006).

Behind these issues pertaining to evidence-based policymaking and the use of systematic reviews is a real need for new approaches to resolve the most pressing public health issues facing England and the U.S., particularly obesity and diabetes, which have reached epidemic proportions and are directly related to nutrition (Centers for Disease Control and Prevention, 2011c; National Health Service, 2011). Given the scale of policy effects there is an acute need to understand the relationship between research evidence and policy issues, and the role of systematic reviews in the process of evidence-based policymaking to support breastfeeding and address breastfeeding inequalities (Macintyre et al, 2001; Lavis et al, 2006).

1.1 Aim and objective

The aim of this thesis is to get at the heart of the process of evidence-based policymaking to help meet this acute need. To this end, a case study of policy in England and the U.S. was used, with an objective to examine the contribution of systematic reviews to evidence-based policymaking to support breastfeeding and address breastfeeding inequalities in each country. The structure of the thesis centres on the analytical deconstruction of relationships between a sample of key policy documents and the systematic reviews used in developing the policies. A reconstruction of these relationships across policies, systematic reviews and countries provided the means for understanding overall relationships between evidence and policy, the process of the use of evidence from systematic reviews in evidence-based policymaking.

1.2 Evidence-based policy and systematic reviews

The use of policy to address public health issues is not new in England and the U.S. but the use of evidence from systematic reviews in public health policy to support breastfeeding and address breastfeeding inequalities is a recent phenomenon (Macintyre et al, 2001; Fox, 2005; Asthana and Halliday, 2006; Starfield, 2006). The ability of systematic reviews to provide information that is relevant to a particular policy at a particular point in time is a considerable challenge. Another challenge comes from the rapidly-growing body of knowledge which makes it difficult for systematic reviews to capture the most current, timely evidence available for policy. The constantly changing context in which policymaking and systematic reviews take place means both the starting and end points of evidence-based policy are not stationary, but instead are continuously in motion across time and space. To make things even more complicated, the time and space that exist within the process of evidence-based policymaking using evidence from systematic reviews creates a very narrow margin for error. With this situation, if the trajectory from systematic review to policy is off by only a little the consequences are exponentially large.

A good analogy is the archer. Imagine an arrow being shot at a target. The target is a certain distance away from the archer. From the moment the archer releases the arrow, the arrow is travelling in a trajectory across time and space toward the target. The changes that occur in time and space within the process of the arrow moving from the archer to the target affect where the arrow hits the target. The longer the time and greater the space the arrow must travel, the more things can change in the trajectory, making less room for error. Another way to look at it is, the closer a target the easier it is to hit the intended mark, because the less time and space the arrow must travel means less can change the trajectory, thus the wider room for error (Atkin, 2011).

This analogy illustrates an important aspect of efforts to critically examine the use of systematic reviews in evidence-based policymaking. Characteristics of systematic reviews that inform policy (the archer) and of evidence-based policies that use systematic reviews (the target) can tell us a great deal about the beginning and end points of evidence-based policymaking. This allows us to understand where evidence in systematic reviews came from (drawing back of the bow) and how that evidence was used in policymaking (where the arrow hit the target), which then allows us to find ways of improving our ability to produce effective evidence-based policy. Indeed, these 'beginning and end' aspects of the use of systematic reviews and evidence-based policymaking are being critically examined by more than a few (Rosenstock and Lee, 2002; Howes et al, 2004; Fox, 2005; Lavis et al, 2005; Ogilvie et al, 2005; Lavis et al, 2006; Sweet and Moynihan, 2007; Petticrew and Roberts, 2008).

This analogy also reveals a crucial consideration in understanding the relationships between evidence and policy issues, and systematic reviews and evidence-based policymaking. It is within these relationships that the process of the use of systematic reviews in evidence-based policymaking takes place, which is the trajectory in our analogy. If we understand these relationships, we also gain the opportunity to control the trajectory from evidence from systematic reviews to evidence-based policymaking *from inside the process itself*.

The rapid uptake of systematic reviews in policymaking has stimulated questions that have to do with management and policy decisions, or about relationships between the experience of health and health care and response to interventions (Lavis et al, 2004; Lavis et al, 2006). Answers about the cost-effectiveness of a treatment, effectiveness of a health care technology, or why some interventions are more effective in certain groups than in others are being sought through different conceptual and methodological approaches in the design and conduct of systematic reviews (Goodman, 2004;

Cochrane Qualitative Methods Research Group, 2008; National Institute for Health Research, 2008; Cochrane Effective Practice and Organisation of Care Group, 2009; EPPI-Centre, 2009).

1.3 Defining inequity, inequality and disparity in health

Understanding the socio-political and philosophical aspects of inequity, inequality and disparity is needed to more fully grasp the context in which policymaking exists. The intent of this brief discussion is to address the practical need for a working definition of these terms that corresponds with existing published work.

The language used to describe differences between better- and worse-off groups is inconsistent. This is important because the language used reflects meanings assigned to health inequities, inequalities and disparities. This has ramifications in terms of whether society, politicians, or health care funders consider the issue a priority in public health, how policymakers interpret and approach the issue in decision-making, the degree to which policy is used to address the issue, and which groups are targeted (or not) in policy (Carter-Pokras and Baquet, 2002). Differences in the use and meaning assigned to these terms demonstrate the overall impact of interpretation in relationships between society, politics, economics and policy to address inequity and health inequalities.

The variations on working definitions being used for inequity, inequality and disparity in research and policy also reflects the user of the term, how the term is being used, and for what purposes In addition, the terms inequity, inequality and disparity are used interchangeably despite general consensus that they are conceptually distinct (Braveman and Gruskin, 2003). For the most part, researchers and policymakers in England use the term *inequality*, while those in the U.S. use the term *disparity* (Carter-Pokras and Baquet, 2002).

1.3.1 Health inequity

There is consensus in the literature that policy designed to address inequalities must also address socio-political and economic inequities (Siegrist and Marmot, 2004;

Wanless et al, 2007). The concepts of ethical responsibility, moral commitment and social justice are found to be consistently linked to definitions of health inequity in the published literature. In an early and influential paper intended to increase awareness and promote debate on the issues of health inequity, Whitehead defined health inequities as ‘differences in health that are unnecessary, avoidable, unfair and unjust’, meaning that all people have ‘fair opportunities to attain their full health potential to the extent possible’ (p. 219) (Whitehead, 1992). Similarly, Kawachi and colleagues defined health inequity as ‘those inequalities in health that are deemed to be unfair or stemming from some form of injustice’ (p. 647) (Kawachi, Subramanian and Almeida-Filho, 2002).

For purposes of measurement and operationalisation, Braveman and Gruskin defined equity in health as ‘The absence of systematic disparities in health (or in the major social determinants of health) between groups with different levels of underlying social advantage/disadvantage – that is, wealth, power, or prestige’ (p. 254) (Braveman and Gruskin, 2003). In this article, the authors described equity as an ethical principle closely related to principles of human rights. In a similar attempt to measure health inequity, Asada framed the concept within moral and ethical dimensions of health inequality (Asada, 2005). The World Health Organization operationally defined health equity as: ‘Minimizing avoidable disparities in health and its determinants – including but not limited to health care – between groups of people who have different levels of underlying social attributes’ (World Health Organization, 2008a).

The International Society for Equity in Health (ISEH) developed a definition of health equity for facilitating research to inform policy in health inequities. The ISEH defined equity in health as ‘The absence of systematic and potentially remediable differences in one or more aspects of health across populations or population groups defined socially, economically, demographically, or geographically’ (p. 171) (Braveman, 2006). The ISEH also offers a definition of equity in the context of policy and actions: ‘Active policy decisions and programmatic actions directed at improving equity in health or in reducing or eliminating inequalities in health’ (p. 2 online copy) (Tugwell et al, 2006). Inherent in these definitions are concepts of social justice and political responsibility. Because the ISEH focuses on informing public health policy to address health inequities, this definition of inequity was assumed in this study.

1.3.2. Health inequality and disparity

Differences in operational definitions for health inequalities and disparities centre on issues of individual responsibility and free will versus unfair distribution of the underlying social determinants of health among groups (Kawachi, Subramanian and Almeida-Filho, 2002). These differences are reflected in how the issue of inequality or disparity is framed differently in England and the U.S. In England, health inequality is generally framed within the issue of differences between groups in health outcomes based on geography and socio-economic status (Exworthy et al, 2006). In the U.S., the concept of health disparities is used mainly in terms of differences in access to health care and the effects of racial politics (Smedley, Stith and Nelson, 2002; Exworthy et al, 2006).

In a review of definitions commonly being used in the U.S. for health disparity, Carter-Pokras and Baquet found eleven different definitions (Carter-Pokras and Baquet, 2002). Perhaps one of the more influential definitions on policy and health inequality or disparity is from the Institute of Medicine, which has defined health disparities as '… racial or ethnic differences in the quality of health care that are not due to access-related determinants or clinical needs, preferences and appropriateness of intervention' (p. 3) (Smedley, Stith and Nelson, 2002). Kawachi and colleagues defined health inequality in generic terms of 'differences, variations and disparities in the health achievements of individuals and groups' (p. 647) (Kawachi, Subramanian and Almeida-Filho, 2002). In a later essay on health disparities, Kawachi and O'Neill described health inequality as 'any difference in health status between individuals or groups', and health disparity as 'differences or variations in health status between defined population groups', reflecting the interchangeable use of the two terms in the wider literature (Kawachi and O'Neill, 2008).

Exworthy and colleagues defined health inequalities as 'systematic disparities in health [status] (or in the major social determinants of health) between groups with different levels of underlying social advantage/disadvantage, including wealth, power, or prestige' (p. 77) (Exworthy et al, 2006). This definition also demonstrates the interchangeability of the terms, and acknowledges that the issue of health inequalities is not limited to the health status of a group but is inextricably linked to the socio-political and economic status of that group.

Another definition framing health inequality/disparity within the context of policy is offered by Braveman:

> *…a particular type of difference in health (or in the most important influences on health that could potentially be shaped by policies); it is a difference in which disadvantaged social groups – such as the poor, racial/ethnic minorities, women, or other groups who have persistently experienced social disadvantage or discrimination – systematically experience worse health or greater health risks than more advantaged social groups. (p. 167)* (Braveman, 2006)

This definition puts forward the concept that political accountability to individuals and groups involves ethical standards of social justice, and that close scrutiny of the connections between disadvantage or discrimination and worse health or greater health risks is essential to reducing and eliminating health inequalities through policymaking.

Because Braveman makes an explicit connection between public health policy and health or health inequalities, this definition is used in this study. Additionally, in the absence of any definitive difference between health inequality and disparity in the published literature, in light of how various definitions of the two terms correspond closely with one another, and in the interest of simplicity, this study refers only to inequalities with the understanding that the meaning is considered analogous to disparities.

1.4 Defining breastfeeding support

Likewise, in order to examine the use of systematic reviews in policymaking to address breastfeeding support and breastfeeding inequalities it is necessary to clarify the meaning of breastfeeding support. As was the case with defining inequity and inequality, determining a clear meaning of what constitutes breastfeeding support was not straightforward, again since its meaning is relative to those using the term, for what purposes, and in what context. For example, a new mother may perceive breastfeeding support as emotional support and encouragement during the first few weeks as breastfeeding becomes established (Dykes, 2003; Graffy and Taylor, 2005). Funders of health care may consider breastfeeding support an opportunity to reduce the costs of health care services by reducing infant and childhood morbidities associated with formula feeding (Weimer, 2001; Pugh et al, 2002). Clinical researchers may think of breastfeeding support a clinical intervention, such as antenatal breastfeeding education provided by health care practitioners (Henderson, Stamp and Pincombe, 2001; Hoddinott, Chalmers and Pill, 2006).

Further, policymakers may think of breastfeeding support a means of addressing health inequalities across groups; the EU Project on Promotion of Breastfeeding in Europe lists this as one of the objectives of the project (EU Project on Promotion of Breastfeeding in Europe, 2004). Breastfeeding support is also considered a measure of maternal/infant health and health care systems at a national level; UNICEF's report *Progress for children: A report card on nutrition, Number 4* is an example (UNICEF, 2006b). Breastfeeding support is thought of as a quality indicator for maternal/infant health care at the point of service – UNICEF's Baby Friendly Hospital Initiative (BFHI), and practice guidelines such as the *Clinical Guidelines for Establishment of Exclusive Breastfeeding* from the International Lactation Consultant Association (ILCA), are examples (International Lactation Consultant Association, 2005; UNICEF, 2006a).

Definitions of breastfeeding were developed by the World Health Organization (WHO), UNICEF and La Leche League International (LLLI) to standardize measurements used in research. These definitions by design are clinically-based and intended to be used to evaluate breastfeeding support interventions. WHO/UNICEF definitions have been widely adopted and instrumental in building the evidence base needed for effective breastfeeding support.

The WHO/UNICEF definitions are as follows: *Exclusive breastfeeding*: the infant has received only breast milk from his/her mother or a wet nurse, or expressed breast milk and no other liquids or solids, with the exception of drops or syrups consisting of vitamins, mineral supplements, or medicines. *Predominant breastfeeding*: the infant's predominant source of nourishment has been breast milk. However the infant may also have received water or water-based drinks (sweetened or flavored water, teas, infusions, etc.); fruit juice; oral rehydration salts (ORS); drop and syrup forms of vitamins, minerals, and medicines; and folk fluids (in limited quantities). With the exception of fruit juice and sugar-water, no food-based fluid is allowed under this definition. *Partial* *breastfeeding*: giving a baby some breastfeeds, and some artificial feeds, either milk or cereal, or other food.

The LLLI definitions are as follows: *Exclusive breastfeeding*: no other liquid or solid from any other source enters the infant's mouth. *Almost exclusive*: allows occasional tastes of other liquids, traditional foods, vitamins, medicines, etc. *Full breastfeeding*: includes exclusive and almost exclusive. *Full breast milk feeding*: the infant receives expressed breast milk in addition to breastfeeding. *Partial*: mixed feeding, designated at high, medium, or low. *Token*: Minimal, occasional breastfeeds (for comfort or with less than 10 percent of the nutrition thereby provided).

In other words, the definition of breastfeeding support is subjective, based on context, conditions and situation. Subjectivity did not preclude a systematic analysis of breastfeeding support. Rather, knowing the subjectively-defined characteristics of breastfeeding support allowed analyses that took into account the dynamic, multi-faceted and layered aspects of breastfeeding support, and enabled an analytic model of evidence-based breastfeeding support to capture this complexity.

A working definition of breastfeeding support, however, was needed to determine eligibility of policy documents in this study. For this purpose breastfeeding support was defined as optimal political, economic, social, health care, and maternal activities or conditions that create or enhance support and opportunities for women to breastfeed.

1.5 Conclusions

The concept of evidence-based policy to address public health issues has increasingly been adopted in England and U.S. as the standard for policy development, with the systematic review the primary source of evidence. The transfer of the concept of evidence-based practice into the world of public health policymaking, however, has not occurred without contention and does not [at this point] enjoy consensus. Likewise, transferring the perspective that systematic reviews are the most appropriate source of evidence to inform evidence-based practice, into the realm of deciding what sources of evidence are most appropriate for informing evidence-based policy has also been received with mixed opinion and differing points of view.

Similarly, the concept of evidence-based policy to address health inequalities related to nutrition has received increased attention as the approach to public health in England and the U.S. moves toward primary prevention of disease versus disease management and treatment. However, the transfer of evidence-based policy to address health inequalities related to nutrition into the realm of nutrition related to infant feeding and evidence-based policy to address breastfeeding support and breastfeeding inequalities has also been contentious. The connections between policy, public health outcomes and infant feeding are affected by competing ideological perspectives on breastfeeding, the socio-political and economic sources of determinants of breastfeeding and breastfeeding support, the socio-cultural and healthcare determinants of breastfeeding, and the relationships between all of these and breastfeeding inequalities.

Yet, behind these conflicts and tensions pertaining to evidence-based policymaking and the use of systematic reviews, and policy to address breastfeeding support and breastfeeding inequalities, there is a real need for new approaches to resolve the most pressing public health issues facing England and the U.S., particularly obesity and diabetes, both of which are directly related to nutrition and have reached epidemic proportions in both countries (Centers for Disease Control and Prevention, 2011c; National Health Service, 2011). In addition, co-morbidities associated with these conditions, particularly cardio-vascular diseases, contribute significantly to morbidity and mortality rates – heart disease is the leading cause of death (and premature death) in England and the U.S. (National Health Service, 2010; Centers for Disease Control and Prevention, 2011b).

There is growing evidence of the health benefits throughout the lifespan of breast-feeding, including a significant reduction in the risk for obesity and diabetes, and the health risks of infant formula, including a higher risk for obesity and diabetes (Gillman et al, 2001; Owen et al, 2005; Stettler et al, 2005; Owen, 2006; Rosenbauer, Herzig and Giani, 2008; Koletzko et al, 2009). Finally, there is a higher incidence of these key public health issues – obesity, diabetes and cardio-vascular disease – in more disadvantaged groups based on class, socioeconomic status and race/ethnicity in both countries compared to more advantaged groups (Law et al, 2007; Centers for Disease Control and Prevention, 2011c).

Given all of this – the expectations for evidence-based public health policy and the use of systematic reviews, the tremendous burden of disease from the high incidence of [just] three health conditions that can be considerably reduced or prevented through changes in infant nutrition, the pressure to reduce these [and other] health inequalities through policy, and the strong base of evidence demonstrating connections between infant feeding and public health/disease – it is reasonable to wonder why the issues of breastfeeding support and breastfeeding inequalities have received, up until only recently, marginal attention from policymakers in England and the U.S.

Questions surrounding evidence-based practice versus evidence-based policy are being asked as the use of evidence from systematic reviews in policy to address public health issues and health inequalities accelerates. Is evidence from systematic reviews appropriate for policy? (Nutbeam, 2003; Kemm, 2006). What are the advantages and pitfalls of using evidence from systematic reviews in policymaking? (Hunter, 2003). What are the effects of evidence-based policy and how do we measure them? (Macintyre et al, 2001; Boaz et al, 2008). Should evidence-based policy and policymaking have a conceptual or theoretical framework? (Dobrow, Goel and Upshur, 2004; Bowen and Zwi, 2005; Wharam and Daniels, 2007). How do political and economic contexts affect evidence-based policymaking? (Dobrow, Goel and Upshur, 2004; Wright, Parry and Mathers, 2007).

It is my intent to shed some light on these complex issues that confront not only policymakers but all of us; as members of a society we each have the right to achieve our own level of optimal health and a responsibility to help others achieve theirs. There is tremendous power in policy to provide opportunities and support to enhance individual and public health and, in an era where evidence-based public health policymaking is becoming the norm, the potential for policy to do so effectively may be increased if we proceed with a clear understanding of the relationship between evidence and policy in the evidence-based policymaking process.

Chapter 2

Breastfeeding and breastfeeding inequalities in England and the U.S.

An overview of national targets for breastfeeding set forth in England and the U.S., statistics of rates of breastfeeding, and characteristics of breastfeeding inequalities in each country is given in this chapter as a foundation for why evidence-based policy to address breastfeeding and breastfeeding inequalities is important. Descriptions of the origin and content of current national targets and statistics for each country are presented separately.

2.1 England

In 2002, the Department of Health and Social Services produced a 3-year plan for health care delivery in England to improve the health and well being of the population (Department of Health and Social Services, 2002). The plan set out national priorities and targets for health and social services, one of which was reducing health inequalities. Among the targets in the reduction of health inequalities was an increase of two percentage points per year in rates of breastfeeding initiation, with a focus on women from disadvantaged groups. The Department of Health Operating Framework for 2009/2010 identified breastfeeding as vital to infant health and advised that all Primary Care Trusts (PCT) develop effective programmes in the promotion and support of breastfeeding, using the principles of the UNICEF Baby Friendly Initiative (Department of Health, 2008).

The 2007 Comprehensive Spending Review announced Public Service Agreements (PSA) for the years 2008 to 2011 in England (House of Commons Treasury Committee, 2007). The PSA 12 addresses the improvement of health and well being among children and young people in the country and contains five national outcomes-based performance indicators (National Childbirth Trust, 2008). The first indicator is the prevalence of breastfeeding for at least 6 to 8 weeks, with the long-term goal of increasing rates within this time period.

A medium-term goal of PSA 12 involves an increase in the promotion and support of breastfeeding through the National Health Service (NHS) and its community and interagency partnerships. The Department of Health (DOH) will provide data for the prevalence of breastfeeding at least 6 to 8 weeks on a quarterly basis, which is intended to compel DOH agencies at the local level to make breastfeeding support a priority in the reduction of health inequalities and the improvement of family health.

The Millennium Cohort Study (MCS), funded by the Economic and Social Research Council and a consortium of government departments, was commissioned to study the social conditions surrounding birth and early childhood in the U.K. (Smith, 2002). Its sample population was drawn from all live births for the 12 months 2000 to 2001. When the MCS dataset was used to examine the initiation of breastfeeding for at least one month in a subset of mothers in England it was found that White women and women of Pakistani ethnicity were the least likely groups to initiate breastfeeding. The groups most likely to initiate breastfeeding in this subset were Other-White, Black Caribbean, Black African and Other ethnic groups. The difference between the groups least and most likely to initiate breastfeeding was 20% to 25% (Griffiths et al, 2005).

The 2010 Infant Feeding Survey (IFS) is a national survey of infant feeding practices in the U.K., conducted every five years since 1975. Early results of the 2010 IFS are limited but report the highest incidence of breastfeeding in England is in women from managerial and professional occupations, those who were 18 years old when they left full-time education, those aged 30 years and older, and first-time mothers (The NHS Information Centre IFF Research, 2011). The survey was based on an initial representative sample of 30,188 mothers of babies born in the U.K. between mid-August and late November 2010. At Stage 1, a total of 15,724 mothers returned the questionnaire, representing a response rate of 52%. Results from the 2005 IFS give a fuller picture of breastfeeding in England and will be used here for comparison with the U.S.

2.1.1 Maternal ethnicity

The IFS 2005 reported that women in Asian, Black, Chinese or Other ethnic groups were more likely to breastfeed compared to White and Mixed ethnic groups. Black mothers had the highest breastfeeding duration to nine months compared to all other groups. White women had the lowest prevalence of breastfeeding, lowest breastfeeding duration and lowest prevalence of exclusive breastfeeding of all groups. (Table 1)

Table 1 Infant Feeding Survey 2005

Prevalence of breastfeeding at birth, 6 weeks and 6 months by mother's ethnic group (United Kingdom, 2005)

	White %	Mixed %	Asian or Asian British %	Black or Black British %	Chinese or other ethnic group %	All mothers‡ %
Birth	75	82	93	97	90	77
6 weeks	46	54	66	87	65	49
6 months	23	40	37	57	40	26

Prevalence of exclusive breastfeeding at birth, 6 weeks and 6 months by mother's ethnic group (United Kingdom, 2005)

	White %	Mixed %	Asian or Asian British %	Black or Black British %	Chinese or other ethnic group %	All mothers‡ %
Birth	64	69	75	73	73	65
6 weeks	21	22	24	19	28	21
6 months	*	1	–	*	1	*

Duration of breastfeeding at 6 weeks, 6 and 9 months among mothers who breastfed initially by ethnic group (United Kingdom, 2005)

	White %	Mixed %	Asian or Asian British %	Black or Black British %	Chinese or other ethnic group %	All mothers‡ %
Birth	100	100	100	100	100	100
6 weeks	61	66	70	90	72	63
6 months	31	49	39	59	45	34
9 months*	22	36	33	40	36	24

uration of exclusive breastfeeding at 6 weeks and 6 months in mothers who fed exclusively at birth by ethnic group (United Kingdom, 2005)

	White %	Mixed %	Asian or Asian British %	Black or Black British %	Chinese or other ethnic group %	All mothers‡ %
Birth	100	100	100	100	100	100
6 weeks	33	32	32	26	38	33
6 months	*	1	–	1	1	*

‡ Included some mothers for whom ethnic group was not recorded.
*Based on a reduced number of cases excluding babies who had not reached 9 mos by time of evaluation.
1. Prevalence of breastfeeding is defined as 'the proportion of all babies who are being breastfed at specific ages, even if they are also receiving infant formula or solid food'. (IFS 2005, p. 41)
2. Duration of breastfeeding refers to the 'length of time that mothers who breastfeed initially continue to breastfeed even if they are also giving their baby other milk and solid foods'. (IFS 2005, p. 34)
3. Symbols in tables: – indicates no cases; * indicates percentage <0.5%.
Adapted from: Bolling, K., et al., *Infant Feeding Survey 2005*. 2007, The Information Centre for health and social care, U.K. Health Department.

2.1.2 Maternal age

Younger mothers had a lower prevalence of breastfeeding and lower rates of breastfeeding duration, whereas mothers 35 or older had the highest prevalence of breastfeeding initiation and duration among all age groups. Teen mothers also had the lowest prevalence and duration of exclusive breastfeeding and mothers older than 30 the highest. One notable finding is that although nearly 40% of teen mothers exclusively breastfed at birth, by 6 weeks only 6% were doing so – nearly five times less than mothers 35 or older. (Table 2)

2.1.3 Maternal socio-economic status

There was a higher prevalence of breastfeeding among mothers in higher socio-economic groups compared to mothers in lower socio-economic groups. National Statistics socio-economic classification (NS-SEC) is used in England for all official surveys and statistics and is based on three classes: managerial and professional occupations, intermediate occupations, and routine and manual occupations, with two residual categories of those who have never worked and those unable to be classified due to insufficient data. Mothers at higher socio-economic levels also had higher rates of breastfeeding duration. Mothers in higher socio-economic groups also had higher rates of exclusive breastfeeding. However, rates of exclusive breastfeeding at 6 months were negligible or absent for both prevalence and duration. (Table 3)

2.1.4 Maternal education level

Mothers with more education had a higher prevalence of breastfeeding and higher rates of breastfeeding duration. The rate of breastfeeding at 6 months in women with more education was double that of women with the lowest education level. The prevalence of exclusive breastfeeding showed similar differences between groups. Among mothers who breastfed exclusively at birth the duration of exclusive breastfeeding at 6 weeks was again lowest in the group 16 or under. The prevalence and duration of exclusive breastfeeding at 6 months was negligible or absent in all groups. (Table 4)

Table 2 Infant Feeding Survey 2005

Prevalence of breastfeeding at birth, 6 weeks and 6 months by mother's age (United Kingdom, 2005)						
	Less than <20	**20–24**	**25–29**	**30–34**	**35 or over**	**All mothers ‡**
	%	%	%	%	%	%
Birth	52	66	76	83	85	76
6 weeks	4	31	47	58	62	48
6 months	7	12	25	31	36	25
Prevalence of exclusive breastfeeding at ages up to 6 months by mother's age (United Kingdom, 2005)						
	%	%	%	%	%	%
Birth	39	55	64	72	73	65
6 weeks	6	12	20	27	28	21
6 months	–	–	–	–	*	*
Duration of breastfeeding at 6 weeks, 6 and 9 months among mothers who breastfed initially by mother's age (United Kingdom, 2005)						
	%	%	%	%	%	%
Birth	100	100	100	100	100	100
6 weeks	28	46	62	69	74	63
6 months	13	19	33	37	43	33
9 months*	7	15	22	25	32	23
Duration of exclusive breastfeeding at 6 weeks and 6 months among mothers who fed exclusively at birth by mother's age (United Kingdom, 2005)						
	%	%	%	%	%	%
Birth	100	100	100	100	100	100
6 weeks	12	21	32	37	38	32
6 months	–	–	1	1	*	*

‡ Included some mothers for whom age was not recorded.

*Based on a reduced number of cases excluding those babies who had not reached 9 months by time of evaluation.

1. Duration of breastfeeding refers to the 'length of time that mothers who breastfeed initially continue to breastfeed even if they are also giving their baby other milk and solid foods'. (IFS 2005, p. 34)
2. Prevalence of breastfeeding is defined as 'the proportion of all babies who are being breastfed at specific ages, even if they are also receiving infant formula or solid food'. (IFS 2005, p. 41)
3. Symbols in tables: – indicates no cases; * indicates percentage <0.5%.

Adapted from: Bolling, K., et al., *Infant Feeding Survey 2005*. 2007, The Information Centre for health and social care, U.K. Health Department.

Table 3 Infant Feeding Survey 2005

Prevalence of breastfeeding at birth, 6 weeks and 6 months by mother's socio-economic classification (NS-SEC) (United Kingdom, 2005)

	Managerial / professional	Intermediate occupations	Routine / manual	Never worked	Un-classified	All mothers‡
	%	%	%	%	%	%
Birth	88	77	66	64	69	76
6 weeks	65	46	32	38	50	48
6 mos	35	23	16	25	27	25

Prevalence of exclusive breastfeeding at birth, 6 weeks and 6 months by mother's socioeconomic classification (NS-SEC) (United Kingdom, 2005)

	%	%	%	%	%	%
Birth	77	65	54	48	57	65
6 weeks	30	21	13	13	19	21
6 mos	*	*	*	–	1	*

Duration of breastfeeding at 6 weeks, 6 and 9 months among mothers who breastfed initially by mother's socioeconomic classification (NS-SEC) (United Kingdom, 2005)

	%	%	%	%	%	%
Birth	100	100	100	100	100	100
6 weeks	73	60	49	58	73	63
6 mos	40	29	24	38	40	33
9 mos *	27	22	16	30	35	23

Duration of exclusive breastfeeding at 6 weeks and 6 months among mothers who fed exclusively at birth by mother's socioeconomic classification (NS-SEC) (United Kingdom, 2005)

	%	**%**	**%**	**%**	**%**	**%**
Birth	**100**	**100**	**100**	**100**	**100**	**100**
6 weeks	39	32	24	26	34	32
6 mos	*	*	1	–	1	*

Notes for Table 3: ‡Included some mothers for whom NS-SEC was not recorded.
*Based on a reduced number of cases excluding babies who had not reached 9 mos by time of evaluation.
1. Duration of breastfeeding refers to the 'length of time that mothers who breastfeed initially continue to breastfeed even if they are also giving their baby other milk and solid foods'. (IFS 2005, p. 34)
2. Prevalence of breastfeeding is defined as 'the proportion of all babies who are being breastfed at specific ages, even if they are also receiving infant formula or solid food'. (IFS 2005, p. 41)
3. Symbols in tables: – indicates no cases; * indicates percentage <0.5%.
Adapted from: Bolling, K., et al., *Infant Feeding Survey 2005*. 2007, The Information Centre for health and social care, U.K. Health Department.

Table 4 Infant Feeding Survey 2005

Prevalence of breastfeeding at birth, 6 weeks and 6 months by age mother left full-time education (United Kingdom, 2005)				
	16 or under	**17 or 18**	**Over 18**	**All mothers‡**
	%	%	%	%
Birth	61	73	90	76
6 weeks	27	42	68	48
6 months	12	20	25	25
Prevalence of exclusive breastfeeding at birth, 6 weeks and 6 months by age mother left full-time education (United Kingdom, 2005)				
	%	%	%	%
Birth	50	61	78	65
6 weeks	11	18	31	21
6 months	*	*	*	*
Duration of breastfeeding at 6 weeks, 6 and 9 months among mothers who breastfed initially by age mother left full-time education (United Kingdom, 2005)				
	%	%	%	%
Birth	100	100	100	100
6 weeks	44	57	75	63
6 months	20	28	43	33
9 months*	16	19	30	23
Duration of exclusive breastfeeding at 6 weeks and 6 months among mothers who fed exclusively at birth by age mother left full-time education (United Kingdom, 2005)				
	%	%	%	%
Birth	100	100	100	100
6 weeks	23	29	39	32
6 months	*	*	1	*

Notes for Table 4: ‡ Included some mothers for whom age left full-time education was not recorded. Data presented in IFS 2005 for this variable included only information up to 6 months.
*Based on a reduced number of cases excluding those babies who had not reached 9 months by time of evaluation.
1. Duration of breastfeeding refers to the 'length of time that mothers who breastfeed initially continue to breastfeed even if they are also giving their baby other milk and solid foods'. (IFS 2005, p. 34)
2. Prevalence of breastfeeding is defined as 'the proportion of all babies who are being breastfed at specific ages, even if they are also receiving infant formula or solid food'. (IFS 2005, p. 41)
3. Symbols in tables: – indicates no cases; * indicates percentage <0.5%.
Adapted from: Bolling, K., et al., *Infant Feeding Survey 2005*. 2007, The Information Centre for health and social care, U.K. Health Department.

2.1.5 Maternal timing of return to work

The duration of breastfeeding among mothers who breastfed initially was measured by the age of the baby at time of breastfeeding discontinuation. More women in the not working at any time group breastfed longer, and women who breastfed exclusively at birth had a longer duration of exclusive breastfeeding, compared to mothers who returned to work in four to six months. At 6 months the duration of exclusive breastfeeding was negligible or absent in all groups. The prevalence of breastfeeding and prevalence of exclusive breastfeeding for this variable was not reported. (Table 5)

Table 5 Infant Feeding Survey 2005

Duration of breastfeeding at 6 weeks, 6 and 9 months among mothers who breastfed initially by age of baby when mother returned to work (United Kingdom, 2005)						
	<4 months	**4–6 months**	**6–9 months**	**≥9 months**	**Not working at any time**	**All mothers‡**
	%	%	%	%	%	%
Birth	100	100	100	100	100	100
6 weeks	60	53	65	63	65	63
6 months	26	18	31	32	39	33
9 months*	17	11	18	23	30	23
Duration of exclusive breastfeeding at 6 weeks and 6 months among mothers who fed exclusively at birth by age of baby when mother returned to work (UK, 2005)						
	%	%	%	%	%	%
Birth	100	100	100	100	100	100
6 weeks	26	25	32	30	35	32
6 months	1	–	*	*	1	*

‡Included some mothers for whom age of baby when mother returned to work was not recorded.
*Based on reduced cases, excluding those babies who had not reached 9 months by time of evaluation.
1. Prevalence of breastfeeding among mothers who breastfed initially by age of baby when mother returned to work not reported. 2. Prevalence of exclusive breastfeeding among mothers who breastfed initially by age of baby when mother returned to work not reported.
3. The duration of breastfeeding refers to the 'length of time that mothers who breastfeed initially continue to breastfeed even if they are giving their baby other milk and solid foods'. (IFS 2005, p. 34)
4. Symbols in tables: – indicates no cases; * indicates percentage <0.5%.
Adapted from: Bolling, K., et al., *Infant Feeding Survey 2005*. 2007, The Information Centre for health and social care, U.K. Health Department.

2.2 The United States

Healthy People is an initiative of the U.S. Department of Health and Human Services updated every 10 years to address disease prevention and health promotion across a range of public health priorities and includes specific, measurable objectives to improve public health and eliminate health disparities in the U.S. (U.S. Department of Health and Human Services, 1990;2000a;2010). Objectives for maternal/infant health in the most recent *Healthy People 2020* include incidence of breastfeeding, worksite support for lactating mothers, and hospital-based practices related to formula supplementation within the first two days of life and '*recommended*' (italics mine) care for lactating mothers and their babies. Incidence of breastfeeding were categorised as ever, at 6 months, at 1 year, exclusively through 3 months, and exclusively through 6 months.

There are a number of surveys in the U.S. which track breastfeeding statistics, usually as one variable in a larger public health survey. Most of these surveys are being carried out under the auspices of the Centers for Disease Control and Prevention (CDC). The National Immunization Survey (NIS) is one such survey conducted by the CDC, and in 2003 questions about infant feeding were added to the NIS (Centers for Disease Control and Prevention, 2010b). The NIS provides comprehensive information on the rates of breastfeeding initiation and duration by age, race/ethnicity, socioeconomic status and participation in The Special Supplemental Nutrition Program for Women, Infants and Children (WIC).

The NIS data from infants born in 2007 indicate women who are younger, Black, in lower socioeconomic groups or enrolled in WIC have the lowest rates of ever breastfeeding, as well as breastfeeding at 6 and 12 months (breastfeeding with or without the addition of complementary liquids or solids), compared to other groups. The difference in breastfeeding rates between socioeconomic groups was not as pronounced as the differences between groups based on age or race and ethnicity. However, one of the most striking findings was that low-income women eligible for WIC but not enrolled have higher rates of breastfeeding compared to women who are enrolled – more than 20 percentage points higher at 6 months and twice as high at 12 months. (Tables 6 and 7)

Table 6 CDC Breastfeeding National Immunization Survey 2007

Provisional Breastfeeding Rates by Socio-demographic Determinants Among Children Born in 2007 (Percent +/- half 95% CI)

Socio-demographic determinants	Number	Ever breast feeding	Breast feeding at 6 months	Breast feeding at 12 months
Race/ethnicity				
American Indian or Alaska	552	73.8±6.9	42.4±8.8	20.7±7.0
Asian or Pacific Islander	1077	83.0±5.2	56.4±6.3	32.8±6.5
Black or African American	2606	59.7±2.9	27.9±2.5	12.9±1.9
White	13425	77.7±1.2	45.1±1.5	23.6±1.3
Hispanic or Latino	2895	80.6±2.4	46.0±3.1	24.7±2.8
Receiving WIC1				
Yes	6814	67.5±1.8	33.7±2.0	17.5±1.7
No, but eligible	939	77.5±4.7	48.2±5.7	30.7±5.4
Ineligible	8143	84.6±1.4	54.2±1.9	27.6±1.6
Maternal Age, Years				
<20	360	59.7±7.9	22.2±7.5	10.7±5.7
20–29	5449	69.7±2.1	33.4±2.1	16.1±1.7
>30	10820	79.3±1.4	50.5±1.7	27.1±1.6
Poverty Income Ratio				
<100%	3196	67.0±2.7	34.7±3.0	19.0±2.7
100%–194%	2520	71.2±2.8	36.9±3.0	18.9±2.4
185–349%	3745	77.7±2.4	45.0±2.7	23.9±2.2
>350%	5755	84.4±1.7	54.0±2.2	26.7±2.0
All infants	**16629**	**75.0±1.2**	**43.0±1.3**	**22.4±1.1**

Source: http://www.cdc.gov/breastfeeding/data/NIS_data/2007/socio-demographic.htm

[1] WIC=Special Supplemental Nutrition Program for Women, Infants, and Children.

[2] Poverty Income Ration=Ratio of self-reported family income to the federal poverty threshold value depending on the number of people in the household.

Breastfeeding rates among children in a birth year are released when approximately 2/3rds of the children born in that year have been surveyed. The rates are labelled provisional until they are replaced the following year with final rates based on all children in the birth year.

Adapted from: Centers for Disease Control and Prevention. (2011). Breastfeeding among U.S. children born 2000—2008, CDC National Immunization Survey. Available at http://www.cdc.gov/breastfeeding/data/NIS_data/2007/socio-demographic.htm

Table 7 CDC Breastfeeding National Immunization Survey 2007

Provisional <u>Exclusive</u> Breastfeeding Rates by Socio-demographic Determinants Among Children Born in 2007 (Percent +/- half 95% CI)			
Socio-demographic determinants	**Number**	**Exclusive breastfeeding through 3 months**	**Exclusive breastfeeding through 6 months**
Race/ethnicity			
American Indian or Alaska	538	27.6±7.3	13.2±6.3
Asian or Pacific Islander	1048	34.1±6.0	14.5±4.3
Black or African American	2569	22.7±2.4	8.2±1.5
White	13194	35.3±1.4	14.4±1.0
Hispanic or Latino	2855	33.4±3.0	13.4±2.2
Receiving WIC1			
Yes	6725	25.5±1.8	9.2±1.2
No, but eligible	916	39.9±5.6	19.2±4.8
Ineligible	8007	41.9±1.8	17.7±1.3
Maternal Age, Years			
<20	356	18.1±6.4	7.9±4.7
20–29	5370	28.8±2.1	10.2±1.3
>30	10610	36.6±1.6	15.5±1.2
Poverty Income Ratio			
<100%	3153	25.0±2.7	8.6±1.7
100%–194%	2487	31.7±3.0	12.7±2.1
185–349%	3670	36.0±2.5	14.6±1.7
>350%	5675	41.1±2.1	17.6±1.6
All infants	16336	33.0±1.2	13.3±0.9

[1] WIC=Special Supplemental Nutrition Program for Women, Infants, and Children.
[2] Poverty Income Ration=Ratio of self-reported family income to the federal poverty threshold value depending on the number of people in the household.
Breastfeeding rates among children in a birth year are released when approximately 2/3rds of the children born in that year have been surveyed. The rates are labelled provisional until they are replaced the following year with final rates based on all children in the birth year.
Adapted from: Centers for Disease Control and Prevention. (2011). Breastfeeding among U.S. children born 2000—2008, CDC National Immunization Survey. Available at http://www.cdc.gov/breastfeeding/data/NIS_data/2007/socio-demographic.htm

The Pediatric Nutrition Surveillance System (PedNSS) and the Pregnancy Nutrition Surveillance System (PNSS) are program-based public health surveillance systems. The PedNSS monitors the nutritional status of low-income infants, children, and women in federally-funded maternal and child health programs, while the PNSS monitors risk determinants associated with infant mortality and poor birth outcomes among low-income pregnant women who participate in federally-funded public health programs.

PedNSS provides data on the prevalence and trends of nutrition-related indicators obtained primarily from infants and children up to age 5 participating in the WIC program, including breastfeeding (Centers for Disease Control and Prevention, 2009). PedNSS 2007 data showed Black women continued to have the lowest rates of ever breastfeeding and breastfeeding at 6 and 12 months compared to other races/ethnicities measured.

Table 8 Pediatric Nutrition Surveillance 2007

Rates of ever breastfed by maternal race/ethnicity, age, or education[2]		
	Ever breastfed	
Race/ethnicity	**Number**	**%**
White, not Hispanic	371,123	61.9
Black, not Hispanic	213,264	54.0
Hispanic	281,731	75.7
American Indian/Alaskan Native	10,407	64.0
Asian/Pacific Islander	33,230	63.0
Multiple races	9,438	68.6
All other/unknown	17,001	76.8
Total	**936,194**	**64.6**
Age	**Number**	**%**
<15 years	3,038	49.6
15–17 years	58,800	55.3
18–19 years	113,786	59.4
20–29 years	560,870	64.9
30–39 years	185,160	70.1
>or=40 years	1,386	57.9
Total	**936,194**	**64.6**
Education	**Number**	**%**
<High School	295,722	60.5
High School	400,451	62.9
>High School	188,588	74.1
Unknown	51,433	67.4
Total	**936,194**	**64.6**

Notes for Table 8: [1] Reporting period is January 1 through December 31, 2007.
[2] Excludes records with unknown data for health indicators, and data with errors for health and demographic indicators.
Adapted from: Polhamus, B., et al., *Pediatric Nutrition Surveillance 2007 Report*. Table 19D, National Summary of Trends in Breastfeeding Indicators by Race/Ethnicity Children Aged < 5 years. 2009, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention: Atlanta.

Table 9 Pediatric Nutrition Surveillance 2007

Rates of ever breastfed and breastfed at least 6 and 12 months by maternal race/ethnicity[2]

	Breastfeeding[3]					
Race/ ethnicity	**Number**	**% Ever breastfed**	**Number**	**% Breastfed at least 6 months**	**Number**	**% Breastfed at least 12 months**
White, not Hispanic	638,951	55.9	328,452	19.3	349,226	11.7
Black, not Hispanic	401,429	46.9	186,767	18.2	206,657	11.3
Hispanic	601,022	72.4	305,954	36.4	362,706	26.8
American Indian or Alaskan Native	17,289	63.1	9,643	26.3	11,871	17.8
Asian or Pacific Islander	42,994	60.4	19,522	28.7	23,260	18.6
Multiple races	39,636	58.8	21,044	19.5	23,284	11.8
All other/ unknown	5.683	65.1	3,052	27.0	2,101	15.4
Total all racial and ethnic groups	1,747,004	59.8	874,434	25.4	979,105	17.5

[1] Reporting period is January 1 through December 31, 2007.

[2] Excludes records with unknown data or errors.

[3] Infants born during the reporting period included in the Ever Breastfed analysis. Infants who turned 6 months of age during the reporting period by/on their date of visit included in the Breastfed At Least 6 Months analysis. Children who turned 12 months of age during the reporting period by/on their date of visit included in the Breastfed At Least 12 Months analysis.

Adapted from: Polhamus, B., et al., *Pediatric Nutrition Surveillance 2007 Report*. Table 19D, National Summary of Trends in Breastfeeding Indicators by Race/Ethnicity Children Aged < 5 years. 2009, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention: Atlanta.

The rate was highest in Hispanic infants. Statistically significant gaps between Black, White and Hispanic infants for all breastfeeding indicators were present, indicating breastfeeding inequalities by race and ethnicity exist within low-income groups. (Tables 8 and 9)

As with the PedNSS, the majority of data from the PNSS are from WIC, although data from the Title V Maternal and Child Health Program (MCH) are included. Title V MCH program and performance data describe and help to measure effectiveness of the more than 900 maternal and child health grants HRSA makes each year to ensure that the Nation's women, infants, children, adolescents, and their families, including fathers and children with special health care needs, have access to quality health care. The PNSS collects data for the incidence of ever breastfed only, but findings corresponded to those from other surveys: groups of women with the lowest rates of ever breastfeeding are younger, Black, and with lower education levels. (Table 10)

Table 10 2007 Pregnancy Nutrition Surveillance System

Rates of ever breastfed by maternal race/ethnicity, age, or education[2]		
	Ever breastfed	
Race/ethnicity	**Number**	**%**
White, not Hispanic	371,123	61.9
Black, not Hispanic	213,264	54.0
Hispanic	281,731	75.7
American Indian/Alaskan Native	10,407	64.0
Asian/Pacific Islander	33,230	63.0
Multiple races	9,438	68.6
All other/unknown	17,001	76.8
Total	**936,194**	**64.6**
Age	**Number**	**%**
<15 years	3,038	49.6
15–17 years	58,800	55.3
18–19 years	113,786	59.4
20–29 years	560,870	64.9
30–39 years	185,160	70.1
>or=40 years	1,386	57.9
Total	**936,194**	**64.6**
Education	**Number**	**%**
<High School	295,722	60.5
High School	400,451	62.9
>High School	188,588	74.1
Unknown	51,433	67.4
Total	**936,194**	**64.6**

[1] Reporting period is January 1 through December 31, 2007.
[2] Excludes records with unknown data for health indicators, and data with errors for health and demographic indicators.
Adapted from: Polhamus, B., et al., *Pregnancy Nutrition Surveillance 2007 Report*. Table 12D 2007 Pregnancy Nutrition Surveillance National Infant Health Indicators by Race/Ethnicity, Age or Education. 2009, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention: Atlanta.

The PedNSS and PNSS data sets have been updated since the work of this thesis began but only preliminary data were available at the time of writing. Comparisons with preliminary data from the *Pediatric Nutrition Surveillance 2010 Report*, however, show several trends worth mentioning. Although there has been an overall increase across all racial/ethnic groups in rate of ever breastfed by about 4–5 percentage points, the degree of inequalities between groups remains the same; a 10 percentage point difference in the rate of ever breastfed between White and Black groups continues.

Overall rates of breastfed at 6 and 12 months are slightly lower by several percentage points across all groups. Likewise, the PNSS data show an overall uniform two to three percentage points increase in ever breastfed across all groups by race/ethnicity, maternal age, and level of education (Centers for Disease Control and Prevention, 2010a). Most notably is that these most recent data show the Healthy People 2010 objectives for breastfeeding rates have not been met (Centers for Disease Control and Prevention, 2011a). *Healthy People 2010* objectives 16-19 a–c are to increase the proportion of infants ever breastfed to 75.0%, the proportion of infants breastfed at 6 months to 50.0%, and the proportion of infants breastfed at 1 year to 25.0%.

The largest database on breastfeeding in the U.S. has been the Ross Mothers Survey, conducted by the formula manufacturing company Ross Laboratories (now Abbott Nutrition) since 1955, which reportedly represents approximately 82% of births in the U.S. In 2003, 1,212,200 Ross questionnaires were mailed and 228,000 were returned for a response rate of nearly 19%. Statistics from the most recent and final report, Ross Breastfeeding Trends 2003, indicated a gap of more than 20% in rates of exclusive breastfeeding between low-income women enrolled in WIC and those not enrolled, and a gap of more than 26% between White and Black women, with low-income and Black women experiencing lower rates in each comparison.

Ross data indicated White women had higher rates of breastfeeding initiation and duration than Hispanic women, which is counter to findings from more recent surveys. Other differences between groups of women were similar to findings in other surveys: women who were younger or with lower education levels had lower rates of breastfeeding initiation and duration at 6 and 12 months. The Ross survey found women with the lowest education level had the highest rates of exclusive breastfeeding at 12 months, and there was no difference between White and Black women. (Tables 11 and 12)

Table 11 2003 Ross Products Division–Mothers Survey

2003 Breastfeeding rates			
	In Hospital	**6 Months**	**12 Months**
ALL INFANTS	66.0	32.8	19.4
MOTHERS			
Age in Years			
<20	49.6	16.5	9.1
20–24	61.0	24.4	13.9
25–29	70.0	35.1	20.2
30–34	72.6	41.3	23.2
35+	71.0	42.6	27.5
Education			
Any Grade School	49.4	22.5	28.2
Any High School	56.2	22.3	14.0
No College	56.0	22.3	14.3
Any College	77.7	44.7	24.9
Employment			
Employed Full-Time	65.5	26.1	13.5
Employed Part-Time	68.8	36.6	21.1
Total Employed	66.6	29.5	16.1
Total Not Employed	64.8	35.0	22.7
WIC Participant			
No	76.6	43.1	25.2
Yes	54.9	21.5	13.4
Race			
White	70.7	35.9	20.6
Black	48.3	20.1	12.1
Asian	74.1	45.5	25.9
Hispanic	64.0	29.9	19.6

Table 12 2003 Ross Products Division–Mothers Survey

2003 Exclusive breastfeeding rates			
	In Hospital	**6 Months**	**12 Months**
ALL INFANTS	44.0	17.9	10.4
MOTHERS			
Age in Years			
<20	28.7	8.7	4.4
20–24	39.7	13.0	7.9
25–29	48.2	19.7	10.4
30–34	49.9	22.6	13.6
35+	47.2	23.1	13.8
Education			
Any Grade School	26.3	12.9	16.5
Any High School	34.9	12.2	7.6
No College	34.7	12.2	7.8
Any College	54.9	24.4	13.5
Employment			
Employed Full-Time	43.8	11.4	5.9
Employed Part-Time	48.5	19.1	10.9
Total Employed	45.3	13.9	7.6
Total Not Employed	42.9	21.2	13.4
WIC Participant			
No	55.2	24.6	14.0
Yes	32.3	10.6	6.9
Race			
White	52.6	20.4	11.5
Black	25.5	9.5	4.6
Asian	39.0	23.0	11.7
Hispanic	33.1	15.2	11.6

Differences between the Ross data and data from the PNS and NIS may be partly explained by differences in methodology. The Ross survey is completed on a monthly basis from birth to 1 year of age and collects only infant feeding data, whereas the PNS and NIS collect retrospective breastfeeding data as one in a set of survey questions on health indicators in infants and children. The PNS data are collected annually at the local clinic level, aggregated at the state level, then analysed at the federal level, and the NIS obtains retrospective data during a 2-year period from families with children aged 19-35 months. The multiple levels of analysis across agencies in the PNS, and the relatively higher risk of recall bias in the NIS, may weaken the reliability of results from these surveys compared to Ross data.

2.3 Conclusions

Although there are methodological differences and variations in populations between surveys used to track breastfeeding rates in each country, there is little difference in results across surveys. Findings consistently show breastfeeding rates are related to a woman’s age, social class, race or ethnicity, as well as her occupation, economic status and education level. Women who are disadvantaged as measured by any one of these variables are less likely to initiate or continue breastfeeding, compared to women in more advantaged groups.

Findings from these surveys reveal that certain socio-economic and demographic characteristics of mothers affect rates of breastfeeding at a public health level. This suggests policy can address breastfeeding support and breastfeeding inequalities by addressing these socio-economic and demographic characteristics. These findings also suggest how the fundamental issues related to breastfeeding support and breastfeeding inequalities are not limited to the social determinants of breastfeeding, but extend to the socio-political and economic sources of those determinants. The following chapter explores these socio-political and economic sources by examining the politics and economics of breastfeeding support.

Chapter 3

Policies to address breastfeeding support and breastfeeding inequalities

3.1 Introduction

Policy to address breastfeeding support and inequalities in England and the U.S. has origins in the evolution of public health policymaking to address health inequalities, and the recognition of health inequalities as an issue of national concern over time is tied to this evolution. If the sample of documents from England and the U.S. reflects the evolution of policy during the last decade to address breastfeeding support and breastfeeding inequalities, it also reflects the broader evolution of political and economic conditions that have had an impact on policy and health inequalities in both countries during the last four decades. As such, an overview of the political and economic conditions affecting policy to address health inequalities during the last four decades, and the historical origins of policy to address breastfeeding support and breastfeeding inequalities, provide the context for examining the key policies in this thesis.

The issue of health inequalities as a public health problem became evident in England and the U.S. during the last four decades. Both countries experienced economic prosperity and hardship at roughly the same time during the last 40 years, including similar responses to global economic conditions. Generally during the 1970s, England and the U.S. were in a national and global economic downturn. By the end of the decade, both countries were in an economic recession that mirrored a global recession. It was during this time of increasingly severe unemployment that evidence of health inequalities in England emerged and efforts to formally examine the connection between social class and health inequalities were initiated. Similarly in the U.S., unemployment of lower-waged workers increased dramatically, as did income and health inequalities, and enactment of welfare reform for the socioeconomically disadvantaged was initiated.

Briefly in the mid-1980s there were signs that the global recession was lifting, but the recovery was short-lived and a volatile global economy in England and the U.S. turned to another economic recession by the end of the 1990s. The decade of the 1980s saw the sharpest rise in socioeconomic and health inequalities in both countries. At the same time a reduction or elimination of social programmes for the most socioeconomically disadvantaged was seen in both countries across the 1980s and 1990s. For the next 10 years national and global economies recovered rapidly amidst policy trends toward market economies. The issues of social and health inequalities were brought back to the forefront of policy during this time, and investment in research and public health programmes to address socioeconomic and health inequalities increased.

The renewed commitment to reduce social and health inequalities in England and the U.S. during the 1990s and early 2000s reflected growing international concerns about the effects of social inequities and health inequalities (Benzeval, Judge and Whitehead, 1995; World Health Organization, 1995; Leon, Walt and Gilson, 2001). England's policy approach to reduce health inequalities involved the use of NHS resources to fund programmes that targeted disadvantaged groups. These programmes were characterised by a decrease in state responsibility and an increase in individual responsibility for health and health behaviours. In the U.S., policies that reduced funding for socioeconomically disadvantaged groups were being implemented. Health care services were being consolidated and health care payers began using business and financial experts to determine covered services. The approach to health care was corporate-friendly and market-focused, promoting an economic concept that improved financial and health status for the most advantaged would improve the financial and health status for the overall population including disadvantaged groups.

In the late 2000s a reversal of policy trends occurred in England and the U.S. amid deteriorating economic conditions, both nationally and globally, generated by the collapse of financial markets in the U.S. and Europe. The weakening financial state of the NHS in England spawned policies to reduce a major source of government expenditure – health care. The pressure to reduce the financial burden of health care also led to increased interest in evidence-based policy as a means of controlling the allocation of NHS resources and expenditure. However, a focus on reducing health inequalities only in certain groups, and limited financial resources to support public health programmes in general, resulted in an uneven distribution of evidence-based policies and related programmes in England, with the effect of creating or increasing health inequalities (Graham and Kelly, 2004; Marmot, 2005).

In the U.S., despite similarly difficult economic conditions and unsustainable costs of health care, policies to address socioeconomic and health inequalities that included a transfer of health care funding and delivery from a market-based to a government-sponsored model were introduced. This approach was based on the assumption that the current market-based health care system, rewarding the consumption of health care resources and services through reimbursement for the number and type of interventions and practitioners used, was responsible for the spiralling cost of health care.

In the absence of universal health care, policies were also based on the assumption that a market-based health care system was responsible for health inequalities. As such, public health policy focused on expanding access to health care as the primary means of addressing health inequalities (Leon, Walt and Gilson, 2001). Similar to England, evidence-based practice gained the attention of both private and government-subsidised health care systems as a means of controlling costs by controlling delivery of services. However, the mechanism by which this control was gained and the role of evidence-based practice differed from that in England. Reimbursement of services became increasingly based on outcomes in conjunction with a reduction in the use of health care resources at both the systems and practitioner levels, and evidence-based practice was seen as the means for achieving this goal.

3.2 Policy origins

In England, a succession of reports repeatedly demonstrated the effects of social determinants of health and the growing problem of health inequalities. The Black Report published in 1980, the Whitehead Report in 1987, the Acheson Report in 1998, and most recently the Marmot Review in 2010 came to the same conclusions – the problem of health inequalities in England continues to grow, and can be effectively addressed only through policies that change the social determinants of health that lead to health inequalities, particularly determinants related to class and socioeconomic status (Department of Health and Social Security, 1980; Whitehead, 1987; Acheson, 1998; Marmot et al, 2010). The Acheson Report and the Marmot Review included breastfeeding support and the reduction of breastfeeding inequalities as part of effective policy to address health inequalities.

In 2002, major public health policies were introduced in England that included breastfeeding support. Among them were the *Priorities and Planning Framework 2003-2006* which identified public health objectives and targets for all services in the NHS for the upcoming three years (Department of Health and Social Services, 2002). This policy was significant in that it was the first in England to include a breastfeeding target (an increase of 2% per year in rates of breastfeeding initiation) to meet objectives for reducing health inequalities in England. Also, in 2002, the *Healthy Start: Proposals for Reform of the Welfare Food Scheme* was published (Department of Health, 2002). This policy added breastfeeding among qualifications for eligibility to receive milk tokens for women participating in the Healthy Start programme. More recently, the *Healthy lives, brighter futures – The strategy for children and young people's health*, published in 2009, identified the Baby-Friendly Initiative (BFI) as the model that hospitals providing maternity care should use as part of an overall strategy to promote breastfeeding and reduce health inequalities (Department of Health, 2009).

U.S. policy concerns around health inequalities grew out of the socio-political changes from the Civil Rights movement that began in the early 1900s. Issues of health and breastfeeding inequalities have been framed within the context of racial, ethnic and minority groups in the U.S. rather than social class, employment category and geographic distribution as in England. In the early 1900s, during the time leading up to the Civil Rights movement, several prominent African American scholars were instrumental in bringing evidence of health inequalities in minority groups to the national level of public health policy (Thomas et al, 2006). The Heckler report that followed was the catalyst for policy and public health initiatives addressing minority health inequalities using evidence from comprehensive research in recommendations for a national strategy (U.S. Department of Health and Human Services, 1985).

In 1990, *Healthy People 2000* was released and brought a new dimension to the public health agenda by setting national goals for reducing gaps in health inequalities found in racial and ethnic minority groups in the country, including inequalities in rates of breastfeeding (U.S. Department of Health and Human Services, 1990). Notably, lower targets were set for minority groups which, as was subsequently found, had the effect of maintaining inequality gaps rather than closing them. *Healthy People 2010* improved on the goals set forth in *Healthy People 2000* and eliminated separate targets for the health of racial and ethnic minority groups, including breastfeeding rates (U.S.

Department of Health and Human Services, 2000a). However, the inclusion of social determinants of health [and breastfeeding] and health inequalities did not appear until the release of *Healthy People 2020* (U.S. Department of Health and Human Services, 2010).

Differences in the focus and scope of evidence-based policies across time in England and the U.S. have stemmed in part from differences in the evidence available from research and how that evidence was used. Data related to socioeconomic status, class, geographical differences and health inequalities between groups in England were the primary population-based measures available to researchers, who, as a result, focused on the social determinants of health in England. As such, policies in England have focused on the social determinants of breastfeeding to address breastfeeding inequalities. In the U.S., the primary population-based measures available centred on health status in terms of race, ethnicity, and socioeconomic differences in access to and utilization of health care. Thus, policies in the U.S. have focused on types of breastfeeding support for different socio-cultural and economic groups, and the availability and utilization of health care services including breastfeeding support for women in disadvantaged groups.

Such constraints in measures available to researchers ultimately constrain efforts to produce evidence-based policy. With systematic reviews increasingly considered the preferred source of evidence for evidence-based policymaking, the limitations of systematic reviews to meet this demand are becoming apparent. Although systematic reviews theoretically offer policymakers a non-biased and concise account of the most current evidence available, they are entirely dependent on available outcomes measures in a body of literature which, as pointed out above, depends on the type of data available to researchers.

Limitations and constraints in the types and volume of available evidence represent a source of bias in evidence-based policymaking. The evidence from systematic reviews used to develop a policy to support breastfeeding will inevitably determine the focus and content of policy recommendations (assuming the policy accurately reflects findings of the systematic review). If the majority of systematic reviews on breastfeeding support have a relatively narrow focus, policymakers wanting an evidence-based policy will be compelled to focus on that particular approach to breastfeeding support. The result is other determinants of breastfeeding and breastfeeding inequalities are absent in policy.

One alternative to address this type of policy bias would be to commission a systematic review specifically for the purposes of developing a policy. The USPSTF policy in the sample of U.S. documents is an example of this strategy. However, as analysis of the USPSTF policy demonstrated, policy recommendations may not correspond with recommendations in the systematic review(s) commissioned. This dilemma may help explain why two policies in the U.S. sample included recommendations for interventions not evaluated for evidence of effects .This example illustrates another potential problem encountered in evidence-based policymaking: the power of policy can supersede the evidence on which it was based, even if policy recommendations do not correspond with the evidence. It is conceivable that users of policy recommendations in this case may not know of this discrepancy and the evidence becomes invisible despite its availability.

A solution to this problem of discrepancy between policy recommendations and evidence is transparency in the use of the evidence in policy development. The NICE Public health guidance 11 in the sample of English policy documents is an example of this. Each recommendation in the policy is mapped to specific evidence statements in the systematic reviews used in developing the policy. How well this worked in ensuring correlations between the evidence and recommendations in this policy was not explored here, but the strategy lends itself to producing evidence-based policy that can be scrutinised for reliability and accuracy based on the evidence.

Another solution would be to conduct a review of the literature specifically for development of a policy addressing a particular issue not [yet] examined in systematic reviews. This approach was necessary before evidence-based policy became a distinct strategy and systematic reviews became readily available. The HHS Blueprint for Action on Breastfeeding from the sample of U.S. documents is an example. It should be pointed out, however, that although the HHS Blueprint used one review in conjunction with a literature review conducted by the policy developers, there were other reviews related to breastfeeding support available at the time that were evidently not used (Bar-Yam and Darby, 1997; Raj and Plichta, 1998). Despite the limited availability of reviews, recommendations in the HHS Blueprint were found to be consistent with recommendations in the most recent policies in the sample that reported using a number of up-to-date systematic reviews – a credit to the body of research available at the time and members of the Subcommittee on Breastfeeding who reviewed that research.

A decision related to the available evidence that will or will not be used is also a source of policy bias. The inclusion or exclusion of recommendations or findings from a systematic review used is one layer of bias in policymaking. The inclusion or exclusion of relevant systematic reviews available at the time of policy development is another layer, also demonstrated in the HHS Blueprint. Unless policymakers' decisions are transparent about what is and is not included, the risk of bias in policy recommendations places users at a disadvantage when considering the appropriateness and implementation of those recommendations. Conceivably, this will continue to be a problem as expectations for evidence-based policy intensifies, the reliance on systematic reviews increases, and the volume of evidence generated from a growing number of systematic reviews expands.

3.3 Conclusions

In England and the U.S., political and economic conditions and agendas exert a powerful influence on public health policymaking to address social and health inequalities, including policies to address breastfeeding support and breastfeeding inequalities. During the last four decades, a balance of negative and positive political and economic influences on policies to address social and health inequalities has been observed in England and the U.S., while health inequalities (and breastfeeding inequalities) have increased in both countries. The question then becomes one of the role of evidence from systematic reviews in evidence-based policymaking and the power of recommendations from policies and systematic reviews relative to political and economic influences.

It may be that systematic reviews have a role in political and economic agendas in that they can identify determinants of health and breastfeeding as well as gaps in knowledge that could help identify policy agendas and priorities. This approach to policymaking – using systematic reviews to first determine policy agendas and second to guide policy recommendations – brings an added dimension to evidence-based policymaking and may strengthen the effectiveness of policy recommendations.

Policy bias is a problem that stems from a number of issues related to the use of evidence from systematic reviews in policymaking. Limitations and constraints of evidence to support evidence-based public health policy also limits and constrains the ability of policy to effectively, accurately and comprehensively address determinants of breastfeeding. These limitations and constrains can potentially lead to another source of policy bias – inaccurate or incomplete representation of evidence from systematic reviews in policy recommendations. Transparency in the use of evidence from systematic reviews in policy recommendations and commissioning of systematic reviews to inform either the focus or recommendations of a policy are strategies for dealing with this type of bias.

The increased demand for evidence-based policy to address breastfeeding support and breastfeeding inequalities poses a risk for both policymakers and users. Being limited and constrained by a lack of systematic reviews of the effectiveness of policy interventions to address breastfeeding support makes it difficult to develop reliable policy recommendations applicable across groups, setting and situations. Policies based on limited or unreliable evidence may lead to the perception that policy interventions are ineffective rather than the policy was comprised of ineffective interventions. This scenario strengthens the argument for transparency in the use of evidence from systematic reviews.

Chapter 4

The politics and economics of breastfeeding support in England and the U.S.

4.1 Introduction

In order to fully understand the current socio-political and economic context of breastfeeding support, and the relationship between evidence and policy in addressing breastfeeding support and inequalities, it is important to understand the overriding socio-political and economic influence of the infant formula industry in England and the U.S. This influence is amplified by the fact that politics and economics affect policies intended to address health inequalities in general, which ultimately affect infant feeding (Navarro and Shi, 2001; Exworthy, Blane and Marmot, 2003; Fox, 2005; Rigby, 2005; Asthana and Halliday, 2006; Wright, Parry and Mathers, 2007). Although the medical and scientific communities in support of breastfeeding have been afforded [inconsistent] attention by policymakers during the last two centuries, the primary influence on infant feeding policy in England and the U.S. has been, and continues to be, the infant formula industry.

The NHS in England supports the purchasing and distribution of infant formula through the government-sponsored Sure Start programme, and the U.S. government is the largest purchaser and a major distributor of formula through the WIC programme. Although breastfeeding promotion and support was included in *Sure Start* policy, infant and childhood nutrition was not made an explicit *Sure Start* Public Service Agreement target, giving users less than adequate authority to justify or implement a breastfeeding support programme in local *Sure Start* services (Halliday and Asthana, 2007).

WIC's breastfeeding promotion and support policy has been implemented through the *Loving Support* services, but programme mandates and guidelines for implementation do not use evidence-based models such as the BFI, leaving local agencies with inadequate power to develop an effective programme (United States Department of Agriculture Food and Nutrition Services, 2009). The infant formula policies in WIC and Sure Start programmes show how policy can negatively affect breastfeeding and health inequalities; the most socio-economically disadvantaged mothers and infants are selectively eligible for free infant formula and, in turn, the increased health risks associated with artificial feeding.

The powerful economic influence of the infant formula industry on policy extends from a local level of health care services and systems to a national level of government on a global scale. The historically negative impact on infant morbidity and mortality from the infant formula industry's political and economic influence in developing countries is well documented (Mokhiber, 1987; Baumslag and Michels, 1995; Sokol, 2007) and prompted the WHO and UNICEF to intervene with an international policy addressing the marketing of infant formula (World Health Organization, 1981).But the modern political and economic power of the industry continues to grow in both developed and developing countries (Kent, 2006; UBIC Consulting, 2010) despite continued efforts of WHO/UNICEF and other non-profit international organisations to promote breastfeeding and countermand the influence of the infant formula industry through policy (World Health Organization, 2003; UNICEF, 2005; IBFAN, 2008; Nathan, 2008; World Alliance for Breastfeeding Action). There will be little progress in the reduction of breastfeeding inequalities and health inequalities as long as policies encourage government nutrition support programmes for disadvantaged women and their families to continue subsidising the formula industry rather than the nutritional support of mothers and infants they serve.

4.1.1 Socio-historical context of infant feeding

The social history of infant feeding in England and the U.S. is similar. During the 1800s, artificial feeding with commercial infant formulas had become more and more commonplace in both countries, but by the beginning of the 1900s the devastating effects of this practice became apparent with an alarming rise in infant morbidity and mortality (Weinberg, 1993; Atkins, 2003; Wolf, 2003). Recognising the causal relationship between the rise of infant morbidity and mortality and the rise in artificial feeding, physicians and nurses became social activists using public health campaigns to educate women about the harms of replacing breast milk with artificial infant feeding products (Atkins, 2003; Wolf, 2003).

The issue of infant health and infant feeding, however, became focussed on the need for safe, clean cow's milk through pasteurisation and improved handling during transport rather than the need to promote and support breastfeeding (Mepham, 1993). The availability of safe, clean cow's milk changed socio-political, economic and scientific/medical perceptions of artificial feeding as an acceptable and even preferred method of infant feeding. In addition, the late 19th century marked a time of scientifically-manufactured drugs and new industrial processes that allowed mass production and distribution of infant formula (Apple, 1986). Science was used to elevate the perceived status of artificial feeding; infant formula was touted as the ideal source of nutrition because it was scientifically produced with known ingredients vs. the then uncertain composition and production of breast milk (Apple, 1987; Bryder, 2005).

During the same time frame social perceptions of breastfeeding changed in England and the U.S. from a time when breast milk was unquestionably the essential form of nutrition for infants and contributed significantly to public health, to a time when this assumption was challenged by the infant formula industry and infant formula was considered superior to breast milk by the medical community, to our current level of knowledge that breast milk is essential to infant, childhood and adult health and infant formula can be harmful to infant, child and adult health. (Important to note here is that there are situations in which infant formula is medically necessary or breastfeeding is medically contraindicated, but evidence of the health effects of breast milk and infant formula remain.)

From the early 1930s to the 1970s the medical profession in England and the U.S. became less supportive of breastfeeding and increasingly convinced that formula was at least as good as breast milk if not superior for infant feeding (Bryder, 2005). Infant feeding had become a scientifically-mediated process requiring medical management and oversight, although in England the medicalisation of breastfeeding occurred rather than medical promotion of artificial feeding in the U.S. (Dykes, 2002; Bryder, 2005). By the 1960s and 1970s, breastfeeding rates in England and the U.S. were at all time lows (Wolf, 2003; Bryder, 2005).

The knowledge base required to provide a solid epidemiological footing for public health policy to support breastfeeding was small when infant formula was marketed as the new and better form of infant nutrition. The need to prove that breast milk was the optimal form of infant nutrition did not exist until the infant formula industry challenged that assumption. Within the last few decades, however, reliable evidence of the health effects of breastfeeding and formula feeding has been gathered from research sources other than the formula industry and with it a growing interest in interventions to promote and support breastfeeding. An expanding body of research is providing information at an accelerated rate, gaining attention from public health officials interested in producing evidence-based policy to tackle breastfeeding inequalities as well as health inequalities related to nutrition. Thus, recognition of the contribution breastfeeding can make to improvement in public health has made a complete circle from the time when replacement infant feeding products were first introduced.

4.1.2 The socio-political and economic disadvantage of breastfeeding support

In strictly economic terms, breast milk is not a commodity that can be marketed to expand economic gain, and breastfeeding is not a commercial industry that can be used to attain socio-political power. (One interesting point is that before artificial infant feeding products were developed wet nurses represented an industry in breastfeeding and breast milk was a commodity.) This alone puts efforts to support breastfeeding through public health policy at a disadvantage. But bringing breastfeeding to the forefront of public health policy concerns has also been impeded by the fact that to do so requires change in social attitudes toward infant feeding. Persistent, successful marketing campaigns by the formula industry have once again resulted in a shift in the social perception of artificial feeding in England and the U.S. as the norm and breastfeeding as an alternative option for infant feeding (Apple, 1986).

As a result, advocates of breastfeeding have (again) been put in a position of disadvantage, having to defend breastfeeding support by challenging the infant formula industry and its socio-political and economic power. Breastfeeding advocates are confronting the socially established and commercially sophisticated position of the infant formula industry with a complex strategy involving scientific, economic, political, socio-cultural and health care initiatives. An independent body of scientific knowledge demonstrating the health effects of breastfeeding and artificial feeding, and a body of research that describes the economic impact of breastfeeding in a market economy have been built (León-Cava, 2002, Weimer, 2001). The culture of maternity care and practices of maternal/infant health care practitioners have been examined, and the routine promotion of infant formula and support of artificial feeding is being discouraged and replaced with the promotion and support of breastfeeding (Bartington et al., 2006, Merten et al., 2005).

Strategies for health care systems have been developed to move away from policies and activities that promote infant formula and artificial feeding, toward policies and programmes that promote and support breastfeeding, including (re)education of health care practitioners (Forster and McLachlan, 2007, Kramer, 2001). Commercial marketing of infant formula and artificial feeding has been countermanded with the marketing of breast milk and breastfeeding through the popular media and other socio-cultural venues (Womenshealth.gov, 2010, Food & Nutrition Service, 2005, National Childbirth Trust, 2010).

Professional associations, organisations and coalitions have been formed to gain socio-political and economic power to promote, support, develop and monitor breastfeeding policies at local, national and international levels (Humenick, 2001, American Academy of Pediatrics, 2005). In short, another circle has been completed; once again breastfeeding advocates must challenge the infant formula industry. The difference this time is the increased interest by policymakers in reducing health inequalities and the role of breastfeeding in doing so.

Despite these advances, another tactic to counter the growing power of breastfeeding advocacy in England and the U.S. has become apparent. With the cultivated perception of breast milk as an alternative to formula it has become possible to cast breastfeeding and breastfeeding support in moral, ethical and emotional terms. Perceptions of breastfeeding advocacy as challenging women’s rights to make their own infant feeding decisions, breastfeeding promotion as passing moral judgement on women who do not breastfeed, breastfeeding support as a form of social or professional pressure to breastfeed, and equating breastfeeding with an emotionally laden concept of being a ‘good mother’, deflect attention from the real issue of improving public health through policy to support breastfeeding (Marshall, 2007, Murphy, 2000, Miller, 2007). In short, breastfeeding and breastfeeding support has become a politically, economically, scientifically and socially contentious issue perceived in terms of differences in ideologies (Knaak, 2010, Yamey, 2001).

This redefinition of breastfeeding and breastfeeding support as ideologically-based has ramifications for policymaking, particularly in efforts to produce evidence-based policy. Breastfeeding has become a political hot button: to champion policy and legislation to support breastfeeding is to take an ideological stance with less political, economic and social capital, leaving scientific evidence as the sole resource for advantage – the same evidence that could inform policy. But because policymaking is firmly grounded in the politics and economics of a given society, scientific evidence is often seen as a resource to support a particular socio-political or economic agenda rather than an essential piece of the evidence-based policy puzzle (Nutbeam, 2008, Rigby, 2005, Petticrew, 2004).

In the case of policy and breastfeeding support in England and the U.S., this has the effect of leaving the hard-won evidence of the effects of breastfeeding and breastfeeding support, and of artificial feeding and promotion of infant formula, standing in the wings of the socio-political and economic stage, hidden from view and waiting for a cue that may or may not come to play a role in policymaking and public health. This analogy illustrates why, despite the overwhelming and growing amount of quality evidence showing the positive effects of breastfeeding and negative effects of formula feeding now available, if and how evidence from research is used in policymaking to support breastfeeding depends largely on socio-political and economic priorities and agendas.

4.1.3 Social determinants of breastfeeding and policy to address the sources of those determinants

Socio-political and economic influences are the source of social determinants of breastfeeding and play major roles in policy to address the social determinants of breastfeeding and breastfeeding inequalities (Baumslag, 1995, Brown, 2003, Kent, 2006, Galtry, 2003, Baker, 2008). The historical evolution of infant feeding and policy in England and the U.S. has made it particularly difficult to identify social determinants of breastfeeding that are consistent enough to tackle through policy. Although some of the social determinants, such as early maternal return to employment outside the home, have remained essentially the same across this time frame, other determinants, such as social class and income level, have not.

As such, policymakers wanting to develop evidence-based public health or social policy to address the social determinants of breastfeeding or their sources have little to go on.

In a systematic review involving an extensive literature search for studies evaluating public health interventions to promote the duration of breastfeeding, Renfrew and colleagues found 'very little research to inform any aspect of public policy' (p. 2) (Renfrew et al, 2005). In fact, the review found no published evidence of effective or beneficial wider social policy interventions for enhancing breastfeeding duration. The authors did find some evidence supporting two types of theoretically-grounded social policy that appear to be promising: policies at the national level that encourage maternity units in hospitals to adhere to the UNICEF Baby Friendly Initiative (BFI), and policies that set regionally or nationally determined targets for breastfeeding rates with supporting activities, and/or penalties and/or incentives. The authors note, however, that the studies evaluating these interventions did not examine their use in deprived groups, which has ramifications for policymakers using findings from the review to address breastfeeding inequalities. This example illustrates one aspect of how a political commitment to address the sources of social determinants of breastfeeding and breastfeeding inequalities through evidence-based policy can be constrained by an insufficient body of research designed to inform policymaking at the public health level.

This does not mean, however, that the existence of reliable evidence will influence policy or policymaking to support breastfeeding. The amount and strength of policy and legislation to support breastfeeding in England and the U.S. at this point is incongruent with the amount and strength of evidence (recognising not all evidence is represented in systematic reviews) of the effects of breastfeeding and formula feeding, which is one indication of the impact socio-political and economic forces have on policy. In other words, not only do politics and economics determine the direction of and priorities for policy, but they determine whether and how evidence is used in policymaking. The ever-changing socio-political and economic influence on policy also means there is an ever-changing commitment to evidence-based policy to address the social determinants of breastfeeding and their sources despite the available evidence.

An example of this is the BFI as a source of social determinants of breastfeeding in a number of ways. Evidence shows that the quality of maternity care a woman receives is a social factor of breastfeeding, and the BFI is shown to be related to high quality maternity care. Evidence also shows that socio-cultural support of breastfeeding is a social factor of breastfeeding, and the BFI involves creating a culture of breastfeeding within health care that includes social and community-based activities.

The implementation of the BFI involves an economic commitment by health care providers and institutions to reject financial incentives from infant formula manufacturers for the promotion of infant formula and support of artificial feeding, and instead invest in staff education, changes in policy and routine practices and procedures, promotional materials and programmes, and community activities to promote and support breastfeeding. Improving the quality of maternity care and socio-cultural support of breastfeeding through implementation of the BFI is, in effect, addressing two social determinants of breastfeeding using the available evidence. But the continued pervasive [invasive] commercial promotion of infant formula and artificial feeding within health care services and systems is another indicator of the high degree of economic influence given to the infant formula industry, as well as the high degree of difficulty in countermanding its influence.

A point to note here is that the BFI can also be a source of breastfeeding inequality. As it is with the issue of variability in adoption or implementation of a particular policy such as Sure Start or WIC, so it is with the BFI. Although policy may advocate or mandate use of the BFI at national, regional or local levels, variation in adoption or implementation of the policy leaves an unequal distribution in effectiveness of the model and, as such, may create breastfeeding inequalities.

The political and economic influence granted to the infant formula industry represents one of the sources of the social determinants of breastfeeding. For instance, based on the evidence, psychosocial support from a woman’s family and peers and community acceptance of breastfeeding in public places are social determinants of breastfeeding and pervasive marketing of infant formula as the norm for infant feeding negatively affects the social perception and public acceptance of breastfeeding. Restricting marketing of infant formula and increasing promotion and support of breastfeeding through policy advocating use of the BFI model represents an opportunity to counter a source of negative perceptions and lack of acceptance of breastfeeding – in other words, to change a source of certain social determinants of breastfeeding and ultimately the social determinants themselves.

4.2 Conclusions

Social determinants of health are inherently the result of socio-political and economic forces in a society (Marmot, 2005, Navarro, 2001, Graham, 2004a, Koh et al., 2010). Education, employment and housing opportunities, income, social class, gender, racial and ethnic equality, and access to quality health care are intimately linked to the health of populations and to the production of health inequalities in groups within populations (Koh et al., 2010, Power, 1997, Kelly, 2007, Acheson, 1998, Nazroo, 2003). Research has found that policies to reduce socially-mediated inequalities, such as housing standards, level of education, occupation or income, are needed to alter these wider determinants of health considered to be the root causes of health inequalities (Graham, 2004b, Acheson, 1998, Marmot, 2005, Solar, 2007). The expanding body of published research on breastfeeding support in England and the U.S. has revealed the same is true for policy and breastfeeding – the social determinants of breastfeeding are very much connected to breastfeeding inequalities and, as such, policies must address these wider determinants, or their sources, if inequalities are to be reduced (Griffiths et al., 2005, Bentley, 2003).

The social determinants of breastfeeding are no different from social determinants of health more broadly, in that they are tied to socio-political and economic forces in a society. As discussed in Chapter Two research has identified those groups experiencing comparatively lower rates of breastfeeding in England and the U.S., presumably providing a starting place from which breastfeeding inequalities may be addressed through policy. Knowing which groups to target for policy interventions is indeed necessary. However, socio-political and economic forces in a society constantly evolve and interact, making it difficult to identify a viable starting place for policymakers to address the social determinants of breastfeeding and their sources.

Consider the example of incidence of breastfeeding and maternal level of education. Lower levels of educational attainment are related to lower rates of breastfeeding in both England and the U.S. Teenage mothers are more likely to drop out of school. Teen and younger mothers have comparatively lower rates of breastfeeding. Because of their age (and higher drop-out rate), teen and younger mothers also have comparatively lower levels of education. Mothers with less education will have fewer qualifications and consequently fewer employment opportunities. Job opportunities available to mothers with limited education and qualifications will usually be in routine or manual occupations, also associated with lower rates of breastfeeding.

The average level of income in routine and manual occupations is lower than in managerial and professional occupations. Consequently, women in routine and manual occupational groups are also in lower socioeconomic groups, again associated with lower rates of breastfeeding. Lower socioeconomic status means fewer resources for securing safe housing or reliable transportation, nutritional health or consistent health care, each of which affects the overall health of women and their families, and has a negative impact on breastfeeding.

This example demonstrates how disadvantage can have a cumulative effect, creating a downward spiral toward breastfeeding inequality for certain groups of women. The starting place to address breastfeeding inequalities in this example is maternal education, but maternal education is intertwined with other social determinants of breastfeeding and health, illustrating the challenges policymakers face when trying to address any aspect of social determinants of health in general.

Given this, commissioners of policy and policymakers wanting to produce evidence-based policy must choose from multiple social determinants of breastfeeding which ones to tackle and how, given the evidence or lack of evidence, and decide on those most closely aligned with current but ever-changing socio-political and economic priorities and resources. The changeable nature of policy related to breastfeeding is reflected in the changeable nature of socio-political and economic forces affecting breastfeeding support and breastfeeding inequalities.

Another challenge facing policymakers is how breastfeeding inequalities are measured which affects the philosophical and pragmatic direction policymakers take to approach the issue (Kelly, 2007, Forbes and Wainwright, 2001, Kawachi, 2002, Graham, 2004b, Lindelow, 2006, Nutbeam, 2008). Breastfeeding inequalities have been measured in terms of infant, maternal, and child health/illness between groups. They have also been measured by differences between groups in level of income or education, employment status, access and utilisation of health care, and maternal demographics such as age and marital status. Others have measured breastfeeding inequalities in economic terms such as the health care costs of breastfeeding vs. artificial feeding, and the cost effectiveness or opportunity costs of breastfeeding support programmes for certain groups. Additionally, breastfeeding inequalities have been measured through the experiences of women and breastfeeding mothers in different groups.

Hence, policymakers are not only challenged with where to start to address the social determinants of breastfeeding through evidence-based policy, but also by the measurement outcomes available to them. Tackling breastfeeding inequalities through evidence-based policy, therefore, becomes a matter of identifying where to start within the context of current socio-political and economic priorities, as well as determining the outcomes measures available in the body of evidence appropriate for policymaking at a particular point in time within current socio-political and economic environments. This highlights the need for a reliable evidence base focused on evaluating the social determinants of breastfeeding to inform policymaking (Yngve, 2001b).

This brief discussion is intended to highlight how different socio-political and economic structures and ideologies can result in similar policies (or lack of) to support breastfeeding, as well as produce or perpetuate similar social determinants of breastfeeding, and similarly affect the incidence of breastfeeding at the population level. More pointedly, that comparable social determinants of breastfeeding can become manifest within disparate socio-political and economic contexts, brings to the fore the need for a framework to help policymakers in different socio-political and economic contexts effectively address breastfeeding support with social and public health policies informed by evidence.

Chapter 5

Methods

5.1 Introduction

In this chapter I describe and discuss the methods used to conduct the work of this thesis. Discussions are intended to give the reader a methodological context for the chapters that follow by describing the processes used to arrive at findings. Included are discussions regarding other methodological approaches being taken to address the issues of inequity and inequalities, and policy and policymaking, to situate my work within the wider literature. Needless to say, a number of methodological decisions were made. What follows is an overview of these decisions. Details of each component of the methods are reported in the latter part of this chapter and in Appendices referred to in discussions.

An extremely small pool of literature was available to inform development of my methods for this unusual thesis, which left me with a number of challenges not normally encountered in undertaking qualitative and quantitative studies. Broad challenges included developing a conceptually-based method for analyses of sample policy documents and systematic reviews that contribute to current and future development of other methodological frameworks. One broad challenge in the development of my analyses was framing the use of systematic reviews in evidence-based policymaking to address breastfeeding support and breastfeeding inequalities within current conceptualisations of relationships between evidence, policy, infant feeding and health inequalities as discussed in previous chapters. Another broad challenge was incorporating an epistemological basis for framing my interpretation of results and findings that adds to a wider conceptual understanding of evidence-based policymaking to address health inequalities. Constructivism formed this epistemological basis for managing a process involving layers of analyses that allowed an examination of contextual relationships between policies and systematic reviews across documents, time and countries.

An examination of other conceptual, epistemological and methodological approaches to analysing various aspects of evidence-based policy and policymaking, inequity and health inequalities, and breastfeeding support and breastfeeding inequalities was used to situate my case study within current thinking around these issues. Other approaches examined are discussed later in this chapter.

I decided that the best way to address the study's aim was to construct and use an analytical framework of evidence-based breastfeeding support for my analyses of the sample policy documents and the systematic reviews used in developing policy recommendations. The idea was to frame the available evidence and policy issues related to infant feeding within the context of the social determinants of breastfeeding and their sources. The analytical framework represents the contextually-based relationships between the sources of social determinants of breastfeeding in modern day England and the U.S., the social determinants of breastfeeding themselves, and the available evidence of effectiveness of breastfeeding support strategies and interventions. The concept of social determinants of breastfeeding and their socio-political and economic sources is prevalent in the literature and was integral to my conceptualisation of the issues of breastfeeding support and breastfeeding inequalities. This conceptual approach formed the foundation for structuring my analyses of policy documents and systematic reviews.

In a broader sense it is important to note this analytic framework may serve other purposes. It may be used as a tool to identify priorities and set goals for systematic reviews and policymaking. In addition, the framework may offer an entry point into a broader methodological approach to examine evidence-based policy using systematic reviews. Knowledge and contextual understanding of the use of evidence to address policy issues is necessary for identifying where policy should focus, what approach to take, who to target, what outcomes to expect, and how to evaluate effectiveness.

The sample size of key government policy documents addressing breastfeeding support was not predetermined. It was unknown what the search strategy would find and my intent was to determine the sample size based on the ability to find policy documents with similar characteristics relating to the time frame in which the evidence was produced, the release date of the policy, and the source and type of policy. This was required in order to make meaningful comparisons during analyses, which is analogous to the need for homogeneity in samples used in quantitative studies. The difference lies within my constructivist approach and methodological need, in which the context of results from the search strategy would determine the sample size rather than the need to meet statistical power requirements. Issues encountered in the process of sample selection are discussed below in section *5.1.1 Sample selection and analysis of time and space*.

National public health agency and department websites in England and the U.S. were sources for obtaining the sample of policy documents. The rationale was that government agency and department websites have become the primary resource for accessing copies of national policy documents in England and the U.S. A restriction of year of publication between 1998 and 2008 was imposed because it was within this time frame that the concept of evidence-based policy and the use of systematic reviews in policymaking became more widespread in England and the U.S. This restriction was imposed with the awareness that relevant policy documents would likely be released during the completion of this study.

5.1.1 Sample selection and analysis of time and space

There were other unanticipated analytical issues that became apparent after the process of sample selection was begun. The first issue was the analysis of time. For the purpose of analysis time parameters had to be imposed on evidence-based policy and policymaking in England and the U.S. Documents in my sample would, by necessity, represent a specific time frame in which policy in England and the U.S. addressed breastfeeding support and breastfeeding inequalities. In other words, my sample of policy documents represented a sample of time.

The next issue was space, not in the physical sense but the empirical sense. Although sample selection ultimately determined the number and type of documents in the sample, limits had to be imposed for methodological purposes. In any event, my sample portrayed a still-life of English and U.S. policy. In this sense, my sample policy documents also represented a sample of space. I realised that this sample of time and space represented the context in which the sample policies, and the systematic reviews they used, had been developed and existed. I saw that although I had to treat my sample as frozen in time and space, understanding the context of their relationships might give me an idea of how the use of systematic reviews in evidence-based policymaking looks in motion across time and space, and what opportunities there may be to use these findings in other contexts of time and space.

Carrying this line of thought further, using these findings in another context means one sample of time and space would be superimposed onto another. This is analogous to the transferability of findings from a clinical trial. In a clinical trial, however, the researcher(s) and participants must move together through a process across time and space for data collection, analysis and evaluation. The study design predetermines how researchers and participants move through time and space for replicability of the process to work. Results represent the changes that occur within that particular process across time and space, and transferability is determined by the presence of the same changes observed by other researchers in other participants moving through the same process across the same amount of time in a similar context (i.e. space).

The use of documents as a sample in my study meant I would be moving through a process across time and space in data collection, analysis and evaluation, but my sample would not be moving with me. The context of my study was inherently different from the context of my sample. In positivistic terms, this was nirvana – the researcher is contextually disconnected from the researched by, in this case, a divide in time and space. Methodologically, I saw no way to reconcile this divide, but epistemologically I believed this divide was essential to my inquiry. From a constructivist viewpoint, a contextual understanding from the time- and space-frozen sample of relationships between evidence and policy issues, and systematic reviews and evidence-based policymaking, might inform a contextual understanding of these relationships in another time and space.

Seen in this way there was no disconnection, but actually a connection between an understanding in one time and space (where my sample exists) and an understanding in another time and space (where I exist) of relationships between evidence and policy, and systematic reviews and evidence-based policymaking. Using these past and present understandings as a bridge allowed me to examine the sample within the frozen context of their time and space while remaining in the changing context of mine, resolving the epistemological and methodological issue of my movement through time and space without the sample moving with me.

But this begs the question, if I had used a sample of policies addressing breastfeeding support and breastfeeding inequalities from a different time and space would my findings have been different? From a constructivist point of view the understanding of an issue is contextual. Different contexts create a different understanding, and findings would be different because the context of my sample would be different. This is similar to policymaking in which socio-political and economic (i.e. contextual) differences in understanding a public health problem at a particular time and space and the contextual interpretation of available evidence (also context based) results in different approaches to the same issue.

The point of argument here is one of generalisability across differences and similarities rather than correct or incorrect findings based on the criteria of transferability. The notion that my findings and understanding would be the same if I had used a sample from another time and space is analogous to the idea that another researcher who examines the issue of evidence-based policy and health inequalities could look at the same body of literature, take the same conceptual, epistemological and methodological approach, have the same findings, and reach the same conclusions and understanding as I did (e.g. transferability). This may fit the ideal of quantitative research where replicability in approach, findings and conclusions creates objective results. But, although the examination of concepts (evidence-based policy, health inequalities) and processes (use of systematic reviews, evidence-based policymaking) can possess qualities of rigour, analysis of this sort is essentially conceptual and inevitably tied to contextual and evolutionary characteristics of both researcher and researched (Forbes and Wainwright, 2001; Boaz et al, 2008; Petticrew and Roberts, 2008; Dombos, 2009).

Analyses in previous chapters found that socio-political and economic contexts directly influence policy priorities and approaches to public health policymaking. The methodological decision to analyse a sample of policy documents in a ‘frozen’ time and space meant my sample stood still long enough for me to identify and examine contextual relationships that inhibited or enhanced evidence-based policymaking in situ. Likewise, the use of a case study of policy to address breastfeeding support and breastfeeding inequalities grounded the documentary analysis within the context of a pressing public health issue shared by England and the U.S. at the same point in time. The generalisability of my findings is rooted in a conceptual understanding of the social determinants of health and health inequalities and how they are formed within socio-political and economic contexts, and in what way contextually-based perceptions and interpretations determine how the relationship between evidence and policy is framed and operationalised through evidence-based policymaking. In short, the usefulness of this work may come in the potential to generalise findings and understanding in other time/space contexts.

5.1.2 Analyses of policy documents

Analyses of policy documents involved first an examination of each policy document from each country, then the systematic reviews used in developing policy recommendations, and then a collation of findings across policies, systematic reviews and countries. The analytical framework of evidence-based breastfeeding support was used to standardise these layers of analyses in terms of relationships across sample policies and their systematic reviews, between the social determinants of breastfeeding and their sources, and between policy issues and evidence related to breastfeeding support and inequalities. Ultimately, this approach situated the use of systematic reviews in evidence-based policymaking to address breastfeeding support and breastfeeding inequalities within current conceptualisations of relationships between evidence, policy, infant feeding and health inequalities.

One methodological challenge encountered within the process of analyses was maintaining the integrity and content of sample policy documents and systematic reviews. My initial approach to this problem was from the perspective that categories and recommendations in each document would fit into predetermined sections, and involved fitting content into a standardised table across documents. The same two policy documents used for testing descriptive data extraction were used for initial testing. In testing this approach it became clear that the content and organisation of the content between documents differed sufficiently such that an artificial structure would be imposed onto the data and thus misrepresent policy content.

The second approach involved examining all the sample documents, instead of just two, to see similarities and differences in organisation and content. From this wider perspective of my sample I determined that broad headings could be used to describe the same type of information from each policy document without compromising the unique characteristics and content of each document. This approach was effective in that it standardised the data extraction process with a systematic method and format, while at the same time allowing for variations between documents. However, this allowance for variation also created some variation in how content data were presented in data extraction sheets. Subject sections or categories of tables and order of presentation were not amenable to standardisation; differences between documents in this respect were too great and the integrity of each document would be compromised if approached this way. As a consequence, subject headings for sections or categories of recommendations, and the order in which they were presented, were extracted as given in each document.

Descriptive information and content data from each document were analysed in terms of strengths and opportunities for improvement in development and potential use of individual recommendations and the policy as a whole. Content data were analysed within the analytical framework of evidence-based breastfeeding support with each recommendation mapped to determinants in the framework. Analysis centred on which determinants from the framework were addressed in recommendations and in what way, and the impact on use and effectiveness of the policy. The purpose was to obtain an indication of the extent to which recommendations in each policy addressed evidence-based influences on breastfeeding support and breastfeeding inequalities.

A mapping of the content of individual recommendations in policies with individual recommendations in systematic reviews was used to compare the evidence in systematic reviews and the issues addressed in policies. Recommendations from each systematic review were mapped to recommendations in the policy that had used that review. After this was carried out with all systematic reviews, it became apparent that I did not gain a broad overview of the evidence available from systematic reviews and the issues that policies had addressed across the sample. Instead, I had a narrow view of how recommendations from a particular systematic review had been interpreted in the recommendations of a specific policy. These mappings provided information about the relationship between each systematic review and each policy that could be valuable in the context of another study, but did not provide information relevant to this study.

What I needed was a uniform way of comparing the evidence from systematic reviews and issues addressed in policies across systematic reviews and policies as a whole. The next approach was to look for topics in systematic reviews and policies that would represent recommendations. Not only was I able to identify distinct topics related to breastfeeding support and breastfeeding inequalities, but I also found that topics fitted logically into categories. These topics and categories provided the necessary broad overview of the connections and disconnections between the evidence systematic reviews had to offer and the issues policies had addressed across systematic reviews, policies and countries. They also provided an overview of those topics that were more or less represented in systematic reviews and those that were more or less addressed in policies.

5.2 Frameworks for examining social determinants of health and health inequalities

Other frameworks have been developed to examine relationships between social determinants of health and health inequalities. One such framework is social epidemiology which looks to the social determinants of health to find connections between the sources of those determinants, such as policy, and health or indicators of health among groups in a population (Berkman, 2000). One example of its use related to breastfeeding inequalities and policymaking is a study by Haider and colleagues who examined the relationship between breastfeeding rates in socioeconomically disadvantaged women in the U.S. and a policy on welfare work requirements enacted in 1996 (Haider, 2003). The study found that from 1990 to 2000 the policy decreased the prevalence of breastfeeding in the group of women affected by the policy change as much as 22%.

This example demonstrates how a social epidemiological approach can help locate a starting place for policymakers to address the *sources* of social determinants of breastfeeding. The Haider and colleagues' study built on previous findings that showed the social determinant of maternal employment, particularly the timing of a mother's return to work outside the home, can negatively affect breastfeeding rates. Policymakers have used these findings to address this particular social determinant of breastfeeding to protect breastfeeding and lactation in the workplace (Health and Safety: Management of Health and Safety at Work Regulations, 1999; U.S. Department of Labor, 2010).

Social epidemiology, in this example, also identified a starting place for policy to address the socio-political and economic forces behind early maternal return to work and breastfeeding inequalities. In effect, one source of the social determinants of breastfeeding – the policy on welfare work requirements – was identified in the study as having a negative impact on the incidence of breastfeeding in certain groups of women, which had the effect of widening breastfeeding inequalities. Identifying an evidence-based starting place such as this gives policymakers the advantage of knowing they are starting out on the right track which provides socio-political and economic advantage. If policymakers can show their approach has a known effectiveness, it is easier to gain socio-political and economic support for their policy.

5.3 Frameworks to bridge evidence and policy

Although my conceptual, epistemological and methodological approaches did not follow a normative analytical process, they share central features with other contemporary approaches being taken to address the issues of inequity, inequalities and public health policy in England and the U.S.Within efforts to address the social determinants of health and their sources are various frameworks to help bridge the persistent gap between evidence and policy. Life course research is one such framework. Life course research is an approach to analyzing individuals' lives within historical, structural, social, and cultural contexts to see how early events influence future decisions and events over the course of a lifetime (Kuh et al, 2003). Life course research is not new to public health and the social sciences, but the use of a life course framework to examine connections between the sources of social determinants of health and the determinants themselves with health inequalities and policy has become more prominent as inequalities gain priority in public health (Power and Matthews, 1997; Wadsworth, 1997; Halfon, 2002; Kuh et al, 2003; Graham, 2004b; Solar and Irwin, 2007).

In the case of policy to address breastfeeding support and breastfeeding inequalities, connections between infant feeding and health inequalities across the life span are being scrutinised, in part to locate places in life course pathways where policy interventions may be most effective in reducing infant, child and adult health inequalities related to nutrition (Richards, 2002; Darnton-Hill, 2004; Owen et al, 2005; Michels et al, 2007). Major public health issues facing England and the U.S. – obesity, cardiovascular disease, cancer and diabetes – are increasingly found to be negatively associated with breastfeeding and positively associated with formula feeding (León-Cava, 2002; Horta et al, 2007; Ip et al, 2007; Standing Committee on Health and

Ageing, 2007). This strengthening evidence connecting breastfeeding to the larger issues of disease prevention and improvement of public health is driving the examination of social determinants of breastfeeding and their sources to support policymaking, and life course research is being used as a framework to link evidence, policy and breastfeeding inequalities (Yngve, 2001; Protheroe et al, 2003; Darnton-Hill, 2004; Renfrew et al, 2005).

The concept of a public health regime is another framework being explored. In an examination of the limitations of systematic reviews as stand-alone sources of evidence for policy addressing health inequalities, Asthana and Halliday advocated using an analytical framework in the form of a public health regime (Asthana and Halliday, 2006). The authors defined the public health regime as 'the specific legislative, social, political and economic structures that have an impact on both public health and the appropriateness and effectiveness of public health interventions adopted' (p. 577). This framework espouses a process of evidence-based policymaking that includes the use of evidence from qualitative and qualitative research.

A number of advantages are created by legitimising sources of evidence in addition to systematic reviews that can and should be used in evidence-based policy, in this case policy to address the social determinants of breastfeeding. Evidence from a much broader body of knowledge can be given a new status in policymaking (Young et al, 2002; Whitehead et al, 2004; Fielding and Briss, 2006) so that evidence from sciences as diverse as anthropology, economics and geopolitics are able to contribute more deliberately to the development of evidence-based policy to tackle breastfeeding inequalities (Allen and Pelto, 1985; Sellen, 2000; Weimer, 2001; Van Esterik, 2002; Knaak, 2010).

The public health regime framework also endorses international comparative research to find evidence of the effects of policies addressing wider determinants of health. International comparative research has been used to contribute to our understanding of the effectiveness of social and public health policy as they relate to the social determinants of health and health inequalities (Mackenbach et al, 2008). But the use of this type of research to inform our understanding of the effectiveness of social and public health policy to address the social determinants of breastfeeding and breastfeeding inequalities is, as yet, relatively scarce (Renfrew et al, 2005).

One incidence is found, however, in a study by Yngve and Sjöström in which the incidence of breastfeeding in Europe was examined (Yngve and Sjöström, 2001). The authors compared policies and sources of social determinants of breastfeeding in relation to breastfeeding rates in the U.K. and Sweden as a case study. These countries represent two extremes – the U.K. has some of the lowest breastfeeding rates among developed countries in the world and Sweden the highest. The case comparison, essentially international comparative research, was able to pinpoint differences in policy that impacted social determinants of breastfeeding associated with lower rates of breastfeeding in the U.K. and higher rates of breastfeeding in Sweden.

5.4 Situating my work in the work of others

Although my conceptual, epistemological and methodological approaches did not follow a normative analytical process, they share central features with other contemporary approaches being taken to address the issues of inequity, inequalities and public health policy in England and the U.S. Current conceptual, epistemological and methodological approaches to understanding connections between policy and health inequalities are being examined by a number of researchers. An overview of findings from a few of these studies can help situate my work in the work of others.

Gilson and Raphaely conducted a first ever literature review of analyses of health policy in low and middle income countries to address health equity (Gilson and Raphaely, 2008). The authors found that, overall, studies in the review showed policy is socially constructed and influenced by politics, process and power, and conclude that the contextual influences of politics, process and power must be integrated into the study of health policy. This finding is summarised by the authors as follows:

> *Study of the processes through which ideas, knowledge, interests, power and institutions influence decision-making is primarily concerned with public policy and pays particular attention to how problems are defined, agendas are set, policy is formulated and re-formulated, implemented and evaluated (Parsons 1995). It is based on the understanding that policy is a product of, and constructed through, political and social processes.* (p. 295)

This supports my epistemological approach to analysis, which structured analysis of policy documents and systematic reviews within the context of power relationships between socio-political and economic sources of determinants of breastfeeding support, and socio-cultural, healthcare and maternal determinants of breastfeeding.

Although the review by Gilson and Raphaely found the body of published work examining health policy processes to be small, diverse, fragmented and primarily descriptive – a telling finding in itself – a number of weaknesses in the body of literature were nonetheless revealed. One such finding showed that the literature is lacking analytically in terms of 'the weak contextualization of experience' and that there is common exclusion in cross-sectional descriptive analysis of 'any assessment of the always important historical influences over experience' (p. 303). My examination of the historical context of breastfeeding and breastfeeding support is an assessment of how and why the infant formula industry has been a major influence on the socio-political and economic experience of policy and policymaking, as well as health care and socio-cultural experiences of breastfeeding and breastfeeding support for women over the last 150 years.

Only a small number of descriptive and analytical studies used case studies or applied a conceptual framework and only three presented a cross-country analysis. Most were focused on 'experience around one policy in one country at one time, rather than comparing and contrasting experience across countries or over time, between health policies or across sectors within a country…'. The authors observed that studies that did present such comparisons 'clearly illuminated experience' and provided 'insights of wider relevance' (p. 303) and made several recommendations related to this research and knowledge gap:

- *multi-country studies, whether framed in relation to a specific health policy topic or experience, or as a policy analysis issue investigated through health policies…*
- *…use of case study design*
- *rich historical analyses of specific country experiences…* (p. 304)

My use of an analytical framework of evidence-based breastfeeding support for a comparative case study analysis of six policies from two countries across a decade of policymaking clearly fills these particular needs identified in the review.

The authors also found the vast majority of studies were categorized as an analysis *of* policy instead of analysis *for* policy; only a small number of studies were conducted to directly inform the process of policymaking. In addition, just over a third of studies had any relevance to equity issues and very few of those had an explicit equity focus. My work here is intended to directly inform the process of evidence-based policymaking to explicitly address inequities and inequalities associated with breastfeeding support and breastfeeding inequalities.

Another finding in their study was that very few studies had explored the issue of power in policymaking. Related to this is the finding that although a range of studies showed policy to be socially constructed, few applied methods of analysis that examined contextual aspects of policy debate. In response, Gilson and Raphaely suggest that the field of deliberative policy analysis may be a valuable resource for health policy research, because it seeks to:

> *…construct an interpretation of present political and social reality that serves not only intellectual goals of explaining or comprehending that reality, but also the practical goal of enabling constructive action to move the community from a flawed present toward an improved future.* (p. 303)

This suggestion by the authors correlates with a number of characteristics of my analysis: my constructivist view of policymaking and approach to analysis; my analytical framework of evidence-based breastfeeding support to understand the sources of determinants of breastfeeding support and determinants of breastfeeding themselves as they exist in England and the U.S. and to provide a practical tool for analysing documents; and my conceptual framework of evidence-based policymaking intended to contribute to efforts to understand and improve the process of evidence-based policymaking to more effectively address health inequalities.

Mirroring findings and recommendations from Gilson and Raphaely are those from a paper by Walt and colleagues, also examining policy analysis (Walt et al, 2008). Discussions in the paper include the need to contextualize policy ‘in both place and time’ (p. 309), to approach policy analysis systematically with ‘clear and testable propositions about the issue…within explicit frameworks’ (p. 310), and the value of cross-country comparative study approaches in order to ‘disentangle generalisable from country context-specific effects…' (p. 313). Again, my analytical approach addresses each of these needs.

My analyses of policy documents from England and the U.S. to address breastfeeding support and breastfeeding inequalities as a case study for examining the relationship between evidence and policy also fills methodological voids in the literature. Case studies have been used to examine the use of research in health and social policy, health equity and inequalities and breastfeeding inequalities (Graham, 1998; Moynihan, 2004; Pittman, 2006; Halliday and Asthana, 2007). Documentary analysis has also been used to examine these issues (Crombie et al, 2005; Centre for Analysis of Social Exclusion at the London School of Economics and Political Science, 2009; Manzano and Raphael, 2010). There are far fewer methodological examples of combining case study and documentary analysis in this context as I have done in this study.

One example is a report by Caraher and colleagues who examined the issue of food inequalities and public health nutrition policies of Scotland, Wales, Northern Ireland and England using infant feeding, school food and childhood obesity as case studies (Caraher, Crawley and Lloyd, 2009). The authors state that for their documentary analysis they 'drew on the original strategy/policy documents' (p. 13) and deliberative policy review methods to analyse change in nutrition policy. Although details of drawing on the original documents were not reported, descriptions of their findings from each document show the information extracted was similar to mine. This included source of policy (agency/department), year of release, aim/objective, and number of recommendations, how the policy was developed, target population, and content and nature of recommendations. Policies were situated in their current and historical epidemiological, socio-political and economic contexts, and critical discussions of each policy and analytical comparisons between policies and countries were made. The study used interviews to help identify which documents were considered key, to discover any they had missed, and to 'test' findings from initial analysis. The authors did not describe what testing had involved.

Another example of documentary analysis combined with case study is found in the work of Benzeval and Meth who looked at how policies to address health inequalities have worked at the local level in England (Benzeval and Meth, 2002). The authors used the *Framework* approach to conduct an analysis of policy documents to address health inequalities and case studies to illustrate how the policies were operating at a local level. The conceptual framework of the community health improvement process was used to shape the design and analyses of case studies. The historical, socio-political and economic contexts of policies were examined extensively in discussions. A timeline of socio-political and economic contexts was presented in conjunction with key mechanisms that had been extrapolated from policy recommendations and categorized by topic. In essence, policy recommendations and the context in which they were developed were analysed within a framework the authors had developed from an analysis of the documents themselves.

These examples provide a more specific conceptual, epidemiological and methodological context for my analytical approach and again identifies where my work contributes to the wider body of knowledge in this area of inquiry. The examples also provide a backdrop for the following sections in this chapter in which the methods used in conducting my case study are described.

5.5 Constructing an analytical framework of evidence-based breastfeeding support

The unusual conceptual and methodological nature of my thesis, the need to structure analyses in my case study, and an extremely limited body of literature from which to draw meant an analytical framework tailored to my needs had to be developed. To this end, literature was reviewed from a wide range of fields, including health and social policy, health and social inequity and inequalities, evidence-based public health policy, and the issues of breastfeeding support and breastfeeding inequalities, in order to construct an analytical framework of evidence-based breastfeeding support. As discussed above, the framework was used to identify connections between socio-political and economic sources of determinants of breastfeeding and the health care, socio-cultural and maternal determinants of breastfeeding themselves. The analytical framework also was used to clarify the context in which breastfeeding support occurs in England and the U.S., to analyse recommendations in the sample policy documents, and to guide analyses of systematic reviews used in sample policies and their relationship to those policies.

5.5.1 Search strategy and selection process

The goal of the search strategy was to retrieve studies published in English from 1996 to 2008 inclusive in professional journals in the U.K. and the U.S. from the disciplines of nursing, medicine, social sciences, and psychology that related to breastfeeding support or breastfeeding inequalities, or both.

5.5.2 Search engines and electronic databases

Electronic database indexes that were searched included AMED, CINAHL, the International Bibliography of the Social Sciences, EMBASE, MEDLINE, MEDLINE In Process, PsycINFO, and *The Cochrane Library*. Table 1 shows the number of records retrieved from each database.

Table 1 Number of records retrieved from each database

Database:	
AMED 1996 to June 2008	5
CINAHL 1996 to June Week 3 2008	1826
The Cochrane Library	3
EMBASE 1996 to Week 26 2008	442
International Bibliography of Social Sciences 1996 to June Week 4 2008	73
MEDLINE 1996 to June Week 3 2008	716
MEDLINE (R) In-Process & Other Non-Indexed Citations June 27, 2008	135
PsycINFO 1996 to June Week 4 2008	109
Social Policy and Practice 1996 to 2008	33

5.5.3 Keywords

Keywords ‘breastfeeding’, ‘breast feeding’, ‘breast-feeding’ or ‘infant feeding’ in the title field were used to obtain a broad sweep of the available literature within each indexed database. A large number of citations from this initial pass was anticipated. Endnote X was used to manage sifting through this large number of citations and to sort included and excluded studies. The section *Selection of included studies* below provides details of how this was done.

5.5.4 *References management*

The Endnote X program was used for reference management. Electronic search engines and databases allow citations to be imported directly into Endnote X libraries. Individual citations, a group of selected citations, or all citations retrieved from a particular search can be imported. The advantage of this import capability is that a large number of citations can be managed once they are in Endnote X using features of the program. The *search library* feature allows records in a library to be searched using keywords in any field. In this case, the search feature was used to identify studies that were eligible or ineligible for inclusion.

Separate Endnote X libraries were created from searches of each indexed database. A master library was also created by combining citations from each library. This master library was used for sorting and sifting citations to identify studies eligible or ineligible for inclusion. Separate libraries were created for included and excluded studies.

5.5.5 *Inclusion criteria*

Studies eligible for inclusion were those that examined breastfeeding support of healthy mothers and infants with a single term vaginal delivery, residing in the U.K. or U.S., of any racial or ethnic group, in any setting. The definition of ‘healthy mothers and infants’ was a woman and infant who do not have a disease or condition that contraindicates breastfeeding, or for which needed medications for treatment of a disease or condition contraindicates breastfeeding. Any type of study design was eligible for inclusion. Systematic reviews and literature reviews, as well as reports of studies from U.K. and U.S. government agencies and non-profit organizations, were eligible for inclusion.

5.5.6 *Exclusion criteria*

Studies that examined the effects of breastfeeding support interventions in developing countries were excluded. Studies that examined the effects of breastfeeding support related to maternal or infant pathology, disease or illness, medications, type and timing of delivery, multiples, estimated gestational age or birth weight of infant, or psychometric testing of assessment tools were excluded. Position statements of professional organizations and associations, practice recommendations or guidelines, editorials, opinions and letters, reports or announcements of conference proceedings, news media releases, and book or video reviews on breastfeeding promotion and support were excluded, with the rationale that these types of publications are not research studies. Studies not conducted in the U.K. or U.S. and not reported in the English language were excluded.

5.5.7 Selection of included studies

Once all citations were in Endnote X, the *search library* feature was used in the master library to identify citations ineligible for inclusion. Keywords that represented categories or names of geographical location, nation or nationality, maternal or infant pathology, disease or illness, medications, type and timing of delivery, multiples, estimated gestational age or birth weight of infant, or psychometric testing of assessment tools were used to identify ineligible studies. Other categories or names that emerged and that represented ineligibility criteria were also used as search terms for exclusion.

Citations were put through a second layer of sifting to identify studies ineligible for inclusion based on the type or source of publication. Titles and abstracts were searched for keywords that represented position statements of professional organizations and associations, practice recommendations or guidelines, editorials, opinions and letters, reports or announcements of conference proceedings, news media releases, and book or video reviews on breastfeeding promotion and support. Citations representing these types or sources of publication were excluded.

After two layers of sifting were completed, titles and abstracts, or both, of remaining citations were screened to identify ineligible studies not identified by the searches conducted in Endnote X. Full text copies of articles were retrieved for review if there was still uncertainty about meeting inclusion criteria from the title and abstract. Full text copies of all studies that remained at this point were obtained for final determination of eligibility. Full text electronic copies of eligible studies were saved in an electronic folder. Studies identified from the References list of included studies were screened by title for potential eligibility for inclusion, and abstracts and/or full text copies were obtained for those appearing to meeting inclusion criteria. Searching was discontinued when duplication of records became evident or relevance diminished. At this point 248 citations remained and were used as references.

5.6 Defining equity and inequalities

A separate search was conducted with the goal of locating articles that provided conceptual definitions of health or healthcare equity or inequity, inequality or disparity, and studies that examined breastfeeding inequalities.

5.6.1 References management

The reference management software Endnote X was used again to manage citation records retrieved from the search.

5.6.2 Search engines and electronic databases

PubMed, OVID Web, OVID SP, ISI Web of Knowledge, GoogleScholar and Google were used as search engines. Electronic database indexes searched included CINAHL, PsycINFO, EMBASE, MEDLINE and MEDLINE In Process and Non-Indexed. Limits imposed across all databases were English language, human subjects, and year of publication 2000 or later. A limitation of the year 2000 or later was placed with the rationale that more recent conceptualizations of health inequalities were needed for the work of this study.

Relevant articles were used to find similar articles by scanning References lists, following web links provided within search engines that directed the user to similar articles, and conducting targeted searches within specific journals where relevant records were found to be clustered. Databases of specific journals searched were Social Science and Medicine, Public Health Reports, Journal of Epidemiology and Community Health, and American Journal of Public Health. Titles or abstracts were screened and full text copies of articles that appeared eligible for inclusion were retrieved, as were any articles that were ambiguous in both title and abstract in terms of meeting inclusion criteria. Searching was discontinued when duplication of records became evident or relevance diminished. Full text electronic copies of eligible articles were saved in an electronic folder.

5.6.3 Keywords

Keywords included ‘inequity’, ‘inequality’, ‘disparity’, ‘inequities’, ‘inequalities’, ‘disparities’ each combined with each of the keywords ‘health’, ‘health care’, ‘healthcare’, ‘breastfeeding’, ‘breast feeding’, ‘breast-feeding’ and ‘infant feeding’.

Google was searched using phrases: ‘breastfeeding inequalities (inequities, disparities) U.K. (U.S.)’, and ‘perceptions breastfeeding inequalities (inequities, disparities) U.K. (U.S.)’. Citations retrieved from the Google search were reviewed by title, or title and abstract, in the order of relevance provided by the search engine until duplicates became predominant or relevance diminished. There were 33 records remaining which were used for references in discussions throughout the thesis.

5.7 Analysis of policy documents

5.7.1 Source of sample

In England, websites for the Department of Health (DH) and the National Institute for Health and Clinical Excellence (NICE) were searched. In the U.S., websites for the Agency for Health care Research and Quality (AHRQ), Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services (HHS), U.S. Breastfeeding Committee (USBC), and the U.S. Department of Agriculture (USDA) were searched.

5.7.2 Search strategy

Searches conducted through website navigation were the means of identifying documents. Searches were divided by country and government agency or department websites. A number of separate searches were conducted within each agency or department website. For full details of the search strategy, selection process and results for policy documents see Appendix A.

5.7.3 Inclusion and exclusion criteria

Documents published between 1998 and 2008 representing breastfeeding support policy at the national level in England and the U.S. were eligible for inclusion. Eligible types of policy were national-level policy standards for breastfeeding support in health care systems and/or services, guidelines for health care practice and/or services that included recommendations for breastfeeding support, and guidelines specific to breastfeeding support practices and/or services. Documents were ineligible if they were a commissioning guide, tool or update, systematic or literature review, progress, epidemiological or statistical report, news release or announcement, speech or testimony, or were public health education materials, related to a maternal or infant illness/condition/situation, or reported to be out-of-date or replaced by more recent document(s). For an overview of included and excluded documents from each country and website see Table 2.

5.7.4 Screening process

Documents and website links to documents retrieved in searches were first screened by title or description. If the title or description of the document or link indicated the policy had to do with breastfeeding promotion and support, infant feeding, maternal or infant/child health, nutrition or health inequalities, the full text of the document was downloaded or the link was pursued for other relevant documents or links. If an out-of-date document retrieved in the search appeared to be eligible but was reported to have been replaced by a more recent one, the newer document was retrieved for screening.

5.7.5 Selection process

Documents from England eligible for inclusion were compared with documents eligible for inclusion from the U.S. Four documents from England and three from the U.S. were eligible for inclusion in the sample. Three documents of the four eligible documents from England had to be selected for the sample, whereas no selection had to be made from U.S. documents since there were only three policies eligible. The four eligible documents from England were compared with the three from the U.S. for a match in terms of year of publication, agency or department, and type of policy. (See the following section *5.7.6 Matching policy documents*)

Table 2 Overview of eligible and ineligible documents from each country and website

England documents
Department of Health
Eligible
• Good practice and innovation in breastfeeding (November 2004)
• National service framework for children, young people and maternity services: Maternity services (October 2004)
Ineligible
• Infant feeding initiative: a report evaluating the Breastfeeding Practice Projects 1999–2002 (December 2003)
• Infant feeding recommendation (May 2003)
• Improvement, expansion and reform: the next 3 years. Priorities and planning framework 2003–2006 (October 2002)
• Healthy lives, brighter futures – The strategy for children and young people's health (February 2009)
• Maternity matters (April 2007)
• Healthy Start: proposals for reform of the Welfare Food Scheme (October 2002)
• Infant feeding survey 2005 (May 2007)
National Institute for Health and Clinical Excellence (NICE)
Eligible
• NICE public health guidance 11. Improving the nutrition of pregnant and breastfeeding mothers and children in low-income households (March 2008)
• Promotion of breastfeeding initiation and duration: evidence into practice briefing (July 2006)
Ineligible
• Commissioning guides: peer-support programme for women who breastfeed (August 2008)
• Breastfeeding for longer – what works? Systematic review summary (May 2005)
• The effectiveness of public health interventions to promote the duration of breastfeeding. Systematic review (May 2005)
• Effectiveness of interventions to promote healthy feeding of infants under one year of age (June 1998)

Table 2, cont…

U.S. documents
Agency for Health care Research and Quality (AHRQ)
Eligible
• Primary care interventions to promote breastfeeding: recommendation statement (October 2008)
Centers for Disease Control and Prevention (CDC)
Eligible
• Breastfeeding: HHS blueprint for action on breastfeeding (October 2000) • The CDC guide to breastfeeding interventions (2005)
Ineligible
• Healthy People 2010, Section 16: Maternal, Infant, and Child Health, Objective 16-19 (January 2000)
U.S. Department of Health and Human Services (HHS)
Eligible
• Breastfeeding: HHS blueprint for action on breastfeeding (October 2000)
Ineligible
• Healthy People 2010–Reproductive health (October 2001)
United States Breastfeeding Committee (U.S.BC)
Ineligible
• USBC's New Strategic Plan for 2009–2013 (June 2009) • Health Care Reform: Improving breastfeeding support will save billions (June 2009) • Achieving exclusive breastfeeding in the United States: findings and recommendations (2008) • Breastfeeding in the United States: a national agenda (20001)
United States Department of Agriculture (USDA)
Ineligible
• Federal Register in the Code of Federal Regulations, 7 C.F.R. Part 246 – Special Supplemental Nutrition Program for Women, Infants and Children (January 2009) • FNS Rules and Regulations, amendments to the child nutrition infant meal pattern: final rule (May 2002) • WIC Nutrition Services Standards (October 2001) • The WIC Program: background, trends, and economic issues (April 2009)

5.7.6 Matching policy documents

The *Good practice and innovation in breastfeeding* from England matched the *CDC Guide to breastfeeding interventions* from the U.S. Both policies were released in the middle of the 10-year time frame, 2004 and 2005 respectively. The source of both policies was the principal national public health department in each country, the Department of Health and Department of Health and Human Services respectively. The policies matched in type as guidelines specific to breastfeeding support practices and/or services.

The *NICE PHG 11. Improving the nutrition of pregnant and breastfeeding mothers and children in low-income households* from England matched the *Primary care interventions to promote breastfeeding: U.S. Preventive Services Task Force (USPSTF) recommendation statement* from the U.S. Both policies were released in 2008. The source of both policies was an independent public health agency responsible for providing evidence-based guidance for national policy. The policies matched in type as standards for health care systems and/or services, and as guidelines specific to breastfeeding support practices and/or services.

The *NSF Maternity Standard* from England was a better match to the final eligible policy from the U.S., the *HHS Blueprint for action on breastfeeding*, than the fourth policy eligible from England, the *Promotion of breastfeeding initiation and duration: Evidence into practice briefing*. The *Maternity Standard* better matched the year of release of the *HHS Blueprint* in 2000 compared to the Evidence into Practice Briefing. The source of both policies was the principal national public health department in each country, the Department of Health and Department of Health and Human Services respectively, whereas the *Evidence into practice briefing* was released by the independent public health agency NICE. The type of policy matched as national-level policy standards for health care systems and/or services, whereas the *Evidence into practice briefing* was developed to present evidence-based actions to promote and support breastfeeding in England.

5.7.7 Data extraction

Data extraction tables were used to identify topics present and missing in each policy from each country. Topic data were collated to identify which topics were present and missing across systematic reviews, policies and countries. Findings from collated analyses were used to conduct comparative analyses across systematic reviews, policies and countries. Recommendations in each policy had previously been mapped to the analytical framework. A collation of those results showed that policies from England and the U.S. as a whole addressed all elements of the analytical framework.

5.7.7.1 Descriptive information

The data extraction sheet for descriptive information was tested using two policy documents, one from each country, to standardize the data extraction process and presentation of information. Documents used were the *CDC Guide to Breastfeeding Interventions* and the *Good Practice and Innovation in Breastfeeding*. Descriptive information was transferred without problems into the initial version of a data extraction sheet.

Descriptive information extracted:

1. title, month/year of publication and number of pages
2. country and agency/department of origin
3. category (assigned)
4. stated aim, objective or purpose
5. composition of group that developed the policy if available (number of individuals, profession or expertise and affiliation)
6. determinants from analytical framework addressed or missing
7. sources of evidence and other information (number of systematic reviews and year of publication of sources, number and type of other sources of information and range of year of publication as a whole)
8. number of intervention categories and recommendations for breastfeeding support
9. number of intervention categories and recommendations for breastfeeding inequalities

5.7.7.2 Content data

The same two policy documents used for testing descriptive data extraction were used for initial testing of a data extraction sheet for content data. At issue was the need to ensure a systematic data extraction process and format without loss of content integrity. Tables were used for extracting content data from sample documents, which presented more challenges in terms of formatting compared to descriptive data extraction. There were enough differences in the form and presentation of content in each policy document to require several iterations of table design during testing.

Content data extracted:

1. intervention category
2. target population
3. who should take action
4. recommended action(s)

See Appendix B: *Data extraction sheet for policy documents* for the format used.

Data extraction tables from each document were used to analyse content data to facilitate this part of the analysis and for reporting purposes. To this end, another column was added to data extraction tables that contained determinants from the analytical framework that had been mapped to recommendations in the document. Each factor was numbered 1–15, which included the issue of breastfeeding inequalities. The numbers were used to indicate how recommendations in the policy corresponded to determinants in the analytical framework (see Table 3.).

Table 3 Determinants from analytical framework

Socio-political determinants	
1	legislation and policy to promote and support breastfeeding
2	public health initiatives in breastfeeding promotion and support
3	the Baby-Friendly Initiative
Economic determinants	
4	financial investment in breastfeeding promotion and support
5	countermanding the commercial promotion of infant formula and artificial feeding
Socio-cultural determinants	
6	social expectations and cultural norms
7	breastfeeding support from community, family and peers
8	public attitudes and media portrayals of breastfeeding and breastfeeding women
Health care determinants	
9	promotion and support of breastfeeding in health care systems through policies, services and practitioners
10	education and training of health care personnel
11	the Baby-Friendly Hospital Initiative
Maternal determinants	
12	perceptions, attitudes, knowledge and experience of breastfeeding
13	maternal/infant health status
14	demographics
15	**Breastfeeding inequalities**

5.7.8 Collation of findings

5.7.8.1 Data extraction

The results from analyses of descriptive information and content data from each policy were collated for analyses. The results of analyses of each document were complied into two tables, one for descriptive and one for content information, which allowed comparisons to be made across policies and by country. Results from analyses of descriptive and content information were examined separately.

The data extraction tables were designed and tested with the results from analyses of the same two documents from England and the U.S. used in testing the descriptive data extraction sheet for analyses of policies. Testing involved entering findings from analyses of the two documents into the tables. Editing of tables occurred in terms of how results were presented in each row, column and cell. The goal of editing was to standardize terminology and sequence of information presented within the table and to be consistent with the arrangement of data extraction sheets used in policy analyses.

5.7.8.2 Descriptive information

Results from the collation of descriptive information were entered into tables. They were used to analyse similarities and differences in characteristics of each policy related to scope and development of breastfeeding support and breastfeeding inequalities, and to examine similarities and differences in characteristics of policies by country.

5.7.8.3 Content data

Results from the collation of content data were entered into different tables. The nature of recommendations for breastfeeding support, nature of recommendations for breastfeeding inequalities, nature of recommendations for future research, and other considerations were included in this layer of analyses and entered into these tables.

5.8 Analyses of systematic reviews

5.8.1 Sample selection and data extraction

Sample selection involved identification and retrieval of systematic reviews used in each of the policies from England and the U.S. Thirteen systematic reviews were identified. Full text copies of each systematic review were obtained for analyses. Recommendations from each systematic review were extracted using data extraction tables constructed for this purpose. One table was used for each systematic review.

5.8.2 Analyses

Data extracted from each systematic review were used to establish topics represented in recommendations. Topics were established through comparison of recommendations across systematic reviews; the final list was comprised of all topics identified. The choice of topics was based on the subject of recommendations. For example, recommendations relating to breastfeeding support in the workplace were made, so the topic 'workplace' was established. The establishment of topics in the final list was as straightforward as in this example. Topics were placed into four categories: type of intervention, timing of intervention, breastfeeding, and other issues. Topics were also identified as included in recommendations for action or research, or both, for each systematic review.

Further analyses involved correlation of topics of systematic reviews with determinants of breastfeeding and their sources from the analytical framework of evidence-based breastfeeding support. Topics were mapped to determinants or sources of determinants by subject. For example, the topic 'workplace' was mapped to the socio-cultural determinants of social expectations and cultural norms, and breastfeeding support from community, family and peers, as well as the economic determinant of financial investment in breastfeeding promotion and support. The mapping of topics of systematic reviews was used to identify which determinants or sources of determinants in the analytical framework were represented in recommendations from each systematic review and whether they were action or research recommendations. Findings were used to make analytical comparisons of what and how the social determinants of breastfeeding support and their sources were addressed across systematic reviews, policies and countries. Results from mapping were used to identify which topics were more and less represented across systematic reviews as a whole.

The final layer of analyses in the thesis involved an examination of wider implications of findings related to evidence-based policy to address breastfeeding support and breastfeeding inequalities and the use of systematic reviews in policymaking. Analyses concluded with the creation of a conceptual framework of evidence-based policymaking based on findings of the thesis, from which recommendations for policymakers, researchers and practitioners are made in the final chapter.

Chapter 6

Analytical framework of evidence-based breastfeeding support

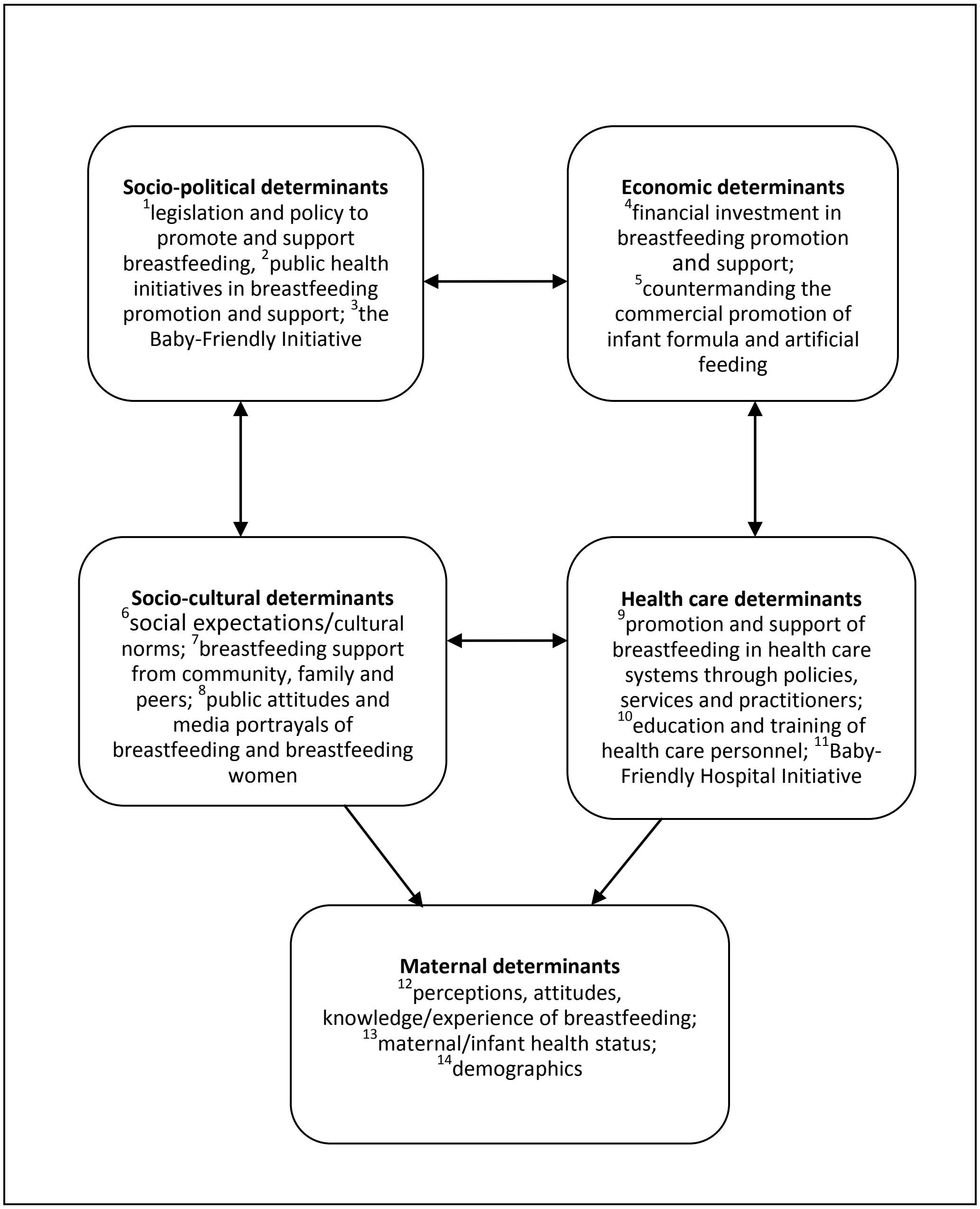
6.1 Introduction

The purpose of this chapter is to report findings of the analyses of social determinants of breastfeeding and their sources in England and the U.S. and the development of an analytical framework of evidence-based breastfeeding support (Figure 1).

A previous chapter described the influence of politics and economics as sources of social determinants of breastfeeding, and how these can be altered through changes in their socio-political and economic sources. Conversely, the sources of social determinants can be influenced by the determinants themselves. However, any effective influence a social factor may have involves a change in some aspect of its source. This is reflected in the analytical framework diagram (Figure 1) in which arrows point in both directions between the sources of determinants of breastfeeding and the determinants themselves.

Representing the first layer of influence in the analytical framework are socio-political and economic sources of social determinants of breastfeeding identified in the literature as those influencing the social determinants of breastfeeding in England and the U.S. The socio-political sources include legislation and policy to promote and support breastfeeding, public health initiatives in breastfeeding promotion and support, and the BFI. Economic sources involve financial investment in breastfeeding promotion and support, and countermanding the commercial promotion of infant formula and artificial feeding.

Figure 1. Analytical framework of evidence-based breastfeeding support



The second layer in the analytical framework consists of the social determinants themselves. Determinants involve socio-cultural, health care and maternal determinants influencing breastfeeding. The socio-cultural determinants include social expectations and cultural norms, breastfeeding support from community, family and peers, and public attitudes and media portrayals of breastfeeding and breastfeeding women. Health care determinants include the promotion and support of breastfeeding in health care systems through policies, services and practitioners, education and training of health care personnel, and the UNICEF BFHI. Maternal determinants include women's perceptions, attitudes, knowledge and experience of breastfeeding, maternal and infant health status, and demographics.

Although the social determinants of breastfeeding and their sources are represented as separate layers and components in this framework, it is important to note they overlap, constantly interacting with and influencing each other. These interactions are not straightforward or predictable, but change as the character and relative power of the different determinants and their sources evolve over time and in varying contexts. The analytical framework represents these contextually-based relationships between the sources of social determinants of breastfeeding and the social determinants themselves in modern day England and the U.S., and the available evidence of effectiveness of breastfeeding support strategies and interventions.

6.2 Sources of social determinants of breastfeeding

Chapter 3 described how socio-political and economic sources of the social determinants of breastfeeding affect breastfeeding support in England and the U.S. Findings informed construction of the analytical framework of evidence-based breastfeeding support reported in this chapter. The socio-political and economic sources of social determinants of breastfeeding represent the first layer in the analytical framework, since these sources determine which and how the social determinants themselves affect breastfeeding support.

Socio-political and economic sources included legislation and policy to promote and support breastfeeding, public health initiatives in breastfeeding promotion and support, the UNICEF BFI, financial investment in breastfeeding promotion and support, and countermanding the commercial promotion of infant formula and artificial feeding. Although these components are interconnected, they were examined separately for purposes of constructing the analytical framework and to facilitate analysis of policy documents and systematic reviews.

6.2.1 Socio-political sources of social determinants of breastfeeding

6.2.1.1 Legislation and policy to promote and support breastfeeding

The availability and accessibility of quality health care for mothers and infants reflect the socio-political value placed on women and their health. Countries where women are denied basic human rights have higher rates of maternal morbidity and mortality compared to nations where greater gender-based equality is present (UNFPA: United Nations Population Fund, 2011). Likewise, effective support for breastfeeding depends in large part on government acknowledgement of the value of infant feeding in contributing to the overall health of a nation. There is international agreement that commitment from governments to support breastfeeding must include the enactment of laws, regulations, and policies to support breastfeeding mothers and their infants by addressing the social determinants of breastfeeding and their sources (Fein, 1998; EU Project on Promotion of Breastfeeding in Europe, 2004; Global Forum for Health Research, 2005).

A number of non-government organizations (NGOs) and non-profit advocacy and watchdog groups at both national and international level are dedicated to advancing legislation and policymaking to support breastfeeding. These organizations have clearly demonstrated that socio-political forces act as a major source of social determinants of breastfeeding, which ultimately impact breastfeeding support and breastfeeding inequalities. NGOs and advocacy groups hold that it is essential for governments to include breastfeeding as an integral part of public health if laws and policies that effectively support breastfeeding are to be established (United Nations Office of the High Commissioner for Human Rights, 2000; World Health Organization, 2002).
In 2008 UNICEF released the *Handbook on Legislative Reform Realising Children's Rights* to influence the adoption of legislation, social policies and institutional changes that promote equality for children using international human rights standards (UNICEF, 2008). The *Handbook* takes the stance that children's rights are at the heart of the issue of breastfeeding support, advancing the position that children's rights to adequate nutrition through legislative reform must include 'protecting, promoting, and

supporting breastfeeding, and enacting or strengthening accompanying social policies to enable women to breastfeed' (p. XV). In order to achieve these goals, the *Handbook* advocates legislative adoption of the International Code of Marketing of Breast-milk Substitutes (the Code) and the BFHI. The aim of the Code is:

> *... to contribute to the provision of safe and adequate nutrition for infants, by the protection and promotion of breast-feeding, and by ensuring the proper use of breast-milk substitutes, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution.* (p. 8)

The *Handbook* also advocates legislation that protects maternity rights, including the right of mothers to take at least 14 weeks of maternity leave without fear of losing their jobs, and to breastfeed after returning to work, with accommodation made to continue lactation without fear of discrimination.

6.2.1.2 Research and public health initiatives in breastfeeding promotion and support

Legislation and policy need research and public health initiatives to gain any degree of effectiveness. Research is not only essential to the development and evaluation of evidence-based law and policy, it is also an essential part of public health goals and initiatives; without goals and initiatives, evidence-based legislation and policy could not be realized. In this sense, research can determine the direction, nature and quality of evidence-based legislation, policy and public health initiatives. In the case of breastfeeding, only relatively recently has an adequate body of quality, non-commercially sponsored research been available.

When public health goals include breastfeeding and infant feeding indicators, resources are allocated to meet those goals through public health initiatives and research programmes to monitor progress towards those goals. Findings enable confident investment in further research and development or improvement of initiatives for breastfeeding support, reaffirming the role of legislation and policymaking in breastfeeding support as a necessary component of effective strategies to meet public health goals. Inclusion of breastfeeding indicators in public health policy to support breastfeeding can serve as a first step in bringing research evidence into the development of laws, policy and public health initiatives.

The formula industry has traditionally been the main sponsor of research on breastfeeding, which has given the industry unparalleled opportunities to influence legislation, policy, and subsequent public health initiatives. Studies have found, however, that 'sponsorship bias' in which conclusions in industry-sponsored trials favour the sponsor's intervention compared to trials that have not been industry-funded, is prevalent (Kjaergard and Als-Nielsen, 2002; Bekelman, Li and Gross, 2003; Lexchin et al, 2003; Lesser et al, 2007). In this case, sponsorship bias is carried into legislation, policy and public health initiatives intended to be based on the evidence.

There is evidence that research from the formula industry has had, and continues to have, a direct or indirect influence on public health policy in infant feeding and breastfeeding support. There are many examples of this, but a few stand out. The U.S. Healthy People 2010 initiative used data from the Ross Mothers Survey (an annual survey conducted by a formula manufacturing company now owned by Abbott Laboratories) to establish and monitor public health goals related to breastfeeding initiation and duration, which is an integral part of the Healthy People 2010 policy and subsequent public health initiatives (MMWR, 2007). Until very recently, the government standard for infant growth charts in England and the U.S. were based primarily on formula-fed infants' growth patterns (Centers for Disease Control and Prevention, 2002; The Royal College of Paediatrics and Child Health, 2010).

Because industry research is considered proprietary, study methods and data are not made available to outside reviewers. This precludes critical evaluation of study quality and reliability of results and conclusions, and makes it difficult to determine whether and to what extent the industry has influence on policymaking, again reinforcing the socio-political and economic power of the industry.

There is less evidence of the influence research funded by sponsors other than the infant formula industry has had, or has, on public health policies on infant feeding and breastfeeding support. Increasingly, quality data from sources other than the infant formula industry are being generated and published, but the extent to which this research is being used in the development of legislation and policy is unclear.

6.2.1.3 The Baby-Friendly Initiative

The BFI represents a global, evidence-based public health initiative by the World Health Organization and UNICEF to promote and support breastfeeding. The BFI is synonymous with the Baby-Friendly Hospital Initiative (BFHI); UNICEF and WHO do not distinguish the BFI from the BFHI and only definitions for the BFHI that are essentially the same are offered by the two organisations.

UNICEF defines the BFHI as:

> *The Baby-Friendly Hospital Initiative… is an effort by UNICEF and the World Health Organization to ensure that all maternities, whether free standing or in a hospital, become centers of breastfeeding support.* (UNICEF, 2006a)

WHO defines the BFHI as:

> *… a global effort to implement practices that protect, promote and support breastfeeding.* (World Health Organization, 2012a)

Similar to use of the terms inequalities in England and disparities in the U.S., the term BFI is generally used in England and BFHI in the U.S. although, again, there is essentially no difference in definitions.

UNICEF United Kingdom defines BFI as:

> *…a worldwide programme of the World Health Organization and UNICEF…. established in 1992 to encourage maternity hospitals to implement the Ten Steps to Successful Breastfeeding and to practise in accordance with the International Code of Marketing of Breastmilk Substitutes.* (UNICEF United Kingdom, 2012)

Baby-Friendly USA defines the BFHI as:

> *… a global program sponsored by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) to encourage and recognize hospitals and birthing centers that offer an optimal level of care for infant feeding.* (Baby-friendly USA, 2010)

For purposes of analyses, both the BFI and BFHI have been used to distinguish between socio-political and economic sources of social determinants of breastfeeding and health care determinants of breastfeeding. Although this distinction was imposed for analytical reasons, it is supported by the literature and as such represented in the analytical framework.

There is reliable evidence of the effectiveness of the BFI/BFHI model in increasing breastfeeding initiation and duration. Because the model represents an international response to the global of the infant formula industry, studies evaluating their effectiveness are potentially particularly influential in compromising the socio-political and economic position of the formula industry.

Studies that have looked at the impact of the BFI/BFHI model in public health initiatives found a positive relationship between incidence of breastfeeding and use of model (Kramer et al, 2001; Broadfoot et al, 2005; Merten, Dratva and Ackermann-Liebrich, 2005; Bartington et al, 2006; Dyson et al, 2009). However, a need for more research on the effectiveness of the BFI/BFHI model continues, particularly in terms of legislation and policy at the national level. Limited evidence of effectiveness of legislation and policy at a national level is available from comparative international studies, but inconsistency in implementing the Code and BFI/BFHI model, and monitoring and reporting outcomes in different countries, makes it difficult to produce reliable results that can be used in law and policymaking (Cattaneo et al, 2009).

6.2.2 Economic sources of social determinants of breastfeeding

6.2.2.1 Financial investment in breastfeeding promotion and support

To be effective, financial investment to support breastfeeding needs to come from both the public and private sectors. One major economic source of social determinants of breastfeeding is a mother's employment. Returning to work outside the home is associated with shorter duration of breastfeeding and lower incidence of exclusive breastfeeding, with a shorter length of maternity leave positively associated with both (Noble, 2001; Chatterji and Frick, 2005; Ryan, Zhou and Arensberg, 2006; Hawkins et al, 2007; Guendelman et al, 2009; Mandal, Roe and Fein, 2010).

Breastfeeding mothers are often compelled to return to work by or before six weeks for financial reasons alone, but there is little evidence that employers are accommodating lactating employees (Wolf, 2003). There is evidence that employers view workplace support for breastfeeding mothers as too costly an investment (Brown, Poag and

Kasprzycki, 2001). Absenteeism, retention and lost wages related to increased infant and childhood illness from artificial feeding represent considerable expense to employers and employees that can be minimized with the support of breastfeeding and lactation in the workplace (Weimer, 2001; Kosmala-Anderson and Wallace, 2006).

There is evidence from the international literature that labour market policies for maternity leave can have an effect on the incidence of breastfeeding at the public health level (Galtry, 2003; Baker and Milligan, 2008). In terms of maternity leave in England, the law states that employed women meeting certain conditions are entitled to as much as 52 weeks of paid leave without losing their jobs, although the amount of paid leave salary is calculated based on a set of criteria and varies. In the U.S. there is no law mandating paid maternity leave must be provided by employers. The law does mandate that mothers, again under certain conditions, wishing to take up to 12 weeks unpaid leave cannot lose their jobs unless they are employed in a private company with fewer than 50 employees.

Existing legislation in England regarding breastfeeding and the workplace states that all employers are required to conduct a risk assessment of breastfeeding mothers and make adjustments to work environment or schedule based on the level of risk using a standardized assessment tool. The law also states breastfeeding mothers must be provided suitable rest facilities with the ability to lie down. Otherwise, this legislation lacks specific guidelines such as requirements for breaks to express breast milk or the type of acceptable break areas.

The absence of specific and uniform directives in maternity leave legislation places breastfeeding mothers working outside the home vulnerable to inconsistent application of the law and compromises the ability to maintain lactation in the workplace. This can create breastfeeding inequalities between groups of women meeting different criteria for length of maternity leave and pay, as well as between women who are employed in more supportive and less supportive work places.

New legislation related to maternity leave in the U.S. was enacted in early 2010, requiring employers to provide breaks for breastfeeding mothers for 1 year to express breast milk and break rooms must be a place other than a bathroom (U.S. Department of Labor, 2010). This law represented a positive breakthrough in legislative support of breastfeeding in the U.S. However, the new law does not require that employers compensate women for time spent expressing breast milk, which means hourly wage employees are vulnerable to lower earnings when they take breaks to express breast milk.

Another limitation of the amendment is that employers with less than 50 employees are not subject to the requirements of the new law. Statistics show that breastfeeding programme benefits are much less in small companies compared to medium and large companies. This has ramifications for a large number of mothers in the workplace – in 2008 the number of people employed in the U.S. by small businesses with up to 19 employees is around 23 million and businesses with up to 99 employees is more than 40 million (Tuttle and Slavit, 2009).

6.2.2.2 Countermanding the commercial promotion of infant formula and artificial feeding

Formula manufacturers have a strong economic incentive for the promotion of infant formula and artificial feeding and have developed a global marketing strategy that reflects this incentive. Strategies used by formula companies to market their products have drawn international attention, and led to global efforts to expose and counteract the negative effects of these marketing strategies. The International Code of Marketing of Breast-milk Substitutes (the Code), developed by WHO and UNICEF and adopted in 1981, is just such an effort which has had worldwide impact on the commercial marketing and distribution of infant formula (World Health Organization, 1981). In tandem with the drafting and adoption of the Code, The International Baby Food Action Network (IBFAN) was formed to monitor and report international compliance with the Code and specific marketing activities of formula manufacturers (IBFAN, 2008).

One of the requirements for a hospital or birth facility to be granted Baby-Friendly certification is to not accept free or reduced-cost formula, bottles or artificial teats from infant formula manufacturing companies (BFHI USA, 2006). In developed countries, the BFI/BFHI has a place among economic influences on breastfeeding support. Formula manufacturers offer incentives to health care organizations and practitioners to distribute formula to new mothers. Incentives include funding clinical research, supplying formula and equipment for hospital nursery units at no cost, and sponsoring free educational conferences and recreational events for hospital staff (Riordan and

Auerback, 2004; Doane and Holder, 2007). These financial incentives can contribute significantly to meeting the needs of health care organizations and practitioners facing ever-increasing budgetary constraints, and present a major obstacle to acceptance and implementation of the BFI/BFHI model despite evidence of effectiveness.

Two public health programmes, Healthy Start in England and WIC in the U.S., provide nutritional support to low-income mothers and demonstrate the socio-political and economic influence of the infant formula industry at a national level.

6.2.2.3 Healthy Start

Healthy Start is a Department of Health (DH) nutrition support programme serving around 600,000 socio-economically disadvantaged women and children and more than 450,000 families across the U.K. (Department of Health, 2002). Vouchers are provided that can be put towards the cost of certain foods including infant formula. Healthy Start was initiated at the national level in 2006 as a reform of the Welfare Food Scheme. At the time Healthy Start was being developed the majority of mothers participating in the Welfare Food Scheme preferred to use their tokens for infant formula, as the retail value of the formula allocation exceeded that of milk.

A scientific review of the Welfare Food Scheme found the scheme provided up to twice as much infant formula as 6-12 month infants actually need and was a disincentive to breastfeeding (Department of Health, 2002). At the time, NHS clinics were distributing infant formula to eligible low income mothers at significant discount. Under the new Healthy Start programme the distribution of infant formula would be shifted, but not entirely so, from NHS clinics to retail outlets. The provision of discount infant formula at NHS clinics did not end entirely until 2005 (Department of Health, 2005).

A review published in 2010 reported results of an independent assessment of the effectiveness of regulations enacted in 2007 that require follow-on formula to be advertised and presented in such a way that consumers are able to make a clear distinction between infant formula and follow-on formula (Murcott, 2010). Marketing of infant formula is prohibited in England except in scientific publications but marketing of follow-on formula is not. There is evidence that the industry is using the lack of a ban on promotion of follow-on formula to promote infant formula or simply violating the restrictions on marketing infant formula (Department of Media and Communication University of Leicester, 2009; Baby Milk Action, 2011).

6.2.2.4 WIC

WIC is a federal assistance programme for low-income women providing nutritional support for pregnant women, mothers, infants and children up to age five through a voucher system for select foods including infant formula, as well as nutrition education, breastfeeding promotion and support, and health and social services referrals at no cost to eligible participants. WIC is the largest purchaser and distributor of infant formula in the U.S. (Kent, 2006).

Although breastfeeding rates among WIC participants climbed as overall national rates increased, women in WIC still have the lowest rates of breastfeeding initiation in the U.S. In addition, the gap between rates of breastfeeding initiation among women participating in WIC and women not participating (including women who are eligible but not enrolled) has remained consistent at around 20% during the last 30 years, despite overall increases in rates of breastfeeding in the U.S. (Ryan and Zhou, 2006).

WIC agencies are mandated to spend a calculated amount of budgetary funding on breastfeeding promotion and support. They are also required to obtain contracts with formula companies in order to provide participating mothers with free infant formula through a voucher system (Oliveira et al, 2004). The formula contract involves an arrangement wherein WIC agencies receive a rebate of 85% to 98% of the wholesale price for each can of formula purchased by WIC participants with WIC vouchers. These rebates totaled $1.7 billion in the fiscal year 2005 (U.S. Department of Agriculture Food & Nutrition Service, 2007).

WIC's nutrition services and administrative costs in 2005 were $1.3 billion (U.S. Department of Agriculture Food & Nutrition Service, 2008). Costs include certifying participant eligibility, nutrition education, breastfeeding promotion, health care coordination and referral, drug abuse education, clinic operations, food delivery and warehousing, vendor monitoring, financial management, programme integrity, and systems development and operations. But because the calculation for determining the amount required to be spent on breastfeeding promotion and support does not factor in formula rebates, only $34 million (0.6% of the total WIC budget excluding rebates) was set aside for breastfeeding promotion and support activities (Kent, 2006).

Formula rebates, then, essentially pay for or exceed WIC's operational costs yet allocated funding for breastfeeding programmes is incongruent with available funds within the nutrition services and administration budget. The conflict of interest is clear: the more money WIC spends on breastfeeding promotion and support, the greater the likelihood that the demand for formula will be less, which would then mean less income from rebates to subsidise operational costs – income not subject to the calculations for breastfeeding programme expenditures (Oliveira and Frazão, 2009).

The scale of economic involvement of the infant formula industry in public health programmes for disadvantaged mothers and children in England and the U.S. presents an extraordinarily difficult challenge in efforts to countermand promotion and support of infant formula and artificial feeding in these countries.

6.3 Social determinants of breastfeeding

The social determinants of breastfeeding represent the second layer in the analytical framework of evidence-based breastfeeding support. The literature review supported categorization of the social determinants of breastfeeding into three categories: socio-cultural, health care and maternal determinants. Socio-cultural determinants included social expectations and cultural norms, breastfeeding support from community, family and peers, and public attitudes and media portrayals of breastfeeding and breastfeeding women. Health care determinants included the promotion and support of breastfeeding in health care systems through policies, services and practitioners, education and training of health care personnel, and the BFHI. Maternal determinants included perceptions, attitudes, knowledge and experience of breastfeeding, maternal/infant health status, and demographics.

6.3.1 Socio-cultural determinants

6.3.1.1 Social expectations and cultural norms

Social expectations and cultural norms affect women's decisions about infant feeding. Positive socio-cultural attitudes toward breastfeeding foster support of breastfeeding and breastfeeding mothers. When society considers breastfeeding the norm and the cultural expectation of mothers is to breastfeed, the support of breastfeeding is part of the social and cultural structure and breastfeeding rates are high, as in the Scandinavian countries. Mothers who live in England and the U.S., where breastfeeding is not the norm, are confronted with the socio-cultural-constructed dichotomy of breasts as sexual and breasts as functional. The pervasive sexualisation of breasts in the popular media has created the perception that the use of breasts for breastfeeding is not congruent with a woman's sexual desirability (Avery, Duckett and Frantzich, 2000).

By contrast, the increasing social knowledge that breastfeeding is best for an infant's health has fostered a socially-constructed definition of the 'good' mother, in part, as one who breastfeeds, which has an impact on infant feeding decisions and the experience of breastfeeding (Guttman and Zimmerman, 2000; Bailey, Pain and Aarvold, 2004; Marshall, Godfrey and Renfrew, 2007). The perceived incompatibility of sexuality and motherhood makes it difficult to reconcile the desire to meet social expectations of a good mother and be a desirable woman in a mother who wants to breastfeed (Stearns, 1999). Some women have described strong feelings of failure or guilt when a decision to wean a breastfeeding infant or to formula feed was made (Hauck and Irurita, 2002).

Socio-cultural influences from a mother's country of origin can continue to affect infant feeding even after immigration to another country. Mothers who immigrate to England or the U.S. from a culture where breastfeeding is the norm are more likely to initiate breastfeeding than their native counterparts (Celi et al, 2005; Hawkins et al, 2008). However, the degree of maternal acculturation appears to have a negative association with breastfeeding. The years an immigrant mother has lived in England or the U.S. can be negatively associated with the likelihood of breastfeeding (Perez-Escamilla et al, 1998; Singh, Kogan and Dee, 2007; Hawkins et al, 2008).

6.3.1.2 Breastfeeding support from community, family and peers

Community support for breastfeeding has different forms. As discussed earlier in the chapter, support for breastfeeding and lactation in the workplace is an effective form of community support, as is social acceptance of public breastfeeding. Community-based, breastfeeding support groups sponsored by volunteer organisations or local health care authorities can also be an effective form of community support (Raine, 2003; Hoddinott, Britten and Pill, 2009).

A woman's exposure to and support from close friends and family members who breastfed are associated with higher rates of breastfeeding initiation and continuation (Bentley et al, 1999; Meyerink and Marquis, 2002). In certain cultures more than others, a woman's own mother or grandmother has a high degree of influence on a woman's attitudes and perceptions of breastfeeding (Hannon et al, 2000; Scott et al, 2001) as does the partner/father of the baby (Bentley et al, 1999; Arora et al, 2000; Earle, 2002). When a mother, grandmother or partner/father of the baby gives encouragement and support for breastfeeding, a woman is more likely to have positive perceptions and favourable attitudes towards breastfeeding and is more likely to decide to breastfeed. Prenatal and postpartum encouragement and support for breastfeeding from peers can have a positive effect on a woman's perceptions, attitudes and experiences of breastfeeding and in turn breastfeeding initiation and duration, particularly in low-income groups (Fairbank et al, 2000; Alexander et al, 2003; Britton et al, 2007).

6.3.1.3 Public attitudes and media portrayals of breastfeeding and breastfeeding women

Positive representations of breastfeeding and breastfeeding women reflect supportive public attitudes toward breastfeeding. In England and the U.S. where media portrayals of babies being breastfed are rare and images of women breastfeeding in public are even rarer, embarrassment and social isolation is a common experience of breastfeeding mothers (Henderson, Kitzinger and Green, 2000; Scott and Mostyn, 2003). These negative experiences of breastfeeding mediated in large part by public attitudes and reflected in the media, are associated with lower incidence of breastfeeding (Guttman and Zimmerman, 2000; Li, Fridinger and Grummer-Strawn, 2002).

6.4 Health care determinants of breastfeeding

6.4.1 Promotion and support of breastfeeding in health care systems through policies, services and practitioners

Hospital system policies and practices create an institutional culture where norms of infant feeding determine the circumstances in which maternal decision making and breastfeeding initiation occur. Certain policies and practices in hospital settings can have a positive influence on rates of breastfeeding duration, including any and exclusive breastfeeding. These policies and practices are linked to BFHI guidelines, such as providing unrestricted breastfeeding from birth, including mothers who had a caesarean section and infants being treated for jaundice, discontinuation of providing hospital discharge packs containing promotion of infant formula, and cessation of routine supplemental formula feeding of breastfed infants without medical indication (Dyson et al, 2006).

Environmental characteristics of hospitals and other facilities providing maternity care can influence infant feeding decisions. The display of positive images of breastfeeding, readily available written material on the subject, and attractive private areas for breastfeeding shape positive perceptions in pregnant women, mothers, and their families (Raisler, 2000; Khoury et al, 2002). Related to this are health sector initiatives (HSIs), interventions designed to change the nature of health care organizations and institutions to promote breastfeeding, which appear to have a positive influence on breastfeeding (Fairbank et al, 2000). HSIs include training of health professionals, use of infant feeding advisors, rooming-in, educational activities, and reduced infant formula feeding by staff in hospitals. Because of the complexity of HSI strategies, it has been difficult to demonstrate overall effectiveness of programmes; more research to identify effective components of HSI strategies are needed.

Breastfeeding support from trained professionals is a component of breastfeeding support that is shown to be effective (Porteous, Kaufman and Rush, 2000; Pugh et al, 2002; Palda, Guise and Wathen, 2004; Labarere et al, 2005). This type of support, however, is tied to access to health care resources that include breastfeeding support services (Scientific Advisory Committee on Nutrition Food Standards Agency, 2008). No or limited access to breastfeeding support services, because they are not included in routine maternity care, or covered by private health insurance or national health services, leaves women with fewer options for obtaining breastfeeding support, particularly low-income women. Breastfeeding duration can be negatively affected without professional breastfeeding support, putting mothers without this option who want to continue breastfeeding at risk of early breastfeeding discontinuation (Philipp, Merewood and O'Brien, 2001; Baumer, 2007).

Trained volunteer peer breastfeeding support programmes affiliated with health care professionals are effective in increasing rates of breastfeeding, but these programmes depend on local health care services for development and implementation (Shafer et al, 1998; Morrow et al, 1999; Shaw and Kaczorowski, 1999; Milligan et al, 2000; Dennis et al, 2002; Alexander et al, 2003; Protheroe et al, 2003; Chapman et al, 2004; Britton et al, 2007). International initiatives such as Le Leche League offer free breastfeeding support services based on community volunteers, but these services also rely on local availability and the expertise of volunteers, which may be limited (La Leche League International, 2004).

Interactions with health care professionals such as midwives, paediatricians, and lactation consultants affect maternal breastfeeding knowledge, attitudes and confidence and subsequently infant feeding decisions (Ryser, 2004; Moore and Coty, 2006). The quality, type and timing of support from professionals affect a woman’s breastfeeding experiences, which can influence breastfeeding initiation and continuation by preventing or overcoming problems that might otherwise lead to its early discontinuation (Graffy and Taylor, 2005; Ekstrom, Widstrom and Nissen, 2006; Lewallen et al, 2006). Breastfeeding support that includes antenatal breastfeeding education as a routine part of maternity services, and readily available clinical support from professionals during the early postpartum period has been shown to be effective (Dyson et al, 2006).

Breastfeeding support activities offered in conjunction with maternity care services can have a positive influence on breastfeeding initiation and continuation. Individual and group education and counselling sessions, in both informal or more structured settings and delivered by trained professionals or peers, or both, has been shown to increase initiation and duration of breastfeeding (Zimmerman, 1999; Porteous, Kaufman and Rush, 2000; Palda, Guise and Wathen, 2004; Labarere et al, 2005). Support programmes involving trained peer or lay breastfeeding counsellors have been seen to be particularly effective for women in low-income groups (Morrow et al, 1999; Shaw and Kaczorowski, 1999; Dennis et al, 2002; Protheroe et al, 2003).

6.4.2 Education and training of health care personnel

Effective professional breastfeeding support requires practitioners to have the appropriate skills and knowledge for promoting and supporting breastfeeding and lactation. Recent studies have shown, however, that physicians in England and the U.S. are not prepared or confident enough to provide effective support to breastfeeding women and that training and education opportunities in breastfeeding support are inadequate (Krogstrand and Parr, 2005; Kosmala-Anderson and Wallace, 2006). Studies have found that physicians did not believe they had the knowledge to provide evidence-based information to breastfeeding women, and felt unprepared to support them in practice (Schanler, O'Conner and Lawrence, 1999; Abbott, Renfrew and McFadden, 2006; Smale et al, 2006). Unawareness of the Ten Steps to Successful Breastfeeding was a common finding in studies.

Nursing professionals working with pregnant women and mothers also report inadequate professional training and education in breastfeeding support and inconsistency in the use of available continuing education programmes. Studies consistently report finding that nursing professionals wanted more information, education, or training in supporting breastfeeding mothers, that their professional education and training had been inadequate in preparing them to support breastfeeding mothers and infants, and that they believed women were not getting the breastfeeding support they needed (Hellings and Howe, 2000; Register et al, 2000). Studies have found that hospitals using the BFHI model to provide practitioner education and training had increased rates of breastfeeding initiation and/or duration (Broadfoot et al, 2005; Labarere et al, 2005; Bartington et al, 2006; Spiby et al, 2007).

National-level policy recommendations in England include implementation of the BFHI best practice standards in education of student midwives and health visitors (Dyson et al, 2006; National Health Service, 2008). In the U.S., recommendations include the integration of breastfeeding training, guided by the BFHI Ten Steps, into the health professions' education curricula and be provided as continuing education for practitioners (U.S. Department of Health and Human Services, 2000b). It should be noted, however, that the most recent U.S. policy on breastfeeding support released in January 2011, although calling for improved education and training of health care professionals in the support of breastfeeding and lactation, does not reference the BFHI model as a standard that should be used (U.S. Department of Health and Human Services, 2011).

6.5 Maternal determinants of breastfeeding

Maternal determinants of breastfeeding represent the final layer in the analytical framework of evidence-based breastfeeding support. They are the consequence of the socio-political and economic sources of determinants of breastfeeding support, and of the socio-cultural and health care determinants themselves. A mother's perceptions, attitudes, knowledge and experience of breastfeeding originate within the larger socio-political and economic circumstances in which she lives. Her options for education, housing, employment, and health care reside in the broader context of social determinants of health, which become the sources of socio-cultural and health care determinants of breastfeeding.

The health status of a mother and her baby are also related to the social determinants of health; for example, limited access to or use of health care can be related to the structure of health care systems and services governed by socio-political and economic forces in a society. Although maternal demographics are not changeable, it is possible to change how socio-political and economic systems address the needs of women in different demographic groups.

What a woman or mother believes, thinks and knows about breastfeeding comes from her experiences in relationships. These relationships are both personal and abstract; they are with her infant, family, peers, immediate community and health care providers, but also occur on a larger scale with the social, political, economic and health care structures that form the framework of her life. In addition, these perceptions, attitudes, knowledge, experiences and relationships affect her health and that of her baby. A mother's perception that she is capable of breastfeeding, the attitude that breastfeeding is acceptable, the knowledge that breastfeeding is the most healthy form of infant nutrition, and the experience of support in all of her relationships, can serve as incentives to be as healthy as possible.

There are, of course, circumstances where the health status of a mother or her infant is related to genetic issues, or unanticipated or unavoidable events. In these cases, however, the maternal determinants of breastfeeding can still make a difference. A mother's ability to cope with unforeseen events that have an impact on breastfeeding is directly related to her perceptions, attitudes, knowledge, experiences and relationships within the context of a more complex situation. Additionally, complex health issues make it even more imperative that the socio-cultural and health care determinants of breastfeeding and their socio-political and economic sources effectively support the breastfeeding mother and her baby.

6.5.1 Maternal perceptions, attitudes, knowledge and experience of breastfeeding

Peers and family members, including the mother's partner, play an important role in a mother's infant feeding decisions (Raine, 2003; Bonuck, Freeman and Trombley, 2005; Kelly, Watt and Nazroo, 2006). When a mother's personal support network reinforces perceptions and positive attitudes that breastfeeding is healthier for babies, is natural, economical, convenient, enjoyable and promotes mother/infant bonding can have a positive influence on breastfeeding initiation and duration (Shaker, Scott and Reid, 2004; Khoury et al, 2005; Moore and Coty, 2006). One review found that mothers generally considered social support more important than support within health care services (McInnes and Chambers, 2008).

Breastfeeding duration has been found to be associated with maternal infant feeding attitudes, particularly regarding the health and nutritional benefits and the cost and convenience of breastfeeding and artificial feeding (Scott et al, 2006). Infant feeding intentions may be associated with breastfeeding-related perceptions and attitudes; one study found that women intending to breastfeed for longer durations have more positive and fewer negative breastfeeding attitudes (Kloeblen, Thompson and Miner, 1999).

One of the most common reasons for early discontinuation of breastfeeding is the perception of insufficient milk supply (IMS), or the belief that the infant is not getting enough or is not satisfied with milk from the breast (Ahluwalia, Morrow and Hsia, 2005; Gatti, 2008). Perceived IMS is shown to be associated with a lack of maternal confidence and early discontinuation of breastfeeding (McCarter-Spaulding and Kearney, 2001; Dunn et al, 2006). Mothers with lower confidence in their [perceived] ability to breastfeed may also have a higher risk of early breastfeeding discontinuation (Dennis, 2002).

Maternal understanding of breastfeeding plays a role in influencing infant feeding decision-making. Structured ante-partum breastfeeding education programmes that increased women's breastfeeding knowledge, practical skills and problem-solving techniques have been shown to increase breastfeeding initiation and duration (Palda, Guise and Wathen, 2004). Findings from other studies have suggested that professional support interventions that provide women with the skills and knowledge about breastfeeding were effective only when technical education was combined with support and encouragement from practitioners (Hannula, Kaunonen and Tarkka, 2008).

Nevertheless, the positive effects of knowledge on breastfeeding can be mitigated by the lack of support from a mother's personal support network. Knowledge that breastfeeding is optimal for infant health, yet the inability to manage breastfeeding difficulties without family or community support, can lead to feelings of disappointment, guilt and inadequacy in women who attempt to breastfeed but do not continue (Whelan and Lupton, 1998; Earle, 2002; Hauck and Irurita, 2003). Each of these personal determinants is associated with lower rates of breastfeeding initiation and continuation, even after controlling for breastfeeding knowledge and support from health care practitioners (Henderson, Kitzinger and Green, 2000; Scott and Mostyn, 2003; Stewart-Knox, Gardiner and Wright, 2003).

A woman's experience of breastfeeding can affect decisions related to breastfeeding continuation and/or type of breastfeeding (exclusive vs. partial). Women have described the experience of breastfeeding in terms that are both negative and positive. A number of women have reported the experience of breastfeeding as restrictive to their lifestyles, or they felt that breastfeeding tied them down to home, interfered with their freedom to perform daily tasks, and kept them from activities they previously enjoyed (Schmied and Barclay, 1999; Raisler, 2000; Stewart-Knox, Gardiner and Wright, 2003). Breastfeeding has been described as disruptive distressing, disappointing or excruciatingly painful (Schmied and Barclay, 1999).

Breastfeeding has also been characterized in terms of unrealistic expectations and contradictions; women did not expect the demands of breastfeeding in the first few weeks to be so difficult, and were unprepared for the contradiction between how breastfeeding was portrayed by health care providers and the reality of working through problems (Hoddinott and Roisin, 1999; Mozingo et al, 2000; Hauck, Langton and Coyle, 2002; Bailey, Pain and Aarvold, 2004). This body of literature indicates that women with these types of negative experiences are more likely to discontinue breastfeeding earlier than they had intended.

Positive descriptions of the experience of breastfeeding generally centre on the emotional and physical bond created between mother and infant. Women have described an emotional bond, intimate connection or harmonious relationship with their infant that they attributed solely to breastfeeding, and those who reported experiencing this type of special bond usually stated they did not believe the same type of bonding would occur if they were formula feeding (Wrigley and Hutchinson, 1990; Arora et al, 2000; Guttman and Zimmerman, 2000; Earle, 2002; Moore and Coty, 2006). The physical bond between a breastfeeding mother and her infant has been described by women as an embodied experience that was pleasurable, relaxing and calming, that enhanced the experience of breastfeeding and motivated them to continue doing so despite any difficulties (Schmied and Barclay, 1999; Avery, Duckett and Frantzich, 2000).

6.6 Comparison of the analytical framework to other models

To date, an analytical framework of evidence-based breastfeeding support has not been developed, which precluded a critical comparison between this framework and others. However, this framework was grounded in and supported by the work of others who have developed frameworks to examine different aspects of breastfeeding. Three frameworks were found for comparison: one tested a model of breastfeeding; another examined influences on breastfeeding decisions; and the third examined practice development in breastfeeding.

Tiedje and colleagues tested an ecological model of breastfeeding with mothers' reported experiences, *a priori* categories based on determinants traditionally considered relevant to breastfeeding (i.e. mother/infant dyad and family), and determinants identified in terms of external systems such as neighbourhoods, social networks, and communities (Tiedje et al, 2002). This qualitative study found six determinants identified by women as affecting breastfeeding: mother-infant dyad, family/partner/significant other, health care delivery system, community, cultural/ societal, and cumulative determinants.

Mother-infant dyad determinants were related to maternal learning needs about breastfeeding, breastfeeding problems, maternal or infant medical conditions interfering with breastfeeding, concerns about sufficient milk supply, and maternal confidence, coping and problem-solving. Family/partner/significant other determinants were associated with emotional and social support needed from family members and friends for breastfeeding. Health care delivery system determinants included hospital policies and practices, and health care practitioners. Community determinants involved availability, access and use of community breastfeeding support resources, issues related to breastfeeding while returning to work or school, and workplace support for breastfeeding mothers. Cultural/societal determinants involved discomfort in body image and concerns about the change in breasts that was incompatible with a sexual relationship. The cumulative determinants category was added by the authors after data were collected based on participants' reports of a cumulative effect of influences on breastfeeding success.

A direct association can be seen between findings in the Tiedje and colleagues' model and this framework. The mother-infant dyad and health care delivery system categories correspond to health care influences. Family/partner/significant other and cultural/societal categories refer to socio-cultural influences, and the community category includes political and economic influences. The cumulative category represents participants' insight into the connections between breastfeeding experiences, support, and success. The parallels between the Tiedje and colleagues model and this framework reinforce the concept of breastfeeding as contextual, experiential, and multidimensional. The findings also lend credence to the concept of breastfeeding support as a constellation of determinants from multiple sources that influence the circumstances in which women experience breastfeeding.

Bentley, Dee and Jensen applied a social ecological framework to examine connections between macro- and micro-level influences on breastfeeding decisions in a group of low-income African American women in the U.S. (Bentley, Dee and Jensen, 2003). Macro level influences included public media representations of breastfeeding, marketing of infant formula, reforms in government assistance programmes, hospital policies and practices for maternity care, and legislative efforts in breastfeeding support. Micro level influences included characteristics of communities, neighbourhoods, and workplaces in terms of encouraging or discouraging breastfeeding, social and personal support networks, and individual beliefs and cultural norms related to infant feeding.

The macro- and micro-level influences and their connections described in the Bentley study correspond to sources of social determinants and the determinants themselves in this study. At the macro level, public media representations of breastfeeding correspond to socio-cultural influences, commercial marketing of infant formula is related to economic determinants, hospital policies and practices for maternity care correspond with determinants in health care, and legislative efforts and government assistance programmes in breastfeeding support are associated with political determinants.

At the micro level, characteristics of communities, neighbourhoods, and workplaces relate to political and economic determinants, and social and personal support networks and individual beliefs and cultural norms are related to socio-cultural determinants. The consistencies found between the ecological framework constructed by Bentley and colleagues and the framework of breastfeeding support presented here, reinforce the view of breastfeeding support as a set of interconnected determinants influencing the type of breastfeeding support a woman does or does not receive.

Renfrew and colleagues developed an analytical framework to examine practice development in breastfeeding as part of a national programme to address inequalities in maternal and child nutrition (Renfrew et al, 2006). The framework consisted of five key elements: 1) *evidence-based approach*; 2) *multisectorial and multidisciplinary working including service user/consumer perspectives*; 3) *main streaming and sustainable systems*; 4) *participatory approach to consultation and communication*; and 5) *embedded evaluation*.

An examination of findings from the Renfrew study and this framework once again reveal correlations. An *evidence-based approach* in the Renfrew model is associated with political and health care influences in the framework presented here. Commonalities between the two models in this sense include the need for political administrators to decide if evidence from systematic reviews will be used in policy and legislative decisions to support breastfeeding, and health care managers and practitioners must decide if EBP will be used in their delivery of maternal/infant care.

The concepts of *multi-sectorial and multidisciplinary working, including service user/consumer perspectives* correspond with health care and socio-cultural influences in this framework. Both models contend that private and public sectors of health care must seek opportunities for collaboration between themselves and with the community stakeholders to improve effectiveness and reduce costs of breastfeeding promotion and support. Similarly, health care professionals across disciplines must find ways to optimize breastfeeding outcomes with integrated approaches to clinical care.

The concepts of *main streaming and sustainable systems* in Renfrew and colleagues model correspond with political, economic and health care influences in this model. Within these terms, main streaming involves socio-cultural and political interests finding common ground on which to bring to the forefront the issue of breastfeeding inequalities, and working in unison to secure financial sustainability of breastfeeding promotion and support programmes.

Renfrew's concept of a *participatory approach to consultation and communication* is associated with political, economic, socio-cultural and health care influences in this model. Both models suggest that the inclusion of political, economic, socio-cultural and health care stakeholders in the development, implementation and evaluation of breastfeeding support programmes is needed to ensure programmes are appropriate to the needs of the community and responsive to the needs of different stakeholders.

The concept of *embedded evaluation* involves political, economic, socio-cultural and health care influences. Process and outcomes measures must be considered from the initial stages of programme development to include indicators of clinical and cost effectiveness (economic and health care influences in this model), public health status and inequalities between socio-cultural and socio-economic groups (socio-cultural and economic influences in this model), and the impact of policy on breastfeeding inequalities (political influences in this model), so that evaluation is an integral part of the programme.

Congruencies between the Renfrew and colleagues' model of practice development in breastfeeding and the framework of breastfeeding support presented here supports the idea that practice development is not an isolated issue. The issue of practice development permeates multiple levels of influence presented in this framework.

6.7 Conclusions

The analytical framework discussed in this chapter represents the social determinants of breastfeeding and their sources, and describes the associated evidence-based interventions that can effectively promote and support breastfeeding. It is critical to note here that the promotion and support of breastfeeding does not mean every woman should, or would, breastfeed. Notwithstanding the arguments that breastfeeding as a mother's choice vs. breastfeeding as an infant's right, what is at stake here is that every pregnant woman and mother who desires to breastfeed be given the support she wants and needs to do so for as long as she desires.

Meanwhile, evidence of the positive health effects of breastfeeding and the negative health effects of artificial feeding is increasingly irrefutable. Inequalities in the incidence of breastfeeding exist and persist, despite overall increases in the rates of breastfeeding in each country. The fact that two of the most pressing public health problems in England the U.S. (obesity and diabetes) have been strongly linked to infant feeding, and that health inequalities related to obesity and diabetes are found in the same groups with breastfeeding inequalities, has become the driving force behind the inclusion of breastfeeding as an indicator of public health and as a means of addressing health inequalities.

As breastfeeding becomes more and more an indicator of public health an understanding of the social determinants of breastfeeding and the sources of those determinants will be needed to develop effective policies to tackle breastfeeding inequalities and ultimately health inequalities.

Chapter 7

Policies and the use of systematic reviews to support breastfeeding in England and the U.S.

7.1 Introduction

The intent of this chapter is to provide a critical overview of key findings from analyses of policy documents and systematic reviews; it is not reporting all data extracted and does not represent all findings from analyses. Descriptive details of data and findings from each document are provided in the Appendices, as are findings from comparative analyses across policies, systematic reviews and countries. The reason for reporting a condensed version of findings is to minimise repetition in discussions and focus on results from analytic comparisons across policies, systematic reviews and countries as a whole.

Also as discussed in previous chapters, health inequalities have been recognised during the last four decades as a major public health issue in England and the U.S. The social determinants of health and health inequalities have been identified, and policies to address social and health inequalities have been produced. Within the same time frame, evidence-based practice in medicine and systematic reviews in research have gained wider acceptance. The effects of evidence-based practice on clinical outcomes have been demonstrated for many health issues and systematic reviews have become mainstream in the world of health care research.

Likewise, the use of systematic reviews has expanded into the process of public health policymaking as policymakers focus on minimising costs of health care while improving public health and reducing health inequalities. Breastfeeding support has been incorporated into these policies addressing public health issues related to nutrition and infant feeding. The evidence, however, of the effects of public health policy to address breastfeeding support is extremely limited, and there is an imbalance in the accelerated production of evidence-based policy and the limited availability of evidence from systematic reviews, particularly to address breastfeeding inequalities.

Given this, what evidence of the effects of policy to address breastfeeding inequalities can be evaluated in systematic reviews? This dilemma is similar to evidence related to cost-effectiveness of breastfeeding support; systematic reviews can only look at proxies of cost-effectiveness, such as cost savings to health care systems from a reduction in acute cases involving treatment of babies presenting with illnesses related to infant feeding such as otitis media. Similarly, only proxies of breastfeeding inequalities can be evaluated in systematic reviews in the form of differences in measureable outcomes between groups after implantation of a policy.

One problem is that evidence-based policymaking requires an issue be separated out from other related issues in order to use the evidence available on a particular topic. Separating an issue from others, however, can compromise the potential effectiveness of a policy even when supported by the evidence. An example is the issue of breastfeeding inequalities and evidence-based policy recommendations for peer support interventions. The issue of breastfeeding inequalities resides within the public health and social issues of health inequity and socio-economic disadvantage and must be separated from these broader issues before evidence of effectiveness of peer support interventions can be used in policymaking. Several policies in my sample demonstrated a separation of peer support from the larger issue of breastfeeding inequalities: the *Maternity Standard* and *USPSTF* policies addressed peer support interventions but did not address the issue of breastfeeding inequalities.

Petticrew and Roberts refer to the disentangling of a public health issue in systematic reviews to inform policy as splitting, where components of a complex policy issue are split apart to manage evidence synthesis and provide an answer to the ‘what works?’ question of policymakers (Petticrew and Roberts, 2008). In the case of policy and breastfeeding support, disentangling must be done with awareness of the indirect relationships between breastfeeding inequalities and their proxies, and that policy recommendations should serve to clarify their relationships and reconnect these issues.

7.2 Policies from England

As described in the Methods chapter, three policies from England and three from the U.S. were analysed. Details of each document can be found in tables in the Appendices. What follows here is an overview of the policies and how they compare with each other.

7.2.1 Maternity Standard, National Service Framework for Children, Young People and Maternity Services

There are 10 categories and more than 170 recommendations in the NSF *Maternity Standard* addressing different aspects of maternity services. Among these, only seven directly address breastfeeding promotion and support. However, it is feasible that an analysis of all the recommendations would uncover some indirectly related to breastfeeding support or breastfeeding inequalities. All recommendations in this policy correspond to the socio-political determinants of *legislation and policy to promote and support breastfeeding, and public health initiatives in breastfeeding promotion and support*, as well as health care determinants of *the promotion and support of breastfeeding in health care systems through policies, services and practitioners*. Some recommendations correspond to additional determinants from the analytical framework. See Appendix C - Data extraction sheet: *Maternity Standard*.

The scope, number and organisation of recommendations in this policy may make it cumbersome for users to sort out recommendations for the support of breastfeeding. For instance, the recommendation within the ‘inclusive services’ section is located in a box labelled ‘Sure Start services’. This is both an advantage and a disadvantage. The advantage is that users looking for strategies that specifically apply to socioeconomically disadvantaged groups will find a recommendation for breastfeeding support that also addresses breastfeeding inequalities. The disadvantage, however, is that users looking for strategies that could be implemented across different socioeconomic groups may miss this recommendation.

Although economic considerations are essential to the success of any public health policy, the economic factor of financial investment in breastfeeding support is not addressed. This may be because the issue of expenditures in the NHS is addressed in Operating Framework reports published every two years by the Department of Health. Each Operating Framework presents the overall business and planning arrangements for the entire NHS system for a two-year period which would have included investment to support breastfeeding.

The socio-cultural factor of public attitudes and media portrayals of breastfeeding and breastfeeding women is not addressed in this policy. The document sets forth standards in maternity care across the NHS as a whole, and is not intended to be a comprehensive policy focused on the socio-cultural issues affecting breastfeeding support. Likewise, and presumably for the same reason, the maternal factor of *perceptions, attitudes, knowledge and experience of breastfeeding* is not addressed. The health care factor of the education and training of health care personnel is also missing despite its role in providing effective clinical support of breastfeeding. Education and training of professionals involved in the care of mothers and infants is a cornerstone of evidence-based breastfeeding support and, because the policy is focused on maternity services across the NHS, should be a component of this policy.

7.2.2 Good Practice and Innovation in Breastfeeding

This policy is deceptively simple in that it offers recommendations within an evidence-based framework used to form a structured approach to the design, development and implementation of breastfeeding support interventions within health care organisations and clinical practice. As such, all recommendations correspond to the health care factor of *the promotion and support of breastfeeding in health care systems through policies, services and practitioners*. Concepts in the framework are presented as categories that contain recommendations for interventions related to that category. Not only do the categories build on one another, but the recommendations within each category follow a linear pattern with a cumulative effect. The categories are designed to be followed in order, as are recommendations within categories. The result is users who want to implement a breastfeeding support programme within a health care facility are offered a road map that is straightforward and easy to follow, yet is founded on the principles of evidence-based practice. See Appendix D - Data extraction sheet: *Good Practice and Innovation in Breastfeeding*

One aspect of the policy not apparent in data extracted for analyses is the inclusion of real-life examples of how concepts and related interventions have been put into action. Users are given examples of what successful programmes look like, as well as ideas that may be applicable to their group or population. This shows users how they might proceed with the design and implementation of recommendations in their own setting, for their own population and their own purposes (i.e. for practice, research, or funding purposes) and may help users identify challenges they may encounter with their population or in their particular setting, as well as advantages they may have but not yet recognised.

One factor from the analytical framework of evidence-based breastfeeding support is not addressed in this policy: the maternal factor of *maternal/infant health status*. Given this policy has the goal of providing a resource for health care professionals it makes sense that recommendations explicitly related to breastfeeding support and specific maternal or infant health issues are included. An example of this is breastfeeding and maternal use of prescription medications. Ensuring that professionals involved in prescribing and dispensing medication for breastfeeding women are aware of, and use, a range of reliable sources of information is one such intervention.

7.2.3 NICE Public Health Guidance 11. Improving the Nutrition of Pregnant and Breastfeeding Mothers and Children in Low-Income Households

This the largest document in the sample from England and the only one with recommendations for research. Because of the extensive size and inclusive nature of this policy, multiple levels of breastfeeding support, from the individual practitioner and health care services to socio-political and economic systems, and all determinants from the analytical framework are addressed. The broad nature of this policy means recommendations may be useful to many different types of users with different needs in different settings with different populations or groups. It also illustrates the interconnectedness of breastfeeding support strategies throughout realms of politics, economics, society, culture and health care. See Appendix E - Data extraction sheet: *NICE Public Health Guidance 11*.

Recommendations include a combination of specific interventions (e.g. clinical practitioners should provide information and advice to pregnant and breastfeeding women about the benefits and availability of vitamin D supplements) and general approaches (e.g. activities to raise awareness of the benefits of breastfeeding and how to overcome barriers to successful breastfeeding should be part of a comprehensive strategy). Because low-income women are identified as the target for recommendations, this is one of two policies in the sample that explicitly addresses the issue of *breastfeeding inequalities*.

Although the amount of information in this policy may deter users looking for a concise source of guidance, the organisation of the document lends itself to finding recommendations based on topic. However, although overlap exists between some sets, no cross-referencing is given, which means users may miss relevant recommendations that may be useful but are found under a topic not recognised by the user as related.

Like the overall policy itself, research recommendations are comprehensive, detailed and presented in a way that shows relationships between commissioning, conducting, reporting, monitoring, and evaluating interventions, and the cost-effectiveness of interventions. The usefulness of this format is twofold: it represents the principles of quality research and provides a logistical framework for the process. These recommendations can inform other types of users besides researchers and research commissioners, because they bridge the gap between design and implementation of breastfeeding support strategies and the evidence of effectiveness behind those strategies.

7.3 Policies from the U.S.

7.3.1 Breastfeeding: HHS Blueprint for Action on Breastfeeding

This policy consists of categories of interventions that address various aspects of breastfeeding support from healthcare systems and professionals, in the workplace, and within the family and community. Because of the limited number of reviews at the time, one review and 26 other publications were used to develop the policy. An expert panel of representatives from a wide range of backgrounds, including federal agencies, non-profit organisations, universities, professional associations, the business sector, and political entities, reviewed the available evidence, deliberated findings, and developed recommendations. The policy is sufficiently detailed for users to identify which interventions might be most appropriate for their population, group or setting. This is one of two policies in the sample from the U.S. that included recommendations for research and the only one that tied research recommendations with recommendations for interventions. This is the only policy that did not include recommendations for interventions that had not been reviewed for effectiveness or shown to be effective. See Appendix F - Data extraction sheet *Breastfeeding: HHS Blueprint for Action on Breastfeeding*

This policy captured the totality of breastfeeding support within women's individual circumstances. Taken together, a woman's experience of health care, her situation in the workplace, and her relationships with family and community, represents a circle of breastfeeding support on a very personal level. This particular combination in recommendations demonstrates how a policy can take into consideration contextual determinants that affect each woman's life while addressing broader public health issues of breastfeeding support in different groups. As such, all determinants from the analytical framework were addressed in this policy.

7.3.2 CDC Guide to Breastfeeding Interventions

Recommendations in this policy are a mix of detailed interventions (e.g. fund one full-time position at the state level to coordinate peer counselling services for women not eligible for WIC in addition to services offered to WIC participants) and concept-based interventions (e.g. promote legislation to support work site lactation programmes through mandates or incentives). This is the only policy in the U.S. sample that did not include recommendations for research. The policy presents recommendations in two groups – those interventions considered to be evidence-based and those where effectiveness has not been established were included with the rationale that because 'formal evaluation of breastfeeding interventions is not yet widespread' (Introduction, p. i) interventions with an 'established history or strong rationale' (Introduction, p. ii) and 'all major types of interventions known to have been implemented or thought to promote support and breastfeeding' (Introduction, p. ii). All determinants from the analytical framework were addressed. See Appendix G - Data extraction sheet: *CDC Guide to Breastfeeding Interventions*.

The inclusion of recommendations not yet supported by the evidence compromises the policy and its use; users are presumably looking to this report for guidance on which breastfeeding support interventions work best, but essentially half of the categories and recommendations did not have their level of effectiveness established at that time. The policy does state that the use of interventions with limited evidence of effectiveness is not discouraged, but that if they are used the intervention should be evaluated for effectiveness before wide dissemination. This places an extra research burden on users of the policy that could discourage use of these interventions. Additionally, users may decide to implement these interventions without assuming responsibility for this preliminary component of evaluation, which would perpetuate detrimental rationales for using an intervention based on established history instead of established effectiveness. A number of interventions with an established history or strong rationale in maternity care in general and breastfeeding support in particular have, when formally evaluated, been found ineffective or even harmful. Using these criteria to justify including such recommendations raises the concern that users will inadvertently adopt ineffective or harmful interventions.

7.3.3 Primary care interventions to promote breastfeeding: U.S. Preventive Services Task Force recommendation statement

Recommendations consist of an assortment of specific interventions and imprecise strategies with clinical interventions (‘formal breastfeeding education for mothers and families’) and broad categories of interventions (‘system-level interventions with senior leadership support’). This policy is one of two in the U.S. sample that included recommendations for interventions that had not been reviewed for evidence of effectiveness. This policy is also one of two that included recommendations for research. Research recommendations, however, were not explicitly tied to recommendations for action, creating a disconnect between what more we need to know to effectively support breastfeeding, and the context of current knowledge in which that support occurs. All determinants in the analytical framework were addressed in recommendations, although some only implicitly so. See Appendix H - Data extraction sheet: *Primary Care Interventions to Promote Breastfeeding*.

A number of recommendations are vague, complicated, redundant, or incongruent with the overall stated focus of the policy, which is to identify evidence-based primary care interventions to promote breastfeeding. Examples of this include recommendations such as ‘system-level interventions with senior leadership support may be more likely to be sustained over time’, ‘interventions to promote breastfeeding should empower individuals to make informed choices supported by the best available evidence’, and ‘good-quality prospective studies are needed to understand the effectiveness of compliance with the BFHI in the U.S., the contributions of individual components, and the interactive effect of the components with particular focus on post-discharge breastfeeding support’.

Also included are recommendations that wander from the issue of breastfeeding support, including addressing medical issues of pathology such as ‘breastfeeding is not recommended for mothers with HIV or infants with galactosemia’. The recommendations related to medical issues of pathology are notable because it is explicitly stated in the policy that the review did not include a search for literature examining potential harms of breastfeeding.

7.4 Comparing policies

The overall policy approach to breastfeeding inequalities in the sample from England differed from the U.S. sample. Although policies from England focused mainly on health care systems and services, they addressed broader socio-political and economic determinants affecting breastfeeding support and breastfeeding inequalities rather than access and utilization of health care, individual risk determinants and health behaviours in U.S. policies. Recommendations in policies from England demonstrated an approach to breastfeeding inequalities as part of wider strategies to improve public health. U.S. policies addressed breastfeeding inequalities as a peripheral issue rather than a central consideration in breastfeeding support; breastfeeding inequalities is represented as one of many issues to be addressed rather than an issue integral to breastfeeding support interventions and outcomes.

Table 1 Comparison of approaches to policy in England and the U.S.

England
• Social determinants and their sources prominent
• Cross-referencing made to other policies
• Included input from professionals/users/stakeholders/beneficiaries
• Correlated with systematic reviews
• Developed with implementation in mind
• Overall focus on reduction of inequalities
• Framed breastfeeding as part of broader public health issues
U.S.
• Indirectly concerned with social determinants and their sources
• No cross-referencing or connections made to other policies
• Included input from professionals
• Included recommendations for interventions that had limited or no evidence of effectiveness, or that had not been evaluated
• Developed to guide decision-making
• Overall focus on improvement of breastfeeding support
• Framed breastfeeding within narrow context of health care

The composition of groups involved in development of policies in England may partly explain this difference; groups involved in development of policies were more heterogeneous compared to groups from the U.S. sample. The social sciences and members from the community had better representation in groups in the English sample, whereas group members in the U.S. sample were primarily public health academics, administrators, and health care practitioners.

The views of women expected to benefit from policies were not considered across policies. Despite inclusion of the topic in a number of systematic reviews, it may be that evidence related to the views of women was not considered relevant to policy because the responsibility for breastfeeding support lies with health care systems and practitioners and, as such, breastfeeding is considered a product of health care and not women's experiences, attitudes, expectations and perceptions. At the heart of this concept is a medical model of breastfeeding and breastfeeding support, which separates women from their breasts and breast milk, and transfers responsibility (e.g. control) of breastfeeding and lactation to health care systems and practitioners (Dykes, 2005). The involvement of women in developing effective forms of breastfeeding support is not accommodated in this model and, as such, women's views become irrelevant. Issues related to women's access to and use of maternity care services are the closest sample policies come to considering women's views, but these recommendations are still framed within behavioural issues to be addressed through health care interventions.

The implications of this medical model extend well beyond breastfeeding support and breastfeeding inequalities; there are broader philosophical implications with roots in the medical model of pregnancy and childbirth and the control afforded practitioners, health care systems, and society at large over women's bodies, experiences and decisions. This may explain why the topic of family support is only minimally represented across policies, since it requires that a certain degree of control over breastfeeding and breastfeeding support be relinquished by health care systems and practitioners. Although ultimate control remains out of a woman's hands when family support is given recognition (and thus power) via policy, the fact that she has an active role in family relationships gives her indirect power that threatens the medical model.

Revealed in these discussions is a major aspect of the nature of policy addressing breastfeeding support and breastfeeding inequalities found across policies, which is to maintain the status quo in which women are considered only in the context of recipients of breastfeeding support. The irony is the status quo also frames infant feeding in terms of choice, implying the control lies with women. Without policies that expand sources of breastfeeding support beyond health care, the explanation that low breastfeeding rates and persistent breastfeeding inequalities lie with women and their infant feeding choices remains viable. As previously discussed, this serves the socio-political and economic interests of the infant formula industry well, which in turn provides strong motivation for policymakers to maintain this status quo.

Findings from this study show that the social determinants of breastfeeding and their sources are basically the same in England and the U.S. It bears repeating that legislative and regulatory sources of support in England and the U.S. have been found to be minimal and limited to support for breastfeeding in public and in the workplace, which benefits only mothers who breastfeed in a public setting and employed mothers in certain jobs *after* they return to work. Legislation and regulations that could have a broad impact across groups of women, such as legislative enforcement of the International Code of Marketing of Breast Milk Substitutes and regulatory support of the BFI, do not exist.

NHS policy in England supports the distribution of infant formula through the Sure Start programme, and the WIC programme in the U.S. is governed by a policy that makes it the largest purchaser and a major distributor of infant formula in the country. Previous discussions in this study have examined how policy can confer benefit selectively. The WIC and Sure Start programmes show how policy can also confer detriment selectively; the most socio-economically disadvantaged mothers and infants are selectively eligible for free infant formula and, in turn, the increased health risks associated with artificial feeding. There will be little progress in the reduction of health and breastfeeding inequalities as long as policies allow government-sponsored nutrition programmes for disadvantaged women and their families to continue supporting the formula industry at the expense of the health of mothers, infants and children they serve.

7.5 Systematic reviews

As described in the Methods chapter, topics and categories were identified to standardise analytical comparisons between evidence available from systematic reviews and issues addressed in policies. These topics and categories provided an overview of correlations between the evidence and issues across systematic reviews, policies and countries. They also provided an overview of topics that were more or less represented in systematic reviews and those that were more or less addressed in policies. See Table 2 Categories and topics.

Table 2 Categories and topics

Type of intervention	
	Clinical practice
	Professional education
	Health care system
	BFHI
	BFI
	Peer support
	Family support
	Workplace
	Media
	Legislative or regulatory policy
	Multifaceted
Timing of intervention	
	Antenatal
	Immediately postnatal
	Postnatal
Type of breastfeeding	
	Initiation
	Continuation
	Exclusive
Other issues	
	Inequalities
	Cost
	Women’s views
Population	
	U.K. or England
	U.S.

Table 3 Percentage of topics addressed across systematic reviews

Type of intervention	a	r
Clinical practice	100%	38%
Professional education	31%	15%
Health care system	23%	31%
BFHI	15%	0%
BFI	38%	15%
Peer support	62%	15%
Family support	15%	15%
Workplace	15%	15%
Media	15%	15%
Legislative or regulatory policy	23%	15%
Multifaceted	30%	8%
Timing of intervention		
Antenatal	69%	8%
Immediately postnatal	23%	8%
Postnatal	85%	8%
Type of breastfeeding		
Initiation	92%	8%
Continuation	92%	8%
Exclusive	31%	38%
Other issues		
Inequalities	46%	38%
Cost	8%	15%
Women's views	38%	15%
Population		
U.K. or England	38%	8%
U.S.	23%	0%

a = recommendations for action; r = recommendations for research

The topics addressed in systematic reviews were counted and the occurrence of each topic presented as percentages of the total number of topics across systematic reviews. This was done to gain a sense of the relative frequency with which each topic appeared or did not appear across systematic reviews in the sample. See Table 3 Percentage of topics addressed across systematic reviews. For details on data extracted from each systematic review see Appendix J Data extraction sheets for systematic reviews.

7.5.1 Findings related to type of intervention

Clinical practice was the only topic found in action recommendations in every systematic review and was one of the three topics most recommended for research. This reflects the extensive volume of literature available on the support of breastfeeding through clinical interventions. It also represents the continuing perception that the most effective type of breastfeeding support comes from health care practitioners despite evidence that interactions with health care providers have limited effectiveness as a stand-alone intervention. Ironically, the topic of *professional education* was represented in less than a third of action recommendations and half that in research recommendations. Taken together, these findings suggest that health care practitioners are expected to be the primary source of breastfeeding support, but the support of practitioners in the provision of evidence-based care is not considered a priority.

Related to this is the topic of *health care system* interventions, which was represented in less than a quarter of action recommendations. The relatively small amount of evidence on interventions at the systems level of health care has left a critical element of effective practice unaddressed, which is the efficiency of systems. An effective practice environment is dependent on an efficient system, and an efficient system depends on effective practice. In addition, effective practice is possible only with system-level support of practitioners such as in professional development and education. Research recommendations related to health care systems were found in nearly a third of systematic reviews – the second highest percentage of recommendations for research behind clinical practice and the issue of inequalities.

The topics *BFHI* and *BFI* were considered separately in analysis because systematic reviews identified one or the other specifically in recommendations. The BFI was referred to across systematic reviews more than twice as often as the BFHI. The significance of this finding is mitigated, however, by the lack of a clear differentiation between the two. Given this, it is reasonable to assume differences in the inclusion of BFI and BFHI in systematic reviews does not indicate a contextual difference in topics addressed. As such, differences in the incidence of each term across systematic reviews are analytically insignificant. Nonetheless, the growing and compelling evidence of the effectiveness of the BFI/BFHI model in both developed and developing countries makes it clear that more research would be beneficial. Yet the number of systematic reviews that included research recommendations for either the BFI or BFHI was low compared to other topics.

Recommendations for action involving the topic of *peer support* appeared in two-thirds of systematic reviews in the sample, second in frequency only to clinical practice. This comparatively high percentage reflects not only the relatively greater amount of evidence available on peer support interventions, but also on the evidence indicating a high level of effectiveness, particularly in disadvantaged groups with lower rates of breastfeeding. Research recommendations were not nearly as prevalent as action recommendations for this topic, risking the inaccurate perception that the topic needs little further evaluation. Instead, it is reasonable to assume that, since there is already evidence of effectiveness, more information related to different aspects of peer support interventions, particularly cost-related issues, would be particularly useful to policymakers. Unfortunately, this finding mirrors the wider lack of an evidence base related to costs and cost-effectiveness of public health interventions.

The evidence of a positive relationship between rates of breastfeeding and peer support in disadvantaged groups suggests that peer support for breastfeeding may be an effective approach in the reduction of breastfeeding inequalities. Yet, when the systematic reviews that addressed the topic of *breastfeeding inequalities* were examined, less than half included action recommendations and little more than a third included research recommendations to address the topic. In other words, despite a relatively high number of systematic reviews that included the topic of peer support, a disproportionately small number included the issue of breastfeeding inequalities even with evidence of a connection between the two. Seen in this light, it is clear that systematic reviews in the sample did not take full advantage of this important connection in developing recommendations.

The topics of *family support*, *workplace* and *media* each received the same comparatively low percentage of attention in the sample for both action and research recommendations. It may be that developing recommendations for interventions to address these topics is particularly challenging given the unique family situation of individual women, the broad, changeable nature of any society, the explicit and implicit characteristics of a particular culture, and the inherent difficulties in measuring these determinants. Nonetheless, it is not impossible to consider these topics in research; theories related to socio-cultural influences, including family support networks, on health and health-related behaviours have been developed and used (Glanz, Rimer and Viswanath, 2008) and a number of public health issues have been examined in this context (Brown and Ogden, 2004; Lacey et al, 2010). In light of the integral roles family and workplace play in a woman's everyday life these topics should be examined more thoroughly in primary studies in order to provide more evidence for systematic reviews and policymakers.

The topic of *legislative or regulatory policy* was found in nearly a quarter of action recommendations in systematic reviews despite the limited amount of research available and the acknowledged degree of difficulty in measuring outcomes of legislative and policy interventions. The increased interest in using policy to address breastfeeding support and breastfeeding inequalities, and the scarcity of evidence regarding effectiveness of public health policy, suggests the need for more research to give policymakers what they want and need. Yet the amount of attention directed toward this topic was no more than most other topics.

The topic of *multifaceted* interventions received less attention in action and research recommendations across systematic reviews despite evidence which shows a combination of interventions is more effective than interventions used in isolation. The percentage of action and research recommendations was less for this topic than for the BFI/BFHI. This is noteworthy because one of the central tenets of the BFI/BFHI model involves the use of a combination of interventions to achieve effectiveness. Overall, it would be reasonable to assume that if there was inadequate evidence to support more action recommendations in systematic reviews related to multifaceted interventions, research recommendations should have been afforded more attention and included the topic of BFI/BFHI.

7.5.2 Findings related to timing of intervention

The postnatal topic was well represented across systematic reviews and was the highest among the three in this category, reflecting the relatively large amount of evidence available on clinical interventions that occur after breastfeeding is initiated. The antenatal period was the second most commonly addressed topic in this category. Since the intervention topics of health care systems, family support, workplace or media are closely related to antenatal support it was likely they would receive more attention. The topic of immediately postpartum appeared in the fewest reviews in the sample compared to the other two. This could be attributed to the fact that there are a limited number of interventions able to be used in this short time frame. However, the available evidence has shown some interventions carried out immediately after birth, such as skin-to-skin contact, can have an impact on breastfeeding continuation which suggests this topic could have been more prominent among recommendations.

7.5.3 Findings related to breastfeeding

Action recommendations for both breastfeeding initiation and continuation were present in the vast majority of systematic reviews but relatively few included research recommendations. Similar to discussions above, the high level of interest in breastfeeding initiation was not reflected in the percentage of systematic reviews with recommendations for intervention topics relevant to the antenatal period, such as those related to family or culture. This reflects findings reported above that assumptions were made in terms of clinical interventions as the most effective form of intervention for breastfeeding initiation.

Although the topic of exclusive breastfeeding appeared in action recommendations in nearly a third of the systematic reviews, there were more systematic reviews that included recommendations for research in this topic. Apparently there is recognition of the benefits of exclusive breastfeeding vs. partial breastfeeding based on growing evidence, and further evidence on this topic is considered valuable.

7.5.4 Findings related to other issues

Half of the systematic reviews included action recommendations to address breastfeeding inequalities and a few more included research recommendations. Given the rapidly growing evidence of short- and long-term health benefits of breastfeeding related to health inequalities, the relatively high degree of attention this topic received is a good example of systematic reviews providing policymakers evidence directly relevant to policy issues.

The topic of cost appeared in systematic reviews more often in research recommendations than in action recommendations. This could be attributed to the challenges inherent in measuring cost related to breastfeeding. Should cost be examined in terms of health or economic measures? Health care system or clinical services? Cost-benefit ratio or opportunity costs? Breastfeeding itself or breastfeeding support? Local or public health level? Researchers working to evaluate relationships between cost and breastfeeding are grappling with these challenges as budgetary pressures increase and financial resources decrease at all levels and in all sectors of health care and public health. Among other problems, this leaves policies to address breastfeeding and breastfeeding support vulnerable to lack of funding based solely on lack of costs-related evidence.

The topic of *women's views* was found in both action and research recommendations across systematic reviews despite the topic's absence across sample policies. This indicates that women's experiences, attitudes, expectations and perceptions of breastfeeding and breastfeeding support are being examined in the literature despite being overlooked in policy development.

The category of *population* was created because a number of recommendations found in systematic reviews were specific to populations or groups in populations in the U.K., England, or the U.S. There were more systematic reviews specifying the U.S. population compared to the U.K. or England. This is significant since recommendations were being used to develop policy specific to populations in England or the U.S. If a policy implemented recommendations intended for a population with characteristics different from the targeted population, the transferability of findings may be constrained and the intended effects or effectiveness of the policy may be compromised.

7.6 Mapping topics to the analytical framework

As described in the Methods chapter, topics of systematic reviews were mapped by subject to determinants from the analytical framework of evidence-based breastfeeding support to identify which determinants were represented in systematic reviews.

Topics of recommendations across systematic reviews mapped to at least one factor or their source in the analytical framework. Predictably, determinants and their sources related to health care were represented in action recommendations in every systematic review.

Table 4 Map of topics to the analytical framework

Clinical practice	
Healthcare determinants	9 promotion and support of breastfeeding in healthcare systems through policies, services and practitioners
Maternal determinants	13 maternal/infant health status
Professional education	
Healthcare determinants	10 education and training of healthcare personnel
Healthcare system	
Healthcare determinants	9 promotion and support of breastfeeding in healthcare systems through policies, services and practitioners
	10 education and training of healthcare personnel
Economic determinants	4 financial investment in breastfeeding promotion and support
BFI	
Socio-political determinants	2 public health initiatives in breastfeeding promotion and support
	3 the Baby-Friendly Initiative
Economic determinants	5 countermanding the commercial promotion of infant formula and artificial feeding
BFHI	
Healthcare determinants	11 the Baby-Friendly Hospital Initiative
Economic determinants	5 countermanding the commercial promotion of infant formula and artificial feeding
Peer support	
Sociocultural determinants	6 social expectations and cultural norms
	7 breastfeeding support from community, family and peers
Family support	
Sociocultural determinants	6 social expectations and cultural norms
	7 breastfeeding support from community, family and peers
Workplace	
Sociocultural determinants	6 social expectations and cultural norms
	7 breastfeeding support from community, family and peers
Economic determinants	4 financial investment in breastfeeding promotion and support
Media	
Sociocultural determinants	6 social expectations and cultural norms
	8 public attitudes and media portrayals of breastfeeding and breastfeeding women
Legislative or regulatory policy	
Socio-political determinants	1 legislation and policy to promote and support breastfeeding

Table 4 cont….

Multifaceted	
Any combination of interventions represented in the model	
Timing of intervention	
Antenatal	Intervention(s) represented in the model relative to timing of breastfeeding support
Immediately postnatal	
Postnatal	
Breastfeeding	
Initiation	Intervention(s) represented in the model relative to type of breastfeeding
Continuation	
Exclusive	
Inequalities	
Intervention(s) represented in the model targeting groups of women with lower rates of breastfeeding	
Cost	
Economic determinants	4 financial investment in breastfeeding promotion and support
Women's views	
Maternal determinants:	12 perceptions, attitudes, knowledge and experience of breastfeeding
Population	
U.K. or England	
U.S.	
Maternal determinants	14 demographics

There were several noteworthy findings related to socio-cultural determinants of breastfeeding that were better represented in systematic reviews compared to others. S*ocial expectations and cultural norms and breastfeeding support from community, family and peers* was well represented, primarily because the topic of peer support was included in most systematic reviews. Within these socio-cultural determinants, however, the topic of family support, which includes the father of the baby, was largely absent across reviews. There may be several explanations for this. A woman's family, particularly her relationship with the father of her baby, and infant feeding decisions, could be considered the domain of a woman's private life and inappropriate for policy interventions. Family support for breastfeeding is often socioeconomically and culturally-based and a critical examination of lower rates of breastfeeding in this context could have socio-political and economic consequences due, in large part, to the construction of infant feeding as a social issue rather than a public health issue, which has fostered judgemental attitudes toward mothers as 'good' or 'bad' based on the type of infant feeding adopted (Lee, 2007). It follows that socio-cultural characteristics of families in terms of patterns of infant feeding at the public health level can be similarly judged as ‘good’ or ‘bad’. As such, singling out socioeconomic or cultural groups for policy interventions may have the effect of perpetuating the social construction of infant feeding, stigmatizing women and their families in certain groups, and inappropriately diverting economic resources to particular groups to the detriment of others (Kukla, 2006).

Public attitudes and the media were two other socio-cultural determinants not well represented in the systematic reviews. These determinants are related to the socio-cultural issues discussed above, in that public attitudes and the media affect socio-cultural beliefs, attitudes and perceptions of breastfeeding at an individual, community and population level (Green, 1989; Parlato, 1990; Dykes and Griffiths, 1998; Henderson, Kitzinger and Green, 2000; Li, Fridinger and Grummer-Strawn, 2002; Scott and Mostyn, 2003; Foss and Southwell, 2006; Foss, 2010). One explanation may be related to methodological issues. Causal effects of public attitudes and the media on breastfeeding are not easily measured in controlled trials, particularly at the public health/population level. .

A crucial consideration related to this is how the infant formula industry has used the media and social marketing to promote infant formula and artificial feeding with staggering results on an international scale.(Apple, 1986; Baumslag and Michels, 1995). In 2010 the value of the global infant formula market was reportedly $11.5 billion (UBIC Consulting, 2011). ‘Emerging’ markets, particularly China and India, are rapidly increasing that value due to aggressive strategies by investment and marketing corporations working with the industry and governments (Baby Milk Action, 2006; Kent, 2006; China Daily, 2009; Enterprise Ireland, 2010; just-food, 2011). This underscores how the use of systematic reviews to inform evidence-based policy can also impose constraints on effective policymaking. Observational information such as this should be viewed as another source of evidence for policymaking similar to international comparative research.

Other components of the analytical framework less represented were related to legislation and policy, education and training of health care professionals, and the BFHI. The lack of research recommendations for topics related to legislation and policy perpetuates the current situation, which is that policies are being developed while a disproportionately small amount of evidence is being generated. This finding points to a lack of recognition of the imbalance between development of policies and generation of evidence on a topic acutely needed by policymakers. The finding also underscores the wider detachment of policy from evidence and, perhaps most importantly, it demonstrates the need for a conceptual framework to guide the process of evidence-based policymaking. This is one of the central issues addressed in Chapter 10.

The component of the analytical framework related to financial investment in breastfeeding promotion and support was the factor most represented for research recommendations in systematic reviews. Cost has become a central issue in public health and health care, and the issue of breastfeeding support is no exception as more attention is being given to the positive correlation between breastfeeding and the reduction of health inequalities. Calls for more research in this area to inform policy on breastfeeding brings much needed attention to an issue that has a tremendous impact on policymaking.

The issue of breastfeeding inequalities was well represented in both action and research recommendations across systematic reviews. This was an encouraging finding as it signals a high level of interest in the issue of breastfeeding inequalities, and because evidence related to this issue is particularly relevant to policy in addressing broader public health issues such as health inequalities, nutrition and maternal/infant/child health.

7.7 Correlations and discrepancies between topics in policies and systematic reviews

Discrepancies between topics in systematic reviews and policies were found in the *HHS Blueprint* and the *CDC Guide* from the U.S. sample (U.S. Department of Health and Human Services, 2000b; Shealy et al, 2005). During the time the *HHS Blueprint* policy was being developed there were very few systematic reviews available. The comparatively high level of discrepancy between topics in this policy and the one systematic review used to develop the policy shows that policymakers relied primarily on individual research studies for evidence to support recommendations. The *CDC Guide* policy, in addition to using a relatively large number of other sources of evidence and information, used more systematic reviews (five altogether) compared to all policies from both countries . This being the case, the high level of discrepancy found between topics in this policy and the systematic reviews is not as easily explained.

Two policies, the *USPSTF* and *CDC Guide*, contained recommendations that admittedly had not been evaluated or lacked evidence of effectiveness, which could explain the discrepancies between these policies and their systematic reviews (Shealy et al, 2005; U.S. Preventive Services Task Force, 2008). The *Good Practice* policy from England and the *USPSTF Primary Care Interventions* from the U.S. used one other source of information in addition to evidence from systematic reviews (National Health Service, 2004). There was little discrepancy between the *Good Practice* policy and systematic reviews used; the discrepancy between the *USPSTF Primary Care Interventions* policy and systematic reviews used is discussed above.

The *Maternity Standard* from England and the *HHS Blueprint* from the U.S. each used one systematic review and a number of other sources of information (U.S. Department of Health and Human Services, 2000b; National Health Service, 2004). Topics addressed in the *Maternity Standard* closely correlated with those in the systematic review. The discrepancy between the *HHS Blueprint* and the systematic review is discussed above.

A topic discrepancy related to the BFI/BFHI was found again between the *Good Practice* policy and systematic reviews used for developing the policy (Protheroe et al, 2003; National Health Service, 2004; Dyson et al, 2006). Both the BFI and BFHI were included among topics in one of the systematic reviews, yet neither was addressed in the policy. The pattern of discrepancy related to the BFI/BFHI continued with the *CDC Guide*, which did not address either topic despite the BFHI or BFI being included in all systematic reviews used (Cronenwett and Reinhardt, 1987; Fairbank et al, 2000; Anderson et al, 2003; Sikorski et al, 2003; Donnelly et al, 2004; Shealy et al, 2005). The exception to this discrepancy pattern was found in the *USPSTF* policy, in which the BFHI was included in both systematic reviews and addressed in the policy. The BFI, however, was not addressed in the policy despite its inclusion in one of the systematic reviews.

There were more policies that addressed the topics of health care systems and professional education compared with systematic reviews. Two primary components of the BFI/BFHI are changes in health care systems and services, and professional education to promote and support breastfeeding. Policies in the sample as a whole emphasized breastfeeding support through health care systems and services and professional education, had evidence of the effectiveness of the BFI/BFHI, and yet did not recommend use of the BFI/BFHI as an evidence-based means of designing and implementing those system- and service-based interventions. This may be an example of the effects of omission of evidence in policymaking in order to meet political and economic agendas.

Looking at another set of findings, comparison of the inclusion or exclusion of breastfeeding inequalities as a topic showed consistency in correlations between systematic reviews and policies. Inclusion of the topic in four policies, the *Good Practice* and *NICE PHG 11* from England and the *CDC Guide* and *HHS Blueprint* from the U.S., correlated with the systematic reviews used in each of those policies (U.S. Department of Health and Human Services, 2000b; National Health Service, 2004; Shealy et al, 2005; National Health Service, 2008). Systematic reviews had been commissioned for development of the *NICE PHG 11* and the *CDC Guide*, and there was a positive correlation between these policies and their systematic reviews (Shealy et al, 2005; National Health Service, 2008).

Two policies, the *Maternity Standard* and *USPSTF*, also correlated with their systematic reviews but in the opposite way: neither the policies nor their systematic reviews addressed breastfeeding inequalities (Department of Health, 2004; U.S. Preventive Services Task Force, 2008). No other topic was found to have this exact degree of correlation between policies and their systematic reviews. This illustrates how breastfeeding inequalities may or may not be considered an important issue for public health policy, but is an issue that comes with high socio-political and economic stakes. Does it run counter to current socio-political ideology and thus compromise the current power or re-election of incumbents? Does it challenge priorities of the socio-political status quo and thus affect the balance of power? Does it have a negative economic impact on commercial stakeholders and thus jeopardise the financial backing of political careers? Does it stretch current economic constraints of a public health or health care system and thus reduce capacity to meet acute public health needs? Keeping policy recommendations closely in line with recommendations from systematic reviews in this case may remove some socio-political and economic risk, since recommendations would be based on the evidence and not a socio-political or economic agenda.

The commissioning of systematic reviews to provide evidence for a particular policy is one approach being taken that may minimize such problems. Commissioned systematic reviews gather, analyse and report evidence on a topic predetermined by policymakers with the assumption that the uptake of evidence in policy recommendations may be enhanced (Innvaer et al, 2002). The relatively high correlation between topics addressed in the *Good Practice* and *NICE PHG 11* and their commissioned systematic reviews is an example of how well this can work (Protheroe et al, 2003; National Health Service, 2004; Dyson et al, 2006; National Health Service, 2008). Conversely, the relatively low correlation between topics in the *USPSTF* policy and the two commissioned systematic reviews is an example of how commissioning is not the final answer to enhancing the uptake of evidence in policymaking (Guise et al, 2003; Chung et al, 2008; U.S. Preventive Services Task Force, 2008).

As a whole, policies across the sample addressed more topics than their systematic reviews. This does not necessarily indicate the degree of contribution of systematic reviews to policy; contribution can be measured in ways other than the number of topics included in systematic reviews and addressed in policies. For instance, a systematic review may include one topic such as the BFI, but that topic may be prominent across multiple recommendations within a policy. As such, the degree of contribution may be higher than indicated by correlation of topics.

7.8 Conclusions

Perspective has been examined in a number of contexts in this study, including the process of policymaking, the use of research in policy, the analyses of evidence in systematic reviews, and the commissioning of systematic reviews for evidence-based policy. Previous discussions in the thesis have shown that perspective is particularly relevant when issues of inequalities are being addressed because of the highly interpretive nature of social inequity and health inequalities. Findings have shown that if, what and how evidence is used in policy is not only based on judgement, but on interpretation of the evidence in the context of socio-political and economic priorities and agendas (Marston and Watts, 2003; Rychetnik and Wise, 2004; Kemm, 2006).

Pawson stated: ‘Evidence, new or old, numerical or narrative, diffuse or condensed, never speaks for itself. The analyses and usage of data is a sense-making exercise and not a mechanical one.’ (p. 176) (Pawson, 2002). Pawson’s point is well taken – evidence-based policymaking requires judgements and interpretations, based on the gathering of evidence also requiring judgements and interpretations. It is within these multiple layers of judgements and interpretations that evidence-based policy is formed and where perspectives are being passed on, which means evidence-based policy may actually be perspective-based policy!

With this in mind, it becomes apparent that the use of evidence from varied sources in both systematic reviews and policymaking can strengthen an evidence-based policy by expanding perspective. The use of evidence from the social sciences brings the perspective of health inequalities as products of social determinants affecting health and the socio-political and economic sources of those determinants. Similarly, evidence from cross-country or international comparative research brings a perspective of health inequalities as consequences of inequities established at national levels. Case studies can examine particular public health issues from the perspective of connections with particular health inequalities in particular settings and populations. Studies by health economists can bring the perspective of cost-effectiveness of interventions to address health inequalities within a particular socio-political and economic context. Likewise, qualitative and descriptive studies can introduce the perspective of women affected by a policy.

No policies in the sample addressed women’s perspectives. Although policies focused on health care as the primary source of breastfeeding support and the main resource for addressing breastfeeding inequalities, the voices of women expected to participate in and benefit from this targeted health care were not considered in policy recommendations. It may be that experiences of women are not considered evidence, or considered irrelevant to policy, and could imply an attitude that the responsibility for breastfeeding resides with health care systems and practitioners. In any event, it appears health care is being held accountable for meeting the public health goal of increased rates of breastfeeding. Consequently, breastfeeding is relegated to medical management. The conceptualisation of breastfeeding as a product of health care reflects a pervasive medical model of breastfeeding and breastfeeding support reflected in sample policies here.

Overall findings from analyses of policy documents show the approach to breastfeeding inequalities in England differed from the U.S. Although policies from both countries focused primarily on health care systems and services, policies from England considered broader socio-political and economic factors affecting breastfeeding support and breastfeeding inequalities rather than health care access and utilization, individual risk factors and health behaviour considerations found in U.S. policies. Additionally, policies from England addressed the issue of breastfeeding inequalities as integral to public health policy and breastfeeding support, whereas U.S. policies addressed breastfeeding inequalities as a peripheral issue indirectly related to policy and breastfeeding support. Implications of these findings are explored in discussions in the final chapter that follows.

Chapter 8

Discussion: Developing a conceptual framework of evidence-based policymaking

This study has examined the larger issue of the contribution of evidence to policy by examining the use of systematic reviews in evidence-based policymaking to address breastfeeding support and breastfeeding inequalities in England and the U.S. Some findings reaffirm what is already known:

- Policy priorities and policymaking are largely determined by socio-political and economic contexts.
- The concept of evidence-based policymaking has been explicitly embraced and has rapidly gained momentum in England and the U.S., but the process of evidence-based policymaking varies widely.
- The issue of health inequalities has moved to the forefront of policy agendas and a social determinants approach to health inequalities has increasingly been adopted.
- Policymakers need and want a variety of types and sources of information in the process of policymaking, but the use of systematic reviews as a primary source of evidence for policy development has become the expected norm.

However, there are areas related to the issues above that are less well known or understood and where findings from this thesis may make the most contribution. Although each of these issues has been explored in discussions throughout this thesis an overview is offered:

- There are differing perceptions and definitions of health inequalities and these affect how the issue is prioritized and framed in policymaking. Different measurements of health inequalities are resulting in inappropriate or ineffective policy approaches to the social determinants of health, the sources of those determinants, and health inequalities.

- Our understanding of the relationships between evidence and policy, and systematic reviews and policymaking is tenuous at best. Recommendations from evidence-based public health policies are being released and implemented without the use, or with the misuse, of available evidence, or with limited or no evidence of effects or effectiveness of recommended interventions. The congruence of policies and the systematic reviews used to inform those policies is rarely addressed or examined.

- Systematic reviews are struggling to keep up with the demand for evidence to inform public health policy. They are methodologically constrained in producing evidence specific to policymaking, and are unable to isolate distinct interventions that directly reduce health inequalities. In addition, systematic reviews are not consistently or sufficiently capturing issues of equity and health inequality in analyses, findings or recommendations. We can only know the effects of interventions on the *consequences* of inequities and health inequalities from systematic reviews, and must extrapolate that knowledge to guide policy decision-making.

- Despite decades of policymaking attempting to address breastfeeding support in England and the U.S., rates of breastfeeding in the two countries remain among the lowest in developed countries. Although there has been an increase in overall rates of breastfeeding during the last few decades, gaps in rates between better and worse off groups remain unchanged, even with an increased policy focus on the reduction of breastfeeding inequalities during the same time frame.

- Systematic reviews have found little evidence of the effects of public health interventions on breastfeeding and breastfeeding inequalities in the literature, but public health policymaking to address breastfeeding inequalities based on evidence from systematic reviews continues to accelerate.

- The social determinants of breastfeeding health are not static but change across temporal and spatial contexts and the socio-political and economic sources of those determinants are increasingly recognised as major factors in infant feeding practices, yet the evidence available from systematic reviews is heavily weighted toward health care based interventions.

Evidence-based policy approaches to public health and health care in England and the U.S. have focused more and more on the social determinants of health (Graham, 2004a; Marmot, 2005; Kelly et al, 2007; Blas et al, 2008; Arkin, DeForge and Rosen, 2009; Satcher, 2010). Much of the discussion in this thesis suggests this is a good thing in terms of addressing breastfeeding support and breastfeeding inequalities through policy. Just as the evidence demonstrating the effects of social determinants of health continues to grow, so does evidence of the effects of social determinants of breastfeeding on infant feeding and breastfeeding inequalities (Allen and Pelto, 1985; Ford and Labbok, 1990; Singh, Kogan and Dee, 2007). It has become clear that evidence on the effects of social determinants of breastfeeding is as relevant as evidence of the effects of breastfeeding support interventions in policy development.

Chapter 1 included discussions related to differentials in socio-political and economic power in the context of policy to address health inequity and health inequalities, and the power definitions of inequity and inequalities have over policy agenda and priorities. In Chapter 3, discussions included the power of policy to supersede the evidence on which it was based even when policy recommendations do not correspond with the evidence, and the power of recommendations from both policies and systematic reviews relative to socio-political and economic forces. Various discussions throughout the thesis included the evolution and nature of power held by the infant formula industry, the effects of this power on policymaking, and how this power has enabled breastfeeding and breastfeeding support to be reframed as an ideological issue rather than a public health concern. In Chapter 5, the issue of power appears in discussions about the literature on connections between policy and health inequalities. Next I want to touch on the issue of power in terms of relationships between systematic reviews and evidence-based policy, and researchers and policymakers.

The use of systematic reviews in policymaking is tied to larger issues of the political and economic power afforded evidence when used to guide policy, and the power, or lack of power, of researchers in the policymaking process. Previous discussions have shown the expanding use of evidence-based policymaking has created the need for approaches to productively manage these power differentials within the evidence-based policymaking process. One such approach is the commissioning of systematic reviews. Presumably, commissioning indicates some degree of power is proactively given to evidence and researchers. A proactive transfer of power through commissioning, however, does not guarantee an accurate or appropriate use of evidence in policymaking. In addition, the commissioning of systematic reviews affords policymakers a certain degree of power since the commissioning relationship imposes conditions on researchers and their research, which can include the type or topic of evidence to be reviewed. A mitigating factor is the power and relevance of evidence changes as much as the political and economic power of policy (Boaz et al, 2006). This commonality of change represents windows of opportunity for the powers of evidence and policy to meet in a mutually constructive way.

Along this same line, Exworthy and colleagues proposed a 'policy windows' model to describe how policy issues get into the policy agenda through a convergence of 'problem, policy and politics' (Exworthy, Blane and Marmot, 2003). Although linear, the model can be useful in thinking about power and relationships between evidence and policy, and between researchers and policymakers: a problem is being examined in research; the political context is conducive to making the problem a priority; evidence from research is used to develop policy to address the problem. The commissioning of systematic reviews to inform policies can be thought of as an artificially-created policy window to make the changing worlds of 'problem, policy and politics' come together in the same time and space. This suggests one reason why the commissioning of systematic reviews, especially rapid reviews, for policymaking appeals to both researchers and politicians. What this also suggests, however, is that commissioning should be carried out carefully and thoughtfully; researchers, commissioning bodies and policymakers need to be mindful of the disadvantages created by the explicit imbalance of power as much as the advantages gained from systematic reviews conducted to address a specific public health issue.

But what should policymakers do when there is no evidence to use in developing an evidence-based policy or the evidence is conflicting? The decision that evidence should drive public health policy has created a dilemma of deciding which is more acceptable: a policy that is not evidence-based or the absence of a policy because it cannot be evidence-based (Petticrew et al, 2004). The problem of no or conflicting evidence has also created opportunities for policymakers to leave an issue unaddressed based on socio-political and economic agendas even when there is compelling grounds for action. One argument in favour of developing and implementing policy despite lack of evidence is that something is better than nothing; any guidance for decision-making is more important than no guidance at all [see B. Crump in (Landefeld, Shojania and Auerbach, 2008)].

Conversely, there is the argument that policy should not be developed or implemented without evidence because of the large-scale impact of policy (Landefeld, Shojania and Auerbach, 2008). Harm done by a policy at the public health level can be just as powerful as its benefits, and the inability to weigh harms vs. benefits introduces the risk of harm to a large number of people. Related to this is the difficulty of ending or changing established policy-based practices when new evidence becomes available, even when evidence shows the practices to be ineffective or harmful (Anderson et al, 2005). The tenacity of practices in breastfeeding support that continue despite strong evidence of ineffectiveness or harm exemplifies this problem (Wallace and Kosmala-Anderson, 2006;2007; Declercq et al, 2009).

The USPSTF and the CDC policies in my sample illustrate the position of 'something is better than nothing' (Shealy et al, 2005; U.S. Preventive Services Task Force, 2008). Both of these policies include recommendations of interventions not evaluated or that have limited or no evidence of effectiveness. Another example on a broader public health scale is the latest Marmot Review, which was tasked with proposing 'the most effective evidence-based strategies for reducing health inequalities in England' (p.4) (Marmot et al, 2010). The Review made [some] policy recommendations despite there being limited or no evidence related to costs and effectiveness, with the argument that correcting health inequalities is a matter of social justice and should be put ahead of any cost considerations.

I submit that the idea of public health policy recommendations, evidence-based or not, should disregard cost and effectiveness considerations in lieu of a moral imperative, and that all spending decisions should be defensible on these grounds, is in itself unethical, since resources to other areas that may benefit from activities known to be evidence-based are reduced. It is certainly reasonable to expect social values to guide responsible policymaking, particularly when addressing such value-laden issues as health equity and equalities. Health care resources, however, are not infinite like social values; they are finite and must be allocated. Health equalities can be achieved in large part through allocation of finite health care resources, but only if the allocation is equitable, appropriate, sustainable and does not widen or create further inequalities

(Gwatkin, 2001; Mechanic, 2002). When resources are allocated inappropriately, the results are ineffectiveness, inefficiency and ultimately unsustainability. In this situation finite public health resources are wasted with even fewer resources available to address inequities and health inequalities affecting groups already experiencing the most disadvantage. In this light, a policy can be considered ethical *only* when issues of cost are factored in to decision-making in addition to evidence of effectiveness.

Admittedly, this issue is more complex when policies to address inequities and inequalities are concerned. Is it feasible to expect or demand action on issues where there is a compelling social justice imperative but evidence of costs and cost-effectiveness is lacking? If not, it may mean that issues of inequity and inequalities may never reach policy agendas. Within the concept of evidence-based policymaking is the idea that policy will be more cost effective because it is based on evidence demonstrating effectiveness. Yet, half of the policies in the sample did not address the issue of cost at all, and the other half made only research recommendations related to cost issues.

Likewise, only two systematic reviews in the sample made any recommendations related to cost issues, and one of those was a research recommendation. This finding reflects the wider literature – there is very little evidence related to the costs, cost-effectiveness or opportunity costs to support breastfeeding [in addition to systematic reviews in the sample see (Fairbank et al, 2000; Weimer, 2001; Britton et al, 2007)]. More broadly, there is minimal evidence related to cost issues of public health policy in general (Lavis et al, 2004; Wanless, 2004; Whitehead et al, 2004; Williams et al, 2008). The same is true of policy and evidence on the costs of policy interventions to address health inequalities (Stronks, 2002; Nutbeam, 2003;2004; Whitehead et al, 2004; Nutbeam and Boxall, 2008; Bambra et al, 2010).

Yet, the question of how much will it cost and will it be worth it remains at the forefront of policy decision-making (Lavis et al, 2004; Petticrew et al, 2004; Anderson et al, 2005; Rigby, 2005; Fielding and Briss, 2006; Brownson, Chriqui and Stamatakis, 2009; Bambra et al, 2010). In a paper examining how policymakers viewed evidence from participant interviews, Petticrew and colleagues observed: 'What makes evidence talk? Definitely financial impact…. What is the best argument for getting government to listen? Answer, Money!' (p. 812). This illustrates the overriding power of the objectives of expenditure control in policymaking, evidence or no evidence (Morse, 2006).

It is fair to say the world of evidence-based policymaking is a continuous balancing act characterised by tradeoffs, paybacks, and values. Do we trade efficiency for equity, because as a society we value equity more than efficiency? (Muir Gray, 2004). Or will equity ultimately give way to efficiency and cost-effectiveness? (Exworthy et al, 2006). Can we have equity *and* efficiency? (Oxman et al, 2006). Should we account for expenditure control in terms of funding public health research to produce evidence, or for producing policy that uses evidence? (Fox, 2005; Boaz et al, 2008) Is it cost-effective to use knowledge brokers to improve efficiency despite the increased risk of bias in what evidence is, or is not, brought to the policy table? (Pittman, 2006; Maynard, 2007). Lavis points out that ultimately 'systematic reviews and economic evaluations can help to get the numbers right. But the answer to the question [is it worth it?] is a political choice and values play a central role in choosing between options' (p. 1619) (Lavis et al, 2004). Without evidence of cost-effectiveness, political choice/values will be unchecked.

One approach to dealing with the lack of cost-related evidence is the commissioning of rapid economic reviews, because economic conditions can change rapidly. Rapid reviews were commissioned for one of the policies in the sample from England (Jacklin et al, 2006). The review found little quality evidence on cost-effectiveness of interventions to increase rates of breastfeeding, and instead relied on evidence of the positive health effects of breastfeeding and reduction in health care costs as a proxy for the cost-effectiveness of breastfeeding support. This is a reflection of the wider body of literature on economics and breastfeeding support (Galtry, 1997; Weimer, 1998; Ball and Wright, 1999; Weimer, 2001; Bartick and Reinhold, 2010). Even when trials are conducted to evaluate the costs or cost-effectiveness of a particular intervention, a proxy of costs to health care is used to bolster results and analyses (Pugh et al, 2002) [but see (Hoddinott et al, 2009)]. Policymakers are given more information about *why* they should address breastfeeding support and breastfeeding inequalities in terms of reducing costs of health care, but little or no information on *what* they should do to get the most benefit for their money.

A related and equally important economic issue is the use of incentives to promote evidence-based practice. Pay-for-performance schemes are expanding in England and the U.S. to incentivise health care organisations and providers to use evidence in the allocation and delivery of health care. For instance, the quality and outcomes framework (QOF) is a voluntary incentive scheme in England that links financial incentives to the quality of health care in organisations and practices (National Institute for Clinical Excellence, 2011). Under the scheme, general practitioners receive income increases according to performance indicators.

Pay-for-performance schemes are increasingly prevalent in the public and private sectors of health care in the U.S. as well (Mannion and Davies, 2008). One example is the Premier Hospital Quality Incentive Demonstration, a voluntary pay-for-performance scheme that awards bonus payments to top participating hospitals for delivering superior quality care (Centers for Medicare & Medicaid Services, 2011). Performance is evaluated by evidence-based quality measures in several clinical areas. Conversely, Medicare and a number of private payers have implemented punitive measures to incentivise hospitals in the prevention of hospital acquired conditions by non-payment of treatment costs associated with these conditions (National Conference of State Legislatures, 2011).

The evaluation of effectiveness and cost-effectiveness of pay-for-performance schemes lags behind implementation of such schemes, and investment in the support of users to use evidence is not a policy priority. This mirrors policy expectations that health care will effectively address the public health issues of breastfeeding support and breastfeeding inequalities, without policy that supports the education and training needs of health care practitioners.

Until there are better answers to how much will it cost and will it be worth it, policymakers will have a powerful reason to remain reluctant or unwilling to commit to significant investments in breastfeeding promotion and support. Spending to find out what we don’t know by commissioning systematic reviews can be extended to the evaluation of cost-effectiveness of breastfeeding support initiatives from policies that fund service programmes. More information about cost-effectiveness will not guarantee the attention of policymakers, but it will make inroads into a powerful component of policymaking and provide valuable guidance in shaping pay-for-performance schemes.

8.1 Limitations of the thesis

In my consideration of limitations of the thesis I realise there may be limitations not recognised by me but considered by others to be such. The unusual nature of the thesis does not lend itself to look for common sources of limitations found in more traditional study designs. As such, the varied critical perspectives readers bring to the work are particularly valuable and welcome.

One limitation was unavoidable, some are the result of decisions made, and some are the result of both. The unavoidable limitation concerns the unavailability of a source of evidence used in a sample policy from England, the *Good practice and innovation in breastfeeding*. The original source was not made available due to changes in the commissioning body of the study before the study was completed. As a consequence, the systematic review developed from that original work and published after release of the policy had to be used for analyses of documents in the thesis. Because the systematic review was developed out of the work of the original study, I consider the effect this has on findings of the thesis is most likely minimal.

Methodological decisions were made that contribute to limitations of the study. One decision was made not to examine any cross-referencing that may have existed among policies. Cross-referencing can lend strength to a policy and its recommendations, because it makes transparent how a policy is related to others. Interconnectedness between policies signals interconnected priorities and goals among departments and agencies responsible for policy development. This can be particularly important with evidence-based policymaking, where one policy can build on evidence-based recommendations from another. Although this study did not include an evaluation of the quality of sample policies, which could be affected by cross-referencing with other policies, the degree of cross-referencing may have added to our understanding of the nature of policies from England and the U.S.

Another methodological decision made was not to include interviews as part of data collected for analyses of policy documents. I bring this forward as a possible limitation because the example of Caraher and colleagues' study I used in discussions had included interviews in their analyses of changes in policy across time. The authors used interviews to help identify policy documents for analyses and test their initial findings (unspecified). Unlike the Caraher and colleagues' study, my study design included specific criteria that determined which policies were eligible for inclusion and which were not. As such, the selection process was straightforward and the opinions of others would not have added to the process or changed results. Related to this is that the sample of policies from England was clustered in the second half of the decade being examined, whereas U.S. policies spanned the entire decade. This was due to the eligibility criteria for policy documents; there were no documents from England published in the beginning half of the decade that were eligible for inclusion in the sample. On the one hand, it is reasonable to assume findings may be affected by this discrepancy since sample policies were intended to represent policymaking across a specific time period. Although my study design limited the sample to policies published within a particular span of years, the finding that policies eligible for inclusion from England were released in the latter half of that time span is an important result in itself and turns this temporal discrepancy into a useful finding.

A third methodological decision involved the use of incidence of topics across systematic reviews to indicate their contribution across policies. This approach is not able to account for the degree systematic reviews may have contributed to recommendations throughout an entire policy, particularly in the case of the *Maternity Standard* policy from England where breastfeeding support is one component of a large, comprehensive plan for maternity care. The fact that this study was not intended to examine the contribution of individual systematic reviews to individual policies, which is where the degree of contribution would be relevant, suggests this may not be a limitation as much as an indication of another research opportunity related to evidence-based policymaking.

The final sample of policies from England was clustered in the second half of the decade while U.S. policies spanned the entire decade. This is a limitation of the study in terms of findings from comparisons between policies as a whole. There may have been other similarities or differences in approaches to policy to address breastfeeding support and breastfeeding inequalities between the two countries within those years that were not revealed in analyses.

8.2 A conceptual framework of evidence-based policymaking

Findings from my case study have demonstrated that historical, socio-political and economic contexts shape the sources of social determinants of breastfeeding and drive policy agendas that address, or do not address, breastfeeding support and breastfeeding inequalities. Findings have also shown that contextual characteristics of the evidence-based policymaking process define relationships between evidence and policy, and researchers and policymakers that ultimately affect the use of evidence [in this case from systematic reviews] in policymaking. An analytical framework that clarifies relationships between the sources of social determinants of breastfeeding, and the determinants of breastfeeding themselves can help identify entry points to evidence-based policymaking that are based on shared priorities of researchers and policymakers. Taken together, these various aspects of evidence-based policy point to larger questions about if and how the process of evidence-based policymaking can be structured in such a way that contextual relationships between evidence and policy issues, and researchers and policymakers are optimised within the process itself. With this in mind I offer a conceptual framework of evidence-based policymaking using systematic reviews to address breastfeeding support and breastfeeding inequalities, with the hope that the framework may be useful in evidence-based policymaking to address other public health issues.

8.2.1 Models of the relationship between evidence in policy

A number of models have been founded within the rationalist view of policy science to establish relationships between research and policy in which research objectively informs policy decision-making and researchers and policymakers work separately to preserve that objectivity (Almeida and Bascolo, 2006). This ideal has slowly eroded with the decline of positivism in social science, and from a growing body of research that shows relationships between research and policy are conceptually- and contextually-based (Davis and Howden-Chapman, 1996; Kelly et al, 2007). In an examination of different conceptual understandings of the meaning and approaches to the use of research from the social sciences in policymaking, Weiss found that interpretation and perspective were key factors in the process (Weiss, 1979). Her conclusions portended issues being encountered in the use of systematic reviews to inform evidence-based policymaking discussed throughout the thesis. Tellingly, Weiss concluded that:

> *An understanding of the diversity of perspectives on research utilization… may enable us to engage in empirical study of the policy uses of research with better awareness of its diverse and often subtle manifestations; if immediate impact of a specific study on a specific decision is only one indicator of use, we will have to devise more complex but more appropriate modes of study.* (p. 430)

However, efforts to examine evidence-based policymaking have focused primarily on components of the process or issues related to its application, including advocacy of, or opposition to, the concept of evidence-based policy itself (Hunter, 2003; Rychetnik and Wise, 2004; Fielding and Briss, 2006). Issues being examined include the use of evidence from systematic reviews to inform policy (Lavis et al, 2005; Lavis et al, 2006; Sweet and Moynihan, 2007), the identification and types of evidence appropriate and/or useful for making policy decisions (Mays, Pope and Popay, 2005; Graham and McDermott, 2006; Pope, Mays and Popay, 2006), the way in which evidence is being, or should be, used in policymaking (Elliott and Popay, 2000; Petticrew et al, 2004; Nutbeam and Boxall, 2008), and how the effects of evidence-based policy should be evaluated (Coalition for Evidence-Based Policy, 2006; Wharam and Daniels, 2007; Boaz et al, 2008).

There are very few models that frame the *process* of evidence-based policymaking. One model is proposed by Dobrow and colleagues who developed a conceptual framework for context-based evidence-based decision-making in health policy (Dobrow, Goel and Upshur, 2004). The framework looks at the direct and indirect effects of ‘external and internal contextual factors’ (p. 215) on use of evidence during the policymaking process. Dobrow and colleagues describe their model as based on the concept that context is integral to the defining of evidence, where variations in time and context heavily influence decisions as to what constitutes evidence and what does not, and ultimately the evidence-based policymaking process.

External contextual factors are related to the environment in which policy decisions are applied. These factors involve three dimensions of influence: those related to geographic, demographic or epidemiologic characteristics of a specific public health issue, those associated with relevant experiences in other situations or environments, and those originating from ideological, socio-political, economic and legal issues. Internal contextual factors are related to the environment in which policy decisions are made. These factors represent contextual changes that occur during policymaking, including the purpose of the policy, the role of those involved, and the decision-making process used to develop the policy.

Although Dobrow and colleagues' framework depicts a multidimensional, relational and iterative process, the process is nonetheless linear, with evidence [and its sources] as the starting point and an open exit pointing to 'post-evidence utilisation' (p. 215), their framework seeks to capture the complexity of interactions between the evidence used in, and the context of, policymaking at the point in the process when decisions are being made.

Another model is found in the work of Freeman, who examined policy documents to address equity in health and their relationship with reports of research (Freeman, 2006). Freeman's concept of research-based policymaking is described within a framework of the *'the work the document does'* in the context of '*time and space*' (p. 57) (italics mine). Freeman posits that documents are not only the technology of policymaking used to '…mediate or translate between research and policy' (p. 54) [in space], their recommendations are the abstract representation of '…a critical moment or node in a complex network of processes and relationships' (p. 52) [in time]. Freeman considers the missing link to understanding evidence-based policymaking is the 'epistemological moment' (p. 61) in which research evidence is transformed into policy recommendations.

In Freeman's space/time framework, policy reflects the socio-political, economic and ideological context in which it was made. Freeman considers these contextual factors to have particular significance in issues of health equity and inequalities; it is their power, and not the evidence, that defines equity and inequalities and determines if and how they are addressed through policy, and the power of policymakers and the nature of their decisions and interactions are inseparable from the policy and users of the policy. As such, to fully understand a policy one must be aware of the characteristics of the group involved in developing the policy as well as the intended users.

The frameworks described above consider relationships central to the movement of evidence into policy. Both frameworks recognise the overriding power of socio-political and economic contexts in policymaking, and incorporate what equates to social determinants and sources of those determinants in their model. Although these comparisons are not comprehensive, findings suggest there are fundamental qualities of evidence-based policymaking that can enrich relationships within the process and improve the chances of evidence from systematic reviews contributing fully to policy. The epistemological and methodological approaches of frameworks vary, yet the essence of findings from each is similar. Two obvious similarities are that the process of evidence-based policy making should have a conceptual framework, and evidence-based policy and policymaking is contextual in nature.

Previous discussions in this thesis have examined the issue of time and space and the contextual relationship between systematic reviews and evidence-based policymaking. Discussions in Chapter 1 used the archer analogy to conceptualise this relationship. Changes across time and space affect the trajectory and ultimately the point at which the arrow hits the target, or in other words changes in time and space affect how evidence is used in policy. I remind the reader that the intent of this study was not to evaluate the *effects* of the use of evidence in policy, but rather to examine the *process* through which evidence from systematic reviews is used in evidence-based policymaking.

The framework represents the process of research evidence and policy issues, researchers' topics and policymakers' priorities, and systematic reviews and policymaking coming together through an analytical framework within the same time and space. See Figure 1.

The structure of the framework begins with research evidence and policy issues, which enter the framework in the same time and space that allows a concurrent examination of topics and priorities. A shared topic/priority is examined within an analytical framework to identify the social determinants and socio-political and economic sources of those determinants related to the issue. Findings guide decision-making and recommendations in systematic reviews, which then guide policymaking and ultimately recommendations made in evidence-based policy.

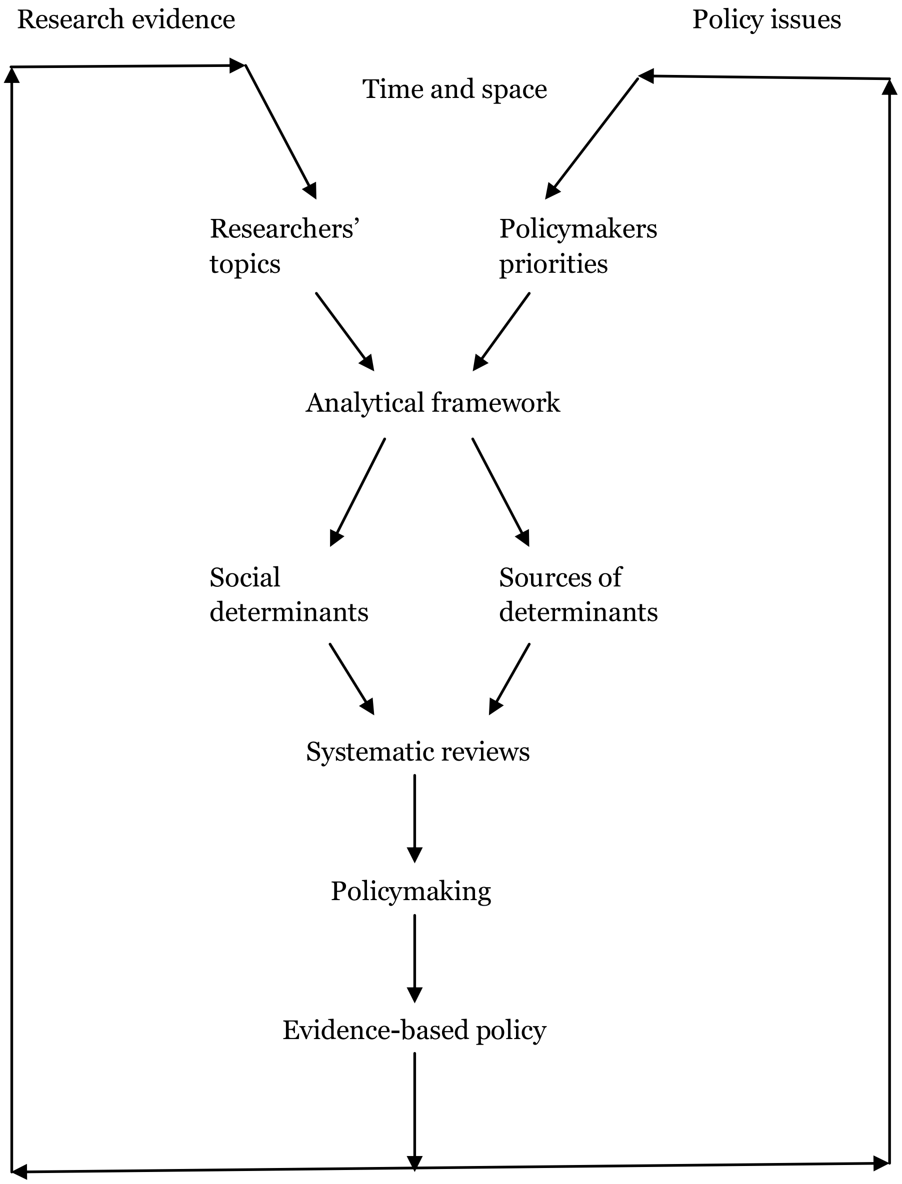


Figure 1. Conceptual framework of evidence-based policymaking

Here I would like to revisit the issue of time and space in terms of findings from analyses of my sample. The process of using evidence from systematic reviews in sample policies occurred in the context of moving time and space. However, evidence produced in systematic reviews arose from the available research published within a particular time and space, and issues addressed by policies originated within the socio-political and economic situation of a particular time and space. In essence, researchers and policymakers continued to move through time and space within the process of evidence-based policymaking using a set of evidence and addressing policy issues related to breastfeeding support and breastfeeding inequalities standing still in time and space. This has implications for the process of evidence-based policymaking. When a policy emerges from the process of evidence-based policymaking, the evidence and policy issues will have changed over the course of time and space. This dilemma is already known, but can be a particularly important consideration when systematic reviews are used to inform policy (Hopewell et al, 2007; Green, 2008).

Researchers bring an understanding of the research process and available evidence to the process of policymaking. Similarly, policymakers bring an understanding of the process of policymaking and policy issues. At this point, researchers and policymakers have the opportunity to find where their topics and priorities coincide and where they diverge, and to consider which topic and priority would be most advantageous and realistic to address together through evidence-based policymaking. Working through the analytical framework together not only helps clarify the social determinants and sources of those determinants related to the evidence on a particular policy issue, but also the connections between them. From these connections topics the most and least addressed in research and policy can be identified and shared topics established. The process of evidence-based policymaking depends on researchers finding evidence on the topic through systematic reviews, and policymakers finding options to address the topic through socio-political and economic channels. The optimum outcome is that researchers find evidence and policymakers find options. When that happens, systematic reviews are able to present evidence-based recommendations for policymaking and socio-political and economic channels are available to generate evidence-based policy.

There are a number of scenarios that could hinder the process of evidence-based policymaking presented here. One such instance would be that systematic reviews report that no or limited evidence is available but socio-political and economic options are available, making evidence-based policy impossible at that point in time and space. In another case, systematic reviews find evidence but socio-political and economic options are not found. Here the evidence is available but cannot be used in policy at that point in time and space. Although both of these scenarios have the same result – no evidence-based policy – shared topics and priorities have been identified as well as topics and priorities most and least addressed in research and policymaking.

On a larger scale, when researchers and policymakers proceed through the process together from the beginning there is a better chance of controlling changes across time and space because the evidence presented in a systematic review and issue being addressed in policy enter the process together in the same time and space. This control cannot guarantee the process will conclude with evidence being used in policy or systematic reviews contributing to policymaking. What it does guarantee is that the process has become transparent, which places researchers and policymakers in an advantageous position for beginning the process together again.

8.3 Recommendations

Recommendations that follow are offered primarily with policymakers and researchers in mind. This is not to discount the contribution of individuals with other backgrounds that may be involved in policymaking; administrators, educators, practitioners and community members, among others, can bring valuable perspectives to the policymaking process. However, because the crux of this study has centred on relationships between research evidence and policy issues, researchers and policymakers, and systematic reviews and evidence-based policymaking, recommendations are most appropriate for those directly involved in generating research evidence for policymaking and producing evidence-based policy. On a broad scale, recommendations are intended to inform how evidence may contribute to policy through the process of using evidence from systematic reviews in evidence-based policymaking. On a more immediate scale, recommendations are intended to inform the use of evidence from systematic reviews in evidence-based policymaking to address breastfeeding support and breastfeeding inequalities.

Since relationships are central to findings of the thesis, recommendations for policy and policymaking go hand-in-hand with recommendations for research and researchers. However, recommendations can be differentiated in terms of conceptual or pragmatic, and in terms of addressing broader issues of evidence-based policymaking using systematic reviews and the use of systematic reviews in evidence-based policymaking to address breastfeeding support and breastfeeding inequalities.

8.3.1 Broad recommendations for evidence-based policymaking using systematic reviews

8.3.1.1 Conceptual recommendations

Policymakers and researchers should be aware that:

1. Evidence-based policymaking should occur within a conceptual framework which takes into consideration and accounts for the contextual and interpretive nature of research evidence and policy issues, and research and policymaking.
2. An analytical framework should be used to identify social determinants of the issue of interest, socio-political and economic sources of those social determinants, and their connections.
3. The relationship between researchers and policymakers should be based on a conceptual movement across the same time and space in the process of evidence-based policymaking, working with the evidence and an issue seen as frozen in time and space.
4. Evidence appropriate for inclusion in systematic reviews to inform policy and to use in evidence-based policymaking should be considered to exist in different forms.
5. The commissioning of systematic reviews should be considered a representation of power differentials between evidence and policy, and researchers and policymakers.
6. Economic issues of cost, cost-effectiveness, and opportunity costs should be viewed as an essential component of ethical policymaking.

8.3.1.2 Pragmatic recommendations

Policymakers and researchers should be aware that systematic reviews can make a positive contribution to evidence-based policymaking if certain criteria are met:

a. Policymakers build on previous findings and policy decisions in order to situate current evidence and evidence-based policymaking in a historical context, and to gain insight into the consequences of their decision-making.

b. Researchers and policymakers negotiate topics and priorities for evidence-based policy based on correlations between existing evidence and policies in terms of most and least addressed topics and issues.

c. Systematic review(s) are commissioned in conjunction with a decision to develop an evidence-based policy.

d. Systematic review(s) are a review of reviews (if possible, but recognised as often not feasible) or a series of rapid reviews so the evidence is more likely to be timely and at the same time comprehensive.

e. More than one systematic review is used when multiple aspects of an issue are being addressed; this takes advantage of the systematic review methodology by allowing each review to focus on different specific aspects of the evidence, makes the reviews more manageable for researchers and policymakers, and thus more likely to be efficient in the use of resources.

f. The views, opinions and perspectives of topic experts, users and beneficiaries of the policy and particularly women, and stakeholders involved in different aspects of the policy including its implementation, are integrated into evidence from the systematic review(s) or obtained within the policymaking process and incorporated into policy recommendations.

g. There is a predetermined plan for how to proceed in the event that inadequate or no evidence is found in systematic reviews to inform policy recommendations, or if limited or no options for policy exist at the time evidence from systematic reviews becomes available.

In addition to recommendations above, there are recommendations for the use of systematic reviews in evidence-based policymaking to address breastfeeding support and breastfeeding inequalities in England and the U.S. These recommendations can also be delineated as conceptual or practical.

8.3.2 Recommendations for the use of systematic reviews in evidence-based policymaking to address breastfeeding support and breastfeeding inequalities

8.3.2.1 Conceptual recommendations

Policymakers and researchers should be aware that:

1. It is only through an integrated understanding of the connections between the socio-political and economic sources of social determinants of breastfeeding and the social determinants of breastfeeding themselves that the issue of breastfeeding inequalities can be effectively addressed through the use of systematic reviews in evidence-based policymaking.

2. There are direct correlations between socio-political and economic inequities, breastfeeding inequalities, and health inequalities.

3. Evidence of cost effectiveness of an intervention to support breastfeeding is as vital to policymaking as evidence of the health effects of an intervention to support breastfeeding.
4. Women’s views are essential to our understanding of breastfeeding support and breastfeeding inequalities, crucial to an accurate reflection of evidence in systematic reviews to inform policymaking, and central to developing effective evidence-based policy to address breastfeeding support and breastfeeding inequalities.

8.3.2.2 Pragmatic recommendations

Policymakers and researchers should be aware that systematic reviews can make a positive contribution to evidence-based policymaking to address breastfeeding support and breastfeeding inequalities if certain criteria are met:

1. The socio-cultural, and/or health care, and/or maternal determinants of breastfeeding and their socio-political and economic sources are addressed in both systematic reviews and evidence-based policies.

2. Connections between interventions shown to be effective in the promotion and support of breastfeeding and breastfeeding inequalities are actively sought and reported in systematic reviews.

3. The issue of breastfeeding inequalities are consistently incorporated into recommendations of systematic reviews and evidence-based policy to address breastfeeding support.

4. Topics for systematic reviews and evidence-based policy to address breastfeeding support and breastfeeding inequalities are continually re-evaluated and determined by the topics and issues most and least addressed in the current body of evidence and current policies.

5. Topics for systematic reviews and evidence-based policy to address breastfeeding support and breastfeeding inequalities include clinical, public health, health service and policy interventions.

6. Health economics research is integral to the process of evidence-based policymaking to address breastfeeding support and breastfeeding inequalities.

7. Women's views are represented in primary studies, systematic reviews and evidence-based policies to address breastfeeding support and breastfeeding inequalities.
8. Recommendations for interventions to promote/support breastfeeding with no or inadequate evidence of effectiveness are not included in systematic reviews.

8.4 Conclusions

This case study has revealed a number of new insights that inform our understanding of the use of evidence in policy. Similar to the layers of analyses required in the conduct of the thesis, layers of insight have been uncovered in findings of the thesis. Findings support the premise that connections between public health and health inequalities are rooted in the social determinants of health and the socio-political and economic sources of those determinants. As such, it is only when social determinants of health and their sources are understood does it become possible to effectively address health inequalities through policy. Relate to this is the need for an acute and constant awareness of the origin and effects of socio-political and economic inequities on population health and health inequalities; if issues of inequity are left unaddressed the power of evidence-based policy is limited. Also related is that all public health issues are connected to health inequalities. When this connection is kept at the forefront of evidence-based policymaking, opportunities to address public health issues in conjunction with health inequalities will be apparent.

Other insights brought to light in this thesis are the effects of socio-political and economic changes across time and space on policy and the process of evidence-based policymaking. Recent events in England and the U.S. demonstrate how rapidly and dramatically such temporal and spatial changes can impact policy and policymaking. Current approaches to health care policy in both countries are bringing their respective systems closer in terms of health care structure and service delivery. Both countries are moving toward a mixed economy of health care where the private and public sectors are intermingled. Subsequently, funding and pay structures for health care are changing, as is access to health care services. There will be groups that benefit, groups that will not benefit, and groups that will experience detrimental effects as these policy-based changes become established. The fact that different groups have different levels of benefit or detriment from health care policy is not new; in this case changes mean these groups will be different from what they are now. The point here is that differences will remain but with new distributions, which will create a new set of challenges for evidence-based policy to address health inequalities.

Major changes in political parties and economic stability in England and U.S. have occurred since I began working on this thesis. These changes have resulted in many policies put in place between 1997 and 2009 in both England and the U.S. have been reversed or discontinued. Amidst all this change, however, the public health ramifications of breastfeeding support and breastfeeding inequalities remain. Socio-political and economic change is inevitable. What is not inevitable is the lack of adequate support for breastfeeding or a continuation of breastfeeding inequalities. Perhaps a more informed and structured approach to the use of evidence in policy, and of systematic reviews in evidence-based policymaking in particular, in which researchers and policymakers enter the process together so that commonalities between research questions and policy priorities are identified before the process begins, represents an opportunity to positively influence breastfeeding support and breastfeeding inequalities despite ever-changing socio-political and economic circumstances.