

Constructing the evidence base on the social determinants of health: A guide

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Constructing the evidence base on the social determinants of health: A guide

i. Introduction

This guide is designed for practitioners interested in developing and implementing policies and programmes to tackle the social determinants of health inequities. It sets out state of the art recommendations on how best to measure the social determinants of health and the most effective ways of constructing an evidence base which provides the basis for translating evidence into political action. It is the final product of the work of the Measurement and Evidence Knowledge Network of the World Health Organization's Commission on Social Determinants of Health (CSDH).

Work of the Measurement and Evidence Knowledge Network

In March 2005, as part of the launch of the CSDH in Santiago, Chile, the World Health Organization (WHO) sponsored an expert consultation on measurement which set out some initial parameters for the work of the Measurement and Evidence Knowledge Network (MEKN). Participants at this consultation represented a broad range of constituencies involved in the evaluation of knowledge and the application of diverse sources and types of evidence to policies. They began discussions about developing an expert consensus on the sources of evidence for the social determinants of health and health inequities (Kawachi, 2005).

MEKN was established in late 2005 and based on two organizational co-hubs:

- National Institute for Health and Clinical Excellence (NICE), UK:
Prof Michael Kelly and Mr Antony Morgan.
- Universidad del Desarrollo, Chile:
Dr Josiane Bonnefoy, Dr Liliana Jadue, Ms Vivian Bergman,
and Ms Francisca Florenzano.

MEKN's members were:

- Dr Francisco Espejo, UN World Food Program, Italy

- Dr Mark Exworthy, University of London, United Kingdom
- Dr Gao Jun, Ministry of Health, China
- Prof Ichiro Kawachi, Harvard University, United States
- Prof Johan Mackenbach, Erasmus University, The Netherlands
- Dr Landon Myer, University of Cape Town, South Africa
- Dr Thelma Narayan, Community Health Cell, India
- Prof Jennie Popay, Lancaster University, United Kingdom
- Dr Peter Tugwell, University of Ottawa, Canada
- Two representatives from the CSDH Secretariat: Ms Sarah Simpson (WHO/CSDH – Geneva) and Dr Tanja Houweling (University College London).

The main objective of MEKN was to collect, assess and synthesize global knowledge on existing methodologies to evaluate the effectiveness of policies, interventions and actions on social determinants of health which are aimed at improving health outcomes and health equity.

The MEKN did its work through network meetings, email / teleconference discussions, participation in the work of the themed knowledge networks and the participation of MEKN members in wider networks and projects.

MEKN published the following papers which were used in constructing this guide:

1. *The Development of the Evidence Base about the Social Determinants of Health* (Kelly et al., 2006a) (the scoping paper). This discussion paper describes a series of methodological, theoretical and epistemological principles that should inform the development of the evidence base about the social determinants of health. It was directed mainly at the work of the other thematic knowledge networks (KNs). It includes a commitment to finding the best possible evidence about the social determinants. It develops the principle that a variety of types of evidence are required for policy-making. This discussion paper was written in consultation with Commissioners, other KNs and Commission stakeholders. The key principles from this paper are summarized in chapter 1.
2. *Guide for the Knowledge Networks for the Presentation of Reports and Evidence about the Social Determinants of Health* (Kelly et al., 2006b). This was prepared

by the MEKN co-hubs and the Secretariat of the Commission in collaboration with MEKN members and in consultation with KNs. The purpose of the guide was to help facilitate inclusion in the KNs' work of a broad scope of evidence gathered using a coherent approach, and to assist in presenting the output of the work of the knowledge networks.

3. *The social determinants of health: Developing an evidence base for political action* (Kelly et al., 2007). This is the final report of the MEKN and summarizes the contents of this guide. However it has a different focus from the guide in that it is aimed at policy-makers and researchers as well as practitioners. The recommendations from the report are repeated in appendix V of this guide.

Structure of the guide

The guide is divided into two parts:

- I Issues and principles
- II Tools and techniques.

The first part contains three chapters which look at a series of overarching principles and issues relating to developing the evidence base in the social determinants of health: *The challenge of measurement and evidence about the social determinants of health*; *Taking an evidence based approach*; and *Gaps and gradients*.

In the first chapter in the second part we outline a *Framework for developing, implementing, monitoring and evaluating policy*. In the following chapters we look at each of the five parts of this framework in turn: *Getting social determinants on the policy agenda*; *Generating evidence for policy and practice*; *Evidence synthesis and action*; *Effective implementation and evaluation*; and *Learning from practice*. We then look at *Monitoring*, which underpins the whole framework.

We then review some *Further issues for consideration* which were raised in the guide and through the MEKN's work and in the *Conclusion* we describe a possible general causal pathway.

At the end of each chapter, where relevant, we list the case studies in appendix I which illustrate the themes of the chapter and we give a list of tools which readers may find helpful to implement the suggestions in the guide.

I

Issues and Principles

1 The challenge of measurement and evidence about the social determinants of health

The social determinants of health (SDH) must be addressed through effective policies based on sound global and local evidence. However, generating, synthesizing and interpreting evidence on the SDH is a challenge. Implementing programmes to affect SDH and monitoring their impact is feasible but also difficult. This chapter outlines the nature of the challenge. First, six conceptual and theoretical problems relating to measurement and evidence are outlined. Second, eight principles for dealing with these problems are described.

1.1 *Conceptual and theoretical issues*

1.1.1 Causal pathways

The social determinants of health approach uses the language of causation. This is entirely appropriate especially in the context of taking action to reverse the iniquitous health-damaging effects of the social determinants. The precise ways in which the social determinants of health operate is an area of considerable research interest. Much is known. It is clear that at population and individual level poor health is linked to social and economic disadvantage. The unequal distribution of the social and economic determinants of health such as income, employment, education, housing and environment produce inequities in health (Graham, 2000). The determinants are systematically associated with social disadvantage and marginalization (Braveman, 2003). However, while the general relationship between social factors and health is well established (Marmot & Wilkinson, 1999; Solar & Irwin, 2007), the relationship is not precisely understood in causal pathway terms (Shaw et al., 1999). Consequently the policy imperatives necessary to reduce inequities in health are not easily deduced from the known data. Although the precise causal pathways are not yet fully understood, enough is known in many areas, and the evidence is good enough, for us to take effective action. Nevertheless in the long run it is important to develop better understandings of the causal pathways.

At least four groups of theories have been proposed to explain inequities in health and its relation to socioeconomic position. The *materialist/ structuralist* theory proposes that inadequacy in individual income levels leads to a lack of resources to cope with stressors of life and thus produces ill health (Goldberg et al., 2003; Frohlich et al., 2001; Macintyre, 1997). The *psycho-social* model proposes that discrimination based on one's place in the social hierarchy causes stressors of various kinds which lead to a neuroendocrine response that produces disease (Karasek, 1996; Siegrist & Marmot, 2004; Evans & Stoddart, 2003; Goldberg et al., 2003). The *social production of health* model is based on the premise that capitalist priorities for accumulating wealth, power, prestige and material assets are achieved at the cost of the disadvantaged. The *eco-social* theory brings together psycho-social and social production of health models, and looks at how social and physical environments interact with biology and how individuals 'embody' aspects of the contexts in which they live and work (Goldberg et al., 2003; Krieger, 2001). It builds on the 'collective lifestyles' approach and the neo-Weberian theory that lifestyle choices are influenced by life chances defined by the environment in which people live (Frohlich, 2001; Cockerham, 1997).

What is missing in these theoretical accounts is the underlying certainty about cause and effect associated with some other branches of science including clinical medicine. We see instead mostly associational or probabilistic types of explanations (Link & Phelan, 2005; Mechanic et al., 2005). Of course clinical medicine has its own uncertainties in relation to causation. Etiology is sometimes unknown, tenuous, partial and often multifaceted, and morbidities are frequently present in ways which are not typical, as co-morbidities or as multiple morbidities. The effects of treatments are also uncertain (Chalmers, 2004). The disease categories used by medicine to describe pathology are nominalist rather than essentialist and therefore change and evolve over time, reflecting new knowledge and understanding. Data and evidence are surrounded by uncertainty (Griffiths et al., 2005), and in the end the skill of the doctor is in working through and with these uncertainties, not resolving them.

Despite the uncertain and contingent nature of the understanding of bio-medical processes, medicine operates successfully with an underlying epistemological principle: health outcomes have preceding causes and the isolation of cause is the basis of effective intervention. This logic can be applied, subject to all the uncertainties just outlined, to the social determinants of inequities in health. Real pathological changes in the human body occur, but in highly patterned ways in whole populations or sub-population groups. Both the pathologies *and* their patterning have

causes. In other words, social and biological causes work in tandem. The social causes explain the patterning while the biological causes explain the pathology. As well as the social and biological causes working in tandem, there will be some interaction between the two. It is this interaction where our understanding tends to be less well developed. The task is to map the social and biological processes and the interaction between them in order to develop an explanation. In classic scientific terms, there ought to be covering scientific social and biological laws (Hempel, 1965). What needs to be explained is why the biological systems in the human body change in ways that are determined by social as well as biological/ biochemical processes. This is at the heart of the intellectual challenge of the social determination of health and the corresponding inequities in health. As a result of differential contextual stimuli and their respective interactive chains, the molecules in the human body behave differently according to the social position someone occupies, the country they live in, the global political situation around them. The molecules behave differently according to the job someone does, according to their experience of class, gender and ethnic relations, according to their education, and according to a whole range of social factors which affect them over their life course. Their genetic structure and their immunity, their nutritional status, their resilience, their ability to cope – all act as mediating factors, but ultimately there is a plausible causal pathway from a number of social factors or social determinants to biological structures in the individual human body.

In the clinical realm (in which the social is to a significant degree controlled out of the equation) the randomized controlled trial (RCT) provides the best way of determining what the mechanisms of cause are and what precisely is effective in ameliorating the cause (Chalmers, 1998). The RCT provides the most secure basis for valid causal inferences about the effects of treatments (Chalmers, 1998). *Inter alia*, to what extent can similar methods be applied in the social realm? In principle they can be, but in practice the available evidence will be very limited. This is because the causal pathways are still to be defined with the appropriate degree of exactness and the covering laws are not yet known with certainty. And in any event the factors involved are extremely complex and in many cases quite unsuitable for investigation using trial methods. We probably have many decades of research ahead of us before the covering laws are described. However, the challenge remains of conjoining the social and the biological, and of developing plausible explanatory models.

With respect to the social determinants of health, we are able to identify some of the

necessary and the sufficient conditions involved in causation but their nature, under what circumstances, and how they operate from the social to the biological is not always very clear. The core candidates can be listed relatively easily because the extant literature has explored them at length:

- Poverty
- Hunger
- Occupational exposure to hazards
- Occupational experience of relations at work
- The social and economic effects of aging
- The experience of gender relations
- The experience of ethnic relations including direct experience of racism
- Home circumstances
- The degree and ability to exert self efficacy especially through disposable income
- Dietary intake
- Habitual behaviours relating to food, alcohol, tobacco and exercise
- Position now and in the past in the life course
- The accumulated deficits associated with particular life courses
- Schooling
- Marital status
- Socioeconomic status.

These are the media through which the social world impacts directly on life experiences and exerts direct effects on the human body. They in turn are linked to macro variables like the class system, the housing stock, the education system, the operation of markets in goods and labour, and so on (see Solar & Irwin, 2007).

Because of the uncertainty about the precise causal mechanisms and the theoretical differences in explanations, there has been little guidance available internationally to assist policy-makers and practitioners to incorporate and act upon the full range of social determinants of health. Still less have there been easily available tools and techniques for integrating equity considerations into policy and programme design or into the collection of data and evidence (Oxman et al., 2006). This guide is a small step towards resolving the lack of guidance and support.

Cause is important, because ultimately tackling the social determinants of health will involve knowing enough about causes to intervene on them directly and in a cost effective way. Presently we are not in a position always to organize interventions in this way, although some of the extant knowledge provides very useful guidance and enough to make a significant start.

There is another important point about cause which needs to be elaborated. This is considered next.

1.1.2 The difference between the causes of health and the causes of health inequities

The factors which lead to general health improvement – improvements in the environment, good sanitation and clean water, better nutrition, high levels of immunization, good housing – do not always reduce health inequity. This is because the determinants of good health are not necessarily the same as the determinants of inequities in health (Graham & Kelly, 2004). It is necessary to distinguish therefore between the causes of health improvement and the causes of health inequities. As was noted above, inequities are linked to social disadvantage. If generalized health improvement is not linked to questions of social disadvantage, while everybody's health overall may be improving (although at different rates across the social spectrum) inequities may remain.

The reason for this is that the factors which improve overall health have differential effects on the population with the better off always benefiting disproportionately when universal interventions are applied (Kelly et al., 2006a). Sometimes there is a catching up effect with the less well off making up ground later, but a differential remains (Antonovsky, 1967; Victora et al., 2000). It may be argued that the widening differential does not matter as everyone is benefiting to some degree, so the differential is not a reason not to carry out general health improvement. It is important however not to define universal and targeted approaches as simple alternatives. Hybrid policies which contain elements of, for example, universal actions with targeted follow through, will sometimes be the most appropriate way to tackle problems of inequities.

Where equity is the explicit focus there are two potential policy implications: (a) a clear description of the social structure is required in order to target and tailor interventions and to nuance universal interventions appropriately; and (b) there must be a focus on the determinants of the inequities. The causes and the dynamics whereby different groups respond differentially to health initiatives and the ways in which health damaging effects operate need to be specified in any intervention (NICE, 2007). The 'causes of the causes' of inequities, as they are sometimes referred to, are located in the divisions of labour within and between societies, the life course and life worlds of individuals, and the interaction between them (NICE, 2007; Kelly et al., 2006a).

To understand the causes of the causes we must turn to a concept of cause which mirrors the kinds of precision about cause which clinical medicine is capable of delivering, subject also to the uncertainties of such explanations. This requires a classical scientific explanation: neither historical nor sociological explanations will do (Danto, 1968). This is because the phenomena being explained are not historical or social – they are physical. An explanation which stops at the social level is insufficient for these purposes. We need a model of cause which traverses a number of levels of analysis which academic disciplines traditionally keep separate. Some of the observed patterns which are manifested in mortality and morbidity data are no doubt accounted for genetically or by other biological mechanisms, but it seems inconceivable that the health variations which follow sets of social arrangements so closely could all be accounted for in this way. Other processes are at work and they are amenable to causal analysis involving a pathway from the social to the biological. In this sense the concern is not inequities in health *per se*, but much more specifically the social determinants of inequities in illness. The research question is to find out what the social determinants of mortality and morbidity are and to describe how they work and how they interact with the biological.

The level, or levels of analysis, need to be identified (Kelly et al., 1993). This means examining the evidence, and regardless of its disciplinary provenance, assessing whether the *dynamics* of what is described could plausibly work at a physical, societal, organizational, community or individual level. In other words, to what degree is the supposed action based on biological, social or technical plausibility? To what extent is it possible to ascertain time periods and the chronology in the evidence? Are the purported relationships logically possible in chronological terms? Do certain events precede others? What dynamic processes are described in terms of the

component parts of social systems? This is particularly important in multi-factorial explanations, where the sequencing of events may be hidden or at least difficult to discern, and where multi-factorial explanations are often no explanations at all (Brownson et al., 2003).

1.1.3 Accuracy of descriptions of the social structure

To tackle the social determinants of health, the social structure of societies and the populations within them must be precisely described – sociologically, geographically and economically.. There are key axes of social differences in populations – class, status, education, occupation, income/assets, gender, ethnicity, race, caste, tribes, religion, national origins, age and residence. These factors intersect, interact, overlap and cluster together in their effects. Some of these factors may also change independently of each other. They vary in their salience in different societies with different modes of production or political systems for example.

These social inequalities are the building blocks of differences in health and in health inequities. As well as the conventional tools of social epidemiology, the kinds of population and social structure descriptions which modern mapping and computer based accounts of populations permit should be pressed into service wherever possible (Burrows & Gane, 2006). This will allow the categories of class, gender and so on to be used more effectively and forcefully and will allow a better understanding of the way they interact with each other.

Ethnicity, race, gender, sexuality, age, area, religion and national origins represent linked but separate dimensions of inequity. While these discrete dimensions of social difference are seldom denied as important, when they interact the respective weights of each one of them in respect of health outcomes tends to be underdeveloped empirically and theoretically in the literature on social determinants. Consequently, there is little in the extant evidence about the relationships between these different dimensions and the ways they interact to produce health effects (Graham & Kelly, 2004). This is a point of considerable importance because it is clear from the evidence that does exist that different segments of the population respond very differently to identical public health interventions. This means that we need to anticipate a wide range of responses to policies across and within societies, by virtue of the nature of the variation in populations.

What these different and variable axes of differentiation have in common is that they result in differences in life chances. These differences in life chances are literal: there are marked social differences in the chances of living a healthy life. This has been most systematically captured in occupation-based measures of socioeconomic position – but differences in people’s health experiences and their patterns of mortality are also observed across other axes of social differentiation. It is an important challenge to develop measures of inequality that embrace these axes. If, as the evidence suggests, dimensions of disadvantage interlock and take a cumulative toll on health, these dimensions need to be summed in order both to map and to understand the health penalty of social inequality.

One of the key principles therefore is to acknowledge and to identify the different axes of social difference (Graham & Kelly, 2004) and to recognize that these dimensions overlap (Davey Smith et al., 2000). Within the axes of differentiation (like gender) different aspects interplay as well (like income access to power and prestige) (Bartley et al., 2000). The specific health impacts will be mediated by proximal factors like social position, specific exposures, the nature of specific illnesses and injuries, and their social significance in different cultural contexts (Whitehead et al., 2000).

1.1.4 Context

Context is very important. By this we mean the country, area or population group to which the data apply. There are some important considerations which need to be borne in mind when dealing with the different contexts of discussions about health inequities and their social determinants. There are two main dimensions to this.

First, much of the data are country or locality/ region specific. This raises a question about the generalizability, scalability and transferability of the findings to other contexts and settings. This has three elements:

- External validity – whether that which has been observed under controlled circumstances still applies without strict scientific control in ordinary settings
- Replicability – the extent to which the findings from one setting would be replicated if carried out in a different context
- Epistemological framework – the degree to which the cultural context has generated the conceptual structure of the original studies and their subsequent interpretation.

For example, literatures on health inequities generated in western Europe, Australia, New Zealand, Canada and the United States reflect the specific concerns of those societies. British studies, for instance, tend to derive from long standing interests in social class in that country. In the United States on the other hand, the focus has been rather more on issues of race and and/or socioeconomic groupings (rather than class in its sociological sense). Indeed the use of the words *inequity* or *inequality* reflects the cultural differences, with inequality being the preferred term in Anglo-Saxon influenced societies and inequities or disparities being the preferred usage elsewhere. These preoccupations reflect the history, culture and politics of those societies and the dominant academic discourses in them. The concepts associated with the social determinants are not universal (for example, class, status and religion mean different things in different societies). Some caution is required, especially in using concepts originating in high income societies in low and middle income ones.

Second, some data are global in the way that they are collected, meaning that they operate at a relatively high level of generality. The finer grained detail required to make things happen on the ground is lost.

1.1.5 Nature of health inequity gradients

The difference in health experiences between the top, middle and bottom of the socioeconomic hierarchy varies considerably between countries. For example in Nordic countries there are relatively small disparities in health across the population compared to the United Kingdom and the United States (Davis et al., 2007). In low and middle income countries the health differences may be very great with a mix of relatively good health among the well to do and extremes of low life expectancy and high infant mortality among the very poor. The policy implications will therefore vary considerably depending on the nature of the health gradient in particular societies. In any event reaching the poorest and most disadvantaged requires specific actions (Tugwell et al., 2006b). More and better cross-cultural studies are required to help clarify the underlying social and economic differences in different countries and the ways these map against health disparities, especially beyond high income countries (European Science Foundation, 2004).

1.1.6 Translation of knowledge into action

It is important to acknowledge that there are three distinct activities and three distinct knowledge bases relating to knowledge translation. There are wide gaps between the discourses and the personnel engaged in each. First is knowledge generation. This is the principal scope of science and research. Second is the activity of using knowledge generated in this way, combining it with other learning and turning it into policy. Third, policy has to be turned into practice and action. The evidence on its own does not provide a complete recipe for success, or an imperative for action. The evidence needs further refinement if it is to be useful in everyday practice. This requires an understanding of local contexts and circumstances; an understanding of the knowledge bases, and commitment and engagement of local professions; and a detailed assessment of the particular population at whom the intervention is aimed (Kelly et al., 2004). All of this presents a considerable set of challenges for the social determinants approach.

Generating evidence, turning it into policy and turning policy into action and practice all involve different actors. The players do not necessarily interrelate at all, and even if they do it will not be in a linear or even cyclical fashion. They interrelate in iterative and uneven ways, which involve elements of knowledge transfer, of political process, of opportunism, of serendipity and of power influence (Petticrew et al., 2004; Pittman & Almeida, 2006). This is described in more detail in chapter 5, 'Understanding the policy-making process'.

1.2 *Eight principles for developing the evidence base*

In the light of the problems listed above, the MEKN developed a set of principles (Kelly et al., 2006a). These principles provide some of the ways of dealing with the challenges just outlined and provide a means of working towards solutions.

Principle 1: A commitment to the value of equity

The Commission on Social Determinants of Health has defined health equity as: 'the absence of unfair and avoidable or remediable differences in health among social groups' (Solar & Irwin, 2007). This is adapted from Margaret Whitehead's definition of health equity (Whitehead, 1992). Health inequity is therefore defined as unfair and avoidable or remediable differences.

The explicit value underpinning the development of a methodology for working on the social determinants of health is that the health inequities that exist within and between societies are unfair and unjust. This is not a scientifically or rationally derived principle; it is a value position which asserts the rights to good health of the population at large. It stands in contrast particularly to the value position that argues that differences in health are a consequence (albeit an unfortunate consequence) of the beneficial effects of the maximization of individual utility in a relatively unfettered market. It is important to note that individual and collective utilities may be at odds with the rights to health (Macintyre, 1984).

Therefore there is and will be political opposition to the core value of health equity. Addressing health inequalities will sooner or later involve trade-offs with those in positions of power. Scientific argument will be marshalled by opponents in support of the anti health equity position and even where there is political support for equity there is still a need to 'sell' policies that have been identified as effective (Solar and Irwin, 2007).

Principle 2: Taking an evidence based approach

The second principle is a commitment to an evidence based approach. As will be argued, an evidence based approach offers the best hope of tackling the inequities that arise as a consequence of the operation of the social determinants. We assume further that the evidence will provide the basis for understanding and the basis for action (Greenhalgh, 2001).

There are a number of difficulties associated with an evidence based approach. These are developed further in chapter 2. However, the ways of identifying the best evidence can be based on well established principles. The means of determining the best empirical evidence are well rehearsed and formulated within the principles of evidence based medicine (see e.g. Egger et al., 2001; Gomm & Davies, 2000). However there are other very important types of evidence which are generally excluded from evidence based medicine but are vitally important in considering the social determinants of health. These require different approaches. For example in the case of non quantitative empirical evidence the issues are highly contested, but guides such as Dixon-Woods et al. (2004) and Pope et al. (2007) provide useful discussions of the issues involved. They consider ways of determining what

constitutes good evidence drawn from competing qualitative paradigms, and ways to synthesize different types of evidence.

Theoretical and empirical evidence or propositions are still more difficult to deal with, not least in the social sciences because of their inherent potential ideological content. Nonetheless they can be appraised on the basis of their empirical testability and falsifiability, their internal logic and their fit with evidence and observation from other sources (for an example see NICE, 2007) (This is developed further in section 8.4).

It is important to note that evidence on its own, derived from whatever source or method, frequently provides apparently simple answers. The task of those charged with making sense of the evidence and of drawing up evidence based recommendations is to determine the overall story the evidence tells and make a judgement about the certainty with which conclusions can be drawn and how they might be applied in real world settings. The task is to reach a balanced judgement on the basis of what is known from the evidence, as opposed to what is uncertain in the world where the evidence based policy or recommendation is to be implemented (Kelly et al., 2004; Petticrew et al., 2004; Lomas, 2005).

Principle 3: Methodological diversity

The third principle is of methodological diversity: no single approach to the generation of evidence or data is to be favoured over others. Evidence should not be appraised and evaluated on the basis of adherence to a single evidence hierarchy in which a particular method is given priority. Appraisal of evidence should be on the basis of whether the research method used is appropriate for the research question being asked and the knowledge being collected, and the extent to which in terms of its own methodological canon it is considered to be well executed. Some evidence will be more useful than others, but all sources of evidence may make a contribution to understanding how social factors influence health outcomes. This principle is developed further throughout this guide.

Principle 4: Gradients and gaps

There are conventionally three different ways in which inequities are described: health disadvantage, health gaps and health gradients (Graham, 2004a, 2004b, 2005; and Graham & Kelly, 2004). Health disadvantage simply focuses on differences, acknowledging that there are differences between distinct segments of the population or between societies. The health gaps approach focuses on the

differences between the worst off and everybody else, often assuming that those who are not the worst off enjoy uniformly good health. The health gradient approach looks at the health differences across the whole spectrum of the population, acknowledging a systematically patterned gradient in health inequities.

The fourth principle takes an holistic approach to the question of health equity which embraces the whole of the socioeconomic gradient within societies or populations. In general (Graham & Kelly, 2004), an approach which considers the whole of the gradient in health equity in a society should be the starting point for an analysis of the structure of health inequities in that society. This is in contrast to considering *only* the most disadvantaged groups in the population. While in some circumstances targeting policy or interventions towards the most disadvantaged groups may be the best and most appropriate action, a whole system or whole gradient approach is the premise from which to begin, but not to complete, a discussion of equity. This principle is developed further in chapter 3.

Principle 5: Causes: determinants and outcomes

The fifth principle is a commitment to attempting to identify the causal pathways whereby the social determinants operate. The differential patterns of health across populations and the unequal experience of mortality and morbidity are the consequence of the operation of social and biological factors interacting with each other at population and individual levels. As noted above, some parts of the causal pathways are well understood with respect to some social groups and other parts of the causal mechanisms are less well defined. Although all the parts of the causal arrangements cannot be identified with complete certainty, any analysis should seek to help to explain them.

Principles 6 and 7: Social structure and social dynamics

Principles six and seven are linked together. Principle six lays out the imperative of seeking to describe social structures adequately and principle seven acknowledges the dynamic nature of that social structure.

Clearly social structures and systems can be described in a variety of ways. The ways in which social structures are described are not theory- or value-free. We need to consider: what is the model of social structure, if any, in the evidence? This means considering the extent to which the evidence is sensitive to the relations between groups and individuals and in particular the social variations and differences in the

population. The important axes of differentiation include the dimensions of age, gender, ethnicity, race, caste, religion, education, occupation, income/ assets, place of residence, mobility, status grouping and class membership and also the dynamics of the technical and social divisions of labour, the stage of development and the power structures in given societies. Thus it is very important to build social structure into any consideration of the evidence and to articulate where possible the value position which informs the model of social structure embedded in the evidence.

Principle seven states the imperative to ensure that descriptions of social structure do not become ossified. Societies and their component parts are not static objects. They are constantly changing and therefore the relationships which give rise to health inequities and differences are themselves also changing in terms of their force and their salience at any given moment. Therefore the capture of the evidence needs to lend itself to that dynamic quality. Social dynamics (that is, how social structures are changing through time) must be a key part of the analysis.

Principle 8: Explicating bias

The eighth and final principle is about explicating bias. All writing and all science are socially constructed and therefore subject to bias. Forms of bias stemming from the particular methodologies used or from the political value position of the writer will be more or less present in all data and evidence. The solution is to acknowledge this fact and to seek to make the biases explicit, even if the writer has sought to conceal their own prejudices. This is an imperfect science, but is workable in two stages. The first is to describe any political bias that is inherent in the argument, and the second is to seek to determine whether the political biases have influenced the selection and interpretation of the evidence. This is not to imply that there is some underlying truth free of bias which would emerge if we could eliminate the bias. It is instead to acknowledge that biases and perspectives of many kinds inhere in scientific work. Our task is to be aware of them as far as we can and to see past them in our efforts to tackle the inequities deriving from the social determinants.

1.3 Conclusion

The six conceptual challenges and the eight principles for dealing with them provide the basis for developing models of the way the social determinants of health operate. They also establish the parameters for this guide. In the chapters which follow, some

of these themes are dealt with explicitly again whereas others provide background ideas which are used to develop the guide.

2 Taking an evidence based approach ¹

In this chapter of the guide we argue that the evidence based approach offers the best hope for tackling health inequity arising as a consequence of the social determinants of health. The use of evidence is not new in public health. When John Snow in 1850s London, in perhaps the most famous of all public health interventions, identified the possibility that cholera was a water borne disease, he was using observation and evidence in a logical and rational way. Although the understanding was rudimentary by today's standards, it nevertheless led to effective preventive strategies and the handle of the Broad Street pump in Soho found its infamous place in the annals of public health (Chave, 1958). When the first Medical Officers of Health in Britain plotted epidemic prevalence and linked it to poor housing (Checkland & Lamb, 1982), and when Victorian social reformers tracked the relationship between poverty and poor physical health (Briggs, 1959), they were following a route prescribed by the evidence. Some of the most important breakthroughs in the prevention of non-communicable diseases have been made using epidemiological evidence. The demonstration of the relationship between smoking and lung cancer (Doll & Hill, 1952), between the lack of exercise and heart attack (Morris et al., 1953) and between exposure to asbestos and lung cancer (Doll, 1955) are striking examples of the powerful use of evidence. More recently the relationship between the wider determinants of health and health inequities have been grounded in very advanced uses of evidence (Marmot & Wilkinson, 1999; Lynch et al., 2000; Davey Smith et al., 2002).

However, taking an evidence based approach has come to mean more than simply *using* evidence or doing well conducted scientific studies. It now means taking a scientific approach to the accumulation and understanding of the evidence itself (Egger et al., 2001; Chalmers et al., 2002). A major impetus in this has been the development of evidence based medicine (Greenhalgh, 2001) and there are important implications for the social determinants approach.

¹ The introduction to chapter 2 and section 2.1 both draw on Kelly, 2006.

2.1 *Lessons from evidence based medicine*

Evidence based medicine has evolved in the last forty or so years for a variety of reasons. First, there has been a dramatic escalation in the amount of available medical evidence. The sheer volume of scientific information has become too vast for even the most conscientious scientist or doctor to keep pace with. Ways of making the large volume of evidence easily accessible became a necessity and this in turn led to more systematic ways of organizing databases of evidence than had conventionally been the case (Greenhalgh, 2001).

Second, as ways of synthesizing and reviewing the vast amounts of information generated by medical and other scientists became an urgent priority, this was greatly assisted by the development of new technologies. Computer databases and powerful search engines allow much more comprehensive ways of finding information than was ever possible by manual methods. The existence of the new technologies means it is possible to gather large amounts of information, on a scale congruent with the volume of new evidence appearing, and then to search it comprehensively and rapidly.

Third, bias has been identified as a critical problem in science (Egger et al., 2001). There are two different aspects to this. Some bias arises as a consequence of the types of method used. Methodologists had written for decades about the problems of bias, of the fact that subjects involved in scientific investigations often behave differently to how they would behave normally, of placebo effects, of failures to observe and record things accurately, and of recording information to reflect the prejudices of the researchers. The evidence based approach seeks to minimize these kinds of bias. The other source of bias is more social in origin. It has been argued that scientists have tended to be much less systematic towards the *accumulated* scientific evidence than they have been to the process of gathering new evidence in the first place. And worse, they have tended to be very selective in their approach to their favoured evidence. The history of science is full of examples of scientists preferring their own pet theories and models, in spite of accumulated evidence which contradicted them (Kuhn, 1970). Bias, intentional or accidental, is an endemic hazard of scientific and medical activity (Greenhalgh, 2001).

One of the most influential British texts in the history of evidence based medicine appeared in 1972. This was Archie Cochrane's essay *Effectiveness and Efficiency: Random Reflections on Health Services*. Cochrane, himself an eminent physician, argued that health services have a tendency towards inefficiency because of organizational, institutional, demographic and technical factors and a variety of other things including human failure. His principal concern was that there was no agreed way to determine what worked or did not work, and therefore it was not possible to tell whether interventions did more harm than good, or had neutral effects. He also complained that no one could tell how much anything cost, so there was no way of telling what was good value for money and what was not. He advocated the use of the clinical trial and argued that economic appraisal of medical interventions must be undertaken.

The randomized controlled trial (RCT), as Cochrane realized, was the most precise way to determine the effectiveness of an intervention. With subjects properly randomized and with investigators blind to which is the experimental group and which is the control group, it provides the best way to determine whether something works and allows bias of various kinds to be controlled to a large extent. Doll (1998) has argued that 1948 represents the watershed because it was the year that the streptomycin trial for treating pulmonary tuberculosis reported. The methodological breakthrough was that effectiveness could be plainly demonstrated. Although in 1948 the clinical trial still had many years to go before it found general acceptance (Cochrane, 1972; Egger et al., 2001), the fundamental principle was established. It has been argued that before 1948 clinical medicine was dominated by what today we would call theories, pet beliefs and political positions (Cochrane, 1972; Doll, 1998). It is suggested that these favoured theories were sometimes tested empirically by individual clinicians, but were never subject to the kind of deep rigorous scrutiny which the clinical trial permits (Greenhalgh, 2001). Clinical effectiveness was in much more tenuous territory than it is today.

Over the last thirty years the use of the RCT as the means of determining effectiveness has become the gold standard and is indeed the best available way of determining clinical effectiveness, despite certain philosophical and medical discussions around points of detail (Davies & Nutley, 2000). The systematic review of trials through such organizations as the Cochrane Collaboration has become the *modus operandi* of developing the evidence base in clinical activities.

The principles of building the evidence base are straightforward. It starts from the accumulation of evidence. Rather than generalize from one particular study to the world as a whole, the idea is to increase representativeness of findings by putting together many studies which will provide a closer approximation to what is really going on. By increasing representativeness by pooling observations and results, bias should be reduced (Egger et al., 2001). The assumption is that the more often a finding occurs in different studies, the more likely it is to be accurate or at least as close as we can get to a representation of reality. To rely on a single result from a single study and to generalize to a broader reality is unwise because any single result may be an outlier in a statistical sense, the result of random chance and/or the result of biases of various kinds. The greater the number of cases, the greater the likelihood that statistical aberrations will be nullified and the real effect will be found. In principle the same logic applies to qualitative as well as quantitative work and to observations of all kinds. Quantitative researchers have taken up this method more enthusiastically than others, but the principle of cumulation and synthesis carried out according to strict and replicable protocols applies whatever the methods involved.

The process of building the evidence base therefore involves finding and gathering together as many examples of studies of a particular type as possible. Then the methodologically best studies are identified and poor studies eliminated. This elimination is important. Studies which do not reach predefined standards of methodological rigour need to be excluded from the evidence base because if they are methodologically unreliable so too will be their results. After deciding which studies have met methodological rigour in terms of design, sampling and control of bias, the results are summed in some way. The aim is either to detect the general direction in which the evidence points, or to accumulate the results from multiple studies into one statistical calculation (this is called meta-analysis in the case of quantitative evidence). The results of the best studies are then synthesized. It is possible to synthesize qualitative and quantitative data (Dixon-Woods et al., 2004)

The development of powerful computer search engines to interrogate compiled and indexed databases, on a scale that scholars who used to have to work by hand and index card could never have imagined, makes systematic discovery of relevant papers much more straightforward than it once was. The tools of systematic review and of meta-analysis make synthesis (as opposed to traditional literature reviewing) a much more auditable, transparent and exhaustive process. The systematic review, as the name implies, tries to be open and transparent and can claim greater

representativeness by virtue of the ability researchers now have to synthesize large volumes of data using computer technology. It is of course not perfect, but it is less likely to be subject to the biases mentioned above. More information on systematic reviewing and guidance on carrying out evidence synthesis can be found in section 9.1.

2.2 *Applying the evidence based approach to the social determinants of health*

Taking an evidence based approach means finding the best possible evidence about the social determinants of health (NHMRC, 1999). However, given that randomized controlled trials about the social determinants are relatively rare and that the evidence is potentially much broader, the approach requires some modification. The broad principles can however be applied. The most advanced search strategies and systematic review procedures should normally be used as a starting point where appropriate (Glasziou et al., 2004; Jackson & Waters, 2005a, 2005b) along with other forms of rigorous scholarship and consideration of historical, theoretical and philosophical texts. As this kind of evidence may not reside in papers which are searchable electronically, hand searching and working from bibliographies remain important. Theoretical and philosophical propositions can be appraised on the basis of their empirical testability and falsifiability, their internal logic and their fit with evidence drawn from other sources. Given that these propositions have a currency much longer than empirical data, many relevant papers and manuscripts exist outside of the time periods covered by electronic databases.

The definition of best evidence and best practice should be made on the basis of their fitness for purpose and their connectedness to research questions (Glasziou et al., 2004), not on the basis of *a priori* notions about the superiority of particular types of evidence or method or placement in an evidence hierarchy, e.g. that the randomized trial is the only basis for knowledge generation. In SDH the key is matching research questions to specific problems and using evidence derived from an appropriate methodology rather than assuming the superiority of a method or a theoretical approach (Petticrew & Roberts, 2003). Taking an evidence based approach does *not* mean relying on or privileging only one kind of method, such as the randomized controlled trial. It does *not* mean that there is only one hierarchy of

evidence, and it does *not* mean an epistemological rejection of subjective positions or methods. The evidence based approach to SDH categorically rejects the notion of a single hierarchy of evidence. There will instead be a number of hierarchies of evidence, and placement within the hierarchies will be dependent on the rigour, transparency and potential bias of specific pieces of work.

There remain a number of challenges. There is a rich literature describing health inequalities and the social determinants of health, especially in high income countries (Graham, 2000; Marmot & Wilkinson, 1999; Shaw et al., 1999; Solar & Irwin, 2007). For the most part it exists outside of the literature concerned with effectiveness of interventions. There is a dearth of good scientific studies explaining what can be done to reduce health inequalities (Millward et al., 2003). There is a lack of systematic studies of the effects of policy on inequity. The contours of inequality and social difference and disadvantage are not well described. The degree to which changes in inequalities can be measured is ill defined (Killoran & Kelly, 2004). As was noted earlier, the difference between the determinants of health and the determinants of inequalities in health is often confused (Graham & Kelly, 2004; Graham, 2004a, 2004b, 2005). The health of populations and the health of individuals is frequently elided (Heller, 2005). And finally, the links between the proximal, intermediate and distal determinants of health are poorly conceptualized and integrated into research (WHO, 2004).

As outlined in chapter 1, one of the great challenges in the study of the social determinants is describing the social structure accurately so that the differences in the population which are the manifestations of the social division of labour are more easily observed. We must improve our sensitivity in measuring the social determinants of health inequities and how they are mediated by other determinants, e.g. how socioeconomic position is mediated by gender, ethnicity and race.

There are also of course some important caveats about the evidence based approach. First, there will be gaps in this evidence and some parts of it will be more powerful than other parts. It needs to be recognized that strength of evidence, of whatever kind, alone is not sufficient as a basis for making policy (NHMRC, 1999). This will be determined by salience, and the extent to which the evidence is transferable. It is possible to have very good evidence about unimportant problems and limited or poor evidence about very important ones. Therefore a distinction must

be drawn between absence of evidence, poor evidence and evidence of ineffectiveness. The two former are not the same as the latter.

Second, it needs to be recognized that the links between scientific knowledge and policy and practice are not linear and that the scientific evidence base is generally imperfect in its own methodological, theoretical and empirical terms. Consequently, the connection between evidence and policy and practice inevitably involves matters of judgement (Kelly et al., 2004). Therefore the strength of evidence alone should not drive the strength of policy or practice recommendation (Harbour & Miller, 2001).

Third, linking the evidence base to health policy requires sensitivity to the needs and circumstances of the groups who are the intended beneficiaries of the policy (Rawlins, 2005; Briss, 2005). The application of research findings to non research settings requires an understanding of the local context and of the tacit knowledge and life worlds of practitioners and end users. It also means that evidence hierarchies must be used flexibly.

The fourth caveat, the risk of using evidence out of context, was outlined in the previous chapter (section 1.1.4).

What is clearly needed is a dynamic approach to the issue of social differences in population and a much clearer theoretical account of the way that the nature of social differences in a society are linked to economic and social development. Also needed is a taxonomy of the key variables linked to the structure and the dynamics of social systems. All of this would permit better informed decision-making about the relevance, feasibility and scalability of actions taken in different country contexts. While we have collected lots of evidence, even in high income countries there are still important observations to be made:

- Theoretical models of social structure often rely heavily on occupational structure for measuring equity and other variables. This is helpful up to a point, but the other axes of social difference should also be routinely collected and used in theoretical models.
- Although we can test evidence for heterogeneity, there is a huge amount of health research that pays no heed to social differences even of the grossest kind.

In this latter regard the Campbell and Cochrane Collaborations are working to produce guidance on the integration of equity issues into systematic reviews (Tugwell et al., 2006a, 2006b). These will encourage reviewers to consider for example specific impacts of interventions on disadvantaged groups, impacts on gradients in inequities, context, the extent to which subgroup analyses have been done, and differences in different population groups at baseline. While these precepts will assist in the review process, if the original primary research studies do not collect these data, then there is little that reviewers and synthesizers can do. In fact many studies do collect such data by subgroup but they do so for the purposes of controlling for confounding rather than for exploring subgroup differences. Frequently quantitative studies are statistically underpowered to collect data on differences in outcomes in different social groups.

2.3 *Building an integrated evidence base for the social determinants of health*

The data and evidence which relate to social determinants of health come from a variety of disciplinary backgrounds and methodological traditions. The evidence about the social determinants comprises a range of ways of knowing about the biological, psychological, social, economic and material worlds. The disciplinary differences arise because social history, economics, social policy, anthropology, politics, development studies, psychology, sociology, environmental science and epidemiology, as well as biology and medicine, may all make contributions. Each of these has its own disciplinary paradigms, arenas of debate, agreed canons and particular epistemological positions. Some of the contributions of these disciplines are highly political in tone and intent.

In short, although the empirical subject matter of the social determinants of health is diverse, that diversity is given an added layer of complexity by the disciplines involved and by the fact that those disciplines do not reach an easy consensus on the nature of knowing the material nor on its interpretation. When we add to the mix the ways of knowing and understanding of policy-makers, politicians, NGOs, as well as of the people whose lives are directly affected by the social determinants (Lomas et al., 2005), the degree of complexity could be potentially debilitating. As an evidence base therefore it has a number of problems: it is drawn from a diversity of

disciplines using different methods, it is incomplete, and it is biased in various ways, including political and ideological bias. This does not mean it is unusable; it means we must devise ways of sorting out the disciplinary differences, of filling the gaps and of articulating the bias while valuing the diversity.

It is therefore inappropriate to rule out evidence and data *a priori* on the basis of their disciplinary and methodological provenance. The immediate task is to find the best evidence, from whatever source it comes, defined by the extent to which it has used an appropriate method to answer the research question. It is axiomatic that to assert the superiority of one type of knowing over another will be unhelpful. A range of types of knowledge and knowing will be important (Kelly et al., 2004; Berwick, 2005). A pluralistic approach will therefore be necessary.

The solution is straightforward and has been a premise of western philosophical thought for millennia (Plato, 1974). Humans use different forms of knowing and different forms of knowledge for different purposes. There is no necessary hierarchy of knowledge involved until we need to discriminate on the basis of fitness for purpose. This does not mean that all knowledge in general, or of the social determinants of health in particular, is of equal value. It means we have to develop multiple criteria to determine fitness for purpose and to judge thresholds of acceptability, and then critically appraise the knowledge on this basis.

Particular attention will need to be paid to the role of qualitative research in assessing the effectiveness of approaches to address SDH. Popay (2003) argues that there are two different models to describe the ways in which qualitative evidence contributes to the evidence base for policy-making:

- The *enhancement model* assumes that qualitative research adds something 'extra' to the findings of quantitative research – by generating hypotheses to be tested, by helping to construct more sophisticated measures of social phenomena, and by explaining unexpected findings generated by quantitative research.
- The *epistemological model* views qualitative evidence as making an equal and parallel contribution to the evidence base through: (a) focusing on questions that other approaches cannot reach; (b) increasing understanding by adding conceptual and theoretical depth to knowledge; and (c) shifting the balance of power between researchers and the

researched. Importantly, the epistemological model views qualitative evidence as not necessarily complementing quantitative evidence, but sometimes conflicting with it. (Popay, 2003)

Qualitative research can play two key roles as part of the evidence base for the social determinants of health: (a) providing insights into the subjectively perceived needs of the people who are to be the targets of the interventions and programmes (giving people a 'voice'); and (b) helping to unpick the 'black box' of interventions and programmes to deepen understanding about factors shaping implementation and hence impact (Popay & Williams, 1998; Roen et al., 2005; Arai et al., 2005).

One major difference between the qualitative and quantitative traditions concerns replicability and generalizability. Obviously generalizability within the qualitative tradition is of a different kind to that in an experiment or a survey (Popay, 2003). With regard to judging the *external validity* of qualitative evidence, Popay et al. (1998) note: '[t]he aim [in the qualitative tradition] is to identify findings which are *logically* generalizable rather than probabilistically so'. There is a rapidly growing literature on methods of synthesizing qualitative research and mixed methods research (see for example, Dixon-Woods et al., 2004 and Popay & Roen, 2003) – see section 9.1 for more information on this subject.

There must therefore be a commitment to methodological pluralism and epistemological variability, and a commitment to the view that epistemological positions are not mutually incompatible. The argument that there is an inherent incompatibility between objectivist and subjectivist approaches is to be explicitly rejected in favour of the view that there are different ways of knowing, and that different ways of knowing can and do play different roles in the ways that humans use knowledge and information. However, in certain circumstances and for certain purposes, some forms of knowing are more practically useful. The polarization of knowledge into objectivist and subjectivist approaches is unhelpful and misleading (see Gomm & Davies, 2000, and Gomm et al., 2000 for a review of helpful ways to describe different methodological approaches). Equally, the view that all knowledge is relative and of equal value is to be rejected in favour of a view which defines the relevance and the salience of knowledge according to its practical value in given circumstances.

2.4 ***'Equity proofing'***

Although the evidence base is limited in the various ways described here, 'equity proofing' provides a solution that, while evidence based, can proceed without waiting on the result of future studies and better conceptual apparatus. Equity proofing is key to the effective implementation of policies and programmes which seek to address the social determinants of health and health equity, as well as to the sustainability of an overall approach to improving health equity. Solutions to tackling health inequities cannot be universally applied to all contexts (country, sociopolitical, economic, etc.) and therefore it is important to review proposed policy and programme approaches in context. Also the best intentions in any policy or major programme can go astray in the implementation. Therefore any policy or programme development process needs to include the opportunity to identify, assess and address its potential health equity impacts (positive and negative, intended and unintended), so as to maximize the potential health equity outcomes and minimize any potential harm. It is essential that policies aiming to address the social determinants of health are equity proofed to ensure the gaps in health experience are not inadvertently increased.

The equity proofing approach should be applied not only to policies and programmes with an explicit equity objective but also to policies or major programmes without a stated equity focus. This is particularly important for policies outside the health sector where there may have been no consideration of any potential health impacts (not to mention health equity impacts) and such impacts (positive as well as negative) could potentially be significant.

Equity proofing should take place at two stages in particular of a policy's development and implementation: at the beginning, when the policy is going on the agenda, and later on when the policy is evaluated. Equity proofing is therefore dealt with in detail in chapter 7 as one of the three chapters on 'Getting SDH on the policy agenda' (the others are 'Understanding the policy-making process' and 'Making the case'). It is covered briefly in chapter 10 on 'Effective implementation and evaluation'.

2.5 *Illustrative case studies*

The following illustrative case study shows an example of the challenges of an evidence based approach:

- No. 1 – United Kingdom: Acheson Inquiry.

The following illustrative case studies give examples of the need for equity proofing:

- No. 2 – Brazil, Peru, United Republic of Tanzania: Failure to equity proof programme for childhood illnesses
- No. 3 – Bolivia: Evaluation of Social Investment Fund.

3 Gaps and gradients

In this chapter the significance of health gaps and gradients (introduced in chapter 1) is examined, initially by considering some important work in this field and then by looking at the policy implications.

3.1 *The pioneering work of Antonovsky and Victora*

In what was one of the very earliest attempts to review historical and contemporary evidence about inequities in health in a systematic way, Antonovsky showed that inequities were a common feature of all differentiated social systems. Examining data from more than thirty international studies he argued that the inescapable conclusion was that social class influenced a person's chance of staying alive. Historically he noted a variation of about 2:1 between the extremities of the social classes, although he saw this differential narrowing in the mid 1960s. This class differential held even though overall death rates were declining. He noted that whatever the index used, or however the class system was represented, almost invariably the lowest social classes had the highest mortality rates (Antonovsky, 1967).

He went on to demonstrate that there was an important characteristic in the historical differences between the most and the least advantaged across different societies. He observed that where the overall rates of mortality were high, the differences in mortality between the best and the worst off tended to be relatively small. This, he claimed, characterized societies in the early period of industrialization. As rates of economic growth increased, and particularly as industrialization evolved, the patterns of mortality began to improve for both the most and the least advantaged, *but at differential rates*. The middle and upper classes seemed to derive the health dividends of industrialization earlier. The mortality rate of the most advantaged improved at a faster rate than the mortality rate of the least advantaged. The result was that the differences between the most and least advantaged got bigger. However, as time went on, the rate of improvement for the middle and upper classes began to slow, while the rate of improvement for the least advantaged began to increase, resulting in a narrowing of the difference.

This led Antonovsky to suggest that where death rates are relatively high *or* low, the difference between the most and the least advantaged will tend to be relatively small, but where the rates of mortality are mid range the difference between the most and the least advantaged will be relatively high. Since the publication of these data in the mid 1960s this pattern seems to have evolved still further. For example the gradient in countries like the UK seems to have begun to steepen again over the last forty years or so, and in some countries of the former Soviet block the increase in health inequalities in recent time has been dramatic. One conclusion to be drawn from Antonovsky's earlier work, combined with the more recent data, is that health inequalities are part of long term social, political and economic trends. They are linked to the playing out of policies and historical events and underlying changes in the social structure and the division of labour in society in ways that require an explanation in their own right.

The interesting thing about this is the shape of the curves Antonovsky described. Both extremes are close together and the middle much further apart. One conclusion to draw from this is that it describes a pattern that is linked to some underlying process of modernization/ industrialization, and there are some compelling biological (the prevalence of infectious disease, the nature of infant mortality) as well as social (the nature of the housing stock, the appearance of decent sanitation and safe drinking water in particular) sets of factors at work. Certainly the chronology of events would lead one in that direction. The other important conclusion is that these data demonstrate that inequalities in health are not fixed, but rather are variable at different historical time periods.

One of the more interesting ways of trying to make sense of global type data is to try to evaluate it in the context of data from different spheres. One of the most striking examples of this is in relation to work by Victora and colleagues (2000). They propose the 'inverse equity hypothesis', a public health corollary of the 'inverse care law' on individual medical care, as a way of explaining why at different times the inequity ratio between rich and poor can improve, remain unchanged, or worsen.

Drawing on data relating to the implementation of child health programmes in Brazil, they note a very similar, almost identical set of curves to that described by Antonovsky, although over very much shorter time horizons. They note that whenever there is a new programme introduced, the children of the better off benefit sooner and to a greater extent than the children of the poorer sections of society. The

improvements do affect the less advantaged but later, and there is an inevitable catching up process. Critically Victora and colleagues argue for the inevitability of this process *ceteris paribus*. It operates at a much shorter time frame than the kinds of historical epochs which Antonovsky was interested in, but the same pattern emerges. Victora et al. also note that these effects compound one another in the sense that the children of the more well-to-do are inevitably always in front since the benefits of the next new intervention(s) will have already kicked in before the poorer cohorts have caught up with last one. So although the overall effect is of health improvement, the constantly repeated cycles tend to reinforce the inequalities, giving the impression of being constant when in fact they are each the product of successive waves of differential responses to successive interventions.

The work of Antonovsky and Victora points to two policy approaches to dealing with health inequalities: health gaps and health gradients. We discuss these next.

3.2 Health gaps

When researchers in high income societies talk about health inequities or inequalities in health they are drawing on data which show that, when measured by occupation in particular, there are marked differences in health from top to bottom of the occupational hierarchy (Acheson, 1998). Similar discrepancies are captured in other measures of social difference based on education, income, housing tenure, gender, ethnicity, disability and geography. As noted previously, there are conventionally three different ways in which health inequities are described: health disadvantage, health gaps and health gradients (Graham, 2004a, 2004b, 2005; Graham & Kelly, 2004).

Health disadvantage simply focuses on differences, acknowledging that there are differences between distinct segments of the population, or between societies. The health gaps approach focuses on the differences between the worst off and everybody else, often assuming that those who are not the worst off enjoy uniformly good health. The health gradient approach relates to the health differences across the whole spectrum of the population, acknowledging a systematically patterned gradient in health inequities. We recommend using the gradient approach because it allows for a focus on all members of society and recognizes the importance of considering and taking a societal wide approach to the issue.

Conceptually, narrowing health gaps means raising the health of the poorest, fastest. It requires both improving the health of the poorest and doing so at a rate which outstrips that of the wider population. It can be an important policy goal. It focuses attention on the fact that overall gains in health have been at the cost of persisting and widening inequalities between socioeconomic groups and areas. It facilitates target setting. It provides clear criteria for monitoring and evaluation. An effective policy is one which achieves both an absolute and a relative improvement in the health of the poorest groups (or in their social conditions and in the prevalence of risk factors).

Where an approach which links evidence about people's socioeconomic circumstances and health gaps has been adopted, the focus is on those in the poorest circumstances and the poorest health: on the most socially excluded, those with most risk factors and those most difficult to reach. This focus has been important in linking health inequalities to the social exclusion agenda in high income societies, and in targeting policies at local and community level. In policy and intervention terms this leads to approaches which attempt to lift the worse off out of the extreme situation in which they find themselves. In high income countries, if effective, such interventions help only a relatively small part of the population. In low and middle income countries, and especially where the gap is wide and the numbers of people who are socially excluded are large, the potential for change is significant. However, such changes effectively mean transforming the social structures of those societies. In high income countries, focussing policies on the most socially disadvantaged has a minimal effect on social structure because it affects relatively few people. The political significance of health gaps in low and middle income countries is therefore profound and offers a radical agenda, whereas it is relatively conservative in high income countries.

3.3 *Health gradients*

The health gradient is important because the penalties of inequities in health affect the whole social hierarchy and usually increase from the top to the bottom. Thus, if policies only address those at the bottom of the social hierarchy, inequalities in health will still exist and it will also mean that the social determinants still exert their malign influence. The approach to be adopted should involve a consideration of the whole

gradient in health inequities rather than only focusing on the health of the most disadvantaged. The significant caveat is that where the health gap is both large and the population numbers in the extreme circumstances are high, a process of prioritizing action by beginning with the most disadvantaged would be the immediate concern. Otherwise the whole of the population should be considered.

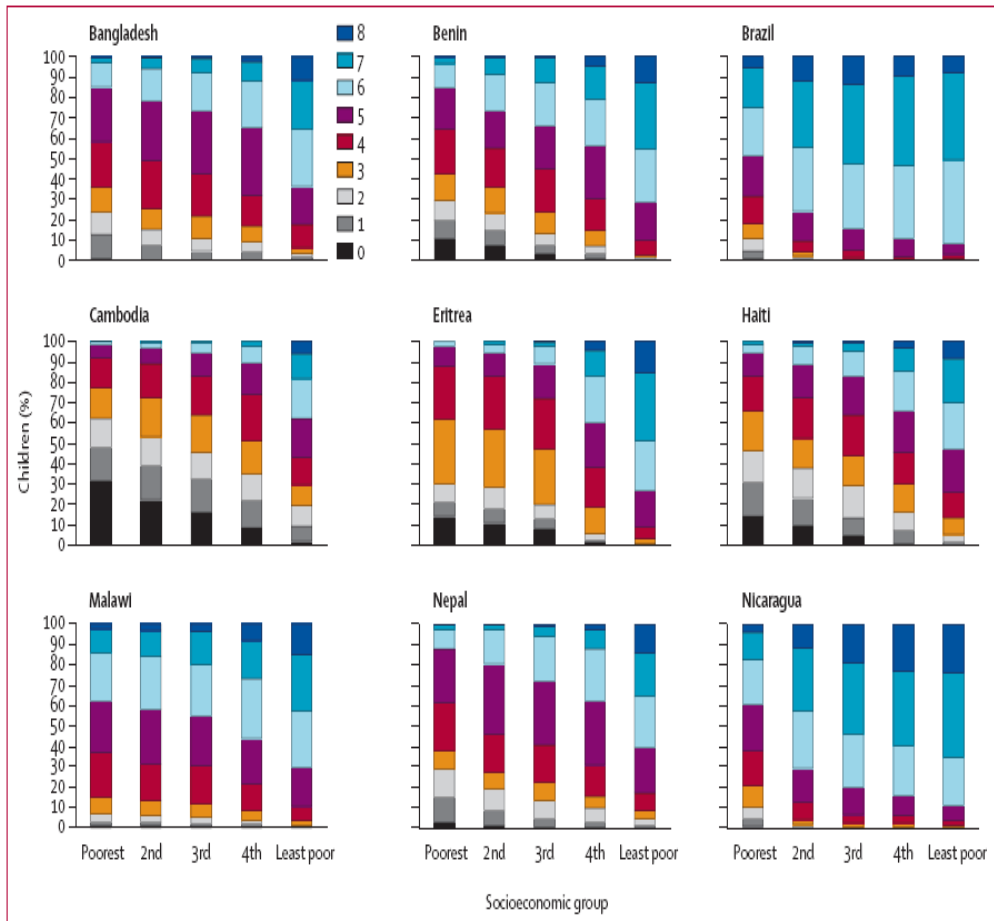
The gradient approach recognizes that, while those in the poorest circumstances are in the poorest health, this is part of a broader social gradient in health. It is not only the poorest groups and communities who have poor health. There are large numbers of people who, although they could not be described as socially excluded, are relatively disadvantaged in health terms. Preventive and other interventions could produce major improvements in their health, and proportionate savings for the health care system. This approach is in line with international health policy. The founding principle of the WHO was that the enjoyment of the highest attainable standard of health is a fundamental human right, and should be within reach of all 'without distinction for race, religion, political belief, economic or social condition' (WHO, 1948). As this implies, the standards of health enjoyed by the best-off should be attainable by all. The principle is that the effects of policies to tackle health inequities must therefore extend beyond those in the poorest circumstances and the poorest health.

Assuming that health and living standards for those at the top of the socioeconomic hierarchy continue to improve, an effective policy is one that meets two criteria. It is associated with (a) improvements in health (or a positive change in its underlying determinants) for all socioeconomic groups up to the highest, and (b) a rate of improvement which increases at each step down the socioeconomic ladder. In other words, a differential rate of improvement is required: greatest for the poorest groups, with the rate of gain progressively decreasing for higher socioeconomic groups. It locates the causes of health inequity, not in the disadvantaged circumstances and health-damaging behaviours of the poorest groups, but in the systematic differences in life chances, living standards and lifestyles associated with people's unequal positions in the socioeconomic hierarchy (Graham & Kelly, 2004).

3.4 Shape of health gradients

When analysing low and middle income country inequality patterns it is important to be aware that gradients can have different shapes. This can be a critical factor when selecting the social policy approach to reach different populations.

Figure 3.1 Percentage of children age 1-4 years according to the number of child survival interventions received, by socioeconomic group and country



Source: Victora et al., 2005.

The differences are well illustrated by Victora's evaluation of coverage of preventive child-survival interventions in nine low income countries of Africa, Asia and Latin America (Victora et al., 2005). Figure 3.1 shows the distribution of children according to the number of preventive interventions they received in relation to the socioeconomic group they belong to.

In their analysis, the researchers identify three inequity patterns: linear, top and bottom. The 'linear inequity' corresponds to the classic gradient situation. Although their steepness varies, Bangladesh, Benin and Nepal represent this pattern. The 'top inequity' pattern corresponds to countries where the great majority does not receive interventions and a disproportion of benefits is concentrated in the higher socioeconomic groups (Cambodia, Eritrea, Haiti and Malawi). Finally, the 'bottom inequity' pattern is found where most children do have access to interventions, but there is a clear group which lags behind. Here this is the case of Brazil and Nicaragua and it is in turn a common feature in many Latin American countries.

In order to clarify the gap and gradient issue in low and middle income countries, situation analysis may be useful for understanding why there are particular patterns of inequity in particular societies and where to focus action. Such analysis might include:

- Mapping the country-specific proximal and distal determinants of health inequities to encourage political action
- Assessing financing for health care services (e.g. universal coverage, user fees) and resources for health
- Mapping the public health systems within which action can take place so that the roles and responsibilities of different actors can be made explicit.

3.5 *Illustrative case study*

The following illustrative case study gives an example of health gaps:

- No. 4 – Brazil: Infant mortality in Ceará state.

3.6 *Remainder of this guide*

Having outlined the theoretical and conceptual issues and challenges which are necessary to an understanding of the complexity of measurement and evaluation in SDH, we now turn in the remainder of this guide to a series of tools and practical techniques to help with the development and implementation of programmes to address SDH. In the next chapter we look at a framework for developing, implementing, monitoring and evaluating policy.

II

Tools and techniques

4 Framework for policy development, implementation, monitoring and evaluation

There is a range of tools and techniques available to policy-makers, researchers and practitioners to support them in addressing the social determinants of health. This chapter seeks to highlight some of the most important and describes how they might be utilized in the process of evidence generation and synthesis, translation of that evidence into effective practice, and policy review.

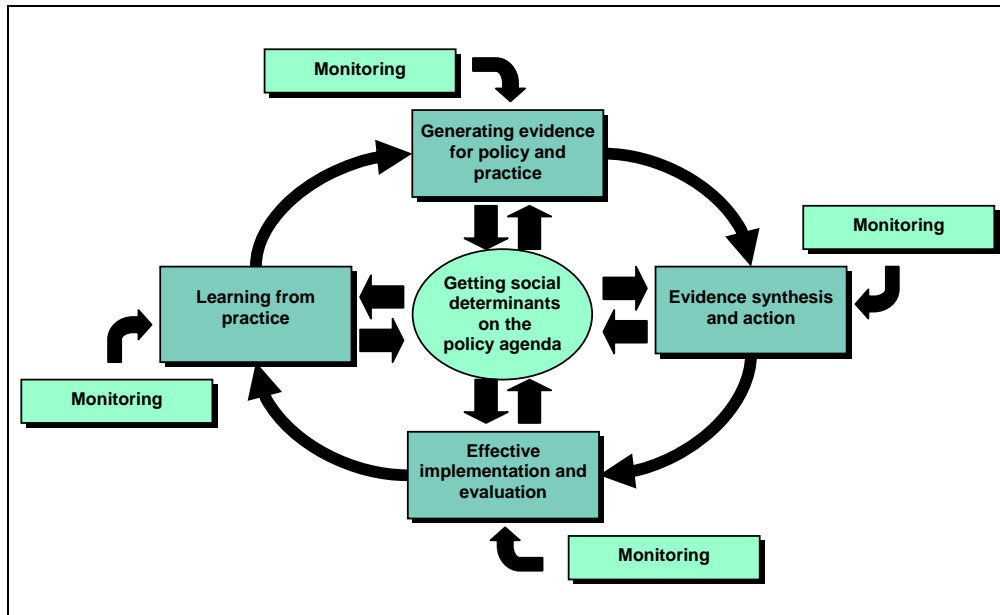
Successful action on the social determinants of health relies on our ability to organize a wide range of different types of knowledge, to apply it effectively to policy development, and to learn continually from our experience in the implementation of those policies. In this context, the Measurement and Evidence Knowledge Network (MEKN) proposes the use of a framework for policy development, implementation, monitoring and evaluation (see Figure 4.1) which can support the policy-making and review cycle (MEKN, 2006b). This framework supports the systematic collection, collation, dissemination and use of knowledge that can promote the need for action on the social determinants, and the development of effective, equitable interventions on these determinants.

4.1 Purpose of the policy framework

The purpose of the framework is to support policy-makers, researchers and practitioners develop a systematic and transparent approach to taking action on the social determinants of health. Used in conjunction with the principles set out in chapter 1 it can help countries to:

- Assess the priority associations between social determinants of health and health inequities in their own contexts
- Highlight the social determinants of health which should be prioritized
- Stimulate societal debate at national, regional and local level on the opportunities for acting on the social determinants of health
- Apply and evaluate policy proposals and their likely success, and learn from the experience of implementation.

Figure 4.1 Framework for developing, implementing, monitoring and evaluating policy



The framework relies on a commitment both in policy and research terms to build an evidence base using multi-methods of research which draw on a variety of disciplines, methods and evaluations designed to accommodate the complex nature of social interventions and their long term impact.

The framework will allow methodological diversity in the development and consideration of the evidence base. The framework details a systematic approach to the generation and utilization of evidence in programmes aiming to address the social determinants of health. The approach is generic to evidence based public health but it has been made specific and relevant to the social determinants agenda by applying the principles set out in chapter 1. Using these principles in this way ensures that policy-makers and practitioners are challenged at each step in the process to consider the implications of their programmes on different subsets of the population, thereby equity proofing all the work they do.

The Measurement and Evidence Network was asked to provide an overview of existing tools and techniques that are available or need to be developed. Such tools and techniques are necessary both to assess the impact of social determinant approaches to reducing health inequalities (primarily through evaluation methods),

and to support the development and implementation of programmes to ensure that they do not exacerbate health inequities (through techniques such as health impact assessment). Examples of the tools currently available are given in the following sections (5 to 12). They provide a state of the art summary of the tools that currently exist to support better decision-making by policy-makers and practitioners working in this area.

It is important to note however that there was a paucity of tools to draw on, particularly from middle and low income countries. None were found in languages other than English. Many of those that we have included in this guide are at different levels of development and it has therefore not been possible to provide a definite list of the 'best tools'. However we hope that the issues raised in this guide for improving methodological approaches in this field set out an agenda for further work leading to a more comprehensive set of tools and techniques to support effective action on the social determinants.

4.2 *Using the framework*

In general terms, the four phases of the framework set out in Figure 4.1 are applicable to any evidence based approach to population health. However the framework highlights the most appropriate use of different tools and approaches which support the development and review of social approaches to health development and the reduction of health inequities. In doing so it helps to make explicit when and how to use different evaluation techniques to answer particular research questions, avoid the potential misuse of evaluation in certain contexts, and create knowledge for decision-making when formal evaluation is not possible.

The cyclic nature of the framework allows countries to assess their position so that they can most effectively build a systematic evidence based approach to the social determinants of health.

For example in some countries policies required to address the social determinants of health may not yet be in place and therefore more emphasis will be required on 'Making the case'. On the other hand, where equity focussed policies already exist countries will need to equip themselves with an evidence base on how best to implement these policies and with the necessary structures and systems for

successful implementation. It may not however be appropriate to start at the top of the circle ('Generating evidence for social action'). A country or region with SDH already on the policy agenda and with substantial grassroots experience of implementing programmes may find it more useful to start with 'Learning from practice'. It is important to note that all phases are important; they are not mutually exclusive and all countries will probably already be active in all phases to some degree or other.

The framework forms the structure for the second part of this guide. The remaining chapters work their way round the framework, starting in the middle with three chapters on 'Getting social determinants on the policy agenda' and finishing with 'Monitoring'.

5 Getting social determinants on the policy agenda – understanding the policy-making process

5.1 Introduction

Policy studies emerged as an academic discipline in the 1950s. This followed the development of large national public sector policies in education, health, housing, water supply, sanitation, social welfare, etc, in several countries. Many of these national programmes faced problems in achieving their goals. Similarly, several research based public health policies and programmes recommended by WHO and other United Nations bodies and adopted by member governments also faced difficulties in achieving their objectives. Control of tuberculosis, water borne diseases, and malaria and other vector borne diseases are cases in point, although small pox eradication was an exception. Addressing well known determinants of health such as provision of safe water and sanitation, under-nutrition, shelter, education and employment have proved even more difficult.

Problems and gaps in achieving the goals and objectives of national policies and programmes provided a stimulus for policy research. A substantial proportion of policy studies available in the English language are based on North America and western Europe. Health sector studies reveal that, despite explicit policies to reduce inequalities in health and substantial funding in high income countries, inequalities persist despite overall progress. This suggests that there is a need to further understand policy processes. It also suggests the need for an ongoing inbuilt process of research and evidence gathering to inform and track policy. Political and policy processes, including achieving health goals with an equity focus, need priority attention. Studying pathways, processes, enablers and barriers, impacts and unintended outcomes of policies is critical to realizing people's aspirations for better health and well-being, and to reaching national and international goals for health and development.

In public health and related interventions, culture, human behaviour and social differences in the population play a greater mediating role than in clinical interventions. Different forms of data and evidence will be called into play, external

validity will be inherently problematic and the time from intervention to outcome will generally be long term (Briss, 2005). Evidence is an essential *but not sufficient* basis for policy action. Several other ingredients besides evidence are involved in the policy-making process, including:

- Problem recognition and definition
- Formulation of solutions, including transferability of evidence into appropriate social strategies
- Scalability into different contexts and settings
- Political will.

To complicate matters, the policy-making process is often poorly understood by researchers (Petticrew et al., 2004; Whitehead et al., 2004; Lomas et al., 2005) so the dialogue between the two is sometimes characterized more by mutual incomprehension than by joint working. Researchers are often low on the list of people with whom policy-makers and politicians wish to consult.

While there are many examples of national governments developing comprehensive strategies, programmes and initiatives to tackle inequities (Morgan & Ziglio, 2007; Benzeval et al., 2000), countries vary in their awareness and commitment to take action (Mackenbach & Bakker, 2002). It is recognized that in some countries there is still a job to be done in making the case to policy-makers about the need to tackle health inequities. Different strategies and actions may be required in different countries depending on where they are in the process of developing policies aimed at addressing the social determinants of health.

Getting SDH on the policy agenda will be dealt with in this and the following two chapters. This chapter looks at the policy-making process in detail. The next chapter looks at how best to make the case to influence that process. (Those who are more interested in the practical aspects of getting policy into practice may wish to go straight to the next chapter.) The third chapter deals with 'equity-proofing' – we need to ensure that those policies which do get on the agenda are equitable in outcome as well as intent.

This chapter is divided into five main sections. First, the nature of policy and policy-making is described. Second, the specific challenges which the nature of SDH presents to policy-makers are examined. Third, the need to consider context is

explained. Fourth, a range of conceptual models are described and briefly applied to SDH. Fifth, a series of conclusions are drawn.

The broad conclusion of this chapter is that a universal approach to designing and implementing policies to address SDH is neither feasible nor desirable. Policy-makers at all levels need to equip themselves with the knowledge and skills to interpret and apply lessons from their own experience and elsewhere.

5.2 *Understanding policy-making*

5.2.1 *What is policy?*

Policy is an over-used term, carrying multiple meanings, as illustrated by Hogwood and Gunn (1989:13-19) who argue that policy can be defined as:

- A label for a field of activity
- An expression of general purpose or desired state of affairs
- Specific proposals
- A decision of government
- A formal authorization
- A programme
- An output
- An outcome
- A theory or model
- A process.

This ambiguity is significant because these uses can imply action and inaction, decision and non-decisions, means and ends.

A study of policy processes of the National Tuberculosis Control Programme in India took a historical perspective spanning several decades. It analysed evolving programme content and institutional cum system development within a broader socioeconomic and political context, looking at the role of communities, implementers and a variety of national and international actors. It defined policy as a series of related decisions, actions or inaction, around a framework of goals and objectives, evolved and undertaken over a period of time, by several actors at different levels,

explicitly or implicitly impinging directly or indirectly on the problem, with intended and unintended consequences (Narayan, 1998).

Policy includes the creation of the means to guarantee execution. It affects institutions, organizations, health personnel, services and funding arrangements within the health care system (Walt, 1994). Implementation is an integral part of the policy process, related to political processes, societal structures and values (Narayan, 1998).

5.2.2 Clarifying policy analysis

A distinction needs to be made between analysis *for* policy (provision of technical and economic information for policy-making, monitoring and evaluation) and analysis *of* policy (focusing on processes and values affecting origins, intentions, constructions and conduct of policies). A similar distinction can be made in relation to research: research *for* policy and research *of* policy. This difference is essential to understanding the contribution that analytical approaches can make. These differences lie on a spectrum of approaches to studying and analysing policy.

There are several theoretical approaches to policy analysis with varying frameworks of analysis:

- *A linear, rational, problem solving, prescriptive approach* (Majchrzak, 1984) is widely used by biomedical experts in the health sector. Although the limitations of rational choice approaches are recognized (Grindle & Thomas, 1991), they continue to be widely used.
- *Epidemiology* contributes to understanding the nature, magnitude, distribution spread and determinants of health or disease problems (Levine & Lilienfeld, 1987).
- *Economic* approaches with concepts of efficiency, effectiveness and value for money to make best use of scarce resources have gained currency in recent decades, when global wealth and knowledge have also peaked. However, economic approaches have limitations, especially in coping with political dimensions and value systems (Ganapathy, 1985).
- *Ethnographic* and *anthropological* studies undertaken for over a decade have contributed to understanding disease and health care in several new ways.

- *Political science* approaches focus on actors, institutions and societal groups involved in policy-making. For instance, health sector policy studies have looked at the role of policy elites (Grindle & Thomas, 1991) epistemic communities and health bureaucracies (Justice, 1986); interest groups and conflicting interests (Reich, 1993); and economic and class interest (Navarro, 1994). Political mapping (Reich, 1993) and stakeholder analysis (Crosby, 1992) study political resources and support for and opposition to policy. Banerji (1985, 1990) analyses health policy with a multi-disciplinary approach, a historical perspective and a pro-poor value base.
- A *political economy* approach is used by Walt (1994) and Walt and Gilson (1994). They suggest an analytical model for health policy analysis incorporating context (social, political and economic), processes, actors (international, national and sub-national) and content. Concepts such as context are open to varying political assumptions and interpretations. In the general academic discourse, public perspectives and participation in the policy process – particularly of the socially excluded – is generally limited or absent.
- *Critical policy analysis* includes a critical reflection of social science methodology, recognizing its values, interests, assumptions and structural limitations (Ganapathy, 1985). The method is committed to social justice and recognizes issues of power and conflict. It uses different methods to generate multiple, divergent perspectives, ensuring public participation. A dialectical analysis of these multiple perspective leads to a deeper understanding of reality. It is a reflective, dialogical process of engaging with policy action and collective social action based on demystification and repoliticization of policy analysis. It holds that every proposition is true only up to a point; hence multiple perspectives help overcome individual limitations.

The dominant influences in public health decision-making at national and international levels continue to be largely biomedical, epidemiological and econometric. It is particularly important to keep this in mind when developing methods to study the impact of policies aimed at reducing inequalities in the social determinants of health which are deeply embedded in the social, cultural, political and economic fabric of life.

5.2.3 Policy implementation

Studies on policy implementation, although small in number, offer useful insights. The values, assumptions, perspectives and socialization processes of policy- and decision-makers, planners and implementers influence the implementation process.

Philip Selznick's study on the Tennessee Valley Authority in 1949 (cited in Parsons, 1995), is an early analysis of implementation. It indicated that organizations and bureaucracies responsible for implementation adapted, survived and thrived as complex organic systems interacting with their environment. Informal organizations developed within the formal structure. Decisions often followed the interests and values of the members of these informal groupings and not the formal policy goals of the organization.

Studies of implementation failure in the 1970s reinforced and strengthened support for a top down approach. There is an assumption of power at the top and of significant control over political, organizational and technical factors (Williams, 1982). This approach is used particularly by hierarchical institutions and organizations, and those driven by very specific technical or business goals and interests. In this situation, policy objectives may be met and social, environmental and other costs may be ignored. Policy goals are assumed to be valid (Hogwood & Gunn, 1984). However this approach is increasingly being contested as different social constituencies assert themselves.

Research reveals that policies are altered by the actions of local implementers and by organizational and inter-organizational factors and dynamics (Hill, 1993). Implementers coping with changing circumstances and difficult field conditions, where 'the problem' presents itself in different dimensions, often make decisions that alter the intentions of the original policy-makers. Implementers rarely participate in the planning, design and analysis of research or of policy. Their views and perspectives are often interpreted and represented by others.

Bottom-up research approaches starting with 'street implementers' were used by Lipsky in 1971. Others (Howlett & Ramesh, 1995) found that the personal motivation, goals and strategies of local actors and their reinterpretation of programmes, along with their developing local network of contacts, substantially altered policies. Formal and informal relationships constitute policy networks and sub-systems, strongly

influencing policy processes. Policy is not the only or major influence on the behavior of implementers (Elmore, 1982). Negotiation, bargaining, conflict, compromise and consensus building are integral to the policy process and implementation (Grindle & Tomas, 1991).

Implementation is referred to as the 'Achilles' heel of social policy'. Lack of interest or naivety about implementation of policies in the real world is a major impediment in the policy process (Williams, 1982). Despite rigorous plan formulation, setting up of organizational structures, substantial investment of resources, etc, gaps between intent and implementation are common (Hogwood & Gunn, 1984). A more inclusive, participatory and decentralized approach may perhaps be necessary.

The research process itself may also be affected. Peer reviewed literature may reflect the discourse of the dominant. Grey literature, campaign material and a growing academic and analytic stream provide subaltern perspectives and 'reality bytes' from the perspective of the poor. These may not meet the inclusion criteria of rigorous research methodologies such as systematic reviews and meta-analysis.

5.2.4 The policy process

Many see the policy process as a linear, rational process from policy formulation (design of policies) to policy implementation (their enactment). This linear approach may be characterized thus:

- Politicians identify a priority and the broad outlines of a solution...;
- Policy-makers... design a policy to put this into effect, assembling the right collection of tools: legislation, funding, incentives, new institutions, directives;
- The job of implementation is then handed over to a different group of staff, an agency or local government;
- ...The goal is (hopefully) achieved. (Cabinet Office, 2001:5)

This is a simplistic view for several reasons. The distinction between policy formulation and implementation is rarely clear. Intentions and actions are sometimes difficult to distinguish, especially in welfare services where service professionals invariably have a high degree of discretion or autonomy. Their daily decisions effectively become the *de facto* policy of the organization, irrespective of the formally stated intentions to be found in strategic plans, for example. There is often no start or end point to the policy process – only a middle (John, 2000). Most policies are

devised to fit into a pre-existing situation in which previous decisions define the parameters of any new policy. The historical impact of decisions creates a set of conditions from which policy-makers may find it difficult to diverge. This 'path dependency' effectively limits their range of alternative options. Most resource decisions, for example, only consider marginal changes rather than making a fundamental re-assessment. This can limit the scope of policy-makers and decision-makers to undertake radical changes of direction, at least in the short-term, a feature described as 'incrementalism' (Lindblom, 1959). This perspective also contends that the policy process can often be static for relatively long periods, only to be disturbed by moments of change – 'disjointed incrementalism'. As a result, the policy process is characterized by positive and negative feedback loops and rarely reaches completion. Hence it is important to consider not just the objective of the policy process as stated, but also the unintended consequences for different stakeholders.

5.2.5 Analysing the policy process

As a result, a set of challenges faces anyone wishing to analyse the policy process. First, policy or organizational decisions do not always take place at a single point in time and can be protracted over months or even years. As such, it is sometimes difficult to discern when a specific decision was made.

Second, these decisions rarely take place in public settings. Instead, they are usually taken behind closed doors away from the public gaze, despite attempts by some to make the decision-making process more transparent.

Third, outcomes of the policy process that involve no decisions or non-decisions are difficult to discern. The lack of (observable) action or outcome may, in fact, signify a complex set of forces that have stifled a decision or prevented proposals from being enacted.

Fourth, partly as a result of the above factors, rigorous, in-depth empirical policy studies can be difficult to conduct. Where such research has been undertaken, case studies are often a favoured approach (Ferlie et al., 2003).

5.3 SDH and the policy-making process

If they do not recognize the specific nuances of SDH, policy-makers are liable to design and implement policies that are ill-conceived, poorly designed and, as a result, liable to implementation failure (Graham, 2004a). This in turn has longer-term consequences for building and sustaining the coalition of support that often underpins policies. The importance of careful policy development is underlined by Wanless who commented on the United Kingdom: 'What is striking is that there has been much written often covering similar ground... but rigorous implementation of identified solutions has often been sadly lacking.' (Wanless, 2004:3). Raphael also notes the disjuncture between evidence and action in Canadian policy: 'In spite of an accumulated body of evidence and Canada's own expertise on the topic, there is currently a policy vacuum on social determinants of health, as the costs and delivery of health care services have come to dominate the public debate' (Raphael, 2003:35).

It is possible to identify several distinguishing features of SDH that might affect the ways in which policies towards SDH are formulated and implemented (see also Kirby, 2002). These features may not necessarily be apparent in all policies in all countries; rather, they need to be applied and interpreted in specific contexts. Collectively, these make the SDH a 'wicked problem' (Rittel & Webber, 1973) – one which is not easily resolved (if at all) through the traditional policy infrastructure. Some of these issues have been identified elsewhere in this guide but are repeated here because of their particular relevance to the policy process.

First, SDH are multi-faceted phenomena with multiple causes. While conceptual models of SDH such as the Dahlgren and Whitehead model (1991) (among others) are useful, they do not necessarily provide policy-makers with a clear pathway towards policy development and implementation. As specific policy initiatives tend to be targeted to a specific population group in certain circumstances and for prescribed time-periods, they can neglect the wider context within which SDH are generated and re-generated. Some policy-makers believe that the lack of a simple problem hinders the development of simple policy solutions. There is no 'smoking gun' (Exworthy et al., 2006), social inequities in health are 'invisible' (Dahlgren & Whitehead, 2006), and so the policy response tends to be diffuse.

Second, recent studies of SDH have emphasized the significance of the life course perspective (Blane, 1999). The health effects starting *in utero* and in early childhood are thought to be profoundly entrenched inter-generationally. Such a perspective poses serious challenges to policy-making processes whose timescales are rarely measured over such long periods. The tenure of elected or appointed officials is measured in months and years rather than decades, the electoral cycles in parliamentary or presidential democracies are usually 5 to 7 years, and even reporting cycles (for budgetary purposes, for example) tend to be much shorter (usually annually). Moreover, coalitions of interests in support of the SDH policy may be unsustainable over the time periods necessary to witness significant change. The attention of the public (often supported by the media) has tended to reflect and magnify such short-term timescales. There have been some exceptions to this especially in the field of public pension policies, but the general problem of timescales remains important.

Third, SDH necessarily implies policy action across a range of different sectors. It is increasingly recognized that action beyond healthcare is essential and, as such, intersectoral partnerships are critical to formulating and implementing policy towards SDH. However, there is a significant body of evidence which shows that partnerships are hampered by cultural, organizational and financial issues (Sullivan & Skelcher, 2002). Whether at central, regional or local level or sectorally (say, between the healthcare sector and the education sector), collaborating organizations operate according to different values, have different accountabilities and performance measures/ criteria, and different reasons for collaborating. For instance, government agencies have traditionally been organized vertically according to service delivery (Bogdanor, 2005; Ling, 2002). However, such 'silo' or 'chimney' approaches are not well equipped to tackle issues that cut across traditional structures and processes. The health agenda may be quite marginal to the activities of some collaborating agencies. Even in organizations with apparently similar interests, this is further complicated by conflicting performance regimes (indicators, timeframes, incentives, etc). There is also an argument that SDH action is required beyond the state or government, in civil society including voluntary or even private sector agencies. Given the differences between these and state agencies, policy collaboration on SDH can be highly problematic.

Fourth, policy towards SDH must be viewed as one of several competing priorities for policy-makers' attention and resources. Economic policy or foreign policy might at

different times take precedence over SDH. More specifically, SDH may be overshadowed in the policy-making process by healthcare itself. However, this *healthcare* focus is often to the neglect of *health* and *SDH per se*. This focus reflects the medicalization of (western) society with its emphasis on the medical model of care, heroic interventions, and the application of the rescue principle. As a result, attention tends to be on the short-term rather than the long-term and on discrete interventions rather than coordinated, collaborative ones.

Fifth, the cause-effect relationships within some aspects of SDH are not readily apparent. Knowing and understanding causal pathways is a first step in devising appropriate policies but the question of attribution remains. As Deaton (2002) argues: 'Policy cannot be intelligently conducted without an understanding of mechanisms; correlations are not enough' (p.15). In circumstances where a clear cause-effect relationship cannot be linked with a discrete policy intervention, there may be a case for relying more heavily on a value-based approach.

Sixth, in order to identify, monitor and analyse epidemiological changes over time, routine data needs to be available. In many countries, these data are not available, of poor quality or have been collected over insufficient periods to aid policy-making with sufficient sensitivity. Just as one cannot fly a modern aeroplane without a large number of sensors and measurements (dials and meters), one should not expect to manage a nation's population health, including the variety of disparities therein, without a comprehensive health information system.

Seventh, processes of globalization have been undermining the role of the nation state in policy-making. Powers have been relocated to supranational organizations such as the European Union, World Trade Organization, International Monetary Fund and World Bank. In particular, some of the supranational institutions have promoted a neo-liberal agenda. Raphael argues: 'The decline of the social welfare state is driving neo-liberal approaches to policy-making that fundamentally conflict with strengthening the social determinants of health' (Raphael 2003:37).

Governments' ability to shape and mould the SDH with the goal of improving their population's health is becoming limited as many of the 'causes of the causes' no longer fall within their responsibility. They therefore need to rely on influence and leverage in multinational networks. There is a parallel argument that decentralization

processes to regions and cities have had a similar effect on the policy-making capacity of national governments.

The seven factors and their impact on policy are summarized in table 5.1.

Table 5.1 Link between SDH features and the impact on policy-making

Features of SDH	Impact on policy-making
Multifaceted phenomena with multiple causes	Coordinated strategies are difficult to achieve
Life course perspective	Long-term approach do not match policy timetables
Intersectoral collaboration and partnership	Partnerships are problematic
Dominance of other priorities	SDH often neglected
Cause-effect relationships are complex	Attribution problems hamper policy
Data	Routine data of high quality and in timely availability, is often lacking
Globalization (and decentralization)	Policy-making involves more stakeholders at multiple level, hampering governmental action

The questions which emerge as a result (see table 5.2) are perplexing for policy-makers seeking to incorporate SDH.

Table 5.2 Emergent policy questions

Priority	<ul style="list-style-type: none"> • Which health inequities are amenable to policy intervention and by how much? • How to shift the focus of policy from healthcare to health/SDH? • What is a suitable balance between programmes?
Time lag	<ul style="list-style-type: none"> • How to maintain momentum of policy before outcomes are demonstrated?
Attribution	<ul style="list-style-type: none"> • How to link policy interventions and observed outcomes?
Accountability	<ul style="list-style-type: none"> • How to hold individuals and agencies responsible for progress?
Measurement	<ul style="list-style-type: none"> • How to monitor progress, with what data and how often? • How to avoid unintended consequences?

5.4 Policy-making in context

Policy-making needs not only to be sensitive to the types of issues being addressed but also to the social, economic and spatial context within which those policies are introduced.

A number of conceptual approaches aid in the analysis of the role of context. 'Realistic evaluation' has been widely adopted as a way of describing and explaining the interaction between context and policy interventions ('mechanism') in generating outcomes (Pawson & Tilley, 1997). While the model can be simplified as $C+M=O$ (context + mechanism = outcome), Pawson and Tilley argue that the interaction between the three components should be viewed as a specific configuration that reflects the unique combination of factors involved.

5.4.1 Policy description

Part of specifying the precise contextual environment is accurately describing the policy. A simple comparative mechanism can help enumerate the policy's characteristics (see table 5.3).

Table 5.3 Policy characteristics

Degree of innovation	Traditional	1	2	3	4	5	Innovative
Degree of controversy	Consensual	1	2	3	4	5	Highly controversial
Structural or systemic impact	Marginal	1	2	3	4	5	Fundamental
Public visibility	Very low	1	2	3	4	5	Very high
Transferability	Strongly system-dependent	1	2	3	4	5	System neutral

Source: Health Policy Monitor (www.hpm.org).

Further description can be made of the policy process:

1. Approach of idea: new / old / recycled
2. Innovation or pilot project
3. Stakeholder positions
4. Adoption and implementation: sponsoring departments

5. Monitoring and evaluation
6. Review mechanisms: mid-term review or evaluation, final evaluation (external)
7. Dimensions of evaluation: process / outcome (www.hpm.org).

5.4.2 Levels in the policy-making process

Distinctions are often made about the level at which policy-making takes place. A common distinction is between top-down and bottom-up. Much of the normative accounts of the policy process tend to assume a top-down process – from policy formulation at the centre to local implementation.

Hudson and Lowe (2004) refer to micro, meso and macro levels:

1. *Micro level*: individual and group activity which contributes to policy activity
2. *Meso level*: the way in which micro-level contributions are shaped by historical precedents, routines and values
3. *Macro level*: socioeconomic and political trends and patterns.

Frenk (1994) adopts four levels in his health policy analysis:

1. *Systemic*: institutional arrangements for regulation, finance and service delivery
2. *Programmatic*: intermediate level defining the specific priorities of the system
3. *Organizational*: actual production of services through a focus on quality assurance and technical efficiency
4. *Instrumental*: institutional intelligence for improving system performance through information, research, technological innovation and human resource development.

The implications for SDH rest crucially at which level SDH interventions should be directed. For example, Turrell and colleagues (1999) argue that although policies implemented at the macro level are supposed to tackle the most fundamental determinants of inequalities in health, such policies are difficult to achieve. If however the social determinants are only amenable to locally-based policies, this would suggest a minimal role for central government/ states. It might be hypothesized that the leverage points for SDH are at all levels – however defined – thereby offering a

potential contribution from all agencies and agents. It does of course make the coordination of such multilevel policy development highly complex.

Reflecting the need for a multi-level perspective, in recent years there has been a shift towards multi-level governance in which the interaction between and within levels has become more interdependent, differentiated and plural (Newman, 2001; Rhodes, 1997). This new form of governance poses substantial challenges for governments and local public service organizations which have traditionally been poor at steering networks of loosely affiliated agencies and agents with differing and often competing interests.

5.4.3 Uncertainty and ambiguity in the policy-making process

Given all the above, it is inevitable that the policy-making process will be characterized by uncertainty and ambiguity. For example, policy objectives may have been written in sufficiently vague language to allow numerous interpretations. This may be due to three reasons:

- Technical incompetence (an inability to define precisely the policy goals or objectives) and/or
- Political device to provide room for manoeuvre among stakeholders, and/or
- Equivocal evidence (concerning, say, SDH) about the appropriate policy strategies.

Uncertainty may also be apparent in the policy means or mechanisms. Stakeholders might for example support the policy objectives but disagree about the means.

The tension between means and ends on the one hand, and certainty and uncertainty on the other, is captured well by Thompson (2003) who provides a simple yet powerful categorization of policy approaches for each of the four policy types (see table 5.4).

Table 5.4 Relationships between policy means/ ends and degree of certainty

Means	Ends	
	Certain	Uncertain
Certain	Tame problems → evidence-based policy-making	Political/leadership crisis → policy/political debate
Uncertain	Wicked problems → policy learning	Wicked problems → 'muddling through'

Source: Thompson (2003).

5.5 Models to inform policy-making

As well as providing greater insight into the mechanisms by which policy is formulated and implemented, conceptual models can afford lessons in different contexts and can aid transferability. Six models are described here.

5.5.1 'Policy streams' model

This model proposed by Kingdon (1995) is concerned with how issues get onto the policy agenda and how proposals are translated into policy. This is the prelude to implementation. Kingdon uses the notion of policy streams to explore the ways in which opportunities for implementation are created. He argues that policy 'windows' open (and close) by the coupling (or de-coupling) of three 'streams': problems, policies and politics.

- *Problem stream*: Conditions or issues only become defined as problems when they are perceived as such. Often, only problems which are amenable to policy remedies are recognized.
- *Policy stream*: Insofar as there are multiple potential issues (which may or may not become defined as policy problems), there are also multiple strategies and policies proposed not just by civil servants or professionals but also by interest groups. However, for such strategies to be enacted, they need to meet a minimum threshold relating to: (a) technical feasibility, (b) congruence with dominant sociopolitical values, and (c) anticipation of future constraints on the strategy being proposed. In terms of SDH, many policy proposals may fail to reach the threshold. For example, desirable policies may not be feasible or may not have been proven effective. Moreover, dominant values may run counter to

addressing health inequalities and shifting political values may also threaten this criterion.

- *Politics stream*: This stream refers to the lobbying, negotiation, coalition building and compromise of local, national and international interest groups and power bases. In terms of SDH, such political debates can be vociferous, as they often challenge existing social, economic and political systems or practices.

These three streams may remain separate until they are coupled by chance factors, such as political (e.g. elections) or organizational cycles (e.g. staff turnover), or by the actions of a 'policy entrepreneur'. The 'policy entrepreneur' facilitates the coupling process by investing their own personal resources (namely, reputation, status, time).

This streams model has wide relevance but has been specifically applied to health inequalities and SDH by Exworthy et al. (2002) and Sihto et al. (2006). Exworthy and Powell (2004) extended this policy streams model to argue that effective SDH policy development (across sectors) needs to be advanced at all levels. In short, 'policy windows' need to be opened at national and local levels.

Other similar models have been proposed by Webb and Wistow (1986) and Challis et al. (1988). The general argument is that three streams – policy, process and resource – need to be conjoined to make policy formulation and implementation effective.

- *Policy stream* is concerned with policy means – aims and objectives
- *Process stream* is concerned with policy ends – the instruments or mechanisms to achieve the policy ends
- *Resource stream* is concerned with the human, financial and material resources need to facilitate the process stream.

A 'successful' policy, therefore, is likely to comprise clear objectives, a mechanism that achieves those objectives and the resources to facilitate the process (Powell & Exworthy, 2001). Failure to connect these streams will lead to failure of the policy.

5.5.2 Network models

Given that the policy process is a pluralistic activity which involves multiple stakeholders, each with their own interests and motivation, it is recognized that policy development rarely operates in isolation but in networks of these stakeholders. These networks involve interactions between communities of interest.

While networks might develop high degrees of trust and dependence, they can equally exclude others from the decision-making process. Close network relations can also foster learning and development as they are grounded in practical experience. As such, networks can foster bottom-up policy developments.

From these broad principles emerge two main network models: policy and issue networks, and the advocacy coalition framework (Hudson & Lowe, 2004).

Policy and issue networks

The distinction between policy networks and issue networks revolves around the degree to which stakeholders are directly involved in the policy process. *Policy networks* comprise civil servants, politicians and co-opted members (for example, academic experts). These networks involve stable relationships among a limited group of stakeholders with shared responsibility and high degree of integration. By contrast, *issue networks* are oriented around specific concerns (such as specific aspects of SDH) and tend to comprise loose, open connections amongst a shifting group of stakeholders.

There have often been issue networks in the field of SDH, seeking to raise attention to the problem, promoting solutions and lobbying policy-makers. The SDH policy network, by contrast, has traditionally been less well developed as it implies cross-departmental working – which has not typically been the *modus operandi* of governments. Across any government, there are potentially several policy networks relating to SDH. These networks will inevitably involve trade-offs, say between public health and health-care, between ministries, between SDH programmes and routine service delivery, and between equity and other principles. There are signs that such networks are becoming more established as some governments are beginning to take action on SDH (e.g. Judge et al., 2005), partly in response to issue networks and to supranational institutions (such as the EU and WHO).

Advocacy coalition framework (ACF)

Sabatier's (1991) ACF model views the policy process as a series of networks which are composed of all the organizations and stakeholders with a particular interest in that policy sphere. These networks comprise a 'coalition of advocates' and are termed 'sub-systems'. They are defined by a set of core values and beliefs which are resistant to changing ideas and new policies. Although sub-systems are constantly involved in examining and learning about their policy environment, change is only likely to occur when a significant number of those values are challenged successfully.

Over the last decade or so, coalitions of advocates have been forming in many countries around a set of core beliefs relating to SDH, which are challenging existing dominant values. According to Sabatier, the impact of such core beliefs might only be apparent after a decade or more.

5.5.3 Policy failure model

Wolman (1981) offers a 10-part model which seeks to explain why policies might fail (table 5.5). Rather than assuming that implementation is the most likely outcome, he argues that policy failure is common and needs to be analysed. His work is useful in highlighting the multiple locations of policy process and the potential causes of failure (Exworthy & Powell, 2000).

Table 5.5 Wolman's 'policy failure' model

Policy formulation	Policy implementation
1. Problem conceptualization	6. Resource adequacy
2. Theory selection and evaluation	7. Management and control structure
3. Specification of objectives	8. Bureaucratic rules and regulation
4. Programme design	9. Political effectiveness
5. Programme structure	10. Feedback and evaluation.

Source: Wolman, 1981.

Dahlgren and Whitehead (2006) offer an account of potential policy failure in relation to SDH. They argue that:

There is often a significant gap between policy statements to reduce social inequities in health and the actions needed to reach this objective. Very few in-depth analyses

have been carried out to identify the main reasons for this gap. The following constraints are worth analysing further, however:

- Lack of political will
- Lack of knowledge
- Lack of financial resources
- Lack of coordination and management capacity
- Lack of ownership, and
- Lack of policy audit and evaluation. (Dahlgren & Whitehead, 2006: 96-97)

Gwatkin (2006) describes policy failure in relation to the Integrated Management of Childhood Illness (IMCI). Based on the work carried out by Victora and colleagues (2006) (see case study 4 in appendix I), he argues that ‘the strategy seemed to be implemented least energetically in the areas where it was most needed’. Three implications for the ‘design of initiatives to reach disadvantaged groups’ are evident:

- A distinction between developing interventions that address the needs of the poor and reaching the poor with those interventions
- Vertical initiatives (such as oral rehydration) seemed to be more effective than horizontal efforts to strengthen health systems
- A ‘distributional element to the assessment of programme effectiveness increases the challenges that health planners face’ (Gwatkin, 2006:768).

The sober conclusion is that traditional approaches may not be able to overcome these challenges.

5.5.4 ‘Perfect implementation’

There has often been a search for normative conditions which, if achieved, would guarantee successful implementation. Much of this literature emerged from the policy efforts in the 1960s and 1970s in some western democracies to implement poverty-reduction programmes (e.g. Pressman & Wildavsky, 1973). Problems with their implementation raised concerns about how best this might be achieved. While such a view has largely been discounted in recent years, many practice-oriented documents often contain a prescriptive, normative dimension, such as examples of ‘best’ practice as the only route to improved outcomes. It is, therefore, apt to review the evidence on ‘perfect implementation’.

Arguably, the most well-known account of 'perfect implementation' is by Gunn (1978). Gunn cited 10 conditions:

1. External factors do not impose crippling constraints
2. Adequate time and resources are available
3. At all stages, the combination of resources required is available
4. Policy is based on a valid theory of cause and effect
5. There is a direct connection between cause and effect, with few (if any) intervening variables
6. Only one agency has responsibility for implementation
7. There is a shared agreement about the policy's objectives
8. The order of tasks to meet objectives is specified
9. Communication between stakeholders is perfect
10. Persons in authority can guarantee compliance of subordinates.

A parallel account by Mazmanian and Sabatier (1981) shows some similarity:

1. Clarity in defining objectives
2. Legally enforceable procedure for obtaining compliance by street-level workers (if needs be)
3. Insider support from the centre of political power
4. Clear conceptual basis to the means of promoting change.

In both accounts, there are heroic assumptions about the ability of organizations to achieve such conditions. Applied to the SDH, these perfect conditions are manifestly impossible. Notwithstanding these concerns, some commentators have offered their conditions for effective implementation in the field of SDH. For example, Dahlgren and Whitehead proposed four 'general requirements':

1. The availability of relevant and good descriptive data on the magnitude and trends of social inequities in health and their main determinants
2. The existence of explicitly equity-oriented objectives and targets that are directly linked to policies, actions and financial resources needed for the implementation
3. A realistic assessment of possibilities and constraints, with special attention given to external unhealthy policies and actions that generate inequities in health, and
4. An adequate management capacity for implementation including efficient mechanisms for intersectoral collaboration and coordination at national and local levels. (Dahlgren & Whitehead, 2006:94)

5.5.5 Stages of policy development

Some commentators have offered analyses which identify stages of the policy process. While it is often difficult to identify a linear progression through these stages, they can help us to understand the evolution of policy. An interesting use of stages has been by Health Policy Monitor (www.hpm.org) which has been used in international health policy comparisons, whereby each policy is located on a policy spectrum (see table 5.6).

Table 5.6 Policy spectrum

Idea	Pilot	Policy paper	Legislation	Implementation	Evaluation	Change
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Source: Health Policy Monitor.

For example, Health Policy Monitor analysed the French 'public health law' of 2004, which outlines the 'role and the responsibility of the State in public health policy' including specific objectives for 2004-08. In addition to some analytical comment, Health Policy Monitor offers a schematic assessment of progress, indicating that at the time of writing, legislation had been passed but implementation was slow and incomplete (Paris, 2005) – see table 5.7.

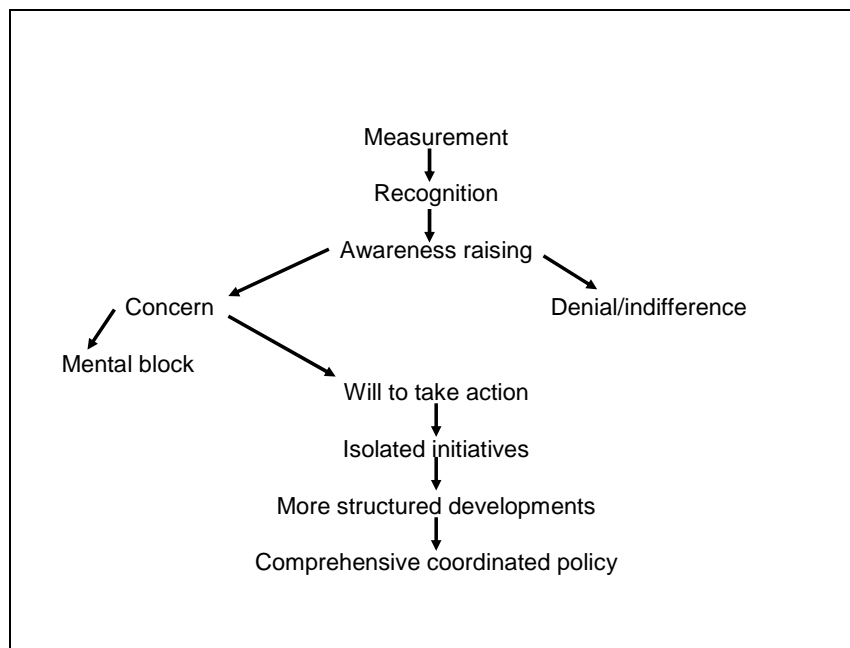
Table 5.7 Progress in French public health policy

Idea	Pilot	Policy paper	Legislation	Implementation	Evaluation	Change

Source: Paris, 2005.

As of spring 2007, Health Policy Monitor offers two other assessments relating to SDH: public health goals in Canada and health inequalities targets in England.

The most common example of stages in relation to SDH is by Dahlgren and Whitehead (2006) (see also Whitehead, 1998). This is illustrated in figure 5.1.

Figure 5.1 Action spectrum in health

Source: Dahlgren & Whitehead, 2006.

5.5.6 Steering at a distance

'Steering at a distance' describes changes in the ways in which governments govern, principally through the separation of strategic and operational functions. The analogy commonly used is that of a boat, which separates steering and rowing (Osbourne & Gaebler, 1993). Steering mechanisms have variously included collaborative arrangements, market-based mechanisms (such as the purchaser-provider system of quasi-markets) and performance management (including targets and performance indicators). Equally, and especially in terms of SDH, evidence-based interventions have been promoted. However, as has been outlined above, governments have traditionally been weak in steering networks and in operating horizontally across functional divisions such as government departments.

5.6 Conclusions

A number of conclusions can be drawn from this chapter. For each conclusion the implications for SDH are highlighted.

Conclusion 1: Policy-making is not a simple, linear process

- (a) Policy does not move simply from formulation to implementation; there is no start or end, just a middle.
- (b) It operates in networks over multiple levels, with an increasing number of stakeholders, and is 'inherently fluid' (Nutbeam, 2004).

The implication is that getting SDH onto the policy agenda is not simply a task of generating more or better evidence about the nature of the problem. SDH policy does however need to be based on plausible evidence, match the current political vision and be practically feasible (Nutbeam, 2004).

Conclusion 2: Conceptual models can help describe, understand and explain policy-making processes in different contexts

- (a) Policy models can be used to evaluate the outcomes of the policy process. This aids theoretical generalization and policy learning
- (b) No single analytical model will suffice
- (c) Local context will continue to play a significant factor in shaping policy approaches; hence, policy convergence is unlikely
- (d) Recognizing the need to adapt policy strategies to local context helps move the debate beyond the merits of single/ specific interventions.

The implication for SDH is that a conceptual framework is essential to guide and inform current and future policy development as well as to aid comparison and learning. 'Without an overall framework for judging improvements in well-being, the choice of measure of the steepness of the gradient is arbitrary, and the policy implications of targeting it are obscure.' (Deaton, 2002:26)

Policy interventions need to take account of contextual variables in their design and implementation. Policy divergence will result not simply because of the variety of contextual environments but also because of the multiple entry points to SDH for public policy.

Conclusion 3: SDH presents policy-makers with specific challenges and opportunities

- (a) Policy strategies for SDH will need to be complex, integrated, multifaceted and long-term

- (b) These features must be addressed if SDH policy is to be feasible.

The implication for SDH is that policy-makers need to recognize and incorporate the nuances of SDH throughout the policy-making process (Nutbeam, 2004). 'Given the pervasive effects of socioeconomic status, no single policy, or even one domain of policy, can eliminate health disparities.' (Adler & Newman, 2002:61)

Policies will need to be as diverse as the SDH they seek to address: 'Addressing issues of equity in health requires looking at a hierarchy of approaches, from up-stream broad socioeconomic and cultural influences on health, to health systems policies.' (WHO, 1998, quoted in Turrell et al., 1999:275)

Conclusion 4: Policy-makers and practitioners need to develop policy-making skills appropriate to SDH

- (a) Policy-makers need to learn about SDH and practitioners need to learn about policy-making. There needs to be a forum between the two groups to exchange knowledge
- (b) Such learning might take place via case studies, worked examples, learning sets or exchange visits with similar individuals from parallel countries.

The implication for SDH is that researchers need to become skilled in policy analysis and policy-makers need to be sensitized to the implications of emergent research findings (Nutbeam, 2004). In particular, in policy-making there are often capacity problems in terms of skilled individuals, numerous disruptive organizational changes and perverse incentives associated with poorly designed performance measures (Wanless, 2004). These deficiencies must be overcome.

5.7 *Illustrative case studies*

See the following illustrative case studies for examples of the policy-making process:

- No. 5 – Canada: National children's policies
- No. 6 – Mexico: Reform of national health system
- No. 7 – Thailand: Introduction of universal health coverage
- No. 8 – Various countries – Linking research and evidence to policy-making

6 Getting social determinants on the policy agenda – making the case for change

Having outlined in the previous chapter the policy process and the policy challenges specifically affecting SDH, we need to consider how interested parties can go about making the case for change. Some pointers for approaching policy-making are outlined, followed by some practical steps to help practitioners make the case for SDH. Although the pointers are targeted at policy-makers, practitioners and social policy oriented researchers may find them useful in deciding how to gather evidence and present their case. A key theme in this chapter is that every policy needs to be adapted and applied sensitively to local contexts. A number of case studies illustrate the ideas in this chapter.

6.1 *Policy pointers*

Although writing in the UK context, Wanless (2004) offers a succinct assessment of the failures in public health policy which have a wider applicability:

- Lack of evidence base for public health interventions
- Capacity problems
- Disruptive impact of organizational change
- Lack of alignment of performance management measures
- Poor specification of policy objectives.

The solution, Wanless argued, consists of better monitoring through annual reports on population health, economic evaluation of interventions, consensus-building towards SDH objectives, organizational reform and better information systems. These provide the basis for the following policy pointers.

6.1.1 **Better specification of policy ends and means**

As Sassi (2005) noted, poorly specified objectives can have serious consequences for the overall effectiveness of SDH policy programmes. Not only are the declared objectives not achieved but there is also a danger of losing long-term support from coalitions of interested stakeholders.

Key aspects of improved clarity in policy objectives include:

- Definition: disadvantage, gap and/or gradient?
- Site of intervention: downstream and/or upstream?
- Coverage: universal and/or targeted approaches?
- Scope: behavioural and/or structural solutions?

6.1.2 Better use of extant evidence

There is a reasonable consensus that extant evidence on SDH is not being applied sufficiently (Kelly et al., 2004). While this does not imply that better dissemination alone will ensure uptake of evidence (Whitehead, 1998), it is a crucial part of policy development from dissemination through adoption and implementation to maintenance (Rogers, 1995).

Although in the context of the British social care field, Nutley and colleagues offer recommendations for better use of research evidence in policy:

- Ensuring a relevant research base
- Ensuring access to research
- Making research comprehensible
- Drawing out the practical implications of research
- Developing best practice models
- Requiring research-informed practice
- Developing a culture that supports research. (Nutley et al., 2007:128, adapted from Walter et al., 2004)

A future research programme should comprise conceptual approaches and case studies, using comparative examples. It should also be informed by (a) a social ecological approach, (b) targeted approaches, (c) an intersectoral approach involving community participation, and (d) a multi-entry approach to policy (Turrell et al., 1999).

6.1.3 Better measurement and monitoring

There has been a growing interest in the use of performance management (especially targets) in developing and sustaining SDH policy. Given the uncertain attribution between policy and outcome, SDH targets may be viewed as symbolic in certain circumstances and their purpose may become aspirational rather than

necessarily achievable. However, unless supported by an effective set of incentives, there is a danger that symbolic or aspirational targets wither, lose their meaning and become ineffectual. Targets should typically be SMART: specific, measurable, available, relevant, and timely.

The British experience shows some of the problems associated with setting targets. Targets for reducing health inequalities were introduced in 2001. The Department of Health published a set of indicators designed to support the targets, but few are oriented specifically around inequality and most relate to healthcare interventions (Exworthy et al., 2006). There has been significant criticism of these indicators as a means to measure complex and dynamic phenomena. They have been accused of reflecting a reductionist and mechanistic approach to understanding health inequalities (Hunter, 2003).

Targets for SDH policies need to be placed within a wider approach to measurement and monitoring. Targets can often remain too narrowly defined with consequent problems of non-measured aspects and perverse incentives. Exworthy et al. (2006) suggest three ways in which measurement and monitoring regarding SDH could be developed:

- Locally relevant data and research evidence concerning disparities in health and health care is made available
- Ways are developed for measurement mechanisms to support the overall policy
- Measurement mechanisms provide the data by which rewards for progress or penalties for the lack of it are implemented.

From these, the authors develop a number of principles underpinning SDH policy measurement (see table 6.1).

These principles accord well with the points made by Hunter (2003), Wanless (2003) and Walker (2002):

- Broad-brush quantitative measures are not sufficiently sensitive
- Government wants tangible progress but has capacity problems
- Process measures may help
- More rounded approach is required
- Need to experiment with different approaches and to evaluate them
- Degree of local discretion is required.

Table 6.1 Principles to consider when designing and managing measurement mechanisms

Principle	Interpretation and application
Acceptability/ Sustainability	A small number of indicators should be manageable and understood by policymakers and practitioners.
Accountability	Individuals or organizations should be held responsible for implementing relevant policies
Attribution	Indicator changes should be attributed to policy interventions.
Availability	Data should be locally and/or nationally available.
Coverage	All stages of the life course and health care system should be measured.
Detection / Reliability	Indicators should be able to detect change in disparities and inequalities (over specified time periods).
Equity dimension	Data should report a distribution across social groups rather than in the aggregate.
Wider determinants	Measures should address health and/or health care, but neither set of measures should be medically dominated.
Timing	Data should be collected at regular intervals to inform policy.

Source: Exworthy et al., 2006.

6.2 *Making the case for change*

6.2.1 Successful policy development

Frenk and Sihto et al. suggest two approaches to successful policy development.

Dr Julio Frenk was Minister of Health in the Mexican government from 2001-07. He offers advice for successful reform, what he calls the 'ABCDE agenda':

- A. *Agenda*: promoting the health agenda amidst competition for attention and public resources. He suggests that

health officials can make use of global evidence showing that a well-performing health system contributes to the overall welfare of society by relieving poverty, improving productivity, increasing educational abilities, developing human capital, generating employment, protecting savings and

assets, enhancing competitiveness, and directly stimulating economic growth with a fairer distribution of wealth.

- B. *Budget*: making health a priority enhances the negotiating power of ministers in search of increased budgetary support. 'Use of evidence on the value of health for development can help convince policy-makers to mobilize more money for health, but the capacity to deliver more health for the money must also be demonstrated.'
- C. *Capacity*: developing capacity in the health system and research infrastructure. 'The first refers to health-service delivery, through investments in physical infrastructure and, most importantly, in human resources. The second has to do with the development of institutions that can undertake the necessary research to generate sound evidence for policy.'
- D. *Deliverables*: identifying and communicating specific benefits through a focus on priority disease and risk factors. 'In this way, the public can link abstract financial and managerial notions to concrete deliverables.'
- E. *Evidence*: creating and diffusing knowledge is one of the main driving forces for health progress.

First, and most obviously, knowledge gets translated into new and better technologies, such as drugs, vaccines, and diagnostic methods. Second, knowledge is also gained by individuals, who use it to structure their everyday behaviour in key domains like personal hygiene, feeding habits, sexual behaviour, and child-rearing practices... Third, knowledge becomes translated into evidence that provides a scientific foundation for decision-making both in the delivery of health services and in the formulation of public policies. (Frenk, 2006:959)

Sihto and colleagues suggest the following minimum criteria for policy development.

1. *Compatible interests*: 'In sectors where health interests are compatible with main sectoral interests such as often in environmental, social or educational policies, gaining common ground is not problematic' (Sihto et al., 2006:13). In sectors where interests conflict, policy development will be more challenging and long-term.
2. *Intersectoral collaboration*: This is vital and will be more effective if there is the possibility of discrete interventions. 'Success in implementation is limited by the extent to which health policies or intersectoral action of selected sectors can address improvement of health determinants of their own' (Sihto et al., 2006:13). Childhood nutrition at home and school might exemplify this.

3. *Resources*: As with policy advice in other sectors, resources are crucial. ‘The costs of the strategies are important and any health policy measures that negatively influence the cost structure of any public policy area will face further problems in implementation’ (Sihto et al., 2006:13). Resources should not be considered simply in financial terms but also in human terms, such as staff time.

4. *Public engagement*: Involvement with civil society is essential at all stages of policy development. ‘Local policies are not meaningful unless scope for implementation at local level is given at national, regional or global levels. This implies that the promotion of local health agendas and measures will only have a limited impact if determinants of other policies are set at national, regional and global levels’ (Sihto et al., 2006:14). This echoes the ‘fully engaged scenario’ proposed by Wanless (2004) in the United Kingdom – where the level of public engagement in relation to health is high, people are confident in the health system and demand high quality health care, the health service is responsive with high rates of technology uptake particularly in relation to disease prevention, and resources are used efficiently. It also underlines the need for a policy programme that is fully integrated between national and local levels, and arguably internationally too.

5. *Long-term*: While there may be some quick wins which will help secure on-going support for policy programme, the long timescales must be recognized. This has implications for measurement and monitoring as well.

Some issues are tackled more easily than others and some will require constant and long-term attention. The importance of continuity and follow-up needs to be highlighted... this implies first that maintaining a long-term policy perspective and educational basis is important; second, that in some issues, legal and broader policy measures are more important than campaigns; and third, that broader policies are rarely changed with one-off measures. (Sihto et al., 2006:14)

The success of sustaining the policy momentum over long timescales will, to a large extent, shape the overall policy impact.

6.2.2 Three practical steps to get SDH on the policy agenda

The Measurement and Evidence Knowledge Network considered the following three practical steps to be useful in helping stakeholders to get social determinants on the agenda of policy-makers where such policies do not exist (MEKN, 2006).

Carry out a situation analysis

Different strategies and actions will be required in different country contexts depending on where they are in the process of developing policies aimed at addressing SDH. A situation analysis is useful to understand what strategies need to be employed. For example, the strategies required to get the issue of health inequities on the agenda will be different to those which are required to overcome the barriers to making existing policies work in practice.

A situation analysis could include:

- Mapping the policy picture, focusing on both the macro and micro policy gap
- Analysis of resources
- Making explicit the drivers for policy
- Assessment of the current political willingness to act, which provides the context for the most implementable actions
- Mapping of the public health systems within which action can take place so that the roles and responsibilities of different actors can be made explicit.
- Stakeholder analysis and mapping.

Identify entry points

Getting a better understanding of the policy-making processes allows the identification of opportunities to influence the policy process (entry points).

Identifying these entry points may involve:

- Identifying the chain of actors (often with different motives) who take part in the policy-making process
- Analysing the resource flows to understand how to optimize the opportunities for implementation success. For example: what percentage of resources goes to different levels? Does resource allocation include

funds for training and human resource development? What are the decision-making capacities and autonomy at different levels?

- Identifying policy windows of opportunity. What opportunities exist to combine these windows? Who are the national and local policy entrepreneurs who could facilitate this? What factors threaten to close the window of opportunity?

Develop a communication strategy including use of the media

Evidence is usually only one ingredient in the policy-making process. Stakeholders also need to develop effective communication strategies.

Such strategies could include:

- Use of experiences of civil society in creating stories about successful programmes and initiatives
- Reinforcing the need for civil society to be involved in partnership
- Mobilizing stakeholders for intersectoral action and community involvement
- Developing provocative statements which can highlight the costs of doing nothing
- Working with and training journalists to promote public health messages (including use of graphics and photographs to translate research into plain language).

6.3 Illustrative case studies

The following case studies show some approaches to making the case for SDH in different contexts. It should be kept in mind that not every approach has been or will be completely successful.

- No. 4 – Brazil: Infant mortality in Ceará state
- No. 5 – Canada: National children's policies
- No. 6 – Mexico: Reform of national health system
- No. 7 – Thailand: Introduction of universal health coverage
- No. 9 – Thailand: Use of locally-defined health determinants to push for change, Mun River dam
- No. 10 – Brazil & Chile – National conferences

7 Getting social determinants on the policy agenda – equity proofing

Part of getting social determinants on the policy agenda is ensuring that the right kind of action gets on the agenda. Programmes designed to reduce inequalities often fail due to the time and resources available to carry them out and/or a lack of evidence about what works across different segments of the population. There is a range of tools for introducing an equity focus into effective policy and programme development at different points in time – *ex ante*, during or *ex post* – including:

- Equity filter/ lens
- Equity audits/ health equity audits
- Equity-effectiveness loop
- Equity gauge
- Equity-focused health impact assessment.

These are outlined below. More detail is given of equity-focused health impact assessment as it is felt likely to be the most useful tool for readers of this guide.

7.1 *Equity filter/ lens*

The ‘equity lens’ is a way of looking at society that goes beyond average numbers to identify the differences between more or less advantaged social groups. The Global Equity Gauge Alliance (GEGA) understands an equity lens as a

vision which is certainly not easy to achieve. In addition, many of the inequities in our society remain masked rather than obvious to those who administer or manage the health services, and those who use them. It is important therefore to establish ways of looking at existing data and service provision in such a way that inequities become apparent. This is done by adopting what has been called an *Equity Lens* or perspective. (GEGA, 2004)

Although this may seem obvious, the work by Victora et al. (2006) demonstrates how even strategies which are intended to improve the health of the most vulnerable populations (e.g. IMCI) still lack in their original design specific ‘equity lens’ criteria

(see chapter 3 and case study 2). This absence represents the blind spot of many global health strategies.

Recent work by Gwatkin (2001, 2005, 2006) draws attention to the absence of this equity lens in the major global initiatives of the 20th century (Gwatkin, 2001) and makes a vigorous call to include it in one of the major initiatives of this century, the Millennium Development Goals:

The health objectives set out in the United Nations Millennium Development Goals (MDGs) do not share the focus on poor people that typifies the MDGs overall. Rather, they call for improvements in national averages that can be achieved through gains in both advantaged and disadvantaged groups. As a result, any reduction in society-wide average rates of death or illness can provide a wide range of outcomes for poor people. Since expanded health services typically reach better-off groups before disadvantaged ones, poor people are unlikely to be the principal beneficiaries of efforts to accelerate progress towards the MDGs by providing additional resources to the health sector, as presently constituted. More plausible is faster progress among privileged groups and a rise in poor-rich health disparities. Such an outcome is not inevitable; but achieving faster progress for poor populations will need reorientation in addition to expansion of health activities. (Gwatkin, 2005)

This proposal would imply rephrasing the goals with an equity lens, for example by not only reporting on overall vaccine coverage but also on coverage among those below the poverty line (Victora, personal communication, 2007). Some countries may already include an equity lens in their national millennium development goals (e.g. Chile and the Netherlands) (see Mackenbach & Stronks, 2002 and case study 21). Work has already been undertaken exploring the ways in which an equity lens could be applied in monitoring and evaluating the MDGs (Wirth et al., 2006, 2006b; Balk et al., 2006).

An equity lens may be also applied to a variety of specific health issues, ranging from child health (Victora et al., 2003; Scott et al., 2003), through lifestyle related policies, e.g. tobacco control, alcohol misuse, nutrition, physical activity, obesity (Dahlgren & Whitehead, 2006), to sport (Sport England, 2004). It implies addressing the diversity of the whole social gradient and overcoming the 'average' blind spot through the use of measures that account for social differences.

7.2 *Equity audits/ health equity audits*

Health needs assessment is a systematic process of identifying priority health issues, targeting the populations with most need and taking action in the most cost effective and efficient way. A health equity audit (HEA) 'identifies how fairly services or other resources are distributed in relation to the health needs of different groups and areas, [and] the priority action required to provide services in relation to need' (Department of Health, 2003 cited in Quigley et al., 2005). For example, health equity auditing was introduced in England to ensure that local community plans for health and development prioritized those with greatest need (Department of Health, 2002).

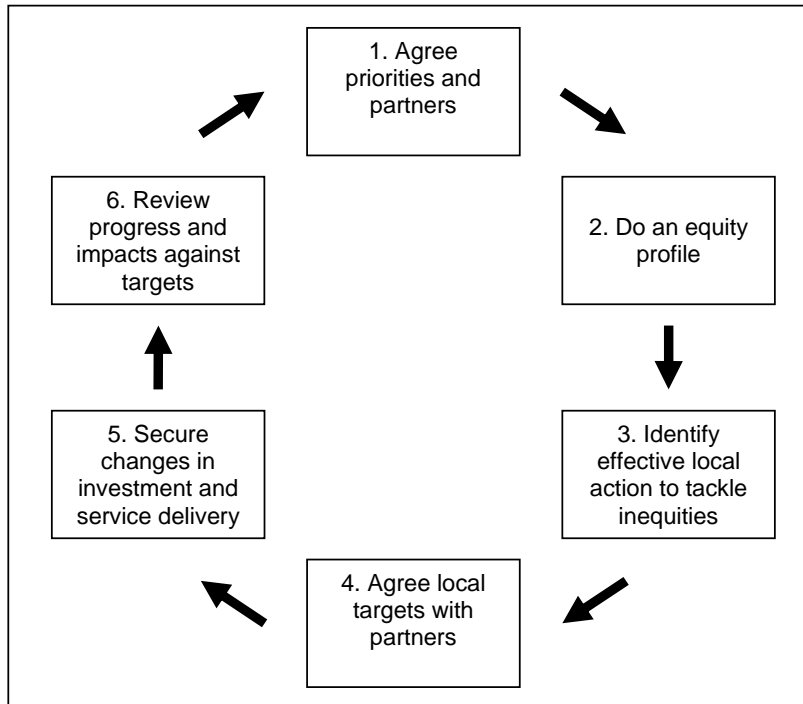
Health equity audit provides a framework for systematic action. It highlights the need to think about inequalities in terms of age, gender, disability, and geography as well as socioeconomic status. A health equity audit will consider the health needs of particular groups taking account of at least one of these dimensions against the provision of services and resources for good health.

Unlike some needs assessments, an HEA goes beyond the description of inequities and is not complete until changes to reduce avoidable inequalities have been implemented, for example resource allocation, commissioning, service provision or health outcomes.

An HEA normally consists of a six-step approach:

1. Agreeing partners and issues for the audit
2. Undertaking an equity profile
3. Identifying high-impact local action to narrow key inequities identified
4. Agreeing priorities for action
5. Securing changes in investment and service delivery
6. Reviewing progress and assessing impact. (Department of Health, 2003; Hamer et al., 2006)

This is outlined in Figure 7.1.

Figure 7.1 The Cycle of Health Equity Audit

Source: Hamer et al., 2003.

Examples of audit topics are smoking, child and adult mental health services, cervical screening services, teenage pregnancy, coronary heart disease prevention and treatment services, etc. The most common equity dimensions included in HEAs are geography, sex, age, ethnicity and some measure of deprivation (Hamer et al., 2006).

The overall process of health equity auditing is not dissimilar to the process of a 'gold standard' needs assessment. Some argue it is just a new fashionable way of describing needs assessment processes with a particular emphasis on health inequalities. Referring to the experience in the United Kingdom, Hamer et al. (2003) admit that health equity audit is not new and that National Health Service (NHS) organizations, local authorities and other agencies have been working for many years to identify and reduce inequalities in the health and wellbeing of different groups in their communities. She stresses that the difference now is that tackling health inequalities is integrated into mainstream planning and service delivery within the NHS and partner agencies (Hamer et al., 2003) and has become mandatory in England.

There are a number of ways in which a health equity audit can assess equity in service delivery across sectors. This can include a review of:

- Equal access for equal need: such as greater availability of free fruit in schools in the most deprived areas
- Equal use for equal need: such as greater use of smoking cessation services among low-income smokers
- Equal quality of care for all: such as culturally appropriate and relevant maternity services for black and minority ethnic communities
- Equal outcomes for equal need: such as greater reductions in coronary heart disease mortality among lower socioeconomic groups.

7.3 *Equity-effectiveness loop*

The equity effectiveness loop builds on the fact that social and health interventions affect the population along the social gradient in different ways. Therefore its purpose is to measure the 'impact of various factors in the effectiveness of interventions across socioeconomic gradients' (Tugwell et al., 2006c).

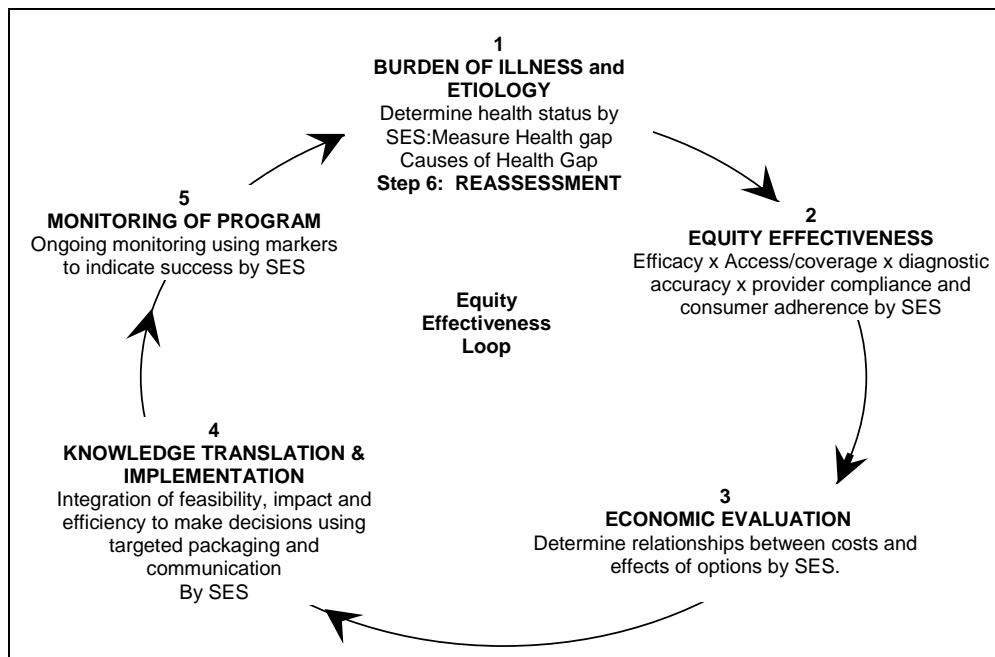
This tool has been specifically designed to measure interventions that have an explicit equity objective.

The loop is based on six iterative steps (Tugwell et al., 2006c):

1. *Burden of illness and etiology* – Determine health status by socioeconomic status: (a) measurement of health gaps and (b) causes of health gap.
2. *Equity effectiveness* – Efficacy modified by access/ coverage, diagnostic accuracy, provider and patient adherence, by socioeconomic status.
3. *Economic evaluation* – Determine relationships between costs and effects of options by socioeconomic status.
4. *Knowledge translation and implementation* – Integration of feasibility, impact and efficiency to make decisions using targeted packaging and communication by socioeconomic status.
5. *Monitoring of programme* – Ongoing monitoring of process indicators to gauge implementation progress by socioeconomic status.
6. *Reassessment*.

This is shown in Figure 7.2.

Figure 7.2 Equity Effectiveness Loop



Source: Tugwell et al., 2006c.

Although it has been designed for analysis based on the socioeconomic gradients, the authors argue that it may also be used with other social stratifiers, e.g. place of residence, ethnicity, race, gender, etc.

7.4 Equity gauge

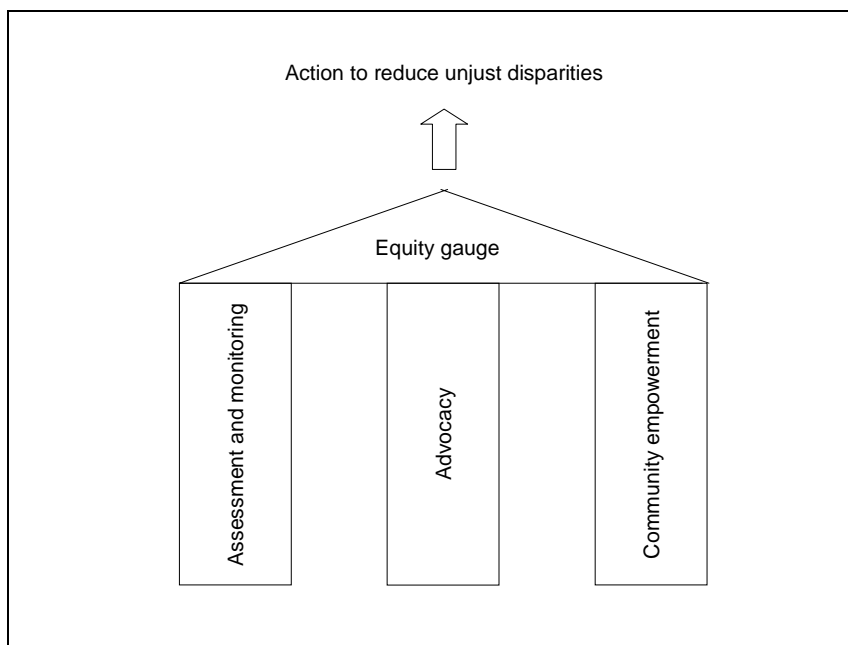
An equity gauge is an action-oriented project aimed at bridging research and action. It is conceived as a catalyst for equity which: strengthens the work of existing groups by providing evidence of inequities; strengthens community voices; strengthens the link between community groups and decision-makers; and directly supports the role of decision-makers (GEGA, 2003).

The Global Equity Gauge Alliance (GEGA) was created in 2000 and at present has member teams in ten low and middle income countries. GEGA's Equity Gauge Strategy is based on three 'pillars of action' (GEGA, 2004) (see Figure 7.3):

- *Assessment and monitoring*: to analyse, understand, measure and document inequities
- *Advocacy*: to promote changes in policy, programmes and planning
- *Community empowerment and participation*: to support the role of poor and marginalized people as active participants in change, rather than passive recipients of aid or help.

The three-pillar design considers all pillars to be equally important and essential to a successful outcome. They are interconnected and overlapping and therefore do not necessarily follow a temporal sequence. In an equity gauge, the actions of all three of its pillars should be interconnected and happen concurrently.

Figure 7.3 Three pillars of action



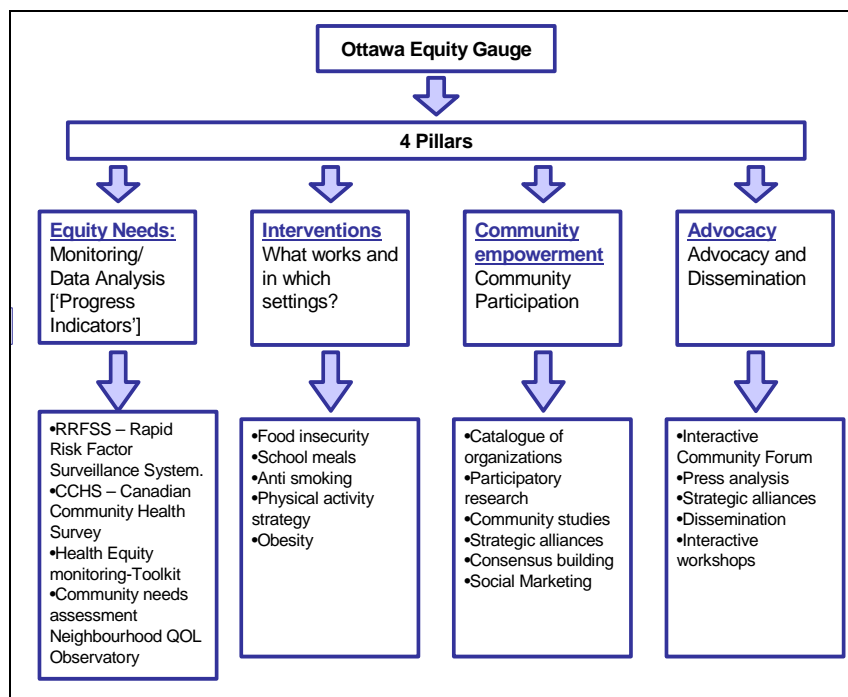
Source: GEGA, 2003.

Though gauges may vary according to countries' realities, GEGA has proposed a basic set of variables which should be monitored and acted upon. These variables are grouped under the acronym PROGRESS developed by Evans and Brown (2003) for measuring disadvantage:

- Place of residence
- Race/ ethnicity
- Occupation
- Gender
- Religion
- Education
- SES (income or composite measures)
- Social capital.

The Ottawa Equity Gauge has recently been created and is applying the Global Equity Gauge Alliance framework to an industrialized country setting. They have added a fourth ‘interventions’ pillar, based on the Cochrane and Campbell systematic reviews of interventions. The Ottawa Equity Gauge project has brought together researchers, community leaders and stakeholders to work on measuring, monitoring and addressing health inequities in accidents, exercise, nutrition and smoking in Ottawa (Tugwell et al., 2006a).

Figure 7.4 Ottawa Equity Gauge



Source: Tugwell et al., 2006a.

Figure 7.4 shows the four pillars strategy of the Ottawa Equity Gauge, highlighting specific issues and activities in each pillar as a way of illustrating that an equity gauge

does not merely describe health disparities but rather couples data collection with coordinated community-driven actions and advocacy efforts to reduce disparities and help members of the community to reach their full health potential (Tugwell, 2006a).

For example, one of the most recent interests is food security and nutrition issues. This has included participatory action research and systematic reviews of published and unpublished literature, a survey on food insecurity in vulnerable populations in Ottawa, and an assessment of spatial inequalities in food insecurity through the use of geographical information systems. All these activities contribute to build up the evidence base which will then be used for advocacy as well as for community empowerment and capacity building.

7.5 *Equity-focused health impact assessment*

7.5.1 Objectives

Health impact assessment (HIA) is a tool for decision-makers to address health inequalities in local populations. It is a structured process which combines procedures, methods and tools for assessing the potential impacts of a policy, programme, project or proposal on the health of a population. The purpose of HIA is to identify the potential health consequences of a proposal on a given population and to maximize the positive health benefits and minimize the potential adverse effects on health and inequalities (Taylor & Blair-Stevens, 2002). An HIA looks for the positive and negative, intended and unintended health effects and makes recommendations for improving the policy, programme, project or proposal (ECHP, 1999; Harris-Roxas et al., 2006; Quigley et al., 2005).

In one of the first international position statements on health impact assessment, WHO states that the purpose of HIA is to measure the potential impacts of policy decisions in one sector on another sector. The paper argues that social, economic and other policies in both the public and private sectors are so closely interrelated that proposed decisions in one sector may impact on the objectives of other sectors. HIA provides a useful means therefore of improving knowledge about the potential impact of a policy or programme, which can inform decision-makers and those who

might be affected. It can facilitate adjustment of the proposed policy in order to mitigate the negative and maximize the positive impacts (ECHP, 1999).

An equity-focused HIA (EFHIA) provides a systematic approach to consideration of equity in each step of an HIA (Simpson et al., 2005; Mahoney et al., 2004; Harris-Roxas et al., 2004). Nonetheless, a necessary caveat to bear in mind is that an 'EFHIA will not necessarily result in policies to reduce inequalities as it is a proposal-specific process. It may simply end up ensuring that a proposal does not exacerbate existing inequalities' in programmes that do not have equity among their objectives (Harris-Roxas, personal communication, 2007).

HIAs and equity-focused HIAs provide the opportunity to stop, reflect and change a proposal – an 'amber light' principle (Griffiths, 2003). Proponents or decision-makers have the opportunity to examine the proposal for its health equity impacts in a structured and considered way prior to implementation. Often what emerges is not radically new or astounding – in fact those involved in the experience are often surprised by how obvious the potential impacts are once time is taken to reflect. Some have described it more as a case of common sense (Harris et al., 2006). What is important is the opportunity to stop and revisit either the explicit intent (where we are often blinded by our good intentions) and or to identify how to avoid potential problems that might arise from major initiatives with no explicit equity focus. The latter issue is particularly important given that the policy and programme development context does not usually include automatic consideration of health impacts and or health equity impacts.

Mindell et al. (2004) distinguish HIA from other tools used to aid decision-making as:

- It focuses on complex interventions or policy and their diverse effects on determinants of health
- It requires evidence on the reversibility of adverse factors damaging to health
- It involves a diversity of evidence in terms of relevant disciplines, study designs, quality criteria and sources of information
- It involves a broad range of stakeholders
- It is often required within short timescales and limited resources
- It involves a degree of pragmatism to assemble information to inform decision-makers regardless of the quality of the evidence.

In this approach, in addition to promoting the maximum health of the population, four values are particularly important for HIA:

- *Democracy*: emphasizing the right of people to participate in a transparent process for the formulation, implementation and evaluation of policies that affect their life, both directly and through elected political decision-makers
- *Equity*: emphasizing that HIA is not only interested in the aggregate impact of the assessed policy on the health of a population but also on the distribution of the impact within the population, in terms of gender, age, ethnic background and socioeconomic status
- *Sustainable development*: emphasizing that both short-term and long-term as well as more and less direct impacts are taken into consideration
- *Ethical use of evidence*: emphasizing that the use of quantitative and qualitative evidence has to be rigorous, and based on different scientific disciplines and methodologies to get as comprehensive assessment as possible.

7.5.2 Timing

An equity-focused HIA ideally takes place at the stage when a policy or programme proposal can be reviewed for its potential health equity impacts and issues can be addressed prior to implementation. It provides the opportunity to check: (a) if the stated intentions of the proposed policy or programme will be fulfilled – particularly important if the stated intention is to improve health equity; and (b) whether there will be any unintended impacts (positive and/or negative) such as a widening of the gap by faster improvement among population groups which are more advantaged than others.

7.5.3 Key factors to consider

Experience shows (Simpson et al., 2005; Mahoney et al., 2004; Harris et al., 2006) that when undertaking an EFHIA the following issues should be born in mind:

1. *Timing of the equity proofing process*. It is important that equity proofing takes place when (a) the proposal is well developed enough to assess the potential health equity impacts but not so advanced or fixed that there is no opportunity to amend the proposal before implementation; and (b)

enough information relating to the scope and implementation of the proposal (e.g. coverage, proposed timeframes, phased or immediate rollout, etc) is available to assess the potential health equity impacts.

2. *Buy-in from key stakeholders including relevant Minister(s), senior decision-makers, etc.* Is there a real opportunity to amend the proposal based on the findings of the equity proofing process and will the findings be used to amend the proposal? There needs to be a genuine commitment to consider the results of the process and to amend the proposal accordingly. Without such a commitment the process will have minimal impact and possibly disenfranchise those involved even further, particularly where the process has involved community stakeholders.
3. *Time taken to do the equity proofing.* An Australasian experience with six initial case study sites found that equity-focused HIA would have potentially greater value if it took less time (Harris et al., 2006). Equity proofing need not take as long as or longer than the process for developing the proposal. It is therefore recommended that proponents give consideration to undertaking a 'rapid' equity-focused HIA which might take 4-6 weeks or an even more rapid equity filter (for instance 1-2 workshops, 1-2 telemeetings and reporting within 7-10 days).
4. *Use of 'experts' and presentation of the findings as 'expert knowledge'.* The knowledge necessary to assess potential health equity impacts may not be considered 'scientific'.
5. *The need to have evidence to hand or off-the-shelf evidence.* Evidence from activities undertaken beforehand or experience from HIAs undertaken elsewhere are useful, such as completed health equity audits, completed evidence developed through the equity gauge approach or evidence collected as part of the health equity effectiveness feedback loop.
6. *Dissemination, evaluation and consideration of the impact of the equity proofing process.* A key challenge of the field of HIA and equity-focused HIA has been demonstrating the difference that the process has made, both in terms of (a) changing the proposal and (b) the benefits of these changes as reflected in longer term outcomes of the policy or programme (Quigley & Taylor, 2003). Those undertaking an equity-focused HIA have a responsibility to report on the impact of the findings on the proposal as

well as a longer term evaluation of the impact of the 'improved' policy or programme. A recent study on the cost benefits of HIA (York Health Economics Consortium, 2006) indicated that the benefits of the HIAs included in the study outweighed the costs.

Quigley et al. (2005) compare the similarities and differences of health equity auditing and health impact assessment along with other techniques such as integrated impact assessment and race equality impact assessment. In doing so, they attempt to highlight the unique contribution of these techniques to assessing health needs, informing decisions and assessing impact. The commonality between these approaches is that they are all used as planning tools to promote decision-making to ensure effective public health services, in both the health and non health sectors, and that they all work best when they involve a wide variety of stakeholders, building new ways of working together and ensuring joined-up planning – at a project, programme, strategy or policy level (Quigley et al., 2005).

7.6 Conclusion

The need for equity proofing is evidenced even in initiatives which by their essence are expected to reduce health inequities within and between countries. The example of the Integrated Management of Childhood Illness (IMCI) programme of WHO and UNICEF is a case in point – see case study 2 in appendix I.

Ideally and in the longer term equity proofing of policy and programme proposals should be undertaken as a matter of course – in other words, equity proofing should be mainstreamed. Equity proofing should also be seen as part of an overall process for improving how equity is considered and addressed in the policy and programme development processes of a country. It should be used as an opportunity to stop and double-check that the intended outcomes will be achieved and there will not be any worsening of health inequities (unintentional or otherwise). Equity proofing should be an amber or yellow light before proceeding to green, and implementation.

7.7 Illustrative case studies

The following illustrative case studies give examples of the need for equity proofing:

- No. 2 – Brazil, Peru, United Republic of Tanzania: Failure to equity proof programme for childhood illnesses
- No. 3 – Bolivia: Evaluation of Social Investment Fund.
- No. 21 – The Netherlands: Multilevel surveillance system.

The following illustrative case studies contain examples of health impact assessment:

- No. 9 – Thailand: Use of locally-defined health determinants to push for change, Mun River dam
- No. 15 – Slovenia: HIA of national agricultural policy
- No. 16 – United Kingdom: HIA of housing redevelopment

7.8 Specific tools

Health Equity Audit: a guide for the NHS

http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4084138

Canadian Handbook on Health Impact Assessment

http://www.hc-sc.gc.ca/ewh-semt/pubs/eval/handbook-guide/vol_1/index_e.html

Introducing health impact assessment (HIA): Informing the decision-making process

http://www.phel.gov.uk/hiadocs/Full_copy_of_HDA_short_guide.pdf

WHO web site on health impact assessment (only available in English)

<http://www.who.int/hia/en/>

Of particular interest: tools and methods section

<http://www.who.int/hia/tools/en/>

An idea whose time has come: New opportunities for Health Impact Assessment in New Zealand public policy and planning

<http://www.nhc.govt.nz/phac/publications/an-idea-whose-time-has-come.pdf>

Equity Focused Health Impact Assessment:

Harris E, Harris P, Kemp L. (2006). *Rapid Equity Focused Health Impact Assessment of the Australia Better Health Initiative: Assessing the NSW components of priorities*

1 and 3. Sydney:UNSW Research Centre for Primary Health Care and Equity.
Available from: http://hiaconnect.edu.au/files/Rapid_EFHIA_of_ABHI.pdf.

Harris-Roxas B, Simpson S, Harris E. (2004). *Equity Focused Health Impact Assessment: a Literature Review*. Sydney: Centre for Health Equity Training Research and Evaluation (CHETRE) on behalf of the Australasian Collaboration for Health Equity Impact Assessment (ACHEIA). Available from:
[http://hiaconnect.edu.au/files/Harris-Roxas_B_\(2004\)_Equity_Focused_HIA.pdf](http://hiaconnect.edu.au/files/Harris-Roxas_B_(2004)_Equity_Focused_HIA.pdf).

Mahoney M. (2006). *An introduction to Equity-focused Health Impact Assessment*. PowerPoint presentation. HIA Research Unit, Deakin University, Australia. Available from: <http://www.nceta.flinders.edu.au/events/documents/MaryMahoney-EFHIAIntroslices.pdf>

Mahoney M, Simpson S, Harris E, Aldrich R, Stewart Williams J. (2004). *Equity-Focused Health Impact Assessment Framework*. Sydney: The Australasian Collaboration for Health Equity Impact Assessment (ACHEIA). Available from: http://www.hiaconnect.edu.au/files/EFHIA_Framework.pdf

Equity-Oriented Tool Kit for Health Technology Assessment

WHO Collaborating Center for Knowledge Translation and Health Technology Assessment in Health Equity, Institute of Population Health at the University of Ottawa
http://www.intermed.med.uottawa.ca/research/globalhealth/whocc/projects/eo_toolkit/index.htm

Monitoring Millennium Development Goals with an Equity Lens

Wirth ME, Delamonica E, Sacks E, Balk D, Storeygard A, Minujin A. (2006). *Monitoring Health Equity in the MDGs: a Practical Guide*. New York: CIESIN and UNICEF. Available from: http://sedac.ciesin.org/povmap/downloads/analysis/Health_equity_Guidelines.pdf

8 Generating evidence for policy and practice

8.1 *Status of the evidence base on the social determinants of health*

Decades of primary research have accumulated a strong evidence base to confirm that social factors, which are shaped by an individual's relative position in society, account for the bulk of health inequities that exist between and within countries (Solar & Irwin, 2007). There are also many examples at an international and national level of syntheses of this evidence to highlight the role that public policy can have in shaping the social environment in ways that are conducive to health (Acheson, 1998; King, 2000; Marmot & Wilkinson, 2003). There is therefore enough evidence available for all countries to take some action to address the social determinants of health (see recommendations from other themed knowledge networks).

However, as has already been outlined in chapters 1 and 2, there are two main deficiencies with this evidence base. Firstly, some authors argue (Graham, 2003) that the evidence base available to policy-makers is largely based on an understanding of the social determinants of health rather than the social determinants of health inequities. This distinction is important at a policy level since the actions required to address the social determinants of health are not the same as the actions required to address the social determinants of health inequities.

Secondly, it is well recognized that while there is much evidence available to help us describe the inequities that exist in different country contexts, there is much less available to tell us what to do about them.

In part, overcoming these deficiencies requires investment in large scale research using new approaches which take account of the complexity of interventions aiming to address the social determinants. However, there is a job to be done at national and local level in different country contexts to maximize what we already know. This can be achieved by ensuring that:

- The key questions that need answering are made explicit, particularly being clear about who is asking them and for what purpose

- Methodological diversity is achieved by matching the key questions to the most appropriate research method (Pettigrew & Roberts, 2003)
- The evidence is generated based on the same principles as those used in evidence based public health to assess the quality and rigour of research appropriate to the design and methods being used (Des Jarlais et al., 2004; Victora et al., 2004).

These three points are developed below.

8.2 *Getting the questions right*

Generating evidence for effective action involves bringing together knowledge which is useful both in formulating policy and in understanding how best to implement it. Whitehead et al. (2004) identify this multi-faceted evidence base as the ‘jigsaw’ required to build a coherent picture of the most effective policies, the most appropriate interventions and the most cost effective solutions. This jigsaw recognizes that evidence is produced for different purposes, including mobilizing political will, getting buy-in from the public, demonstrating success, predicting outcomes and monitoring progress.

In this context the framework aims to help maximize the evidence that is available by drawing on a wide range of evidence. In doing so, it promotes a move away from ranking the quality of evidence based on study design (e.g. hierarchies of evidence based on the randomized controlled trial) towards asking ‘what is the appropriate evidence given the question being asked?’ (Glasziou et al., 2004). It recognizes that the definition of evidence must refer to any type of observation, whether gathered through qualitative or quantitative methods, and that in reality evidence alone is an essential but not sufficient basis for policy action. As previously indicated, other ingredients include political will, transferability of evidence into appropriate social strategies, and scalability into different contexts and settings (Kawachi, 2005).

In general terms, the evaluation framework proposed by Wimbush and Watson (2000) is helpful in making explicit the specific needs and perspectives of a full range of stakeholders involved in the development and implementation of programmes aiming to address the social determinants of health. The framework helps to

determine the types of question to be asked and the appropriate methods to answer them.

For example, policy-makers and strategic planners are more interested in higher level questions of what works (questions of effectiveness) and what are the best buys (questions of cost effectiveness), in order to be able to make decisions about the most efficient and effective deployment of resources. In relation to the social determinants, they may also ask additional questions such as 'What are the benefits of investing in a social determinants approach?', 'Is there a particular social factor that will give the biggest impact on reducing health inequities?' or 'What is the relative impact of implementing macro level policies compared with efforts that can be made by local practitioners?'. *Impact evaluations* of this sort need to be large scale and take account of the long term nature of social interventions, measuring a range of short-, medium- and long-term outcomes. They are also likely to be carried out by professional evaluators.

On the other hand, practitioners who are responsible for the operation and running of community projects need to understand the practicalities of implementing interventions in real life situations. They might ask 'What are the biggest barriers to implementation and how can these barriers be overcome?' or 'What are the best ways of building effective partnerships to take action on the social determinants of health?' These are *process evaluations*. Those implementing social interventions need to be clear about the roles and responsibilities of particular sectors.

In addition the population likely to benefit from the service or programme will be concerned with the quality of service provision, the extent to which it meets their needs, and the extent to which the process has been participatory or consultative (*experience evaluations*).

The framework requires all evaluations to adhere to the principle of 'commitment to equity'. All questions developed through this process should therefore take account of the variations in the target community according to age, gender, ethnicity and social circumstance and other dimensions of health inequities.

8.3 *Achieving methodological diversity*

By nature, addressing the social determinants of health involves a wide range of stakeholders and actions which cut across sectors. Generating the evidence required to build the knowledge base about the most effective ways of taking action is also a multidisciplinary concern (Alleyne et al., 2002). In collating the evidence base, researchers will draw upon work from sociological, psychological, anthropological and medical traditions, to name but some. Within each of these areas there are various epistemological positions, many of which will be in direct philosophical conflict with others in generating the evidence base on the social determinants of health. Some of the gaps in the evidence base on how best to tackle the social determinants of health are in part due to the disagreements among researchers about the most appropriate research methods and designs for building a robust evidence base. For example, there are long standing arguments within this field about the role of the randomized controlled trial – whether it is inappropriate or impractical, or only provides part of the picture in a multi-level intervention.

Getting the questions right will help to ensure that various sources can be brought together in such a way as to create the 'evidence jigsaw' described by Whitehead et al. (2004), which helps policy-makers take appropriate action on the social determinants of health based on the best available evidence. By drawing on a broad range of evidence (including quantitative and qualitative research, grey literature, case studies) we are more likely to be able to find out not only what works to address the social determinants of health, but also how and in what circumstances.

It is not possible or desirable in this guide to provide a comprehensive list of all the different types of study which could be used to generate a multidisciplinary, multi-method evidence base on the social determinants of health. The framework recommends that policy-makers, researchers and practitioners assess the appropriateness of particular methods and evaluation techniques in their own country contexts. There are many standard text books to help them in this task.

However, with respect to policy-making, the five types of evidence put forward by Whitehead et al. (2004) are recommended as a useful starting point. These are:

- **Observational evidence** showing the existence of a problem. This is most useful when the intervention to tackle the issue is then fairly obvious. However this type of evidence becomes more complicated when there are multiple causes of the problem (Diez-Roux, 2004).
- **Narrative accounts** of the impacts of policies from the household perspective. These might include a combination of descriptive studies (reporting on household budgets and analysing expenditure on the prerequisites for health for families living in different socioeconomic circumstances) and qualitative studies of decision-making in families – exploring why one course of action was chosen over another.
- **Controlled evaluations.** Whitehead helps to dispel the myth that controlled experiments are inappropriate all of the time by identifying examples of studies that have had a direct effect on policy-making. An example is in Africa where rigorous evaluations were made of the effects of Vitamin A on mortality and of rehydration for diarrhoeal diseases. This research led to changes in worldwide policy and practice after recommendations from WHO. It is important to note however that much could be done to improve the design of randomized controlled trials (RCTs) to take account of the social determinants of health (Oakley et al., 2006). Current designs generally fail to incorporate the necessary variables to assess the effectiveness of social approaches and the random allocation of whole populations is often difficult and/or unethical (Chaulk & Kazandjian, 2004).
- **Natural policy experiments.** Petticrew et al. (2005) put forward solid arguments for the use of ‘natural experiments’ as a source of evidence for both investigating the determinants of health inequities and for identifying effective interventions. Such ‘experiments’ may overcome the barriers of executing RCTs in the field of social determinants and can offer ‘good enough’ evidence on how best to act to tackle health inequities. Natural experiments go some way towards overcoming the issue of attribution when random allocation is not possible. Whitehead et al. (2004) also suggest that evidence from other countries or regions could inform debate if it provided concrete information on what happens when a particular policy currently under consideration in one place has already been introduced elsewhere.

- **Historical evidence.** Evidence from the past can be influential in the process of policy-making. Whitehead et al. (2005) give the example of the Rowntree Poverty Surveys of 1901 and onwards which painted a vivid picture of life in the slums of Britain's industrial cities. This was shocking to the general public, changed attitudes to poverty and underpinned the building of the post-war welfare system.

Chapter 9 describes some of the ways in which these different types of evidence can be brought together to give an understanding of how best to act on the social determinants of health. However there is a need to ensure that future attempts to generate this evidence base use mixed method approaches in primary research. There is also a need to redress the balance and ensure that studies embed process evaluation into research design to provide meaningful information on outcomes.

One promising advance which combines process and outcome is the 'realistic evaluation' approach, which attempts to provide answers not only about what interventions work to address SDH, but also how they work and in what context. These types of evaluations can help us to understand the mechanisms of change and can make explicit the underpinning theories upon which programmes are based. Pawson and Tilley's (1997) notion of realistic evaluation is helpful as it promotes theory-driven evaluations which help to capture the linkages between the context (the necessary conditions for an intervention to trigger mechanisms), the mechanisms (what it is about a particular intervention that leads to a particular outcome in a given context) and the outcomes (the practical effects produced by causal mechanisms being triggered in a given context).

8.4 *Assessing the quality of the diverse evidence base*

Expanding the scope of 'admissible' evidence in the field of the social determinants does not mean sacrificing rigour (Kawachi, 2005). It is important that all knowledge used to generate evidence should be assessed for quality, particularly making clear any biases that might affect the knowledge used. This follows the principle of 'explicating bias' set out in chapter 1. The methodological task is then to find a means of evaluating research from whatever tradition it comes, according to agreed criteria of acceptability, and regardless of its theoretical or methodological origins.

The work of the Cochrane Collaboration is often dismissed by those working in the social determinants field as the methods and processes used to construct evidence seem too narrowly focused on the field of bio-medics. In fact, much of the Cochrane Collaboration's work is relevant to assessing the quality of the study designs required to develop the social determinants evidence base. The criteria have been developed primarily for the production of systematic reviews, which synthesize large amounts of material to reach a consensus about the most effective approaches to promoting health and tackling health inequities. However, the more the principles set out in the guidelines produced by this organization are used at the primary research stage, the more likely it is that this research can be used at the appraisal and synthesis stage by organizations collating the best available evidence (Jackson & Waters, 2005b).

While the checklists have primarily been used to assess the quality of individual research designs, it is possible to use them to derive common quality standards to apply to all study types and methodologies relevant to the development of the social determinants evidence base. All studies attempting to answer questions about the social determinants of health should adhere to the following criteria (usually used to assess the quality of studies during evidence synthesis):

- Reporting of what the researchers did and why and how they did it (*transparency*)
- Applying a consistent and comprehensive approach (*systematicity*)
- Assessing how applicable the study is to different populations and in different contexts (*relevance*).

(Swann et al., 2003)

These criteria are described in more detail below. Combining them with the principles described in chapter 1 can help to improve the quality of the evidence base on the social determinants of health.

Transparency

It is important to assess whether there is sufficient information about what the researchers did and why they did it. Greater transparency of method means a higher quality piece of work. In relation to the social determinants agenda, it is particularly important that all the forms of bias that might be present in the study are made explicit, either those stemming from the particular methodologies used or from the political value position of the writer.

Systematicity

It is important that a consistent methodological approach is applied to all aspects of a study. Given the complex nature of interventions required to address the social determinants of health, it is not possible for any one research study to answer all the questions relevant to this endeavour – it is therefore important for studies to contextualize their research in a broader theoretical framework (causes, determinants and outcomes). This allows the reader to understand which aspects of the social determinants agenda are being investigated and what aspects of the ‘jigsaw’ the research hopes to complete.

Relevance

The context (social structures and social dynamics) within which the study is being carried out should be stated along with a view on how generalizable the findings might be to population groups across the dimensions of inequity.

This is not to say that any study which does not meet the three criteria above should immediately be discarded. Rather, policy-makers and practitioners need to make a judgement about when the evidence can be used for decision-making, keeping in mind that the conclusions of a poor quality study are less likely to be reliable than those of a higher quality work.

8.5 Conclusion

Countries which are just starting to construct this evidence base have an opportunity to ensure that the richest evidence possible is gleaned from multimethod and multidisciplinary primary research and that by following the principles and criteria set out in this guide the quality of that research can be improved. The next chapter looks at what can be done with the evidence once it has been gathered.

8.6 Illustrative case studies

The following illustrative case studies give examples of generating evidence:

- No. 4 – Brazil: Infant mortality in Ceará state
- No. 6 – Mexico: Reform of national health system
- No. 7 – Thailand: Introduction of universal health coverage

- No. 9 – Thailand: Use of locally-defined health determinants to push for change, Mun River dam
- No. 11 – Uganda: Community-based monitoring

8.7 *Related reading*

Alleyne G.A., Castillo-Salgado C., Schneider MC., Loyola E., and Vidaurre M. Overview of social inequalities in health in the Region of the Americas, using various methodological approaches. *Rev Panam Salud Publica/Pan Am J Public Health* 2002;12(6):388-397.

Center for Global Development –Washington (2006), *When Will We Ever Learn? Improving Lives Through Impact Evaluation*, SPRU Electronic Working Paper Series, Paper No. 145 – February 2006, Partner at The Knowledge Bridge The .Freeman Centre, University of Sussex, UK

Chaulk C, Kazandjian V (2004), “Moving beyond randomized controlled trials”, *American Journal of Public Health*; Sep 2004; 94, 9; ABI/INFORM Global

Des Jarlais D C, Lyles C, Crepaz N, Abbasi K et al, (2004), “Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: The Trend statement”, *American Journal of Public Health*; Mar 2004; 94, 3; ABI/INFORM Global, pg. 361

Diez-Roux A, (2004), “The Study of Group-Level Factors in Epidemiology: Rethinking Variables, Study Designs, and Analytical Approaches”, *Epidemiologic Reviews*, Vol. 26, 2004, DOI: 10.1093/epirev/mxh006

Diez-Roux A, (1998), “Bringing context back into epidemiology: Variables and fallacies in multilevel analysis”, *American Journal of Public Health*; Feb 1998; 88, 2; ABI/INFORM Global, pg. 216

Habicht J, Victoria C and Vaughan J,(1999),”Evaluation designs for adequacy, plausibility and probability of public health programme performance and impact”, *International Journal of Epidemiology*, 1999; 28: 10-18

Pawson R, Greenhalgh T, Harvey G, Walshe K, (July 2005), ‘Realist review – a new method of systematic review designed for complex policy interventions’ *J Health Serv Res Policy* Vol 10 Suppl 1 July 2005

Petticrew M, Roberts H, (2003), “Evidence, hierarchies, and typologies: horses for courses”, *J Epidemiol Community Health* 2003;57:527–529

Victoria C G, Habicht JP & Bryce J (2004), ‘Evidence-Based Public Health: Moving Beyond Randomized Trials’, *American Journal of Public Health*, March 2004, 400 | Public Health Matters | Peer Reviewed | *Victoria et al.* Vol 94, No. 3

8.8 *Specific tools*

The Bias Free Framework: a practical tool for identifying and eliminating social biases in health research

Burke M & Eichler M (2006), Global Forum for Health Research, Geneva.

Available from:

http://www.globalforumhealth.org/Site/002_What%20we%20do/005_Publications/010_BIAS%20FREE.php

Evaluation in health promotion: principles and perspectives

Available from www.phac-aspc.gc.ca

9 Evidence synthesis and action

Creating evidence based guidance is one way of helping to prioritize actions to address the social determinants and improve the standards of professionals working in this area. It represents the second phase in the framework outlined in chapter 4 and involves two main stages: synthesizing the available evidence and then turning that evidence into prioritized recommendations, i.e. evidence based guidance. There are a number of national and international organizations who are engaged in one or both of these tasks (see for example www.cochrane.org ; www.campbell.org ; www.cdc.gov ; www.nice.org.uk). The synthesis of evidence and production of evidence based guidance is resource intensive. There is therefore a need to collaborate at an international level to ensure that the task of producing evidence based guidance is not duplicated unnecessarily. The Cochrane Collaboration has already begun by setting up a project to assess global priorities for systematic reviews (Tugwell et al., 2006b). Some areas relevant to the social determinants of health have already been identified. They include:

- Community building interventions (designed to build a sense of community connectedness, cultural revival and social capital) to improve social and mental health
- Transport schemes to increase use of maternal and newborn health services, and increase community support and action for maternal and newborn health populations.

These topics reflect the shift in emphasis of the Cochrane Collaboration and are an example of where systematic reviewing can include topics of relevance to the social determinants agenda.

Countries should judge the relevance of products like these and assess whether they can use and /or adapt them to develop effective programmes for action in their own country contexts.

9.1 *Synthesizing complex and diverse data*

Synthesizing data from diverse sources enables it to be combined in a way that is of optimum value for policy-making and managerial decision-making. National policy-makers, commissioners of research, and local managers and practitioners look for answers to questions about health care services and delivery, and look for ways of improving population health and reducing health inequalities (Kelly et al., 2002; Ogilvie et al., 2005; Oliver et al., 2003). Some of the methods for synthesizing various kinds of evidence are detailed in this section in an attempt to bridge the gap between evidence and policy.

The questions decision-makers ask are complex, questions that go beyond 'What works?' and include 'When?' 'How?' and 'Why?', as well as 'For which people in which circumstances?' Often the answers to these questions are located in a variety of research and non-research sources, and some of the answers may come from unpublished as well as published materials. Review and synthesis offer a way of understanding and using these diverse sources of evidence. Many of the methods discussed here have been designed to synthesize published qualitative and quantitative research findings, but some could, potentially at least, be extended to synthesize other kinds of evidence.

Evidence synthesis encourages broadening the scope of what 'counts' as evidence in the kind of reviews and reports which are designed to inform decision-making. Evidence can be quantitative and qualitative research findings, as well as data from stakeholder surveys or the views and values of experts and users. The inclusion of diverse sources of evidence in reviews does not mean abandoning the rigour of systematic reviews, but it does mean judging the quality of evidence in context and defining evidence as relevant to answering specific questions, rather than defining some forms of evidence as intrinsically and universally of lower quality than others.

Policy-makers are more likely to take note of evidence presented from a robust and transparent synthesis that gathers evidence from multiple studies, rather than results from reviews of single interventions. Systematic reviews are seen to be particularly helpful in this process because they bring together in one place the findings from many studies and attempt to ascertain what the collected knowledge means to

people who do not have the time or expertise to cope with what are often vast and confusing bodies of evidence.

Many methods for the synthesis of diverse data are still in their formative stages and most were developed for the synthesis of either qualitative or quantitative data, rather than synthesis of the two. This section looks briefly at practical ways that synthesis of different types of evidence can be carried out. The information presented summarizes material from the book by Pope, Mays and Popay, *Synthesising qualitative and quantitative health evidence. A guide to methods* (Buckingham: Open University Press, 2007) which was developed from an overview of methods for synthesizing qualitative and quantitative evidence (Mays et al., 2005).

9.1.1 Reviewing evidence

The role of the literature review

Traditionally literature reviews have been used to try to bring together evidence that has been accumulated on specific areas of research. A literature review remains an essential precursor to research – a way of identifying current thinking, identifying gaps and proposing a way forward. However the traditional format of the literature review does not comment on or judge the quality of the research being summarized. The range of quantitative and qualitative methodologies under review, together with the amount of information needing to be extracted, makes the appraisal of study quality difficult.

Systematic reviews of effectiveness

Systematic reviews are an attempt at a more rigorous and sophisticated tool than the literature review. Such a review has an explicit, transparent and therefore reproducible method, less open to research bias or subjectivity. A systematic review generally has to meet the following criteria:

- Has a review protocol to guide the review process
- Has a comprehensive pre-defined literature search strategy
- Includes a critical appraisal of studies and grading of evidence
- Has explicit (transparent) inclusion and exclusion criteria
- Has explicit (transparent) methods of data extraction and (statistical) analysis.

Systematic reviews, pioneered by organizations such as the Cochrane Collaboration, have gained increasing importance in assessing effectiveness of clinical practice. Systematic reviews initially advocated a strict hierarchy of evidence with randomized controlled trials (RCTs) at the top. There is however a growing consensus that evidence from a wide range of sources must be sought to address the complex questions being asked. As a result evidence is increasingly sought from qualitative as well as quantitative research, on the grounds that the two can be complementary or 'developmental', with the findings of one prompting questions or lines of analysis for the other (O'Cathain & Thomas, 2006).

The objectives of reviews: 'knowledge support' or 'decision support'

In order to decide what type of evidence to include in a systematic review it is necessary to know what questions you want the review to answer. Two broad categories of review have been identified (Dowie, 2001; Mays et al., 2005):

- Reviews that synthesize and summarize existing knowledge: 'knowledge support'. This includes both reviews which focus on the cumulation or generalization of evidence on the one hand, and those which focus on the extent to which different sources of information reinforce each other (examples of this may be found in the Cochrane and Campbell collaborations).
- Reviews that will potentially facilitate decision-making through the provision of further analytical evidence: 'decision support'. These reviews may generate new theory or explanations (Hammersley, 2006:240-1). This type of review may use more than one synthesis method. For example, a systematic review may include quantitative evidence of the effectiveness of different interventions using statistical meta-analysis, alongside a synthesis of the qualitative research evidence of their acceptability.

The function of a review will influence the research questions and is likely to lead to a differing emphasis on qualitative and quantitative evidence; the more a review aims to contribute directly to a specific decision, the more likely it is that it will include non-research evidence as well as methods of modeling and simulation.

9.1.2 What is synthesis?

Synthesis is the point at which findings from the review process are combined and conclusions are drawn. Many of the methods for the synthesis of complex data are still in their formative stages and most were developed for the synthesis of either qualitative or quantitative data, rather than synthesis of the two. More work still needs to be done identifying and adapting rigorous methods for combining and integrating evidence, which will then be of value to policy- and decision-makers.

The process entails organizing and summarizing relevant evidence from a range of selected studies and then finding some way of bringing it together. Reviews designed to support policy-making and management decision-making will typically adopt a broad narrative based approach: they will tell a story.

This chapter looks at three broad techniques for synthesizing evidence:

- Quantitative synthesis, involving transforming evidence into numbers which can be represented numerically or statistically
- Qualitative or interpretative synthesis
- Mixed approaches which incorporate diverse evidence to inform policy-making and management decision-making, including the combination of separate syntheses.

We will concentrate more on the latter as this is felt to be most useful to readers of this guide, as well as being less detailed in the existing literature. While quantitative approaches are useful for indicating the overall effectiveness of a specific intervention, qualitative studies add insight, offering deeper understanding into the reasons why individuals may react in particular ways or hold certain opinions which impact on effectiveness.

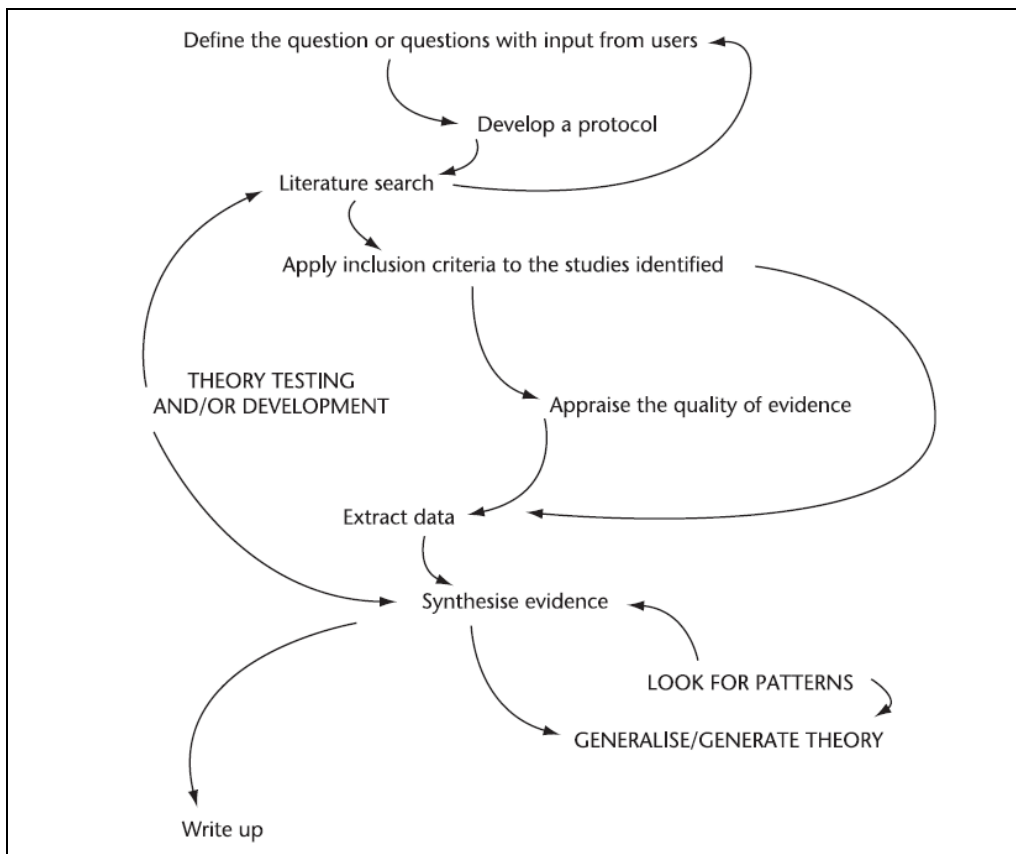
Before looking at the specific techniques for synthesizing evidence we will look at the stages involved in reviewing evidence systematically.

9.1.3 Stages in reviewing evidence systematically

To help overcome criticisms of bias, inability to replicate results or lack of rigour, systematic reviewing and synthesis attempt to be as rigorous and transparent as possible. Important steps towards ensuring that this is achieved include:

- At the outset of the review, drafting a protocol setting out the questions and methods of the review, including how studies will be assessed, searched for and summarized
- Being clear about why the review is being carried out. What do you want to achieve?
- Being flexible! The review process is seldom linear, with some elements taking place in parallel and others being revisited and further developed as the review process progresses. The process should include opportunities to backtrack, revisit review questions and to continue to test and develop theories. An iterative model demonstrating the stages characteristic of a systematic review process is illustrated in Figure 9.1 (below)
- Involving policy-makers in the review team to help ensure that the right questions are being asked.

Figure 9.1 An iterative view of the review process



Source: Pope et al., 2007.

The review process can be broken down into these steps:

- Defining the review question
- Developing a review protocol
- Searching for studies across a range of bibliographic sources
- Applying inclusion and exclusion criteria
- Assessing methodological quality
- Extracting data
- Synthesizing findings.

Defining the research questions

The review question has to be relevant to potential users of the review and, in theory at least, answerable. Questions may be developed with an advisory group including relevant policy-makers, commissioners, funders and service users and should allow for the flexibility of new or different questions as new evidence emerges. The initial process of mapping the research should give a feel for the time and resources needed. In considering appropriate research questions it is suggested (Booth & Fry-Smith, 2004) that attention should be focused on four key components, identified by the acronym PICO:

- **P**eople (or participants who are the focus of the intervention)
- **I**nterventions
- **C**omparisons
- **O**utcomes.

Examples of review questions from recent reviews include:

- What is known about the barriers to, and facilitators of, health and health behaviours among young people? (Shepherd et al., 2006)
- What does the qualitative and quantitative research literature tell us about access to health care by vulnerable, socioeconomically disadvantaged people in the UK? (Dixon-Woods et al., 2006)

The search for studies

This will be wide ranging and is likely to involve a variety of electronic databases relevant to the topic of the review. Other sources may also be searched, including conference proceedings, web sites, personal contact with researchers in the field, searching of specialist journals, databases, scanning of reference lists from studies

already identified, internet search engines such as Google Scholar or Scielo (Spanish and Portuguese), and abstracts of theses and dissertations. In order to generate relevant information, in manageable quantities, it is important to be precise and clear when generating key words for the search. Reviewers should have a thorough knowledge of the subject area in order to ensure that all relevant search terms are included and to avoid locating large amounts of irrelevant material. Advice from information scientists and librarians is advisable. Once the precise review questions have been defined the preliminary search can be extended and/or refined.

In most reviews, particularly those including qualitative research, a significant amount of information may be located in the 'grey' literature of unpublished reports. Moreover, recording of qualitative studies on electronic databases is not as sophisticated or thorough as the indexing of quantitative studies and advice from appropriate information specialists should be sought.

Determining the study types to be included

In order to produce a review which is both transparent and replicable, the criteria for including studies in the review must be explicit and clearly stated. For example, if the review is focused on unintentional injuries in children, the research criteria could state whether studies will be included which look at:

- Children of all age groups
- Children in specific groups, e.g. only those at high risk or from particular ethnic groups
- Type of intervention (e.g. multi-faceted community interventions or single setting such as schools)
- Which factors/processes could affect the intervention?
- What is the specific impact on the intervention of organizational structure, professional competencies, sense of community cohesion, etc?
- Evidence from 'beneficiaries' of the service
- What are the outcomes of interest? How is a successful intervention measured?

The final list of factors will be unique to each review and will reflect the nature of the review question(s) to be answered. Decisions relating to inclusion must be clearly linked to the review questions posed.

Reviews that involve the transformation of raw data or that include large numbers of studies require greater resources, and where the review question and/or range of evidence are very broad, it may be necessary to select a representative sample. Where large quantities of evidence are being analysed it may be appropriate to group similar studies together; in this way common generalized features of the effect of interventions are noted and small differences may not be of crucial importance.

Whether or not to include a study on the basis of quality appraisal remains a controversial and difficult area. In systematic reviews of effectiveness, attempts to assess quality and internal validity of the work are common. While quality assessment may be more appropriate for randomized controlled trials than for qualitative studies, problems remain as to how to select criteria for judging studies which are both transparent and rigorous. Even where clear rigorous study design has been used, this is not always adequately described in the research reports.

Quality appraisal/ validity assessment

The assessment of quality is important for the conclusions of the synthesis. If poorly designed studies are given too much weight, conclusions reached by the synthesis may not be substantiated. However quality in general, and validity in particular, are defined differently for different types of study design and research traditions.

In an *effectiveness review* quality is primarily judged in terms of internal validity, i.e. checking that the study is comparing like with like. Criteria used to judge the quality of quantitative studies are well rehearsed and include study of selection bias, drop out rates, 'contamination' between cases and controls, and observer bias (Chalmers et al., 1981; Downs & Black, 1998; Jadad, 1998; NHS Centre for Reviews and Dissemination, 2001).

Arguments about assessing the quality of *qualitative studies* are more complex and often strongly contested. There are two central issues:

- Should the concepts and criteria for methodological quality be broadly similar or quite different to those used in quantitative research?
- Should assessment of quality be made during or after the synthesis has taken place?

There is little consensus identifying criteria against which qualitative research should be assessed. It is difficult to prescribe a single approach because of the presence of

multiple, different checklists (see the useful review of these by Spencer et al., 2003) and because of the lack of agreement about which quality criteria to use, how cut off points are to be applied, and whether to exclude studies judged to be methodologically weak. The more diverse the evidence to be scrutinized the harder it is to develop appropriate methods. Details of the two currently most useful quality appraisal frameworks for qualitative research – those described in Spencer et al. (2003) and on the web site of the Public Health Resource Unit, University of Salford – are listed in the further reading.

Whatever the approach taken, clear records must be kept and a lack of bias must be demonstrated (ideally by involving two researchers). The strengths and weaknesses of the research under study should be reported to allow for this information to be used during synthesis and interpretation.

Data extraction

Because of the need to be able to replicate the results and the need to standardize and compare data across researchers and teams, the recording process must be both transparent and follow a clear process. There are various computer software programs to support the process, ranging from the commonly used (spreadsheets and databases such as Microsoft Excel and Microsoft Access) to those specifically designed for the process such as RevMan and SUMARI.

The type of data recorded as part of the synthesis will be influenced both by the specific nature of the research question and by the research methodology. In the context of a systematic review of effectiveness, for example, the data to be extracted should include details on:

- The participants
- The interventions (including content, format and timing)
- The comparisons
- The outcomes
- The study design
- Factors affecting the interpretation of study results
- Information relating to applicability across different population groups and settings.

For quantitative studies, the above factors will be relevant but more emphasis may be put on outcome data (presented as it is in the original paper, or in a form that will allow the actual impact to be assessed).

Data extraction from qualitative surveys, or more mixed sources of evidence, involves a possibly greater level of complexity and challenge and tends to take two main directions: interpretive synthesis (interpretative analysis by the author, typically in the form of analytical concepts, metaphors or themes) or realist synthesis (overarching themes, theories and explanations).

9.1.4 Quantitative approaches to evidence synthesis

Quantitative methods of synthesis all involve the conversion of data, whether qualitative or quantitative, into quantitative (i.e. numerical) form. This can then be used either for simple counts or more sophisticated statistical analyses, as well as for use in logical (Boolean) analysis. Qualitative findings are transformed into numbers by identifying themes, which can then become variables that can be quantified, either as frequency counts or in binary form. The method allows data from different points in time to be summarized and compared. It can also provide supporting evidence when it is deemed unfeasible to repeat original research. The danger however is that the depth and meaning of the original research can be easily lost.

There are six main quantitative approaches:

- *Content analysis*. Categorization of data into themes or categories and counting how often each category occurs
- *Quantitative case survey*. Statistical comparisons are drawn across a range of discrete case studies (Yin & Heald, 1975; Larsson, 1993)
- *Cross-design synthesis*. Data from studies with different quantitative research designs are pooled (e.g. RCTs and non-randomized experiments)
- *Bayesian approaches* which enable the pooling and statistical analysis of quantitative studies
- *Qualitative comparative analysis* (Ragin, 1987) where data from multiple studies are summarized and compared using a set of algorithms based on Boolean logic

- *Meta-analysis*. Statistical pooling of the results of quantitative studies with the same or very similar designs (Cooper & Hedges, 1994).

9.1.5 Qualitative approaches to evidence synthesis

Qualitative research takes on a number of forms and is guided by a range of theoretical perspectives: phenomenology, hermeneutics, ethno-methodology, grounded theory, etc. The different theoretical perspectives draw on different disciplines and approaches to research such as anthropology, sociology, social policy, political science, psychology, history and economics. Studies tend to be small and are not concerned with statistical generalizability but with conceptual and theoretical development and the explanation of phenomena. Data produced from such studies tend to be contextually rich and provide analytical depth.

The synthesis of qualitative research and especially the synthesis of qualitative with quantitative evidence are relatively recent endeavours. Most of the methods used for this type of synthesis are at a developmental stage and there are few examples of their application. In particular there are few examples of the application of interpretive synthesis methods to the synthesis of qualitative with quantitative findings.

The term 'interpretive synthesis' is used to denote methods which share qualitative methodology and have a particular focus on interpretation. The task is to bring together, juxtapose, re-analyse and combine the studies from several findings into a whole that ideally provides some theoretical or conceptual development that moves beyond the findings of any individual study included in the synthesis (i.e. a new interpretation).

There are two principal interpretive approaches:

- *Grounded theory* (Glaser & Strauss, 1967). Using the 'constant comparative method' to generate theory from data in a systematic fashion
- *Meta-ethnography*. Re-interpretation and transformation (translation) of concepts provided by individual studies into one another.

The techniques employed in both of these methods can be complex and are not best suited to the novice. To date there has only been one attempt to synthesize qualitative and quantitative research using a variant of meta-ethnography. This

method, developed by Dixon-Woods et al. (2005, 2006b) in a study exploring access to health care by vulnerable groups in the UK, has been called 'critical interpretive synthesis'.

9.1.6 Mixed method approaches to evidence synthesis

The methods outlined in this section are able to accommodate diverse evidence: quantitative and qualitative, research and non-research, etc. They can be less codified and make fewer pre-specified demands on the reviewer. While this gives flexibility and freedom, it demands high levels of skills to produce a robust, transparent piece of research. Moreover, the newness of the methodologies and shortage of good case studies means that these methods are to some extent still in development.

Thematic analysis

Thematic analysis is one of the most common methods for synthesis adopted in approaches to evidence review. It consists of identifying the main, recurrent or most important issues or themes arising in a body of literature. It is common for thematic analysis to be developed at least partially in an inductive manner, i.e. without a complete set of *a priori* themes to guide data extraction and analysis from the outset.

Thematic analysis tends to attach more importance to working with and reflecting directly on the main ideas and conclusions which have already been drawn across bodies of evidence, rather than producing new explanations and theories.

Themes are identified by a comparative process of reading and re-reading studies which are then coded. Software programs are used to help handle large quantities of data. Matrix based techniques may also be useful to help present and analyse between and across themes. The level of sophistication can vary, ranging from simple descriptions of all the themes identified, through to analysis of how different themes relate to each other.

Strengths and limitations of thematic analysis

- A key strength is the ability to handle a diverse body of research, including qualitative and quantitative data
- The flexibility of the thematic approach is associated with a lack of transparency. It can be hard to ascertain how and at what stage the

themes were identified. This uncertainty reflects the fact that the thematic analysis can be undertaken in different ways (i.e. quantitatively or qualitatively, inductively or deductively, theoretically driven or descriptively)

- It is unclear whether findings should reflect the frequency with which each theme is reported or its explanatory significance.

Realist synthesis

Realist synthesis focuses primarily on testing the causal mechanisms or 'theories of change' that underlie a particular type of intervention or programme. A realist review aims to test the explanatory power of the underlying theories of change shared by different interventions and programmes, asking whether and why these interventions/programmes work (or not) for particular groups in particular contexts.

Like other approaches to evidence synthesis, the realist approach extracts data from various sources of evidence (including research or non-research sources such as newspapers or official reports.) The purpose of data extraction is to identify the explanations offered for change across different policy domains and any underlying patterns of success and failure that occur. The ultimate aim of the review is to use the data to develop a theory about the conditions (or contextual factors) that determine the success or otherwise of a particular programme mechanism.

Strengths and weaknesses of realist synthesis

- Realist synthesis can accommodate an enormous diversity of evidence
- It can produce compelling 'stories' which may have particular resonance with policy-makers and practitioners
- This method may add rigour and structure to the traditional literature review
- There are few worked examples from which experience can be drawn and generalizations made.

Narrative synthesis

Narrative synthesis adopts a textual approach to the process of synthesis. It has been suggested (Dixon-Woods et al., 2004) that the method lies on a continuum, in between quantitative approaches to synthesis (e.g. meta-analysis) and purely qualitative approaches (e.g. meta-ethnography). It involves not only the simple

juxtaposition of findings from a diverse range of studies, but also, where evidence allows, it involves some element of integration or interpretation.

In an effort to improve the quality of the methodology and cognisance of criticisms relating to lack of rigour and transparency, Popay et al. (2006) produced more detailed guidance on the conduct of narrative synthesis. The guidance offers a framework composed of four elements:

- Theory development
- Development of preliminary synthesis
- Exploring relationships in the data
- Testing the robustness of the synthesis model.

Strengths and limitations of narrative synthesis

- The approach retains the flexibility of literature reviews and is appropriate for a wide range of review questions and disparate forms of evidence
- The use of multiple and mixed tools in the synthesis has the potential to offer novel insights into the evidence being reviewed
- There is the possibility of bias which may generate unsound conclusions leading to harmful decisions
- The use of multiple approaches to the analysis may result in 'data dredging', i.e. over-interpreting data
- Examples of the application of narrative synthesis methods are in short supply.

9.1.7 Combining separate syntheses: the EPPI approach

The approach developed by the Evidence for Policy and Practice Information and Coordinating Centre (EPPI) at the Institute of Education in the United Kingdom typically involves a very broad review question from which separate sub-questions are developed. These then form the focus of two or more parallel systematic syntheses. These parallel syntheses may, for example, focus on sub-questions about effectiveness, appropriateness, barriers and enablers to implementation, and the perspectives of the group targeted by the intervention. The results of the separate syntheses are then combined into a so called 'meta-synthesis', aiming to address the review question in its entirety. It is argued that because the EPPI approach aims to address review questions that include, but are not restricted to, the effectiveness of a

specific intervention or programme, they are more appropriate to the needs of policy-makers and managers than the conventional Cochrane-style effectiveness reviews.

The EPPI approach includes all of the standard stages of a systematic review (see section 9.1.1) but has two innovative features. Firstly, rather than a tightly structured search strategy, the EPPI approach begins with a comprehensive mapping and quality screening exercise to identify and describe all studies falling within the broad remit of the overall review question. Results from this mapping are then used with stakeholders (including funders) to look again at and check the appropriateness of the review question. Secondly, at the final 'meta-synthesis' stage results from the parallel syntheses are juxtaposed on a matrix rather than integrated.

Strengths and limitations of the EPPI approach

- The EPPI approach has the capacity to use evidence from a diverse range of sources
- It has the potential to help answer broad based review questions and is therefore more likely to be relevant to some of the complex concerns of policy-makers and managers
- It can involve any number of linked strands of synthesis, each addressing different questions (e.g. subjective perceptions of need, intervention design and development, acceptability and feasibility as well as (cost) effectiveness)
- It provides a transparent path from evidence synthesis to recommendations
- It is a time consuming, labour intensive and therefore expensive method.

9.1.8 Choosing different methods and considering quality

Choosing appropriate methods

Given the complex nature of the questions that reviews seek to answer, a number of different approaches (running either in parallel or tandem) are often adopted to tackle different aspects of the review question. Table 9.1 presents an overview, demonstrating which techniques may be appropriate in the light of different types of question and the evidence available.

Table 9.1 Choosing a suitable approach to synthesis given the aim, questions and evidence of the review

Review aim and/or policy management question	Relevant types of evidence (if available)	Likely approach(es) to synthesis	Strengths of the approach	Limits to the approach
Knowledge support	All types, but mostly research-based because of focus on what the research says	All bar decision analysis, etc.	Generalizability	Does not directly help with a specific decision in a particular context
Decision support	All types, including research and non-research (i.e. need to know evidence, values and preferences of stakeholders and decision-makers)	Bayesian meta-analysis, decision analysis, modeling and simulation of various types and possibly narrative synthesis	Focuses on the specifics of a particular decision in a particular context	Has to be modified to be relevant to another context; utility depends on its being used by decision-makers, not generalizable
Is this a problem?	All types, including research and non-research (e.g. qualitative and quantitative research, public and stakeholder views, opinion polls, focus groups)	Narrative synthesis or, for qualitative studies, meta-ethnography	Narrative synthesis is flexible, relatively easy to understand and applicable to a range of situations and sources of evidence; meta-ethnography has principally been used for qualitative synthesis	Have to work hard to make sure methods and judgements are explicit, free of bias and replicable; defining something as a 'problem' is value laden
How big is the problem? Which groups does it affect? Is it changing over time?	Quantitative research and routine data analysis. Qualitative data on subjective impact. Quantitative research and routine data analysis	Quantitative synthesis plus meta-ethnography of qualitative studies. Quantitative synthesis		Meta-ethnography is labour intensive, requires considerable qualitative research experience
What can be done about it (what may work)? How much is responding likely to cost in general?	Mostly quantitative research on effectiveness and cost-effectiveness	Meta-analysis of intervention studies	Meta-analysis is well developed for effectiveness and reasonably well developed for cost-effectiveness data	
How do the seemingly effective policies or interventions work?	Mostly qualitative research from interviews and observation on users' and providers' experiences	Various forms of interpretive synthesis (e.g. qualitative cross-case analysis or meta-ethnography), but also realist synthesis	Rich picture of how policies or interventions work in practice as opposed to preconceptions of their architects	Qualitative studies may not have been undertaken in relevant settings so findings may be hard to apply

Review aim and/or policy management question	Relevant types of evidence (if available)	Likely approach(es) to synthesis	Strengths of the approach	Limits to the approach
What works for whom in what circumstances? Which factors may moderate the impact of this policy?	Wide range of research and non-research data	Realist synthesis; narrative synthesis; case survey	Helps with understanding mechanisms underlying interventions (i.e. how they work)	Will not necessarily produce specific answers to particular decision needs
Will intervention/policy x work here with what cost and benefit consequence?	Cost-effectiveness data from research; modeling related to specific circumstances including non-research data	Bayesian meta-analysis and cost-effectiveness modeling; decision analysis	Makes research evidence relevant to specific circumstances of a particular decision	Dependent on validity of expert opinion where research is lacking and on specific value trade-offs of decision-makers; decision-makers may be reluctant to follow 'verdict' of the analysis; Bayesian meta-analysis can be hard to explain
How acceptable will intervention/policy X be? Will it be implemented successfully? What will the reaction be here?	Largely qualitative research and non-research data (e.g. focus groups, opinion polls, stakeholder analysis)	Interpretive synthesis (e.g. meta-ethnography, qualitative cross-case analysis, etc)	Essential information for policy-makers and managers even though tricky to interpret	'Softness' and/or transitory nature of opinions and views

Source: Pope et al., 2007.

Assessing the quality of a review of qualitative and quantitative evidence

Given that methods for synthesis are still in development, there are as yet no formally developed criteria to assess the quality of reviews which synthesize both quantitative and qualitative evidence. Knowing that the individual components are of good quality does not itself indicate that the overall review meets quality criteria. Key questions to ask either at the start or finish (or both) of the review include:

- Is the aim clear?
- Are the review questions relevant to policy-makers?
- Is the work context specific?
- Is the methodology transparent and clearly laid out?
- Is each step in the review and adaptation of the protocol clearly justified?
- Are the searches carried out comprehensive?
- Does the review include a sufficiently wide scope of evidence?
- Are individual studies appraised for quality and relevance?

- Are appropriate exclusion and inclusion criteria used?
- Is the choice of synthesis method appropriate?
- How is non-research evidence integrated into the analysis?
- Does the review generate new knowledge and insights?
- If more than one method to synthesize is used how is the resultant analysis handled? How are divergences and contradictions handled?
- Are the conclusions consistent with the evidence synthesized?
- Is the final review clearly presented in straightforward language?
- Can the recommendations be acted on?
- Does the review team include the appropriate mix of expertise, skills and experience?

9.2 *Producing guidance for action*

Developers of guidance in public health attempt to identify, appraise and collate the best evidence to ensure that the highest quality information is available to a range of health professionals with responsibility for improving health and reducing health inequities (Bowen & Zwi, 2005). An essential part of producing this guidance is the distillation of the most important findings from the scientific evidence base into a set of implementable actions. This involves assessing the strength of the evidence (certainty of 'what works'); its generalizability and transferability; whether change is realistic; whether the actions identified are amenable to change in the long, medium or short term; whether it is cost effective; and what impact it will have on health inequities (NICE, 2006b; Oxman et al., 2006; Sheldon, 2005).

Detailed processes and methods for producing evidence based guidance are available from a number of well known agencies to ensure that guidance is appropriate, supported and effective. For example, the National Institute of Health and Clinical Excellence (NICE) in England and the Centre for Disease Control and Prevention (CDC) in Atlanta, USA, have developed robust methodologies to ensure guidance is based on the best available evidence (NICE, 2006b; CDC, 2005) and that it is tested by a range of stakeholders responsible for implementing it.

While these processes and methods have not specifically been designed to address the social determinants of health, adhering to their principles can ensure that

recommendations produced have a specific equity focus. For instance, NICE attempts to ensure that its public health guidance is 'equity proofed' by collating evidence not only on what works but how it works and in what circumstances. It draws its evidence base from a range of disciplines including clinical medicine, epidemiology, health economics, health psychology, medical anthropology, sports science, nursing, education and health promotion.

An essential part of producing guidance is the distillation of the most important findings from the scientific evidence base into a set of implementable actions. This involves assessing the strength of the evidence (the degree of certainty about 'what works'); its generalizability and transferability; whether change is realistic; whether the actions identified are amenable to change in the long, medium or short term; whether it is cost effective; and what impact it will have on health inequities (NICE, 2006b).

In particular a guidance production process should:

- Support the further development of the evidence 'jigsaw' by bringing in other types of evidence not already retrieved by the formal synthesis of published research. These should be combined with contextual information about the country or area and the structures and systems in place to support the implementation of guidance.
- Further assess the evidence from synthesis to understand the strength of evidence, in particular by distinguishing between absence of evidence, poor evidence and evidence of ineffectiveness (Rawlins, 2005; Briss, 2005). This is important for prioritizing action as it is possible to have good evidence about unimportant problems and limited or poor evidence about important ones. It may not therefore be appropriate to act based on strength of evidence alone.
- Ensure that prioritized actions are based on a full assessment of the needs of particular groups across the dimensions of inequities described earlier in this guide.

Ultimately, producers of guidance aim to move from isolated examples of best practice to improved standards of practice for all those engaged in improving the health of populations. Applying the principles proposed by the MEKN and set out in chapter 1 will ensure that guidance prioritizes actions which can have the greatest impact on health inequities by addressing SDH.

The National Institute for Health and Clinical Excellence (NICE) in the United Kingdom applies the MEKN principles by ensuring that it draws its public health evidence base from a range of disciplines including clinical medicine, epidemiology, health economics, health psychology, medical anthropology, sports science, nursing, education and health promotion. It also questions the evidence base to seek to understand not just what works but also how it works and in what circumstances. Equity proofing is a central component of the public health guidance production process to ensure that it prioritizes actions for disadvantaged groups based on the burden of ill health. In the public health work at NICE this is done by involving a wide range of stakeholders who have an opportunity to engage with all stages of the process. Stakeholders work with NICE to test the transferability of draft recommendations into practice, in particular testing them to ensure they do not disadvantage those population groups who suffer worst health. Working together in this way helps to ensure that solutions to potential problems are identified at the guidance production stage and that ownership of the guidance is established with all those it aims to benefit.

The methods NICE uses to identify, assess and synthesize the evidence are based on the need to demonstrate the quality and appropriateness of the research and not of the research design. The strength of evidence is assessed in part on the appropriateness of the study design to answer specific research questions. For example:

- The most robust evidence to answer questions of efficacy ('what works') is generally considered to come from randomized controlled trials. However this type of study is generally less useful for answering questions about effective implementation (including the views of the target population)
- Qualitative research better allows an understanding of the particular processes and conditions that are required to ensure that interventions are successful in different contexts.

Case study 14 has more information about NICE's approach.

The Centre for Disease Control and Prevention (CDC) uses a 'logic framework' to illustrate the broad links between the social, environmental and biological determinants of a particular issue. This is then used to develop an analytic framework to demonstrate the relationship between particular interventions and their intended

outcomes. The development of logic models allows a more systematic approach to developing the most appropriate research questions and therefore the best research design to answer those questions.

In middle income countries (e.g. Brazil) evidence based guidance is largely generated by national academics interacting with the Ministry of Health (or other ministries), with a subsidiary role played by WHO, UNICEF and other international (but not bilateral) agencies. In low income countries this role is primarily played by WHO, UNICEF, the World Bank or bilateral agencies that invest in programmes of their choice. Thus the development of evidence based guidance may depend on who is paying for implementation, and on what their priorities are. This may also affect equity if an organization prefers to direct its funds to a particular area, regardless of whether or not this is the most equitable approach (Victora, personal communication, 2007).

Robust, evidence based guidance on the scale of NICE or CDC may not be available and/or it may not be appropriate to attempt to produce such guidance. Stakeholders could use guidance from sources such as NICE or CDC and adapt it to their own country context. Such guidance is normally freely available on the internet. There are risks to this approach as it may not be obvious to what extent the particulars of the guidance are country or situation specific. Alternatively stakeholders may find it more relevant to use the less formal approaches to gathering and assessing evidence outlined in chapter 11 on 'Learning from practice'.

While the experience of producing evidence based guidance is heavily dominated by high income countries, the principles outlined by NICE and CDC provide a useful starting point for more contextualized guidance produced in different country contexts.

9.3 *Illustrative case studies*

The following illustrative case studies give examples of evidence synthesis:

- No. 12 – Various countries: Synthesis of qualitative data on treatment of tuberculosis
- No. 13 – Various countries – Synthesis of data on school feeding programmes.

The following illustrative case study gives an example of producing evidence based guidance:

- No. 14 – United Kingdom: National Institute for Health and Clinical Excellence.

9.4 *Related reading*

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9.5 Specific tools

More advice on **searching procedures** can be found in chapter 4 of Petticrew and Roberts (2006).

Quality appraisal frameworks:

- Spencer et al. (2003), (http://www.policyhub.gov.uk/evaluating_policy/qual_eval.asp; accessed 17.04.07)
- Critical Appraisal Tool for qualitative research studies developed by the Public Health Resource Unit at the University of Salford,
- http://www.phru.nhs.uk/casp/critical_appraisal_tools.htm#qualitative

10 Effective implementation and evaluation

It has already been established in this guide and by the work of the CSDH knowledge networks that effective solutions to addressing the social determinants of health and reducing health inequities need to cut across sectors to take account of the broader social, cultural, economic, political and physical environments which shape people's experience of health and well-being.

It is also recognized that whether governments are applying a health gap or health gradient approach to reduce health inequities, some of the biggest impacts will be seen by taking action at the macro level of policy. Often well intentioned policies fail because of an under-emphasis on redistributory macroeconomic policies and an over-emphasis on community based initiatives (Mitchell et al., 2000). Nonetheless, locally based solutions can make a significant contribution to the implementation of policies on SDH. If these contributions are to be realized, concrete action plans are required which support individuals, workplaces, structures and systems to develop and change in ways that make a social determinant approach to health a normal everyday occurrence.

Generating evidence and producing good practice guidelines and policy is not sufficient to ensure that well-intentioned policies effectively address the social determinants of health. (CIHR, 2006; Victora et al., 2006). Policy-makers must ensure that individuals, workplaces, structures and systems are supported to develop and change in ways that are conducive to taking action. A lack of attention to follow-through in well intentioned policies and programmes with sophisticated action plans for implementation often leads to the expectations of governments, professionals and the general public being undermined (Morgan & Ziglio, 2007).

Action plans may fail which:

- Do not pay attention to the need for adequate performance management
- Show insufficient integration between policy sectors
- Contain contradictions between health inequities and other policy imperatives. (Exworthy et al., 2002)

Successful action plans at a minimum must:

- Pay attention to the need for adequate performance monitoring and review (*health equity auditing and needs assessment*)
- Support effective integration between policy sectors at national and local level, to avoid contradictions between health inequities and other policy imperatives (Exworthy et al., 2002) (*health impact assessment*)
- Foster effective leadership and management to ensure there is organizational capacity to support local implementation (*organizational development and change management*)
- Identify the different sectors involved and plan for their involvement (*readiness for intersectoral action*)
- Provide for appropriate involvement of local communities in the decision-making processes that lead to action (Gillies, 1998) (*involvement of local communities*)
- Support effective evaluation to ensure that learning from practice happens, in particular learning about the barriers and solutions to effective implementation (*programme evaluation*).

These points are dealt with in more detail below.

10.1 Health equity auditing, needs assessment and impact assessment

Programmes designed to reduce inequalities often fail due to the time and resources available to carry them out and a lack of evidence about what works across different segments of the population. Increased policy commitment internationally to tackle health inequalities has led some governments to introduce mandatory systems for assessing need against all aspects of health inequalities. The main ways of assessing whether a programme is meeting expectations in terms of reducing inequities were outlined in chapter 7. Although presented there as being appropriate for use before a programme has been implemented, they can be equally valuable if applied during or at the end of a project. If they identify unintended adverse consequences of a programme, it may be possible to rectify these before it is too late. If they cannot be corrected, at least the learning can be applied to future programmes to help ensure they meet their health equity goals.

10.2 Organizational development and change management

Creating the supporting conditions that are required for effective implementation is a complex endeavour. We know that the solutions required for reductions in health inequities need to cut across sectors, involve a range of macro and micro interventions, and involve a wide range of professionals working together to effect change in the short, medium and longer term.

Evidence based guidance provides us with the starting point for change but alone will not improve the practice of individual professionals, nor will it secure the necessary structural and systems change required to overcome some of the inevitable barriers to implementing effective programmes and initiatives.

Kelly and colleagues (2004) identify a number of steps to support individual professionals take effective action derived from evidence based guidance. These are:

- Translating knowledge from research about the most effective and implementable action
- Providing policy advice to support effective practice
- Increasing access to quality-assured information on what to do and how to do it
- Creating and sustaining networks for knowledge transfer
- Finding ways of supporting changes in practice at local, regional and national levels.

(Kelly et al., 2004)

Organizations also need to be supported to set the necessary conditions for effective implementation. Equipping managers with the skills they need to operate in the challenging social determinants agenda is essential if they are to balance multi-stakeholder interests, understand complex accountabilities and manage for social outcomes (Hunter & Killoran, 2004). There is much to be learned from the business sector to help to manage change in this complex environment (Ackerman, 1997; Weick & Quinn, 1999).

The New South Wales (NSW Health, 2001) capacity building framework provides a useful model of the complex system changes that are required to secure effective implementation. They propose five areas that need to be considered in order to ensure that evidence from research can be effectively translated into action and can be sustained. These are workforce development, organizational development, resource allocation, partnerships and leadership.

Some of the key questions that should be asked against the five areas are:

1. *Workforce development:* Who are the front line practitioners? Do such 'practitioners' think of themselves as such? What are the key irritations experienced by front line staff in getting the work done? Are there examples of good local practice where problems have been solved on the ground either because of or in spite of policies and initiatives? Are there local initiatives, which are the products of local development accessible to others, such as examples of local training sessions? Are front line staff/providers able to identify negative but unintended consequences of recent policy initiatives and management strategies in the field?
2. *Organizational development:* How are current services provided? What is the organizational framework that defines the delivery of services? What are the typical structures and are they universal nationally or do they vary locally?
3. *Resource allocation:* Who organizes it? Who manages it? Who funds it? Is there any statutory framework that governs the activity or aspects of it?
4. *Partnerships:* Are there networks of practitioners that have been/ could be utilized? What are the links to other sectors and other professionals?
5. *Leadership:* Is local leadership important? Do local champions have a role?

The answers to these questions should provide an initial mapping of the territory where the barriers and conduits to change are readily identified. It is also effective in identifying the roles and responsibilities of the key actors required to take action on the social determinants of health.

10.3 *Readiness for intersectoral action*

Sustainable strategies for reducing health inequities can only be brought about if there is a recognition that policies need to be long term and that intersectoral action is required. There needs to be less of an expectation that outcome measures can be generated in the short term. Without policies in place that outline the importance of a multi-faceted approach to tackling health inequities, little is likely to change.

Many of the solutions to addressing the social determinants lie outside the health sector. The ability of stakeholders to reduce health inequities therefore relies on building strong and durable partnerships with a range of other sectors and agencies. These include health care, social security, education, housing, security, labour market, environment, transport, agriculture, industry and energy.

Intersectoral collaboration will only be brought about if there is a political commitment to ensure that health is everybody's business (Stewart, 2002). Even when integrated decision-making processes have been signed up to, health champions will still need to help other sectors understand why they should get involved in health and health inequities action (see also the chapter on 'Making the case'). It is helpful to provide support to other sectors on actions they can take that will have a positive impact on health.

Policy champions can help to ensure long term sustainable action on the social determinants of health. Stakeholders nationally, regionally and locally should identify, nurture and support a critical mass of policy champions who can act as catalysts and provide linkages with the chain of actors responsible for the policy-making process and who can support the process of effective implementation (MEKN, 2006a)

There is also a need for the health sector to look at its own practices in employment, estates strategies, effects of cross border agreements, etc.

Stakeholders should find ways of:

- Ensuring that the health care system sets a good example as an employer and purchaser of services and contributes to the development of local healthy communities and local economies

- Enabling the health sector to support other sectors to address health-related issues (e.g. integrated health impact assessment)
- Measuring the impact of health sector policies and initiatives on health and health inequities
- Ensuring that other sectors develop policies which are the most beneficial to health development, particularly for disadvantaged groups
- Measuring and evaluating intersectoral programmes, partnerships or experiences. (WHO, 2005)

10.4 *Effective ways of involving local communities*²

It is well recognized and increasingly accepted that successful implementation is more likely through the use of participatory processes in health development. Although there is a dearth of rigorous evaluations of social interventions aimed at reducing health inequalities, reviews have identified certain characteristics of successful approaches (Gillies, 1998; NHS Centre for Reviews and Dissemination, 1999):

- Local assessment of needs, especially involving local people in the research process itself
- Representation of local people within planning and management arrangements – the greater the level of involvement, the larger the impact
- Design of specific initiatives with target groups to ensure that they are acceptable (i.e. culturally and educationally appropriate), and that they work through settings that are accessible and appropriate
- Training and support for volunteers, peer educators and local networks, thus ensuring maximum benefit from community-based initiatives
- Visibility of political support and commitment
- Re-orientation of resource allocation to enable systematic investment in community-based programmes
- Policy development and implementation that brings about wider changes in organizational priorities and policies, driven by community-based approaches

² Based on extracts from Morgan, 2006.

- Increased flexibility of organizations, so supporting increased delegation and a more responsive approach.

Most people working with local populations realize that good community capacity is a necessary condition for the development, implementation and maintenance of effective interventions and this is reflected in an increasing number of strategy documents setting out a social determinants approach to reducing health inequities. However, Jordan et al (1998) argue that while the nature and extent of public involvement in determining health needs has increased, the quality of consultation remains questionable. One reason for this is that policy-makers under heavy pressure to achieve very specific national policy targets may feel that the involvement of the community is time consuming and that they can suffer a loss of control. This can lead to community involvement activities becoming tokenistic and separated from the main decision-making processes of professionals.

Another problem associated with poor community involvement is that professionals tend to define communities by their needs. These needs are often translated into deficiency-orientated policies and programmes which rightly identify the problems and try to address them. A possible downside to this approach is highlighted by Kretzmann & McKnight (1993), who claim from their work with communities that many low-income urban neighbourhoods have become environments of service where behaviours are affected because residents come to believe that their well-being depends upon being a client. They therefore suggest that rather than focus on deficits an alternative approach would be to develop policies and activities based on the assets, capabilities and skills of people and their neighbourhoods.

10.5 Evaluation

Chapter 6 has already described the importance of a range of evaluative approaches to generate the evidence required to develop equity focused policy, and to provide answers to broad questions of effectiveness. The latter is supportive of producing evidence base guidance to improve practice. Wimbush and Watson (2000) distinguish this evaluation as that done by 'professional evaluators' who tend to engage with evaluation as a knowledge building exercise to improve understanding of the relationship between an intervention and its effects. Implementation-level evaluations tend to be carried out by local practitioners (sometimes supported by

professional evaluators) to gain a more in-depth understanding of how to strengthen programmes and a deeper understanding of how things work.

The distinction is made here to illustrate the different types of evaluation required at different points in the cycle of policy development, implementation, monitoring and evaluation. However these evaluation efforts are not mutually exclusive. There is a need for better integration and understanding of the relationship the two and better collaboration to ensure that efforts are not duplicated. This is particularly important as practitioners may sometimes feel they are being asked to evaluate everything, when this is not always required.

Better coordination of evaluation efforts at the national and local level, and between professional researchers and local practitioners, can go some way to ensuring the often limited resources available for evaluation are maximized. Policy-makers have a key responsibility to provide sustained investment in a wide range of evaluation efforts and to provide theoretical frameworks for evaluation which make explicit what types of evaluation need to be carried out by whom and for what purpose.

It has been argued that evaluating complex social interventions is hard because of their size and their need to address multiple problems, often with shifting political environments (Coote et al., 2004). Given the importance of evaluation in the implementation of programmes, Hill (2004) offers pointers that should be considered for improving the quality of evaluations of community initiatives and gaining credibility with researchers and policy-makers:

1. Their *utility* is made explicit. E.g.: Who is asking the question and for what purpose? Have the views of the community have been taken into account?
2. Their overall *feasibility*. E.g.: Are the resources available commensurate with the expectations of all stakeholders? Has the methodology taken context into account?
3. An explicit *propriety*. E.g.: Has the evaluation strategy got a similar value base to the programme being evaluated?
4. The *methodology* promotes quality and transparency of process. E.g.: Where and by whom should the quality criteria for non experimental methods be debated?

5. The expectations of *evaluation commissioners* is realistic. E.g.: Bridging the gap between impossible questions and complex interventions.
6. *Dissemination and utilization of results*. E.g.: Increasing more published research in this area.

There are many text books which provide detailed instructions on the basic principles of evaluation and the range of evaluative approaches which are useful in the field of SDH. Two well established approaches to evaluation are worthy of mention here, to illustrate the possibilities of producing quality knowledge about local programmes of action which can improve the evidence base.

The first is 'realistic evaluation' (already briefly described in sections 5.4 and 8.3) developed by Pawson and Tilley (1997) and described by them as:

trying to break down the lazy linguist habit of basing evaluation on the question of whether 'programmes' work. In fact it is not programmes that work but the *resources* they offer to enable their subjects to make them work. This process of how subjects interpret the intervention strategy is known as the programme '*mechanism*' and it is the pivot around which realistic evaluation revolves.

The second, 'Program Evaluation' (PE) developed by CDC, is a systematic set of practices to improve and account for public health actions and to forecast a range of 'plausible futures' stemming from policies (Kawachi, 2005). The foundation of PE consists of a well described sequence of steps:

- Engaging stakeholders
- Describing the programme, including the use of logic models
- Focusing the evaluation design
- Gathering credible evidence
- Justifying the conclusions
- Ensuring the use and sharing of lessons learned.

Further details of the Program Evaluation framework can be found at <http://ctb.lsi.ukans.edu/ctb/c30/progEval.html>.

These two examples are particularly important for supporting evaluation of local programmes as they follow a number of the principles set out in chapter 1. In particular they encourage the use of a wide range of methods, they take account of

context by trying to understand the systems and structures within which programmes are being implemented, and importantly they embed the values of ‘commitment to equity’ in their approach.

10.6 Illustrative case studies

The following illustrative case study contains an example of effective implementation:

- No. 4 – Brazil: Infant mortality in Ceará state

The following illustrative case studies give examples of health impact assessments:

- No. 9 – Thailand: Use of locally-defined health determinants to push for change, Mun River dam
- No. 15 – Slovenia: HIA of national agricultural policy
- No. 16 – United Kingdom: HIA of housing redevelopment

The following illustrative case study shows an example of intersectoral action:

- No. 18 – Sweden: Intersectoral action

The following illustrative case studies give examples of evaluation:

- No. 2 – Brazil, Peru, United Republic of Tanzania: Integrated Management of Childhood Illness programme
- No. 3 – Bolivia: Evaluation of Social Investment Fund
- No. 11 – Uganda: Community-based monitoring
- No. 17 – Mexico: *Oportunidades* programme
- No. 19 – Bangladesh: Evaluation of Food for Education programme

10.7 Related reading

Almeida C & Bascolo E (2006), ‘Use of research results in policy decision-making, formulation, and implementation: a review of the literature’, *Cad. Saúde Pública, Rio de Janeiro*, 22 Sup:S7-S33, 2006

Blamey A et al (2002). Theory-based evaluation of complex community-based health initiatives Available at <http://www.nice.org.uk/page.aspx?o=508187>

Burns A, (2005), “Recognizing the needs and roles of the key actors”, *J Health Serv Res Policy* Vol 10 Suppl 1 July 2005

Canadian Institutes of Health Research. Moving population and public health knowledge into action. CIHR Institute of Population and Public Health Canadian Population Health Initiative 2006

Commission on the Social Determinants of Health Measurement and Evidence Knowledge Network, Report on the MEKN "Implementation" Working Group, 6-8 April 2006, Santiago, Chile

Current thinking and approaches among agencies supporting Civil Society Organisations, Overseas Development Institute, Available from:
http://www.odi.org.uk/publications/working_papers/wp260.pdf

Exworthy M, Berney L & Powell M (2002), 'How great expectations in Westminster may be dashed locally': the local implementation of national policy on health inequalities', *Policy & Politics* vol 30 no 1 79–96 ISSN 0305 5736

Kelly M, Speller V, Meyrick J (2004), *Getting evidence into practice in public health*, Health Development Agency, London

Kelly M, Swann C, Killoran A, Naidoo B, Barnett-Paige E, Morgan M (August 2002), *Methodological Problems in Constructing the Evidence Base in Public Health*, Health Development Agency, London

Michie M, Johnston M, Abraham C, Lawton R, Parker D, Walker D, on behalf of the "Psychological Theory" Group, (2005), "Making psychological theory useful for implementing evidence based practice: a consensus approach", *Qual Saf Health Care* 2005;14:26–33. doi: 10.1136/qshc.2004.011155

Michie S and Lester K, (2005), "Words matter: increasing the implementation of clinical guidelines", *Qual. Saf. Health Care* 2005;14:367-370, doi:10.1136/qshc.2005.014100

Stewart M (2002) Systems governance: towards effective partnership working.
<http://www.nice.org.uk/page.aspx?o=508213>

Victoria CG, Huicho L, Amaral JJ, Armstrong-Schellenberg J, Manzi F, Mason E, & Scherpbier R (2006), 'Are health interventions implemented where they are most needed? District uptake of the Integrated Management of Childhood Illness strategy in Brazil, Peru and the United Republic of Tanzania', *Bulletin of the World Health Organization* | October 2006, 84 (10)

World Health Organization. Meeting on Knowledge Translation in Global Health 10-12 October 2005. Final Report. Geneva: WHO, Departments of Knowledge Management and Sharing Research Policy and Cooperation 2005.

10.8 *Specific tools*

Intersectoral action toolkit: The cloverleaf model for success

<http://www.phac-aspc.gc.ca/canada/regions/ab-nwt/pdf/programs/isatoolkit.pdf>

Guide to project evaluation: a participatory approach

<http://www.phac-aspc.gc.ca/ph-sp/phdd/resources/guide/index.htm>

Working partnership

Book 1 – Introduction <http://www.nice.org.uk/page.aspx?o=502563>

Book 2 – Short assessment <http://www.nice.org.uk/page.aspx?o=502565>

Book 3 – In-depth assessment <http://www.nice.org.uk/page.aspx?o=502567>

Looseleaf worksheets <http://www.nice.org.uk/page.aspx?o=502569>

Participation and social assessment: tools and techniques

Rietbergen-McCracken J and Narayan D (1998) World Bank

<http://siteresources.worldbank.org/INTPCENG/1143331-1116505657479/20509228/Toolkit.pdf>

Australian development Gateway: Sustainable development through sharing knowledge

This web site provides a comprehensive collection of resources and links on applied social research methods for practitioners involved in applied social research and evaluation – see <http://www.developmentgateway.com.au/jahia/Jahia/pid/4624>

11 Learning from practice

Mainstream evidence based practice does not currently make best use of 'non scientific' knowledge that does not find its way into the published literature (El Ansari et al., 2002; Popay et al., 1998). Often the richest sources of data on how things work in the real world can be found by tapping into the tacit knowledge of those working most closely with the targeted communities, and the tacit knowledge of the communities themselves. Indeed, if it were made more widely available, some of the tacit knowledge found in community based programmes in low and middle income countries could be helpful for those countries where social determinants are already on the policy agenda. It could help them understand the essential ingredients for the successful implementation of their policies.

By definition tacit knowledge is knowledge which is held in people's minds and is difficult to access. There are many ways in which tacit knowledge can be used to inform policy development and to ensure that evidence based guidance is rooted in real life circumstances. For example, communicating local experiences of successful programmes and initiatives through the media can provide a powerful impetus for policy action in areas where policy does not exist. Also, as was described in section 9.2, involving stakeholders in developing and testing evidence based guidance helps to elicit knowledge about the transferability and generalizability of recommendations and helps improve the take up of guidance once produced.

The learning from practice phase in this framework is an explicit attempt to document some of the tacit knowledge about how best to intervene to address the social determinants of health. Otherwise when people eventually leave the systems set up to sustain action on the social determinants of health, their knowledge is lost and the evidence base remains poor.

It is important to note, however, that it will never be possible or desirable to systematize all knowledge. The approach set out here focuses on ways of mainstreaming tacit knowledge so that it becomes part of the evidence base and hence improves our understanding not only of what works but also of how it works in different circumstances.

This phase of the development of the evidence base is necessary to fill some of the gaps in the published evidence base and to help better inform future research, particularly in relation to ensuring the success of policies. In addition insights can be gained into the sorts of things that do not work and where well intentioned policies have actually done harm.

It is rather ironic that this chapter, about the need not to lose tacit knowledge about effective local interventions, is not illustrated by any case studies. The authors were unable to find relevant examples relating to SDH in the published literature.

11.1 *Why do we need to collect knowledge from practice?*

Without policies in place that outline the importance of a multi-faceted approach to tackling health inequities, little is likely to change. However, policies that do not invest substantial time and effort to understand what is required to work in practice might at best have no effect on inequities or at worst contribute to increasing the gradients in health experience that already exist (Kelly et al., 2004; Speller et al., 2005).

Evidence generated through well-resourced experiments can only provide a guide or signpost towards the kinds of things that might be successful in real life. It is crucial therefore to add information that comes from practice both to understand the barriers to effective implementation and to create innovative ways of overcoming them (Glasgow, 2003).

However, many practitioners do not follow systematic planning processes when designing and delivering interventions. This is often because they lack the necessary training and because there is no recognized system or standard for accumulating knowledge from practice that matches the principles of organizations such as the Cochrane and Campbell collaborations which are responsible for collecting, collating and synthesizing knowledge from published research. As Hill (2004) argues in her review of community level interventions, 'there was a failure of many evaluation reports to include sufficient information for the reader to make an informed judgement about the intervention being evaluated or how it might be replicated'. While this finding calls for improved processes and methods of formal evaluation (see the previous chapter), much can be gleaned from the tacit knowledge of practitioners

about how things work by supporting them to document the processes that lead to effective delivery of social interventions.

Given that most of the examples of what appear to be effective local interventions are never written up or published in academic journals, the tacit knowledge of practitioners needs to be captured and shared in a systematic way so that it can be combined with scientific research to improve the chances of policy goals being delivered effectively.

A key goal of learning from practice systems is to provide policy-makers, planners and practitioners with guidance that is as robust as possible. Given the incomplete and often patchy state of the formal evidence base that can be derived from reviews of published accounts of interventions, such systems can help to fill in some of the gaps in our knowledge. Until such time as quality research and evaluation projects have derived unambiguous results to inform decision-making, these systems can provide complementary streams of intelligence gathering in a systematic way. This practical experience and knowledge can inform how resources should be used.

Learning from practice systems can be used to:

- Improve practice locally, regionally and nationally by sharing experience of innovations that have been seen to have impact but have not been written up in a formal way
- Build a network of practitioners who are working in similar areas who can learn from others' experience, either by finding similar practitioners who are working with similar populations and contexts and/or by using the principles of effective practice and adapting it to specific contexts
- Encourage better quality reporting and serve to train local practitioners about the principles of research methodology
- Improve the scientific evidence base in the longer term by feeding into the future design and evaluation of larger scale studies
- Support the 'making the case' phase of the cycle by 'story telling' about local successes and the potential impact of community based projects.

There is no consensus on the models or tools that can be used to provide a logical and relevant framework for quality assurance in health promotion. However there are some examples of international projects (Gillies, 1998; Aro et al., 2005; WHO, 2004)

which provide ideas as to how the systematic collection and collation of evidence from practice can be achieved.

Collecting evidence from practice can play a significant role in the production of guidance on the best ways of addressing the social determinants of health in three ways. First, it can be used to supplement the evidence base derived from the scientific literature and to produce guidance on best practice. Second, it can be used with different stakeholders to inform implementation processes. Third, it can be used to inform revised guidance and support better informed primary research.

11.2 *What do we know about the features of an effective system for learning from practice?*

A number of attempts have been made to establish comprehensive and effective practice collections of health promotion and public health interventions. However these attempts have often failed due to the lack of clarity about the boundaries of what is collected, insufficient resources required to sustain them over long periods of time, and no attempts made to synthesize general conclusions about the evidence held within the practice collections (Marks, 2002).

This experience has provided useful learning about the essential features of a learning from practice system:

- The effort needed to maintain the accuracy of the data in the collections should not be underestimated. Piloting of systems is therefore essential to ensure that the resources available match the requirements of the system in terms of its ongoing maintenance
- Collections of effective practice will not of themselves change practice, unless commitment is given to the ongoing training of local practitioners and to the building of the infrastructures required to support them
- Effort is required to market the system to ensure that effective networks of practitioners can be built
- The requirements for synthesis should be well articulated up front to ensure that appropriate information is collected from projects

- Collecting data from projects should not just be seen as a paper exercise and should be complemented by workshops, conferences and other means of face to face exchange
- Longer terms goals should be to encourage the writing up of individual or groups of projects to share information in peer reviewed journal articles or through web communications
- The general principles of research methodologies should be used to ensure the credibility of the projects as they are written up
- Systems should aim to evolve so that they can improve the standards for collecting evidence of effective practice
- Creating change in practice in complex areas is most successful when it involves creating ownership of the problem and active involvement in finding solutions
- The collection of examples of effective practice should not be seen as an end in itself and should be linked to other ways of improving and promoting best practice. The goal is for this best practice to be mainstreamed eventually
- More effective 'learning from practice' systems tend to be those which are broad enough to give good coverage of key variables but are small enough to allow for rapid collation and synthesis. Limiting the number of examples and having a time-limited lifespan are more likely to succeed than trying to be more comprehensive and ongoing (French, 2003).

11.3 *What sorts of information should be collected?*

Criteria can be developed to select and generate knowledge from known successful projects to ensure that this knowledge can be utilized by others and be synthesized to produce transparent and explicit evidence about how that success was achieved.

The following criteria for gathering information have been derived from what is known already about the characteristics of effective interventions aiming to address the social determinants of health (French, 2003). These criteria can be used to select projects for a learning from practice database. They can also be used to revisit

projects that are known to be successful but require support in order to understand what made them a success:

1. Whether a prior local assessment of need was carried out using such techniques as health equity auditing and therefore whether examples from practice can be defined in terms of the dimension of inequality being addressed (e.g. age, gender, socioeconomic group, etc.)
2. Details of the methods used to ensure effective engagement of local communities in needs assessment, target setting, delivery and evaluation
3. Where multifaceted interventions were carried out, details of how these interventions worked together to produce the desired outcome
4. How practitioners were trained and supported to deliver the intervention
5. How ownership of the goals of the projects was built up between the deliverers and the community receiving support
6. What political and managerial commitment existed that contributed to the success of the project
7. Whether there is a clear theoretical perspective that is congruent with the form and focus of the intervention
8. How success was measured and through what forms of evaluation (this could include story telling).

A learning from practice system completes the cycle by improving the reporting of local experience so that it feeds back into the evidence generation phase. This allows us to continually improve the quality, breadth and depth of the evidence base on how best to act to address the social determinants of health.

Having considered the four parts of the tools and techniques framework we now turn to monitoring, which underpins the whole framework.

11.4 *Related reading*

Blagescu M & Young J (January 2006), "Capacity Development for Policy Advocacy"

El Ansari W., Phillips CJ. and Zwi AB, (2002), "Narrowing the gap between academic professional wisdom and community lay knowledge: perceptions from partnerships". *Public Health* 2002;116:151-159.

Harden A, Garcia J, Oliver S, Rees R, Shepherd J, Brunton G, Oakley A, (2004), "Applying systematic review methods to studies of people's views: an example from public health research", *Journal of Epidemiology and Community Health* 2004;58:794–800.

Popay J., Williams G., Thomas C. and Gatrell A, (1998), "Theorising inequalities in health: the place of lay knowledge". *Sociology of Health & Illness* 1998;20(5):619-645.

Popay J. and Williams G (1996), "Public health research and lay knowledge". *Social Science & Medicine* 1996;42(5):759-768.

11.5 *Specific tools*

Handbook for evidence-based working and case study writing 2005
http://www.euro.who.int/document/ENI/Handbook_case_study.pdf

12 Monitoring

12.1 Introduction

The purpose of this chapter is to help countries in all stages of development make optimal use of their data and also consider improving their health information systems. We draw on recent European experience, particularly on guidelines for monitoring health inequities which were developed for the European Commission (Kunst et al., 2001). We also look at issues particular to low and middle income countries (LMIC). There is an extensive list of related reading at the end.

Monitoring of health inequities using routinely collected data is important for a number of reasons:

- These data can be used to attract policymakers' attention, for example by benchmarking exercises. Showing that problems are larger than elsewhere is often an important stimulus to policy-making. Countries with inadequate data usually also lag behind in policy development on health inequities
- These data can be used to identify entry points for policy. For example, inequities in health determinants provide clues as to underlying factors which could be addressed by interventions and policies
- These data can be used to assess the impact of policies. If policies change over time – if for instance policies which have an adverse effect on health inequities are implemented – routine data on how inequities in health and health determinants change over time will provide information on the impact of the policies.

Countries around the world are in different stages of development of health monitoring systems. Some countries have very little routinely collected health data. Other countries have routine health information systems, but these do not monitor health inequities. Still other countries measure health inequities routinely, but lack data on the determinants of health inequities so that entry-points for policies cannot be detected.

We understand 'monitoring' to be a policy-oriented process based on the analysis of current patterns and trends in health outcomes, their social determinants and health equity. Consequently, this chapter is oriented to policy-makers, health practitioners and policy-oriented researchers. The chapter is in seven parts:

1. Guidelines on how to use data to monitor health inequities
2. Explanation of different sources of health data
3. Outline of issues in interpreting key equity stratifiers
4. Special issues in low and middle income countries
5. Special issues in high income countries
6. Suggestions for improvements in monitoring systems
7. Related reading.

In addition illustrative case studies are listed at the end and can be found in appendix I.

12.2 Use of data to monitor health inequities

12.2.1 Identifying sources of health information

Data sources exist in every country and can often be used for monitoring health inequalities. Table 12.1 gives an overview of the data sources which are available in many middle and high income countries. These sources are often also available in low income countries but may be less reliable, less comprehensive and/or updated less frequently. Table 12.2 provides a checklist to evaluate the usefulness of these data sources for monitoring health inequities.

Table 12.1 Overview of potential sources of data for monitoring inequities in health

Data source	Health status indicators covered
Vital registry (births, deaths)	Mortality, length of life
Cause-of-death registry	Mortality from specific causes of death
Level of living surveys and multipurpose surveys	Disability, symptoms, general health and quality of life
Health interview surveys	As above, plus self reported prevalence of diseases and disability

Health examination surveys	As above, plus functional impairments and biological precursors of diseases
Health care utilization registries, e.g. hospital admissions, general practitioners consultations	Incidence, case fatality and prevalence of several diseases leading to utilization of health services
Disease registers, e.g. cancer, congenital anomalies, mental health	Incidence, case fatality and prevalence of specific diseases
Surveillance systems, e.g. on infectious diseases, injuries	Incidence, case fatality and prevalence of injuries or specific (acute) diseases
Social security registries, e.g. on sickness absence, long-term work disability	Incidence and prevalence of several diseases leading to work disability

Source: Kunst et al., 2001.

Table 12.2 A checklist for the evaluation of data sources

1. Relevance and timeliness	<ul style="list-style-type: none"> a. Do the data cover at least two of the core socioeconomic indicators (occupation, education, income)? b. In mortality studies, can a distinction be made by cause of death? c. In health interview or similar surveys, are different health status indicators included? d. Do the data refer to a recent period (less than 5 years ago)?
2. Population coverage and representativeness	<ul style="list-style-type: none"> a. Are both men and women included? b. Do the data cover all age groups or at least a substantial part of the entire age range (e.g. 15-74 years)? c. Are you sure that the data are not restricted to a specific city/area or to another sub-population (e.g. employees of a company)? d. Do the data include the institutionalized population and other specific groups such as foreigners? e. Are you reasonably sure that, if the data come from a survey, problems with non-response do not strongly bias the results?
3. Reliability	<ul style="list-style-type: none"> a. Are socioeconomic indicators linked to health indicators at the individual or household level (instead of the area level)? b. If education is used as the socioeconomic indicator, can a distinction be made between lower educational levels (e.g. elementary and lower secondary, or <7 and 7-8 years)? c. If occupational class is used, can this indicator be determined for people who are economically inactive (e.g. housewives and retired)? d. If income is used, are data available to estimate household equivalent income? Are there no serious problems such as income unknown for many people (say, more than 20%)?
4. Precision, power	<ul style="list-style-type: none"> a. In interview or examination surveys, is the sample size fairly large (more than 5,000 respondents)? b. In mortality studies, is the number of deaths fairly large (more than 1,000 deaths)?
5. Usefulness for monitoring trends	<ul style="list-style-type: none"> a. Can three or more periods be compared? b. Do these periods together cover a sufficiently long span (about ten

	<p>years or more)?</p> <p>c. In interview or examination surveys, are exactly the same health indicators used in the subsequent surveys?</p> <p>d. Is the measurement of socioeconomic indicators comparable over time? Can the same classification be applied to each period?</p>
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Source: Kunst et al., 2001.

In many countries, three types of data will form the core of a health monitoring system for health inequities:

- Nationally representative, individual-level data on mortality according to socioeconomic indicators, to monitor socioeconomic inequalities in mortality
- Nationally representative data from health interview, multi-purpose and similar surveys, to monitor socioeconomic inequalities in self-reported morbidity and access to and utilization of health care.
- Nationally representative data from routine health records.

Sometimes, additional data sources are available for monitoring inequities in specific health problems, such as the incidence or prevalence of particular diseases (e.g. cancer) or disabilities (e.g. work disability).

When nationally representative data on mortality or self-reported morbidity are not available, regional or local studies may be used as long as the restriction to specific regions or areas is recognized explicitly, and extrapolation to the country as a whole is done only if representativeness has been confirmed. Another alternative is to use 'ecological' studies in which mortality or morbidity indicators can be linked to socioeconomic indicators at the level of small areas. These data can be subject to bias if they are used to infer individual-level relationships between socioeconomic status and morbidity or mortality (the ecological fallacy), but can nevertheless be useful as long as the potential for bias is recognized.

12.2.2 Measuring socioeconomic status

Table 12.3 gives an overview of indicators that can be used to measure socioeconomic status (SES). Some measures may be preferred over others for theoretical reasons – for instance a class perspective on health inequities would lead one to prefer occupational class over educational level. Since there is no general

consensus on this we recommend using at least two of the three core indicators of socioeconomic status (education, occupation or income) if data sources permit.

An important additional consideration for choosing between socioeconomic status indicators is the appropriateness of a particular measure for the whole population. For instance, level of education can be used readily for both men and women, including those not currently employed, whereas occupational class can often only be measured for those currently employed, which in many countries excludes a large number of women and elderly persons.

Educational level can be measured by means of a hierarchical classification of the population according to their completed educational level. Part-time education and vocational training are preferably taken into account. A distinction can be made between at least five categories similar to: none, elementary, lower secondary, upper secondary and tertiary.

Table 12.3 Overview of possible socioeconomic indicators

Core indicator	Measured at individual level	Measured at household level	Measured at area level
Education	highest level completed number of years of schooling literacy	idem, of head of household, partner or parent	% low educated % illiterate ratio female/male literacy
Occupation	current occupational class (idem, but lifetime based) (score on social distance scale)	idem, of head of household	% low class % underemployed % informal sector % unemployed % female population in the labour force
Income	household members personal income (work, subsidies, / consumption / expenditure	household per capita income consumption / expenditure (quintiles or poverty line) Own production...	% low income (quintiles or poverty line) average income ratio female/male income 10/10 share of income 20/20 share of income income distribution
Wealth/assets		total amount of assets or capital household per capita wealth (quintiles or poverty line)	% low wealth/assets (quintiles or poverty line) average wealth 10/10 share of income 20/20 share of income wealth/assets gradient

	housing material conditions (walls, floor and roof) housing amenities (electricity, radio, bicycle, fuel used) housing tenure or facilities	% 'bad' housing
Composite	combination of above indices	combination of above indices

Source: Adapted from Kunst et al., 2001.

Income level can be measured by classifying the population according to household equivalent autonomous income. This implies that, where possible, (a) the income of all household members is summed, (b) their net (instead of gross) income is measured, and (c) an adjustment is made for household size. Households are then classified into groups of equal number, such as income quintiles or deciles.

Information on *occupation* can be used to classify subjects into 'occupational classes'. A distinction should at least be made between non-manual classes, manual classes, farmers and other self employed. If possible, a further distinction can be made between e.g. upper and lower non-manual classes, and between skilled and unskilled manual classes. The occupational class can be determined on the basis of the individual's current or last occupation. However, if many persons are not economically active, a classification on the basis of the occupation of the head of household may be considered.

Composite measures (combining e.g. education and occupation) are not recommended for routine use in individual-level data, although they may be used for the identification of disadvantaged groups of particular interest, such as poor lone mothers or disadvantaged migrant groups.

These three key socioeconomic indicators are discussed in greater detail in section 12.4.

12.2.3 Tabulating health indicators by socioeconomic group

The first step in making sense of data is to create insightful tabulations. One possible format is in table 12.4. This format is intended to be used for analysing trends in health inequities over time, but can also be used for other purposes such as analysing variations in health inequities between countries (replace 'period' by 'country'). Although it focuses on socioeconomic variables, it may also be applied to other equity stratifiers.

The health indicator can be expressed as the rate or probability of occurrence of negative health problems. In some cases, however, measures of positive health may be preferred. Where possible, mortality and morbidity rates should be presented by gender and broad age group, in order to assess whether patterns apply across the whole population.

Health measures should be standardized for age in such a way that comparisons can be made not only between socioeconomic groups, but also between periods and countries if applicable. There are some country or region specific age standardization measures (e.g. the European Standard Population). When neither countries nor their reference region use specific standardization, formats such as the World Standard Population or the World Health Organization Standard Population are recommended.

Table 12.4 Basic scheme for tabulating and analysing trends in socioeconomic inequities in health

Step 1: Population size

SE indicator	Share in total population (%)			Trend	
	Period 1	Period 2	Period 3	Absolute change	Relative change
Group 1 (highest)					
Group 2					
Group 3					
Group 4					
Group 5 (lowest)					
Total	100	100	100		

Step 2: Health

SE indicator	Occurrence of health problem (rate)			Trend	
	Period 1	Period 2	Period 3	Absolute change	Relative change
Group 1 (highest)					
Group 2					
Group 3					
Group 4					

Group 5 (lowest)					
Total					

Step 3: Magnitude of health differences

	Inequity index			Absolute change from period 1 to 3
	Period 1	Period 2	Period 3	
Relative version				
Absolute version				

Source: Kunst et al., 2001

Measures of mortality can be summarized in terms of life expectancies, and measures of mortality and self-reported morbidity can be combined into measures such as disability-free life expectancy.

It is important not only to look at rates of health problems but also at the distribution of the population over socioeconomic groups, as the size of the relatively disadvantaged groups will determine the population health impact of health inequities.

12.2.4 Measuring the magnitude of health inequities

When the purpose of the analysis is to determine whether the magnitude of health inequities has changed over time, or differs between countries, the tabulated data needs to be summarized in one or more indices. It is important however to always check the summary indices against the patterns that are visible in the basic tabulations.

Table 12.5 outlines the most commonly used summary indices of the magnitude of health inequities. The choice of whether to use absolute or relative measures can affect the assessment of whether a health inequity exists and its magnitude. Sometimes a disparity on the relative scale (i.e. the rate ratio of a health outcome between a low and a high socioeconomic status group) may not appear to be a disparity on the absolute scale (i.e. the rate difference between the two groups). It is critical that researchers and policy-makers are clear about which type of measure they are using. The choice of measure is also relevant for the discussion about the distinction between health gaps and health gradient (see chapter 3).

We recommend, where possible, using both relative and absolute measures of health inequities (i.e. both rate ratios and rate differences comparing two contrasting groups) to ensure that inequities are identified. Other more sophisticated measures can also be used to gain more insight into the patterns of health inequities. Regression-based measures have been developed to take the 'gradient' nature of health inequalities into account. Some measures also take into account the distribution of the population over socioeconomic groups. This sometimes leads to interesting insights, for instance when the size of relatively disadvantaged groups has diminished over time so that the population health impact has also diminished, perhaps despite rising relative and/or absolute differences between groups.

Table 12.5 Overview of summary indices of the magnitude of health inequities

Summary index description		Summary index (with example of an interpretation)	
		On the <i>absolute</i> occurrence of health problems	On the <i>relative</i> occurrence of health problems
Indices that compare two contrasting groups	Compare extreme groups	Rate Difference e.g. the absolute difference in mortality between professionals and unskilled manual workers	Rate Ratio idem, but the <i>proportional</i> mortality difference
	Compare broad groups	Rate Difference e.g. the absolute difference in mortality between non-manual and manual classes	Rate Ratio idem, but the <i>proportional</i> mortality difference
Regression-based indices that take into account all groups separately	Based on absolute SES	Absolute effect index e.g. the absolute increase in health associated with an income increase of 1000 US dollars.	Relative effect index idem, but the <i>proportional</i> increase in health
	Based on relative SES	Slope Index of Inequity (SII) e.g. the health difference between the top and bottom of the income hierarchy	Relative Index of Inequity (RII) idem, but the <i>proportional</i> health difference
Total impact indices that explicitly take into account population distributions	The PAR perspective (equality by levelling up)	Population Attributable Risk (PAR) e.g. the total number of cases that would be avoided if everyone had tertiary education	PAR (%) idem, but as a <i>proportion</i> of all cases (of death, disease, etc.) in the total population
	The ID perspective (equality by redistribution)	Index of Dissimilarity (ID) e.g. the total number of cases to be redistributed between groups in order to obtain the same average rate for all groups	ID (%) idem, but as a <i>proportion</i> of all cases (of death, disease, etc.) in the total population

Source: Kunst et al., 2001.

The best measure will depend on its fitness for purpose, just like the choice of evidence methodology. At the beginning of the 1990s Wagstaff and colleagues (1991) warned researchers and policy-makers that conclusions on health inequalities depended on the measure chosen. Since then there have been numerous works revising different measures, broadening the range of measures, and incorporating measures beyond the classical epidemiological ones (Regidor, 2004a, 2004b).

Table 12.6 Advantages and disadvantages of summary indices most frequently used to measure health inequities

Summary index	Advantages	Disadvantages
1. Rate ratio of highest versus lowest socioeconomic status groups 2. Rate difference between highest versus lowest socioeconomic status groups	Easy to calculate and to interpret	Only takes into account extreme groups, ignoring inequalities within groups or between intermediate groups.
3. Regression-based relative effect index	Takes into account all social groups and allows the inclusion of other variables in the model.	More complex to calculate and needs statistical packages to do so. Needs verifying regression assumptions, e.g. lineality.
4. Population-attributable risk – percent 5. Population-attributable risk – absolute	Easy to calculate and to interpret. Takes into account the variation between groups as well as the population size.	It does not consent association between SES and group morbidity and mortality.
6. Regression-based population-attributable risk – percent 7. Regression-based population-attributable risk – absolute	Consents association between SES and group morbidity and mortality of the whole social gradient..	Requires statistical packages and statistical knowledge to interpret it.
8. Index of dissimilarity – percent 9. Index of dissimilarity – absolute	Easy to calculate and to interpret.	It does not take into account the health variable and the SE variable. The distribution assumption is not applicable to morbidity or mortality.
10. Relative index of inequality 11. Slope index of inequality	Takes into account the population size and the relative groups' SES. Sensitive to the population average health status.	Requires statistical packages and statistical knowledge to interpret it.
12. Gini coefficient and Lorenz curve	Comprises data from all groups; it does not population SES stratification.	It does not take into account the socioeconomic dimension.

		On its own, it does not provide information on the way inequality is distributed.
13. Concentration index and concentration curve	Includes the social dimension in the analysis and uses information from the whole population.	Geographic and trend analysis varies little when analysing morbidity or mortality over 15 years old. On its own, this index does not discriminate the way in which inequality is distributed.

Source: Schneider et al., 2002b.

Given the diversity of advantages and disadvantages, it is recommended to use more than one index to depict the multi-dimensional nature of health inequities, as well as selecting the indices based on the objective pursued. Ideally complementary indices should be used. Furthermore, just as there are no 'correct' measures, neither are there 'correct' reference groups (Harper & Lynch, 2004). This is another decision to make together with the summary index/ indices. Fitness for purpose also includes the final audience. Sophisticated measures may only be appropriate within a research context, and simpler measures may be more appropriate for addressing policy-makers.

12.2.5 Evaluating and interpreting the results

Several data problems may bias estimates of the magnitude of health inequities. The effect of data problems that cannot be avoided in the selection or analysis of data should be thoroughly evaluated wherever possible, for example using the checklist in table 12.7. These problems should be evaluated for their possible effect on the results. Sometimes these effects can be quantified by means of sensitivity analyses.

Further problems in analysing data due to difficulties in interpreting the key equity stratifiers are outlined in section 12.4.

Table 12.7 Checklist of potential data problems

Area	Affecting the measurement of inequities in health at one moment in time	Affecting the measurement of time trends in these inequities
Delimitation and representative-ness of study population	Exclusion from the study of specific sub-populations, e.g. - non respondents to surveys - specific SES groups, e.g. self employed - others, e.g. institutionalized, foreigners	Changes in delimitation of the population, e.g. - different age groups - different geography - different survey samples

	Exclusion from analysis of those with missing values due to, e.g. - unknown SES, e.g. inactive men - health status unknown, e.g. cause of death	Changes in <i>problems with</i> representativeness (see cell to the left)
Measurement and classification of health indicators	Misclassification due to, e.g. - problems with self-reports - inaccurate registry of causes of death - incomplete coverage by e.g. hospital registries Failure to measure all aspects of health that were aimed to be studied, e.g. - restriction of moderate instead of severe levels of ill health - incomplete selections of diseases or disability items	Changes in the measurement and classification, e.g. - different health questionnaires - different classifications of diseases Changes in <i>problems with</i> measurement and classification (see cell to the left) Changes in population health not taken into account, e.g. changing mix of diseases
Measurement and classification of socio-economic indicators	Misclassification due to, e.g. - lack of detailed basic data - the numerator/ denominator bias - use of crude social class schemes, e.g. ISCO based schemes - inaccurate measurement of e.g. income Failure to measure all relevant groups separately, e.g. - those with elementary education only - non-manual workers with lowest status	Changes in data, indicators and classifications Changes in <i>problems with</i> measurement and classification (see cell to the left) Social changes not taken into account, e.g. changes in - educational systems - income structure - position of specific occupations
Confounding	Confounding inherent to a specific indicator of SES or health, e.g. - insurance coverage as a proxy for income - facility-based measures of health	Changes in the effect of confounding
Power, precision	Wide confidence intervals to inequity estimates	Overlap in the confidence intervals to inequity estimates for different periods

Source: Kunst et al., 2001

Measuring the magnitude of health inequities is usually only the first step and will not in itself be able to inform policy-making. Although health monitoring systems are not designed for scientific research into the causes of health inequities, they can often be used to get a first idea of these possible causes. There are three general approaches, each of which can be feasible with data collected in health monitoring systems or other statistical systems:

- Carrying out in-depth descriptions of health inequities (e.g. by looking at causes of death in addition to total mortality)

- Comparing inequities in health outcomes to inequities in health determinants (e.g. by looking at inequalities in smoking and other behavioural risk factors)
- Relating inequities in health to contextual factors (e.g. by looking at implementation of welfare policies).

12.3 Sources of health data

The basic instruments of any health information system are vital statistics, censuses, population-based surveys and health records. These are found in all countries although they differ greatly in their coverage, quality and frequency. The last two sources include a variety of instruments, such as health and multipurpose surveys, health interview surveys, health care utilization registries, surveillance systems, small areas, epidemiological studies and longitudinal studies. All of them provide information for monitoring health outcomes and health equity.

In this section different sources of data are examined and strengths and weaknesses in monitoring health inequities are identified.

12.3.1 Vital statistics

Vital registries are core instruments of a health monitoring system, providing continuous information on births and deaths by age and sex, and with attribution of cause of death. They are present in all countries but they are of varying coverage and quality. For example, a recent study in Latin America proposed three categories based on countries' coverage and quality of vital and health statistics (see table 12.8).

Table 12.8 Latin America: Typology of countries according to vital, morbidity and resources statistics characteristics

Country typology	Vital statistics	Morbidity & resources
Group 1 Argentina Chile Costa Rica Cuba	<ul style="list-style-type: none"> • High coverage: over 90 per cent • Tendency to greater coverage in birth and general mortality registries than in infant mortality • Greater level of coverage than 	<ul style="list-style-type: none"> • Greater problem analysis • Little time series and geographical analysis • Important regional differences, when there is analysis

Uruguay	quality <ul style="list-style-type: none"> • Regional differences either in coverage or in quality • Positive perception of the system among data producers and users. 	<ul style="list-style-type: none"> • Differences in system perceptions among producers.
Group 2 Brazil Colombia Ecuador Mexico Panama Venezuela	<ul style="list-style-type: none"> • Middle coverage: between 70 and 80 per cent • Important differences according to estimation sources • Greater level of coverage than quality • Important regional differences either in coverage or in quality • Differences in system perceptions between data producers and users. 	<ul style="list-style-type: none"> • Greater problem analysis, but erratic. • Lower time series and geographical analysis. • Important regional differences, where analysis is being done. • Differences in system perceptions among producers.
Group 3 Bolivia Dominican Republic El Salvador Guatemala Honduras Nicaragua Paraguay Peru	<ul style="list-style-type: none"> • Low coverage level: less than 70 per cent and sometimes less than 50 per cent • Greater level of coverage than quality, but scarce application of evaluation techniques • Important regional differences either in coverage or in quality • Greater uniformity in negative perceptions of the system. 	<ul style="list-style-type: none"> • Almost no analysis on the national level, and even less geographical or time series. • Greater uniformity in negative perceptions of the system. • Little response to evaluation.

Source: Elaborated upon information from Giusti (2006).

Birth registries

Birth registries give us information on such diverse health indicators as birth weight, delivery assistance, teenage fertility, and health relevant indicators like mother's educational level. They also provide data on live births, which are used to calculate infant mortality rates. Therefore problems in coverage of birth registration not only affect fertility statistics but also have an effect on recorded infant mortality rates. According to a recent UNICEF study (2005) on birth registration, there are enormous disparities within and between regions of the world (see table 12.9).

Table 12.9 Proportion of unregistered births by region

Regional summaries	Percentage of unregistered children (born 2003)
Sub-Saharan Africa	55
Middle East and North Africa	16
South Asia	63

East Asia and Pacific	19
Latin America and Caribbean	15
CEE/CIS and Baltic States	23
Industrialized countries	2
Developing countries	40
Least developed countries	71
World	36

Source: UNICEF, 2005.

If non-registration occurred in similar proportions across populations, it would not be difficult to extrapolate to the whole population. However non-registration is itself biased since the children most likely to be unregistered are precisely those most vulnerable. The UNICEF study drew up a profile of under-five non-registered children, affirming that these children

tend to be poor, live in rural areas, have limited access to health care, are not attending early childhood education, have higher levels of malnutrition and have higher mortality rates. They are likely to have been born without the support of a health professional or midwife, and their mothers have low levels of formal education and are less likely to have adequate knowledge of signs of some child illnesses and of HIV/AIDS transmission. (UNICEF, 2005:23)

Death registries

Together with birth data, death registries are an essential part of any vital statistics system. Death registries provide useful information on gender, age, education, occupation, and place of residence. In the case of infants under one year old, information on the mother and father is collected in most countries. Moreover, *cause of death registries* enable monitoring of age-specific and age-standardized death rates for total and cause-specific mortality, allowing calculation of specific rates according to social stratifiers such as education, occupation, gender, ethnicity or place of residence.

However, in LMIC there are significant problems in coverage, especially with infant mortality. As well as coverage there are other relevant issues to consider for monitoring: (a) the existence of a cause of death register; (b) the use of the Xth revision of the International Illness Classification (CII); (c) the proportion of medically certified deaths; and (d) the proportion of ill defined deaths in the country.

For the purpose of monitoring health equity, when there is no full coverage at least representativeness of different subgroups must be assured (e.g. ethnic groups) (Braveman, 1998). On the other hand, there are countries (e.g. China and India) which do not have national vital statistics but have a system based on selected areas with full coverage.

12.3.2 Population and housing censuses

A population census is defined as the total process of collecting, compiling, evaluating, analysing and publishing or otherwise disseminating demographic, economic and social data pertaining, at a specific time, to all persons in a country or in a well delimited part of a country (United Nations, 1997). During the last century population-only censuses increasingly became population and housing censuses. The combination represents a rich source of data about the social determinants of health, through information on sex, age, family composition and education, linked to housing and community living conditions.

Population and housing censuses provide useful information on most stratifiers (age, gender, education, occupation, ethnicity, residence) although by and large they do not gather information on health or income. Nonetheless, they enable the construction of wealth indices based on assets or housing characteristics. Since censuses provide information on fertility, mortality and migration, they are the basis for (a) *population projections*, vital for mortality rate calculations as they provide the rate's denominator, and (b) *life tables*, which permit life expectancy to be calculated and therefore represent a key component of monitoring systems.

Although they are not the preferred way of monitoring mortality, in many low and middle income countries with vital registries coverage below 90%, censuses are an essential instrument in measuring mortality, especially infant and child mortality (Vapattanawong et al., 2007), and even maternal mortality in some countries (Stanton et al., 2001). They also represent a key tool for the analysis of under-representation in vital statistics, both births and deaths, by allowing the measurement of non-registration both at national level and among specific population groups, e.g. ethnic groups.

An additional value for a social determinants of health approach is that they provide information for contextual variables to be used when monitoring small areas.

Just as vital registration varies greatly between countries, censuses also vary in the quality of data collection, frequency, timeliness and later accessibility. Nonetheless, censuses are becoming more frequent and increasingly supported by national and international initiatives, e.g. PARIS21 (Partnership in Statistics for Development in the 21st Century) (see table in appendix II for details of which countries carry out censuses and other surveys). In addition some regions are harmonizing the preparation process for the census round in 2010 by coordinating the census questionnaire in terms of common definitions (e.g. ethnicity), themes and questions. This will enable comparisons between countries (ECLAC, 2005, 2007; Farah, 2005).

12.3.3 Population-based surveys

Population based surveys including health interview surveys, epidemiological studies, longitudinal studies and small areas studies can provide information for monitoring health outcomes and health equity.

In many low and middle income countries such population-based surveys are conducted at regular intervals to examine trends in health. There is a wide range of such surveys and the best known are: the *Demographic and Health Surveys* (from ORC Macro), the *Multiple Indicator Cluster Survey* (UNICEF), the *World Health Surveys* (WHO), the *Demographic Surveillance Systems* (INDEPTH) and the *Core Welfare Indicators Questionnaire* (World Bank). These surveys provide information on recent illness episodes in relation to access to care, maternal and child health practices, health knowledge, reproductive behaviour, anthropometric measures, and biological testing for HIV, anaemia and malaria. In many countries they also represent the main source of data on mortality; some of them even provide information on causes of death through verbal autopsies (a method of ascertaining a probable cause of death by interviewing the relatives of the deceased) (Soleman et al., 2006, 2005; Setel et al., 2005; Korenromp, 2003).

In addition, in most countries there are also routine multi-purpose household surveys which contain health modules. These include *Living Standards Measurement Surveys* (LSMS) and household income and expenditure and consumption surveys. This section looks at the best known surveys. Appendix III gives more detail of their contents.

Demographic and Health Surveys (DHS)

The *Demographic and Health Surveys* (DHS) started as the World Fertility Survey, a survey on fertility and therefore concentrated on matters such as contraception and limited to women of reproductive age. Since 1985 it has expanded its population and topics and has now been undertaken in more than 75 low and middle income countries around the world (see table in appendix II).

These surveys select nationally representative samples of 5,000 - 20,000 individuals within each country, and collect detailed data on various aspects of morbidity and mortality for participating households. Assessment of health outcomes is by individual report, and DHS data are particularly useful for developing population-based estimates of infant and child mortality, as well as maternal mortality, all measures which can be difficult to quantify otherwise in settings with limited coverage of health care services. In many countries the DHS is carried out at 5-yearly intervals to assist in examining trends in population health. DHS routinely collect data on the education and employment status of individuals within participating households, as well as household asset indices. As a result, DHS are a valuable resource for describing the social inequalities in health within participating countries.

Because these surveys are repeated at regular intervals, they can also provide a valuable source of information on changes in health inequities through time, including monitoring the impact of policies and programmes to reduce social inequalities.

Though the DHS is not meant to measure illness prevalence, it provides information on recent illness episodes in relation to access to care, maternal and child health practices, health knowledge, sexual behaviour, anthropometric measures, and biological testing for HIV and anaemia. Appendix III gives more details.

The classic DHS tool has now been complemented by other surveys:

- *AIDS Indicator Survey* (AIS) and the *Malarian Indicator Survey* (MIS), both standardized tools to obtain indicators for monitoring national HIV/AIDS and malaria programmes
- *Key Indicators Survey* (KIS) which covers areas related to family planning, maternal health, child health, HIV/AIDS and infectious diseases. It provides monitoring and evaluation data for population and health activities in small areas – regions, districts, catchment areas

- *Quantitative studies* include *Biomarker Collection*, *Geographic Data Collection* (which by geocoding DHS locations makes it possible to combine analysis with censuses) and *Benchmarking Surveys*.
- *Qualitative studies* which provide informed answers to questions that lie outside the purview of standard quantitative approaches, looking at the social and cultural contexts of daily life.

The table in appendix II shows the type and year of all major surveys for LMIC countries.

Together with censuses, the basic DHS tool has been used to complement vital registry statistics in countries with low coverage and/or low quality of death registers, particularly in relation to infant mortality. Some examples are the methods developed by the Latin American Demographic Centre (CELADE) in the 1980s: *Proyecto Investigación Fecundidad Hijos Propios para América Latina* (IFHIPAL) (Research into Fertility Using the Own-Children Method in Latin America) and *Investigación en Mortalidad Infantil en América Latina* (IMIAL) (Research on Infant Mortality in Latin America).

Multiple Indicator Cluster Survey (MICS)

Along with the Demographic and Health Surveys, the MICS developed by UNICEF is a major global source of information designed to enable countries to produce nationally representative and statistically sound data to monitor national and international targets. It was initially established in the 1990s to monitor the goals of the World Summit for Children, and it has now become a key tool for monitoring of about half of the Millennium Development Goal indicators. It also now incorporates an asset index enabling analysis of equity in health. At present there are reports and data files available from 42 countries (see table in appendix II).

The survey has three components: a household questionnaire, a women's questionnaire (15 - 49 years) and a children's questionnaire (under 5 years). The household component includes information on education, maternal mortality, child disability, child labour, water and sanitation, salt iodization and household assets. The women's component comprises maternal health, contraceptive use, HIV/AIDS, tetanus toxoid and child mortality. The children's component includes data on birth registration, breast feeding, care of illness, malaria, immunizations, anthropometry and consumption of vitamin A. There are more details of the survey in appendix III.

One valuable aspect is that besides the stand-alone MICS, UNICEF has encouraged countries to incorporate some of the data collected through MICS modules in their own national multi-purpose household surveys.

Demographic surveillance systems (DSS)

While the previous surveys have a national remit, the demographic surveillance systems (DSS) surveys carried out over 60 years by the *International Network of Field Sites with Continuous Demographic Evaluation of Populations and Their Health* (INDEPTH), focus on measuring demographic and health outcomes in small areas. As opposed to cohort studies which focus on individuals, DSS does a longitudinal follow up of the entire population of a particular geographic area, the *demographic surveillance area* (DSA). There are currently 36 demographic surveillance sites spread around Africa, Asia and Central America (INDEPTH Network, 2005). More details of the survey are in appendix III.

Ngom and colleagues (2001) consider that demographic surveillance systems have represented a crucial research tool for the evaluation of health interventions aimed at reducing socioeconomic differentials in mortality and morbidity in remote areas of sub-Saharan Africa. They have also contributed to causes of death studies through the renewed application of verbal autopsies in their questionnaires in countries with scarce death register coverage (Soleman et al., 2006, 2005; Setel et al., 2005; Korenromp, 2003).

Core Welfare Indicators Questionnaire (CWIQ)

The Core Welfare Indicators Questionnaire (CWIQ) was designed jointly by the World Bank, UNDP and UNICEF for monitoring social indicators in Africa on an annual basis. The CWIQ was developed to evaluate whether the target groups are actually accessing and benefiting from interventions designed to improve social and economic conditions. It was designed as a quick and simple tool for monitoring changes in key social indicators over time for different population subgroups. It collects information on household well-being and on access, usage and satisfaction with basic services by the community. There are more details in appendix III.

Multi-purpose household surveys

Multipurpose household surveys are increasingly being used to monitor health inequities since the data from their health modules (e.g. self-reported health status, out of pocket health expenditure, access and utilization of health care services) may be analysed according to diverse equity stratifiers.

In LMIC multi-purpose household surveys represent a key instrument for monitoring health inequities with a social determinants approach since they present three main advantages over other data sources. First, they include modules on different social determinants of health, particularly education, occupation, employment conditions, social security, housing conditions, community facilities, ethnicity, gender, age and residence. Second, they are unique in providing information on personal and household income/ consumption/ expenditure alongside the above social determinants of health. Third, such surveys also provide data on individuals and populations outside the institutional registries, e.g. populations outside the labour force, children who are not in school (never enrolled and those who have abandoned the formal educational system), people who do not access health services, etc.

Data on health status varies greatly between countries, ranging from general questions on illnesses or accidents during the survey reference period, to more detailed information on chronic diseases, nutritional status (children and pregnant women), or health behaviour and attitudes (smoking, alcohol, physical exercise).

Data on out-of-pocket expenditure is relevant for monitoring the differential magnitude of health expenditures on the household budget as well as the distributional effect of social policy. It refers to payments for medicines, visits, examinations and hospitalization. Information on access to health care includes transportation time to health care facilities, waiting lists, etc.

There is a wide range of multi-purpose household surveys, including the Living Standards Measurement Surveys (LSMS) developed by the World Bank, along with many surveys carried out regularly in different countries supported by their own governments (Dachs, 2002; Dachs et al., 2002; Ferrer, 2000; Sadana et al., 2000) (see appendices II and III for more information).

Health interview surveys

Health interview surveys are usually continuous and cross-sectional surveys. Generally they are representative of the whole country, although they may also be concentrated in one particular region of the country such as the California Health Interview Survey (CHIS) in the USA.

They tend to be household surveys, even though they may randomly choose some individuals within the household for particular purposes. The National Health Interview Survey (NHIS) from the United States, for instance, is based on a national probability sample of the civilian, non-institutionalized population of the country with over-sampling of Black and Hispanic populations. The basic questionnaire has four components: family, adult, child, and immunization. The family component collects information on all household members, while an adult and a child are randomly chosen to respond to the adult and child questionnaires. The core questionnaire is complemented with periodic modules which provide more detailed information on some specific issues.

Health interview surveys may vary in their frequency (weekly, annually, every two years, etc) or interview media (e.g. face-to-face or telephone).

WHO World Health Surveys (WHS)

The objective of this health survey developed by the World Health Organization is to 'compile comprehensive baseline information on the health of populations and on the outcomes associated with the investment in health systems; baseline evidence on the way health systems are currently functioning; and ability to monitor inputs, functions and outcomes' (WHO, 2007). It has national representation and is based on a modular approach, whereby countries may choose among the various components, or even add supplementary modules. The basic modules include:

- *Health states* of populations: measuring health in multiple domains
- *Risk factors* (e.g. tobacco, alcohol, pollution) and their association with health states
- *Responsiveness* of health systems: whether health systems meet the legitimate expectations of people
- *Coverage, access and utilization* of key health services: e.g. immunization, treatment of childhood illness, STD and HIV/AIDS
- *Health care expenditure*: how much households spend on health care.

There are three types of questionnaires: household, adults, and household members who are trained or work as health professionals. The household questionnaire collects general household information, geocoding, malaria prevention home care, health insurance, income indicators and household expenditure (including health). The individual questionnaire includes information on the above modules, while the specific questionnaire for health workers covers aspects such as occupation, location of work, hours of work, main activities in work, forms and amount of payment, second employment/ work, reasons for not working (if applicable) and professional training.

The table in appendix II lists the countries which participate in WHO World Health Surveys. Appendix III gives more details about the surveys.

12.3.4 Health records

There is a range of routine data such as disease surveillance (e.g. notifiable conditions), health care utilization registries, health services statistics and administrative records, which provide information for monitoring health status (e.g. nutritional status) and health outcomes (e.g. morbidity and mortality) by social determinants. However, these records only provide information on individuals who seek health care. Furthermore, in some LMIC these records are often poor and incomplete.

12.4 *Issues in interpreting key equity stratifiers*

There are four main types of health equity stratifiers:

- Socioeconomic groups: education; occupation; income/ consumption/ expenditure/ wealth/ assets
- Gender
- Ethnic groups: ethnic, racial, tribal, caste, religious and national origin groups
- Place of residence: urban vs. rural, northern vs. southern regions.

Many middle and high income countries have regular health interviews or multi-purpose surveys to collect population-wide data on health and the above stratifiers,

particularly socioeconomic indicators. However, measurement and classification of these main social and economic indicators is far from straightforward, whether in high income countries or in LMIC.

12.4.1 Education

Educational level is the stratifier most commonly used as a proxy of social and economic advantages/ disadvantages in society. It can be measured by means of a hierarchical classification of the population, ranging from the absence of formal education to the highest completed educational level. A distinction can be made between at least four categories broadly similar to: none, elementary, secondary and tertiary education (UNESCO, 1997).

Education is normally measured in two ways: *years of schooling* and *educational level*.

Years of schooling

Years of schooling corresponds to the 'last approved year', and may be presented as an average or classified by numbers of years. The measure may be expressed at the individual level in categories based on groupings of two or three years of schooling. If used at the population level (e.g. community, social group, ethnic group, etc) it is expressed as an average or percentage of the population with different number of years of schooling, usually the percentage of population under a particular threshold.

Descriptive measures such as the average or median level of education may hide or distort the distributional impact on health inequities. On the other hand they allow comparison by different stratifiers (gender, age, place of residence, etc) when working with different units of analysis (household, community, regions). Ideally, analyses using averages or medians should be complemented by measures of dispersion (e.g. standard deviation or boxplot).

Education is one of the socioeconomic dimensions whose spread across a population is determinant since there is a threshold needed to produce changes, i.e. a minimum proportion of the population needs to attain a particular educational level to make a substantial change (Caldwell, 1980). For this reason, grouping the population by number of years of schooling may illustrate the thresholds which may impact on health outcomes and health equity. Nonetheless, it is important to keep in

mind that these thresholds vary according to the health indicator being monitored and the population under study. Casas and colleagues (2001), citing a Brazilian study, make the point that 'black women needed between four and seven years of formal education before they could achieve the infant mortality rates of illiterate white women' (Casas et al., 2001: 37).

Educational level

Another way of classifying the education stratifier is by the educational level attained: none, elementary, secondary or tertiary education (UNESCO, 1997). It is desirable to distinguish between complete and incomplete educational levels as they have a differential impact on health outcomes and health equity.

It may seem unnecessary to ask for educational level instead of years of schooling, since educational level should be deduced from the number of years of approved schooling. Many countries have undergone reforms which have modified the number of years corresponding to each level. Thus an older woman who declares six years of schooling may have completed her elementary schooling, whereas a younger woman with six years of schooling may not have completed her elementary education.

In LMIC illiteracy needs to be taken into account, whereas in high income countries this may not be considered relevant, and at most functional illiteracy would be measured. The usual indicator is 'adult illiteracy' (15 years old and over). In order to monitor the current state of the educational system an age specific measure is recommended, e.g. 'youth illiteracy' (15 to 24 years old).

Illiteracy is not necessarily equivalent to no formal education, because the level of education as a whole is an ascribed variable among adults, i.e. the highest level attained is normally the one that is going to remain for the person's entire lifetime. When there are subsequent changes, people may improve but not go backwards. Illiteracy however is not necessarily ascribed, because it may include people who have never attended school and those who might have attended a few years but have forgotten reading and writing by disuse and therefore are considered illiterate at the time of the survey or census.

Education seems the most straightforward of the socioeconomic variables. However, it is highly interactive with other variables like income, occupation, gender, age and place of residence. A higher *income* family will assure its children a higher level of

education, which in turn will affect the child's income once he/she becomes an adult. Education influences *occupation*, rather than the other way around. *Gender* affects the educational level attained in the first place and it is also interactive with income since at the same educational level women and men do not usually receive the same income. On the other hand, *age* should be considered as a confounding factor: younger populations are expected to have more education than older ones since the highest level of education is constantly increasing. This reveals the dynamic social nature of education: while its absolute value increases, its relative value decreases and new generations require greater education for similar occupations.

Finally, education is a variable that permits a gradient approach and a relational approach. For instance, the social gradient approach would examine infant mortality according to the mother's education, while the relational approach relates education to a particular variable. For example, a relational approach to education from the point of view of gender would not only examine school enrolment or literacy by gender but would also use an indicator like the number of illiterate women per thousand illiterate men.

Thus monitoring health equity through education is more than just classifying health outcomes or access by educational levels but further, looking at how these factors interact.

12.4.2 Occupation

There are several ways to classify people by occupation. The main approach in many European countries is the 'class structural' approach. Distinctions are made between people who have structurally different positions in the labour market and who, as a result, differ in terms of income, privileges, lifestyles and characteristics like voting behaviour. The resulting groups of people are usually referred to as 'occupational classes' or 'social classes'.

However in many low and middle income countries 'occupation', as collected in vital statistics or censuses, is not an adequate stratifier. Firstly, the question is not usually asked consistently. It generally relies on an open question, and the people recording the information do not have a clear definition of occupations. Hence the data are unreliable. Secondly, in LMIC occupation is highly dependent on working conditions: the same occupation might have quite different income levels and health effects

depending on whether the person works in the formal or in the informal sector. Thirdly, there are significant levels of under- and non-paid employment (e.g. unpaid family workers), as well as high levels of economic inactivity particularly in the female population.

'Occupational classes' is not a useful alternative concept since there are no studies where these have been classified taking into account position and income variables.

Nevertheless in LMIC occupation may be used as a measure of vulnerability in identifying the unemployed, workers without social insurance, the informally employed, child labour, young people who do not work or study, among others.

12.4.3 Income

The *income level* of a person can be used in two ways: to indicate the socioeconomic status of the income recipient, with higher personal income indicating a better labour market position; or to indicate access to scarce material resources, where measurement of household equivalent income is more appropriate.

Income level can be measured by classifying the population according to household per capita autonomous income. This implies that, where possible, (a) the autonomous income of all household members is summed, (b) their net (instead of gross) income is measured, and (c) an adjustment is made for household size. Households are then classified into groups of equal number, such as income quintiles or deciles.

Information on income level is also aggregated around the poverty/ indigence line. As opposed to quintiles or deciles, which divide households in groups of equal number, these lines divide households according to their position above or below the poverty and/or indigence line.

The poverty line may be defined in absolute or relative terms. In most low and middle income countries poverty is measured in *absolute* terms, that is, in relation to the level necessary to cover feeding and non feeding needs. Usually this measure considers three categories: 'very poor' (indigence), 'poor' and 'non poor'. Households considered 'very poor' are those whose total income is below the minimum level to purchase for each one of its members a basic basket of food considered necessary

for subsistence. Households considered 'poor' are those which are able to purchase the basic food basket but are not able to cover non food items such as clothing, shelter, transport, education and health care. The non poor households are those which are able to cover the food and non food needs of their members.

On the other hand, in *relative* terms, the line is defined in relation to the income level of people living in the same country. A frequently used poverty line in high income countries is 50 percent of the nation's median income.

Income may be measured in four ways: *income per se*, *expenditure*, *consumption* or *wealth/assets*. All these concepts may be expressed in terms of quintiles or deciles which aggregate equal number of households according to the household autonomous per capita income, per capita expenditure, per capita consumption, per capita wealth/assets, or in poverty lines.

Although household income is used more often than household expenditure in middle and high income countries,, Braveman (1998) stresses that household expenditure is a more suitable measure of socioeconomic status in 'subsistence or barter economies, or in economies where a considerable proportion of the population is employed in the informal sector' (Braveman,1998: 47). Additionally, Dachs (2002) argues that total household expenditure is preferable over income since it is considered to be 'less biased, less prone to seasonal variations, particularly in rural areas, and is considered a better indicator of household economic status overall' (Dachs, 2002: 337).

On the other hand, Wagstaff and Waters (2005) consider that measuring expenditure is problematic since it is difficult to value durables or self production. They argue in favour of using consumption, which includes the sum of food or articles produced by the household as well as those bought or given by others. Although this information is collected, valued and added to the autonomous household income in some household surveys (e.g. *Encuesta de Caracterización Socioeconómica* [Socioeconomic Characterization Survey] in Chile), Székely and Hilgert (1999) draw attention to the fact that in LMIC income still has the additional drawback of under-declaration in the richer sectors of society, thus underestimating inequity.

The Wealth Index (Rutstein & Johnson, 2004), introduced by the Demographic and Health Surveys, provides an important alternative to standard measures (such as

income, education and occupation) for measuring social inequalities in health in LMIC. The index is calculated using easy-to-collect data on a household's ownership of selected assets, ranging from a fan to televisions, bicycles or a car; materials used for housing construction such as flooring material; types of drinking water source and sanitation facilities; and other context specific characteristics related to wealth status.

However, it is important to recognize that the most appropriate measures of socioeconomic position are context specific. No single measure can be applied universally in the study of social inequalities in health, especially in countries with large disparities in wealth and economic opportunity. Policy-makers and researchers interested in developing monitoring systems to examine social inequalities in health need to think carefully about the most appropriate measures of socioeconomic position in their country or region.

12.4.4 Gender

Gender by definition is a relational stratifier and it is highly interactive with other equity stratifiers such as education, occupation, income or ethnicity.

An important caveat to keep in mind is that not all differences between sexes reflect gender inequities. For instance, differences in birth weight between girls and boys do not echo a gender issue since boys universally tend to weigh more than girls at birth. But it is a gender issue whether there are differences between girls and boys in terms of immunization coverage or malnutrition.

Gender analysis presupposes the need for distinguishing between sexes when collecting and processing data. However, since gender is a relational concept, analysing by gender means more than distinguishing the data between men and women or boys and girls. It means using indicators that illustrate the relationship between genders.

One such instrument is the Gender Parity Index (GPI), developed by UNESCO, which gives the 'ratio of female-to-male value of a given indicator. A GPI of 1 indicates parity between sexes; a GPI that varies between 0 and 1 means a disparity in favour of men/ boys; a GPI greater than 1 indicates a disparity in favour of women/ girls' (UNESCO, 2006). In education, for instance, one could assess literacy in terms of the ratio between literate women and literate men.

12.4.5 Ethnicity/ race/ caste/ tribe/ religion

Ethnic groups, race, caste, tribe and religion are also stratifiers that reveal inequities in health (Anderson et al., 2006; Montenegro & Stephens, 2006; Mowbray, 2007; Ohenjo et al., 2006; Stephens et al., 2006). These stratifiers show enormous variety across the world, ranging from Indigenous and Afro-Latino populations in Latin America and the Caribbean; Hill Tribes and Muslim minorities in the East Asia and Pacific region; Berbers in the Middle East and Northern Africa; populations other than the dominant tribe in sub-Saharan Africa; lower castes and tribes in South Asia; Roma in Eastern Europe (Lewis & Lockheed, 2006).

At first sight, ethnicity might seem simple to identify. Nonetheless there are problems of under representation and differences within and between groups that need to be properly addressed in the data sources.

There are two main criteria for identifying ethnicity: *self-identification* and *language*. In some cases self-identification has problems of under representation since the degree of ethnic awareness may vary between generations (ECLAC, 2006). It is also potentially unstable in repeated surveys.

Language is considered a key predictor of indigenous health (Montenegro & Stephens, 2006). When language is used as a marker, as well as identifying the native language, it is also important to assess whether people are *monolingual* or *bilingual*, since this is a key issue in determining access to and utilization of health services (ECLAC, 2006).

Another relevant aspect is to distinguish between dominant (primary and secondary) and not dominant groups such as tribes (Moyo, 2004; Wirth et al., 2006b).

A significant issue to take into account is that for rural and remote populations it is not ethnicity itself which is the most relevant factor. For instance in some cases the evidence demonstrates that 'land', i.e. dispossession from their land, is a key social determinant. Experiences in Uganda showed a reduction from 59% to 18% in the under 5 mortality rate of Twa families who were given land (Balenger et al., 2005). When people lose their land it adversely affects their family food supply and their herbal pharmacopeia. For example, forest people like Pygmies elaborate compounds against diseases like malaria, guinea worm, jaundice, diarrhoea, toothache and

helminthiasis (Ohenjo et al., 2006). Moreover, dispossession weakens their traditional culture which usually acts as a protective factor. This frequently goes hand-in-hand with increasing discrimination, marginalization and poverty, and the greater health risks of being transient labour.

Furthermore, access and utilization of health care have additional dimensions to be taken into account, e.g. identity cards, language barriers, culturally appropriate care services, distance and location of health care facilities, among others.

Finally, as in the case of gender, ethnicity as a stratifier is highly related to other markers of socioeconomic status as well as to different dimensions in the 'ethnic' category, for instance the interrelation between 'ethnicity' and 'race' (Harris et al., 2006). Therefore it is necessary to examine SDH between ethnic and non ethnic groups but also within ethnic groups. Braveman (1998) makes the point that although

routinely public health statistics in the United States have for a long time noted racial/ ethnic distinctions, standard health statistical reports have not routinely included measures of socioeconomic status. Without information on socioeconomic status, inappropriate inferences are often made about the nature of apparent racial/ ethnic differences in health and health care. When this happens, misguided strategies may be suggested to address the problems (Braveman, 1998: 55).

Along the same lines, Ohenjo and colleagues (2006) draw attention to the argument raised by the African Commission on Human and Peoples' Rights in 2005 that although

all Africans are indigenous as compared to the European colonialists..., if the concept of indigenous is exclusively linked with a colonial situation, it leaves us without a suitable concept for analysing the internal structural relationships of inequality that have persisted from colonial dominance (Ohenjo et al., 2006: 1937).

Kawachi and colleagues (2005) consider the historical, political, and ideological obstacles that have hindered the analysis of race and class as codeterminants of disparities in health.

In sum, ethnicity is a complex concept. Monitoring SDH and health equity requires acknowledging its multidimensional character, paying particular attention to the historical context, the social dynamisms inherent in its respective definitions and the interrelationships with other social stratifiers and within the ethnicity category itself.

12.4.6 Place of residence

As well as the classical rural/ urban distinction, place of residence also implies administrative units (villages, municipalities, provinces, regions or states) and geoclimate areas. Disaggregation is needed not only in the interest of following up inequities as such, but also to allow decision-making at the local level.

Recently, geographic software programs (e.g. geographic information system (GIS) software and geographic databases such as the Gridded Population of the World [GPW] or the Digital Chart of the World [DCW]) have enhanced our ability to carry out spatial analysis. This allows research on the influences of climatic parameters – rainfall, aridity, farming systems, growing season – and geographic parameters – population density, urban proximity, coastal proximity, distance to roads – to explain differences in health outcomes.

On the one hand, the use of climatic variables makes it possible to consider environmental factors which affect agricultural production and disease transmission. On the other, the use of diverse geographic variables has the potential to go beyond the traditional urban/ rural dichotomy towards analysis based on an 'urban/ rural continuum' (Balk et al., 2003).

Besides GIS software and databases, a third factor contributing to spatial analysis is the fact that data sources (e.g. censuses and surveys like DHS and WHS) are increasingly using geocoding, which allows richer analysis with a greater range of contextual variables. A recent study on mortality in ten West African countries used geographic parameters like average population density within 30 kilometres and the distance to the nearest populated settlement of 50,000 persons or more, as well as climatic parameters like rainfall, aridity, farming systems, length of growing season, and the stability of malaria transmission, to explain part of the differences in child mortality within countries (Balk et al., 2003). Another example is the study by Victora and colleagues which used geographic parameters to assess equity in the access to and the implementation of health interventions in the Integrated Management of Childhood Illness strategy in Brazil, Peru and the United Republic of Tanzania (Victora et al., 2006) (see more information about this in case study 2 in appendix I).

The expansion of the use of geocoding in censuses, vital registries, population surveys and health facility records means that geographical location has begun to be used as a proxy for socioeconomic status, although not in the classical rural/ urban distinction. This has provided a way of taking into account the increasing heterogeneity within urban areas – with significant poverty pockets, e.g. urban and peri-urban slums – as well as the emergence of more developed poles within rural areas. Braveman (1998) proposes ‘microgeographic markers’ as ‘among the most useful proxy measures of socioeconomic status’ and defines ‘microgeographic areas’ as

small geographic territories (generally sub-district level) whose characteristics are often used to describe the people who live or work in them. A microgeographic marker is a variable (e.g. a unique code assigned to a neighbourhood as in census data, or a postal code) that identifies a microgeographic area. In order to use a microgeographic marker as a socioeconomic measure, the area/ territory represented must be small enough so that there is a high degree of socioeconomic homogeneity among households within the area (Braveman, 1998: 53).

Although small area analysis is subject to errors due to the assumption that the area’s characteristics are shared by all its members (the ecological fallacy), Braveman argues that ‘a poor individual or household is at considerably lower risk of adverse health outcomes if that individual/ household resides within a neighbourhood that is predominantly non-poor’ (Braveman, 1998: 54). In this way, small area analysis assumes that even the cases that might not be typical of the particular area under analysis are influenced by the area’s characteristics.

The Dutch health equity monitoring system presented in case study 21 (appendix I) uses a geographical SES indicator based on postcodes as a proxy for socioeconomic status.

12.5 Special issues in low and middle income countries

Any observer of international health trends will recognize that the global distribution of premature morbidity and mortality follows a clear gradient according to the wealth of nations, with low and middle income countries suffering a greater burden of disease than high income countries. However, the importance of measuring and understanding social inequalities in healthcare *within* low and middle income

countries has received considerably less attention. This section focuses on issues in the monitoring of social and economic inequalities in health within the resource-limited contexts of Asia, sub-Saharan Africa and Latin America and the Caribbean. The focus is specifically on the ways in which monitoring social inequalities in health may be different compared to advanced health information systems in Europe, Australia and North America. There are three interrelated issues that require consideration: (a) the measurement of socioeconomic position, (b) the sources of data that may be used for routine monitoring, and (c) the interpretation of data on socioeconomic inequalities in health.

12.5.1 Measuring socioeconomic position and other social constructs

As outlined above, the most commonly used measures of socioeconomic position focus on individual income/ assets, education and occupation (often combined into the construct of 'socioeconomic status' or SES). At other times, social class measures (which focus on occupational categories) are used. Both of these measures are useful in understanding social inequalities in the distribution of health and disease, but in many settings these standard measures will not provide adequate sensitivity in quantifying degrees of wealth or poverty. For example, in regions where many households grow their own food, and/or barter for food and goods, using cash income as a measure of wealth may be inappropriate. Similarly, in many settings educational systems are relatively weak (or have been weak in the past, despite recent development), meaning that many adults have received little formal schooling regardless of socioeconomic position. And in countries or districts where levels of formal employment are low, employment status is unlikely to be a specific measure to distinguish socioeconomic position. These types of problems in measuring socioeconomic position are likely to affect the poorest and most marginal individuals in society disproportionately – leading researchers to underestimate social inequalities in health within a country or region.

In this light, alternative measures of socioeconomic position may be required in conducting research on social inequalities in health in developing countries. One of the most commonly used approaches is to examine individual and household wealth based on ownership of material goods and access to key services. Material goods of interest may include household appliances (such as a refrigerator, radio or

television), transport (such as a bicycle or automobile) or agricultural wealth (such as livestock or land ownership). Key services such as access to running water, toilet facilities, financial services (such as bank accounts) and proximity to healthcare facilities can also be useful measures. In studies of health in small geographic areas (such as within a community or district), one of these measures may be used as a simple and easily assessed substitute for socioeconomic position. However in most situations a single measure is not adequate to capture variability in socioeconomic position. Instead, it is common to combine several into an aggregate index of wealth. One common format for this is the asset index that is used as part of Demographic and Health Surveys (see section 12.3.3).

The asset index and related aggregate measures of socioeconomic position provide an important alternative to standard measures (such as income, education and occupation) for measuring social inequalities in health in LMIC. However it is important to recognize that the most appropriate measures of socioeconomic position are context specific. No single measure can be applied universally in the study of social inequalities in health, especially in countries with large disparities in wealth and economic opportunity. Policy-makers and researchers interested in developing monitoring systems to examine social inequalities in health need to think carefully about what are the most appropriate measures of socioeconomic position in their country or region.

There are a number of other measures that can be used as substitutes for socioeconomic position in the event that more detailed individual-level variables are not available. Two of the most commonly used alternatives are geographic area and individual race/ethnicity. These are discussed in more detail below.

12.5.2 Sources of data on social inequalities in health

In many parts of Europe and North America, routinely collected health data contains variables that can be used specifically to monitor social inequalities in health. However the situation in many low and middle income countries may be very different, as routine population-based health statistics, such as mortality or other vital registration data, are not always available. When these data are available they are often incomplete, with information regarding the most marginalized groups such as rural communities or urban slums – precisely those who are of greatest interest in understanding social inequalities in health – subject to the greatest missing data.

There are several options which may be used to help overcome the lack of routine population-based data. As mentioned previously, population-based surveys may be conducted at regular intervals to examine trends in health. The best-known such approach is the Demographic and Health Surveys (DHS), which are described above. In many countries, the DHS is collected at 5-yearly intervals to assist in examining trends in population health. DHS routinely collect data on the education and employment status of individuals within participating households, and DHS analyses frequently use household asset indices. As a result, DHS are a valuable resource for describing the social inequalities in health within participating countries. Because these surveys are repeated at regular intervals, they can also provide an invaluable source of information on changes in social inequalities in health through time, including monitoring the impact of policies and programmes to reduce social inequalities.

While DHS and other such surveys can provide evidence about social inequalities in health, they do not collect detailed information on cause-specific morbidity and mortality (which can be difficult to assess retrospectively through questionnaires). In addition, DHS are designed to collect nationally-representative data, and may not be ideal for examining local variations in health (such as within a single district or community). In these instances, health facility statistics represent an important alternative data source that may be of use in collecting information about social inequalities. Health facility reporting data can be analysed both to examine the burden of disease in local populations served by particular facilities, and to compare geographic patterns in morbidity and mortality between communities. Care must be taken however as data may be confounded by SES and health-seeking behaviour.

In most countries, geographic location captures critical information regarding socioeconomic inequalities. Rural communities are often systematically poorer than cities, and within urban centres wealth and poverty cluster within neighbourhoods. Because of this spatial patterning in socioeconomic position, policy-makers and researchers can use information about where different forms of morbidity and mortality occur within a country or region as a useful proxy to reflect social inequalities.

12.5.3 Interpreting data on social inequalities in health

Data on social inequalities in health require careful interpretation, particularly in low and middle income countries where a wide range of measures of socioeconomic position may be employed by different studies within a single country. In such cases it is the responsibility of the policy-maker or researcher to synthesize diverse data on social inequalities and to interpret the data appropriately (see section 9.1 for more information on evidence synthesis).

One critical point is that many measures of socioeconomic position are proxy (substitute) measures, used because the ideal measures are not available. As a result, policy-makers and researchers must be careful to avoid inferring causal associations in data that simply describe social inequalities in health. For example, a hypothetical population survey in a low income country could show that households with electricity have lower rates of childhood mortality than households without electricity. Such a finding is useful to describe a social inequity in health, where electricity within the home is a proxy measure for increased socioeconomic position. However, the inference that electrification is causally linked to child mortality may not be correct (depending on the common causes of childhood mortality in that context).

Avoiding causal inferences from descriptive data is particularly important when interpreting associations between health status or health-related behaviours and race/ ethnicity. It is common both in routine health statistics and in research to collect and analyse data according to race/ ethnicity, including measures of nationality (distinguishing native residents of a country from immigrants). Because socioeconomic position is commonly patterned along racial/ ethnic lines, such an approach can provide valuable insights into social inequalities in health. But while race/ ethnicity are useful proxies for socioeconomic position in describing social inequalities, causal inferences regarding racial/ ethnic variations in health should be made with caution. The most appropriate causal interpretation of patterns in health and disease according to race/ ethnicity focus on the role of discrimination – the systematic placement of certain groups at a socioeconomic disadvantage – in shaping health, particularly around access to healthcare services and the protective benefits of social and economic resources. It is generally incorrect to interpret racial/ ethnic differences in health as being due to innate biological or genetic factors, except in a handful of specific health conditions.

12.6 *Special issues in high income countries*

12.6.1 **Sources of health data**

Over the last few decades, socioeconomic inequalities in morbidity and mortality have been recognized as an important public health problem in many high income countries (HIC). Many of these countries have advanced health information systems which allow at least some health indicators to be broken down by measures of socioeconomic status. In each country for which such data are available, it has been shown that citizens who are disadvantaged in income level, occupational status and/or educational level are also disadvantaged in self-reported health and length of life. People from lower socioeconomic groups frequently suffer two or three times more often from chronic illness, disability or other health problems.

Mortality registries are an important source of data. Especially when a link can be made between individual death certificates and records of the population censuses, these registries have few or no serious drawbacks. The main advantages are (a) the possibility of distinguishing causes of death, (b) the availability of data for most age groups, (c) the coverage of long time periods, and (d) the 'hard' nature of this health indicator. Unlike many other data sources, mortality registries cannot be biased by, for example, factors affecting self reports of health (a problem with health surveys) or factors affecting health care utilization (a problem with facility-based registries).

Despite the advantages of mortality registries, it should be recognized that they provide no data on socioeconomic inequalities in disease prevalence, disability or other morbidity indicators. In addition, data on socioeconomic inequalities in mortality are sometimes not available even in high income countries. Therefore, complementary sources of data should be utilized. Health interview and similar surveys are a rich and up-to-date source of information on socioeconomic inequalities in morbidity. Nationally representative surveys have been held over the last years in many HIC. Information is available from these surveys on several health indicators and on most or all core indicators of socioeconomic status. This data source is therefore recommended for monitoring inequalities in morbidity, even though this monitoring is complicated by problems such as low statistical validity and the exclusive use of people's self-reports on their health.

In many high income countries, mortality registries and health interview surveys form the core of a monitoring system for health inequities. Despite their complementary nature however, they do not cover all relevant dimensions of health. Other sources of data may be needed when there is a particular interest in monitoring the incidence, prevalence or survival of specific diseases. In this case data may be used from disease registers such as for cancer or mental health. The limitations and potential benefits are likely to vary between data sources and should therefore be evaluated in detail for each source individually.

A few other data sources may also provide data on socioeconomic inequalities in health. Examples include hospital discharge registries and health examination surveys. However facility-based data sources may be biased due to socioeconomic differences in the tendency to use health care.

12.6.2 Methods of linking health to socioeconomic data

In several high income countries, mortality data can be differentiated by socioeconomic status through linking to census data. In this approach, persons enumerated during the census (and classified by educational level or occupational class) are followed over time to determine their risks of dying. This longitudinal approach is least subject to bias, because the socioeconomic data on deaths (denominator) come from the same source as the socioeconomic data on person-years at risk (numerator). In many countries however this superior approach is not feasible and another approach has to be followed. In this case socioeconomic information on death certificates is used to classify the denominator, and socioeconomic information from the census held close to the period in which the deaths occurred is used to classify the numerator. This 'unlinked cross-sectional' approach is more subject to bias but can provide very useful information, as shown by its almost century-long application in the Decennial Supplements of Occupational Mortality in England and Wales.

Many HIC have regular health interview or multi-purpose surveys which collect population-wide data on health indicators and also on socioeconomic status indicators such as education, occupation and income. As outlined previously, measurement and classification of these socioeconomic indicators is far from straightforward.

For *education*, we recommend a distinction between elementary, lower secondary, upper secondary and tertiary education which is based on the International Standard Classification of Educations (ISCED) of 1997. This classification is summarized in table 12.10. Elementary education corresponds to ISCED level 1, lower secondary to level 2, upper/ post secondary to levels 3 and 4, and tertiary to levels 5 and 6. When no information is available on the level of education that was completed or attended, a substitute measure is the number of years that a person attended school. This figure has the attractive property of being a quantitative measure of socioeconomic status, but in its most simple form it fails to take into account the type and therefore the level of education that was attended.

The *income level* of a person can be used in two ways. Income indicates the socioeconomic status of the income recipient, with higher personal income indicating, among other things, a better labour market position. Income can also be used as an indicator of access to scarce material resources, wealth or standard of living, and in that case measurement by means of household equivalent income is more appropriate. This is calculated by (a) adding all income components, (b) subtracting deductions of tax and social contributions, (c) adding the net incomes of all household members, and (d) adjusting the total household income for the size of the household (i.e. the number of household members).

Many methods have been developed to take into account the size and, less often, the age composition of households. For various countries, standard formulae have been developed. A simple formula that may be used for international overviews consists of dividing the household income by the square root of the number of household members. Income is not a perfect indicator of standard of living. For example, income measures are inadequate when the emphasis of the research is on lifetime income or long-term wealth. In these cases, other indicators may be more appropriate. Indicators of house ownership or tenure may be considered in these cases.

It may finally be noted that, when the household equivalent income of each individual is assessed, an instrument is available to identify the poor as those who have an income below the poverty line. Poverty lines can be established in various ways, and each country has its own lines. A common approach that can easily be used in international overviews is to define poverty in purely relative terms, that is, in relation

to the income level of other persons living in the same country. A frequently used poverty line in advanced systems is 50 percent of the nation's median income.

Table 12.10 An educational classification based on the International Standard Classification of Education (ISCED) 1997

ISCED Level		Main characteristics of educational level
1	Primary education, or first stage of basic education	<ul style="list-style-type: none"> • Entry at the start of compulsory education (where it exists) • beginning of systematic study of reading, writing and mathematics • corresponds to first 6 years of 'basic education' (where it exists) • also includes literacy programmes for those too old to enter elementary school.
2	Lower secondary education, or second stage of basic education	<ul style="list-style-type: none"> • Entry after some 6 years of primary education • full implementation of basic skills, and foundation for lifelong learning • several teachers conduct classes in their field of specialization • end corresponds to the end of compulsory education (where it exists) • also includes remedial, special or adult education similar in content.
3	(Upper) secondary education	<ul style="list-style-type: none"> • Minimum entrance requirements (usually completion of level 2) • includes both programmes designed to provide access to tertiary education and programmes designed to lead directly to labour market • more specialization than at level 2 • teachers need to be more qualified or specialized than at level 2 • also includes special or adult education similar in content.
4	Post-secondary non-tertiary education	<ul style="list-style-type: none"> • Admittance requires as a rule completion of level 3 • typically, programmes aim to prepare students for studies at level 5, by broadening the knowledge of those who completed level 3 • more specialization and more complex applications than at level 3 • a typical full-time duration of between 6 months and 2 years • also includes adult education such as courses during professional life.
5	First stage of tertiary education	<ul style="list-style-type: none"> • Admittance requires as a rule completion of level 3 or 4 • programmes have a cumulative theoretical duration of at least 2 years • programmes are theoretically based, research preparatory or give access to professions with high skill requirements • completion corresponds to Bachelor's degree (English speaking countries), 'Diplom' (German) or the Licence (French) • also includes adult education similar in content.
6	Second stage of tertiary education	<ul style="list-style-type: none"> • Leads to the award of an advanced research qualification • programmes require the submission of a thesis or other product of original research.

Source: Kunst et al., 2001 (Table constructed by the authors on the basis of UNESCO, 1997).

There are several ways to classify people by *occupation*. The main approach in many European countries is the 'class structural' approach. In this approach, distinctions are made between people who have structurally different positions in the labour market and who, as a result, differ in terms of income, privileges, lifestyles and

characteristics like voting behaviour. The resulting groups of people are usually referred to as ‘occupational classes’ or ‘social classes’. One internationally used class scheme is the EGP (Erikson, Goldthorpe and Portocarero) scheme (see table 12.11).

Table 12.11 An example of a social classification based on occupational information: the EGP social class scheme

Occupational class		Examples of occupational titles that are usually assigned to these classes	
I	Upper-grade professionals, administrators and managers; large employers	physician architect judge, lawyer university professor	village head high civil servant head of large firm banker
II	Lower-grade professionals, administrators and managers	newspaper editor * head of firm * insurance agent * primary teacher	nurse system analyst journalist designer
III	Routine non-manual employees, sales personnel, service workers	bookkeeper * salesman * ticket seller computer operator	office clerk receptionist sales clerk waiter
IVa	Self-employed and artisans (with employees)	shop owner automobile dealer	market vendor pub keeper
IVb	Self-employed and artisans (without employees)	hotel operator **	independent artisan **
IVc	Self-employed farmers and fishermen	farmer farm foremen ***	family farm worker specialized farmer ***
V	Lower-grade technicians, foremen	foreman ****	supervisor ****
VI	Skilled manual workers	cook miner butcher cabinet maker	aircraft worker goldsmith printer carpenter
VIIa	Semi- and unskilled manual workers	mail carrier nursemaid watchman assembly line worker	cigarette maker glazier driver porter
VIIb	Agricultural workers	field crop worker milker tractor driver	forester fisherman hunter

*	<i>Promoted to occupational class I if more than 10 subordinates</i>
**	<i>Also includes self-employed persons whose occupations are classified under class II, III, V, VI or VIIa.</i>
***	<i>Also includes self-employed persons whose occupations are classified under class VIIb</i>
****	<i>Workers in class VI are promoted to occupational class V if they have more than 10 subordinates.</i>

Source: Kunst et al., 2001 (Table constructed by the authors on the basis of Erikson & Goldthorpe (1992) and Ganzeboom et al. (1989))

12.7 *Improvements in monitoring systems*

Low- and middle-income countries urgently need to collect information on the key equity stratifiers examined above, and in a consistent manner within the country so that data are comparable. This requires programmes oriented towards improving the production, dissemination and utilization in policy-making of vital and health statistics. The aim should be to support countries to improve (a) coverage (including representation of diverse groups and non registration); (b) quality (consistency, sampling and estimation methods and statistical techniques); (c) timeliness; (d) frequency; (e) geographical disaggregation; (f) stratifiers collected; and (g) accessibility of micro databases.

Although many international agencies have developed data collection instruments as well as databases on which most LMIC are highly dependent, there is a need for (a) better coordination among them; (b) greater standardization of definitions, indicators and sources, between countries and agencies as well as among the different agencies; and (c) increasing incorporation of social determinants of health and equity dimensions in these databases.

In middle and high income countries it would be useful if health monitoring systems could permit a first exploration of the factors and circumstances which contribute to health inequities. This is a challenge even for high income countries because it requires a comprehensiveness of data collection systems which is hard to achieve.

We propose the development of 'multilevel surveillance systems' of health inequities which routinely collect information on social determinants, health outcomes and relevant health determinants in a coherent fashion. The term 'multilevel' refers to the 'layered' nature of health determinants: social determinants may influence specific environmental exposures, which may influence behavioural factors or psychosocial conditions, which may influence biological risk factors, which may ultimately have an impact on health.

Although such multilevel surveillance systems do not yet exist, there are a number of recent experiences from which one can learn, including:

- WHO's Global Burden of Disease Study and its sequel, the Comparative Risk Assessment Study, which have identified, collected and analysed information on the main health determinants world-wide
- The Australian Obesity Sentinel Site Surveillance System, which is a multilevel surveillance system on obesity including information on a wide range of determinants of obesity on which information is collected on a regular basis
- A government advisory committee in the Netherlands that has proposed a set of quantitative targets for tackling health inequities (e.g. targets on disparities in income, working conditions, smoking, health care utilization). These targets have been used for the development of a monitoring system which covers social determinants, health outcomes and relevant health determinants (see case study 21 for more details).

In the development of a multilevel surveillance system for monitoring health inequities a number of steps can be distinguished:

1. Identification of health determinants which should be included in the monitoring system (in addition to socioeconomic status indicators and health outcomes)
2. Specification of the data which are necessary to measure these health determinants (e.g. operational definitions, data collection modes, classification by socioeconomic status)
3. Identification of sources of population prevalence data (e.g. health or multipurpose surveys), and final selection of indicators
4. Development of analytical approaches which help to link health determinants information to information on socioeconomic inequalities in health (e.g. ecological comparisons, mathematical and simulation modelling)
5. Testing a pilot system for its usefulness to inform policy-makers.

The Netherlands is developing such an approach, which is outlined in case study 21.

12.8 Illustrative case studies

The following illustrative case studies give examples of monitoring:

- No. 3 – Bolivia: Evaluation of Social Investment Fund
- No. 6 – Mexico: Reform of national health system
- No. 7 – Thailand: Introduction of universal health coverage
- No. 11 – Uganda: Community-based monitoring
- No. 17 – Mexico: *Oportunidades* programme
- No. 18 – Sweden: Intersectoral action
- No. 20 – Kenya: Grassroots monitoring
- No. 21 – The Netherlands: Multi-level surveillance system.

12.9 *Related reading*

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Mackenbach J and Kunst A (1997), "Measuring the magnitude of socio-economic inequalities in health: An overview of available measures illustrated with two examples from Europe". *Social Science & Medicine* 1997;44(6):757-771.

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13 Further issues for consideration

This chapter considers some of the issues and technical matters that remain at the end of the programme of work of the MEKN. While the MEKN carried out its work, some new issues emerged. In this chapter some of the questions and the future directions for research and investigation are highlighted.

13.1 *Attribution of effects and outcomes*

Much has been written in this guide about the causes of health inequities and the manner in which the social determinants lead directly to health outcomes. There is another important sense in which cause or attribution is significant. It is linked to, but is conceptually separate from, the way in which the social determinants' causal pathways operate. This is the relation between the intervention, the action or the policy on the one hand, and the outcome on the other. It is linked to the causal pathways of the social determinants because an accurate understanding of the proximal and distal causes of health inequity will in due course demonstrate the links between the social and the biological.

The critical problem is that in much of the social determinants approach to policy and interventions, the causal chain is assumed to exist rather than being demonstrated. Whether it is the assumption that particular policies will have particular outcomes or that specific interventions will have demonstrable consequences, the link between the two is assumed to exist, to be self evident or to be a given. Such assumptions are dangerous because so much of the detail of the causal pathway is unaccounted for.

There are two important contributions which help to articulate these relationships, both of which originated in the attempt to understand better the process and methods of evaluating complex interventions, particularly community interventions. These are the work of Weiss (1995) and Pawson (2006). Weiss (1995) contributed the idea of theories of change and Pawson (2006) developed the idea of programme theory. At the heart of both authors' arguments is the exhortation to be as explicit as possible about the way actions/ interventions/ activities/ engagement are thought to work. In

both cases this is what they mean by theory. The theory helps to develop a logic model or causal pathway between the action and the outcome.

In order to demonstrate this argument we distinguish here between four different types of theory to help expose these underlying mechanisms: general theories, theories of change, micro theories or programme theories, and tacit knowledge theories.

13.1.1 General theories

First there are general theories about the nature of human behaviour and society which provide broad explanatory principles about humans and their relationship with society. Disciplines such as sociology, psychology, economics and philosophy all provide different and competing examples of this type of theory. Such theories are often highly formal; they may or may not be testable; but they provide broad epistemological, ontological and often methodological frameworks for organizing knowledge, actions and learning, and for producing and understanding data and evidence. Well known examples of such theories are the maximization of utility in economics, functionalism in sociology, and the transtheoretical model in psychology. They also include such diverse theories as psychoanalysis, Marxism, positivism, post modernism, Catholicism, Aristotelian ethics and so on.

13.1.2 Theories of change

Second, and often explicitly or implicitly derived from the first type of theory, are theories about how a particular action or activity works. These are often causal type ideas, assumptions or beliefs, in which one set of actions is linked to a set of outcomes. An example would be: 'If we introduce a local food cooperative scheme in a disadvantaged community, it will lead people to eat more healthily'. Another example would be: 'If we develop local credit unions for disadvantaged female workers in particular developing countries, they will enjoy a greater degree of self determination and this will lead to their greater empowerment which in turn will have beneficial health effects'. These types of theories are sometimes explicitly used in helping to frame the objectives of interventions (e.g. 'To improve dietary outcomes by introducing a food cooperative'). This type of theory is sometimes, although not invariably, referred to in the literature on complex community interventions as 'a theory of change' (Weiss, 1995). Weiss and others make the point that many

interventions do not make clear to themselves or others what their theory of change is, and consequently evaluation of the intervention is difficult. Weiss therefore recommends making the objectives of an intervention crystal clear, being precise about the link between actions and outcomes, and making the theoretical link between them completely explicit. A theory of change is therefore a statement that describes a direct causal link between an action and an outcome and the reason why that link should exist.

However the last element – why there should be a link – is often either missed out or assumed to be self evident. The proponents of the food cooperative might be drawing on economic ideas of supply and demand by believing that if healthy food is cheap and easily accessible, people will consume it and benefit from that consumption. The problem is that neither do they make that theoretical link clear nor do they consider the complications in the link that they assume exists.

Proponents of the theory of change approach suggest that in complex community interventions, objectives should define what the action or intervention consisted of, what its intended measurable outcome was, and what the causal link between the two was. If articulated *a priori* such theories provide the basis for planning interventions and their evaluations. A key problem is often that because theories of change have not been made explicit at the outset of interventions it is difficult to tell retrospectively whether or not they have been successful, and if they have not, why not.

13.1.3 Micro theories or programme theories

To work properly for evaluation or planning purposes, the causal link must be explored. This is where the third type of theory comes in. For convenience these will be referred to as micro theories or programme theories. These are the atoms in the causal chains describing how the different elements in an intervention relate to one another. Theories of change define the causal link between action and outcome.

Micro theories or programme theories unpick the link still further.

Pawson (2006) makes the point that all interventions, policies or actions are theories. He argues that as well as being collections of people, resources and equipment, interventions are conjectures or hypotheses which state that ‘if we deliver a programme in this way, or we manage services in that way, then it will bring about an

improved outcome'. In this sense it is similar to a theory of change. Such conjectures are grounded in assumptions (theories) about what happens and why, and perhaps suggested remedies to the social arrangements into which the intervention was originally placed. However in programme theory there is another step. This can be illustrated by the food cooperative example above.

In the case of the food cooperative and healthy eating in the community, the programme theory would begin with a series of statements. For example:

- The best setting for the cooperative is a traditional shop
- The shop should resemble commercial retail outlets and not charity provision
- Its range of goods should be displayed attractively.
- People will come to the store in preference to their normal way of buying groceries.
- The consumers will know what to buy.
- The consumers will know how to prepare the food that they buy.
- The people for whom the food is prepared will want to eat the new diet rather than their habitual one.
- There will be a sufficient change in the nutritional status as a consequence to produce beneficial health effects.

Each of these statements must be accompanied by the word 'because' in order to expose the programme theory. Taking the statement 'People will come to the store in preference to their normal way of buying groceries', there is a series of micro theories in answer to the 'because' question: 'because they will prefer it', 'because they will recognize the potential benefits', 'because they will find it attractive', 'because it is accessible', etc.

In turn each of these statements will have counter reasons why the opposite may be true and the project may not work in the way intended. Thus 'People will not come to the shop'... 'because they prefer to buy food from the mobile shop which comes to the front door, is more accessible, offers credit, and sells contraband tobacco and illegal drugs'.

The aim of the micro theory is both to lay bare the elements in the process and to help identify the counter arguments in a systematic way. In the programme theory

one of the critical steps is identifying the mechanisms which are intended to have effects. Mechanisms are the engines of explanation. So we seek to understand the mechanisms which supposedly work and ask how they work.

Mechanisms are not universal in their effects. They work under certain conditions or contexts. A key research and development objective is to describe these conditions in detail. There are a range of contexts – pre-existing, concurrent and future – which will affect the mechanisms. Contexts determine and constrain the choices and opportunities of the people who are the subject of the activity and of the people implementing it. Knowing how things work involves tracing the limits of when and where they work. Causal connections are established via three things: context, mechanisms, and outcomes – or, put more simply, what works for whom and under what circumstances? (Pawson, 2006)

Programme theories outline the implicit theoretical ideas about the relationships between things which are usually tacit and taken for granted. Interventions carry many theories. The success of an intervention depends on the cumulative success of entire sequences of theories. This is the implementation chain. Most implementation chains are non linear. This is because along the chain, individual actors reason in various ways, which makes the change happen. Human volition is touched by the intervention and through interpretive processes the changes occur. Many actors will be involved in any one intervention chain, each bringing their own understandings and interpretations to the situation. Interventions are embedded in complex social systems. There are several layers of influence – individual capacities, interpersonal relationships, institutional settings and the wider infrastructural setting. Interventions will also change the context and in turn will be affected by the changing context (Pawson, 2006).

13.1.4 Tacit knowledge theories

The people involved in an intervention may or may not be fully aware of the theories which govern their actions and the expectations they have of the outcomes. This brings us to the final type of theory. These are the theories or ideas in the heads of those involved in commissioning, delivering and receiving interventions – sometimes called tacit knowledge. These usually come in the form of taken for granted assumptions about the world, which all human beings have in their minds. This is the territory that social constructionists, phenomenologists, ethnomethodologists and

grounded theorist practitioners have conventionally been most interested in. Clearly these link to micro and programme theories, not least because the micro links often involve trying to determine what is in the mind's eye of the actors and anticipating their actions. A phenomenological or grounded theory type of approach would provide an understanding of these things, and would be better than guessing, but would be largely meaningless without the theoretical architecture of the other three types of theory. However in practical terms these theoretical ideas are likely to be highly varied across all the actors involved.

13.1.5 Priorities for action

It is important to note that these four types of theory are not discrete and distinct. They merge and overlap and influence each other. An urgent research and development priority is to get much better at articulating and describing these theories as they apply to the social determinants. The whole enterprise of arresting the negative effects of the social determinants of health depends on being able to do so.

In summary it is important to specify three things with respect to any intervention, action or policy. First, be as specific as possible about its content in its application on the ground. Second, clarify what is to be done, to whom, in what social and economic context, and in what way. Third, articulate the underlying theories which make explicit the assumed causal links between actions and outcomes (Davidson et al., 2003; Pawson, 2006; Weiss, 1995). It is very important to be clear about the behaviours that need to be changed, any relevant contextual changes that need to be made, and the level at which the intervention will be delivered (individual, community or population) (NICE, 2007).

In other words it is important to specify the ways in which things are supposed to work. The logic model or causal pathway is invaluable and is an urgent requirement for future research and development to underpin the social determinants approach. As Pawson argues, once such pathways are specified and once such theories are drawn up, it becomes possible to develop a better understanding of the mechanisms which make interventions and policies successful or otherwise. It is all too easy to focus on the characteristics of the population or the characteristics of the intervention in seeking to understand why it works or the degree to which it is more or less effective. However, the critical path through which an intervention is implemented is

as much a part of the equation as the population and the intervention itself. The configuration of delivery mechanisms, the actions of the individuals who work in these organisations, and the ways both interact with each other and with the target populations are absolutely critical. The tacit knowledge of such actors influences the causal chain. An urgent research and evaluation priority is to articulate these causal chains in more and precise detail. It is all too easy to blame global capital or distant shadowy forces as responsible for the general state of inequity which, as we have said, remains stubbornly resistant to change. Yet the actions of health economies of different jurisdictions are in the hands of actors who can change them. For various institutional reasons, systems remain as much a part of the problem as they are potentially part of the solution.

13.2 *The challenge of policy*

In chapter 5 above we have outlined the problems attaching to the policy process and to some extent that chapter prefigures the arguments in the previous section here. Too often policy is detached from detailed understanding of its implementation and of the issues we have just argued are significant for understanding attribution. In addition to that there is another important question: to what degree is there something specific to health policy and consequently to the social determinants of health beyond the general issues described in chapter 5?

There are several points. First, health policy is often policy about provision of acute and chronic care, rather than about prevention and about health improvement. Second, health equity is affected by a great deal more than policies on the provision of acute and chronic medical care, although inequity within provision of services is important. The vexing issue is how to bring these other dimensions of health into the policy arena and particularly how to get the finance and economic ministries involved. It is usually difficult because, with some notable exceptions often grounded in very particular historical circumstances, finance and economic ministries have as their imperatives very different goals to that of a typical health ministry. They may be still more distant from concerns about disease prevention and health improvement, let alone the question of health equity.

Almost all policy initiatives across all levels of government will have health consequences. Health impact assessment allows some degree of assessing this. We

strongly argue for the development and use of health impact and equity impact tools which specifically and explicitly use the stages of change approach and the realistic evaluation approach outlined elsewhere in this guide. In other words, rather than simply estimating the likely effect of policy, logic models showing the implementation chain falling out of policy are urgently required as the basis for health impact and health equity assessments.

13.3 Hierarchies of evidence

One of the key questions which is left incomplete at the end of this project is how to use hierarchies of evidence. The idea of a single hierarchy of evidence is a powerful one. To recap, it is based on the straightforward premise that only the best evidence should be used to determine whether a clinical intervention is effective. At the top of the hierarchy sit meta analysis of randomized controlled trials, systematic reviews of the randomized controlled trials and randomized controlled trials themselves. Then in descending order come non randomized trials, case control studies, cohort studies, controlled before and after studies, interrupted time series studies and correlation studies. Non analytic studies, expert opinion and formal consensus are at the bottom. There is no place for qualitative or theoretical evidence in such a hierarchy. The principle is that the further up the hierarchy, the greater the chance of eliminating bias. The focus on bias relates to the internal validity of the evidence, meaning the degree of certainty about the evidence presented and conclusions drawn from it. The principle is a sound one where the question is one of clinical effectiveness. The development of this method as a way of determining the efficacy and the effectiveness of clinical interventions has been an important milestone in the foundation and development of evidence based medicine.

The issue at the heart of this guide however is that in public health and in the social determinants of health the clinical trial is seldom either available or appropriate. As this guide has shown, the range of evidence that needs to be considered is extensive and the questions that the research has sought to answer are much broader than just those of clinical effectiveness. We have argued that taking an evidence based approach does *not* mean relying on, or privileging, only one kind of method, such as the randomized trial, it does *not* mean that there is only one hierarchy of evidence, and it does *not* mean an epistemological commitment to objectivity above subjective positions or methods.

We have argued for multiple methods, diverse epistemologies and a broad church of data. We have argued for methodological diversity. We have argued that no single approach to the generation of evidence or data is to be favoured over others.

Evidence should not be appraised and evaluated on the basis of adherence to a single evidence hierarchy in which a particular method is given priority. Appraisal of evidence should be on the basis of whether the research method used is appropriate for the research question being asked and the knowledge being collected, and the extent to which in terms of its own methodological canon it is considered to be well executed.

There do not presently exist agreed hierarchies for dealing with the full range of evidence. Because of this we have used the term 'fitness for purpose'. This encapsulates a number of different ideas. We are not in a position at the moment to point to a hierarchy of evidence for qualitative studies, for theoretical evidence, or for the many other types of evidence that we argue are potentially admissible. We believe that the development of such hierarchies is an urgent methodological priority. Even an organization such as the National Institute for Health and Clinical Excellence in England, which has made a commitment to taking a very broad approach to the evidence in its public health work, does not have a complete set of procedures to deal with all the possible evidence types.

Fitness for purpose therefore means determining the answer to several questions. First, has the research question been spelled out clearly, or if not, has a hypothesis been specified or the relationship between two variables clarified? Second, is the chosen method going to answer the question? Is the tool the right one for the task in hand? This is vital. So often, research methods are chosen by researchers on the basis of philosophical predilection rather than fitness for purpose. Third, the appraiser of the evidence needs to turn their mind to the idea of the fatal flaw. In a randomized controlled trial for example, if the researchers and the subjects were not blind to the random allocation and if an intention to treat analysis had not been carried out, one would have serious concerns about the level of bias that might creep into the results. The absence of random allocation and intention to treat are fatal flaws in design. It is difficult to be as prescriptive with other forms of evidence, but in determining fitness for purpose the appraiser should consider what sort of flaw would lead one to seriously doubt the reliability of the data and to assume that the strong possibility of bias should be considered. In a qualitative investigation if the author does not report

how the respondents were recruited, how they were chosen as informants and how the particular extracts of the conversations with key informants were selected and on what grounds, we would have good reason to suppose that the possibility of bias was high. These would constitute fatal flaws. In an economic model if the parameters were not known because they were not reported, and thus no sensitivity analysis could be undertaken, this would constitute a fatal flaw.

13.4 *Equity: relative or absolute?*

Equity is a political concept and it is used in various ways by a variety of protagonists to justify and rationalize different political positions. It is also a scientific concept. One of the vexatious elements of the question of equity concerns absolute and relative differences between groups and individuals. It is frequently misused politically in this regard.

We have rehearsed the argument at length in the text and have argued for the use of both absolute and relative measures of equity. This is important because using one or the other measure alone can be misleading. When the focus is on the whole health gradient of the population following an intervention, we might see overall improvement for the whole population group. In high income countries it is also quite likely that in such circumstances we will see the uppermost groups improving more quickly than the rest. The result is that the health inequities measured in relative terms are getting worse because those at the bottom of the gradient are not improving at as fast a rate as those at the top. However in absolute terms those at the bottom may be better off than they were previously and may therefore show absolute improvement. It could be argued that the issue of equity is less relevant than the argument in favour of overall improvement. In the case of extreme disparities this is compelling. Our view is that it is important to use both sets of measures in order to reflect the range of societies involved, the variations across and within societies, and the differential effects of interventions across populations.

13.5 *Where further research and development is required*

At the end of this project we know what we do not know more clearly than we did at the beginning. There are several important areas where more detailed work is required. The tools to measure the impact of the social determinants based on the appropriate causal pathway need to be developed. Given the complexities of the causal pathways from determinants to health outcomes, the best and most sensitive measures of such outcomes need further attention. Standard epidemiological measures of mortality and morbidity are clearly a starting point, but robust measures of quality of life across cultures, of well-being, of social cohesion, of community integration and of social capital for example require detailed further work. In some of these areas there are considerable literatures, but the linkages back up the causal chain to the social determinants and down the chain to specific health indicators remain a considerable research and development task. Every effort should be made to support and fund such important developmental work.

We have laid strong emphasis on equity proofing in this guide. But we must acknowledge that this tool is still in its infancy, compared to what we know about technologies like the randomized trial. Again there are areas of considerable development and expertise here but it is still early days. These are very important tools and once again we would encourage development and support in these areas. The linkage of equity proofing to questions of absolute and relative equity referred to above also requires close attention.

Another important area of work which we signaled in the text is the cross cultural research comparisons between different country and cultural contexts. The health gradient is made up of two axes, the actual health disparities and the degree of social inequality in society. Social inequity is itself made up of a number of sub-axes related to gender, ethnicity, disability, geography, caste, and social class for example. A programme of research is urgently required to explore the degree to which these axes of social differentiation overlap, interact and cluster together, and the impact of these on health disparities cross culturally.

Another important area for further work is on the synthesis of evidence across the different research traditions. The multiple potential hierarchies of evidence and the threshold judgements which may be used to consider them will in time give rise to

bodies of evidence which will require evidence syntheses. Once again this is an area where much useful work is already in train. But in scientific terms it is early days – although we have drawn in this guide on some of the leading work on the synthesis of data and evidence, there is still quite a long way to go. The Cochrane and the Campbell Collaborations have moved some things on within part of the evidence base. But the requirement remains to synthesize theoretical evidence, models and qualitative and quantitative information.

In the final analysis the guide leaves open detailed questions about the methods and tools for measuring causes and pathways and linking the material together. This constitutes a research agenda of its own which should be able to build upon the work undertaken here and provide future generations of scholars with the tools they will need to finish the job.

14 Conclusion

The fact that there are health differences across all societies is a given. There are enormous amounts of data which show this. The mechanisms of the social determinants operate in all societies. The conclusion of this guide explores the ways in which these mechanisms may operate and describe a general causal pathway. Finally we finish with a plea for action rather than inaction in the face of the complexity of dealing with the mechanisms of the social determinants.

14.1 *Social structure and the operation of the determinants of health inequities*

It is important to conceptualize the issue of health inequities, at least initially, beyond the immediate context (although as noted previously, context is highly important in political and policy terms). Much of the data about inequities is country or locality/region specific. This is not in itself a bad thing, but the question this immediately raises concerns the transferability of the findings from one context to another and the transferability of the concepts which describe inequities. This is not simply the standard question about external validity (whether that which has been observed under controlled circumstances still applies without strict scientific control). Neither is the concern with whether replication is possible, although both of these issues are important for other reasons. What makes the question of transferability still more problematic is the degree to which the cultural context has generated the conceptual framework which defines the social structure and in turn the tools to measure inequity. To what extent does the way that the research questions were initially posed, as well as the way findings are interpreted, influence what is known?

This is well demonstrated by the overall Eurocentric approach to the question of inequity. There is a large western European literature on health inequities and to a lesser extent from the United States, Canada, Australia and New Zealand. This literature reflects the concerns and preoccupations of those societies. Whether and the degree to which these preoccupations have broader applicability is an empirical question and the degree to which they should be the starting point for an analysis of the social determinants or merely a contribution to it is uncertain at this time, and will

only be resolved as further research is undertaken in different societies and the conceptual and methodological frameworks evolve. This subject is outlined in more detail in section 1.1.4.

So there are a number of conceptual issues requiring further work both to map the social differences and to link that map to better conceptualizations of social structure. This in turn would permit a better and more precise analysis of the causal pathways.

There is also a range of linked unresolved empirical and theoretical issues. Even within the Eurocentric approaches, the evidence relating to *reductions* in inequalities is actually very thin. While there is a huge literature describing the problem of inequity, the proportion of published papers about interventions to reduce inequalities is much more limited, other than in very general terms (Millward et al 2003a; Kelly 2006a). Even if the empirical grounding of this material were more secure, there is little agreement either *a priori* or *post hoc* as to what changes in inequalities would be regarded as a success, or what sizes of interventions would be regarded as desirable. In high income countries the extent of change which represents a significant enough difference remains largely under explored in the literature. In turn this means that identifying 'what works' is a problem because the meaning of 'works' tends to be assumed rather than defined. More troubling still is that even within a high income country context the conceptual apparatus to describe inequalities in health is limited. The conceptual basis for most of the data is a measure of occupation and or socioeconomic status. The more discrete dimensions of social difference like ethnicity, gender, disability, place, age and geography, while never explicitly denied as important, as noted above are under developed empirically and theoretically. Consequently the relationships between the different dimensions of inequality, and the ways they interact with each other to produce health effects, is hardly to be found in the extant evidence at all (Graham & Kelly, 2004). As we have argued, this is vitally important because, as shown above, different segments of the population respond differently to identical interventions. The differential response to smoking education among different social classes is a case in point.

It seems clear from the data that the social variation in the population is considerable and the existing measures of socioeconomic status do not adequately capture these variegations in the population. A related point is that there is a dearth of studies at topic level where inequity and measures of inequity are part of the research questions. Thus evidence about inequalities remains strongest at aggregate

population mortality level, and much more diffuse at the level of individual topics like HIV or accidental injury. The epidemiological data clearly show the social class gradient in many topics, but the researchers seldom address inequities *per se* (Killoran & Kelly, 2004).

These perhaps surprising gaps exist for several reasons. Sometimes particular groups have not been studied, so for example there is very little review level research on the sexual behaviour of young heterosexual men and its impact on rates of teenage fertility in Britain. Sometimes the research questions simply sidestep the issue – there is little work in the UK on social exclusion and the transmission of HIV/AIDS for example. In some cases particular disciplinary input appears to be absent. So there is very little evidence about cost effectiveness of interventions more or less universally. In general the evidence base is much stronger with respect to downstream than upstream interventions (Kelly, 2006a).

From a methodological point of view, even within the Eurocentric paradigm very few studies reach an ideal gold standard. This observation is not just the very obvious and commonplace one that inevitably there will always be practical, resource and other real world difficulties in conducting research, and that these will reflect themselves in the way that final results are presented. Nor is the point that bias is an inevitable part of the scientific endeavour. The observation is more fundamental than that. The nature of scientific research designs means that critical variables, of vital interest to practice, are frequently excluded from consideration. In the interest of increasing the degree of certainty that the observed relationships between two variables are real, a range of other potential confounding factors are controlled out of the analysis. To some extent all science inevitably involves abstraction from the complexities of messy reality in order to make sense of phenomena and the relationships between them. However in public health this means that the search for scientific purity, particularly as the evidence hierarchy is ascended, is traded off against the loss of two sorts of important information. The first is process data, i.e. material relating to the practical problems associated with doing the research, or of doing the intervention upon which the research is based, or both. This may well include all sorts of material relating to the actions, motives and behaviours of people, including the investigators as well as the subjects who are involved in the study. The second missing data relate to the mediating effects of variables like the local context and circumstances.

In high income societies many solutions have been tried or suggested and have formed part of various policy initiatives, but in the main they have not been evidence based and their effects have not been evaluated in ways which would allow policy to develop in a systematic way towards health improvement. And the grand social determinants such as fiscal, educational, criminal justice, housing and transport policies and their effects on health and health inequity have not been subject to the kind of appraisal which would allow for the development of more equity-led policy.

14.2 *Towards a causal hypothesis*

There is an urgent need to understand the relationship between the social and the biological. Some of the best known approaches are described in chapter 1. Why is it that the molecules and the biochemistry in the human body show such a strong link with social factors? And what is the pathway from the major social determinants to individual health outcomes? In this pathway, what constitute the proximal, intermediate and distal causes?

We have a huge amount of data which would allow for the development of models to help open up these questions. Biologically, sociologically and psychologically plausible pathways need to be developed with reference to each other. This will allow for the development of explanatory systems which cross the traditional discipline boundaries and the different levels of explanation. Sociology must stop its explanations ending at the level of the social; psychologists must move beyond a focus only on the on the individual and on treating social factors (if they do so at all) as residual characteristics of individuals; and medicine must draw itself away from the fetishism of the gene and acknowledge the powerful social and psychological forces impacting on the biology of human life.

Within the extant literature there are many models and theories which help to provide a potential way of mapping the social to the biological. In this chapter a hypothesis is developed, based on two sociological-philosophical ideas – the life course and the life world. Life course sociology and life course epidemiology have accumulated a significant body of evidence which shows that from the moment of conception to the moment of death, the human organism accumulates insults and benefits (Kuh et al., 2003). In health terms these insults and benefits are a kind of profit and loss account which determines the health state of the individual. Some of these things are

biological and are determined by the hereditary structure of the organism; others are environmental and reflect the immediate physical, social, psychological and emotional environment of the growing child, and then the adult. But the life course approach also demonstrates that at critical points on life's journey, which are very highly socially patterned, benefits and insults can be greatly magnified, past insults can be cancelled out, and new benefits can come into play. It is also clear that these changes may be self reinforcing, producing and reproducing patterns of health advantage and disadvantage. Those critical points on life's journey are like gateways or forks in the road, setting in train patterns that may endure and have long lasting effects.

It is also clear that the life course follows quite distinct patterns for different social groups. The trajectory through life for the child of a single mother in receipt of state benefit in public sector housing in Scotland will be very different to that of a child born to a professional couple in Beverley Hills, California, and both will be quite different to that of a child born in the Gaza Strip or the slums of Rio de Janeiro. The direction people go at each gateway has a profound effect on their future. The gateways and where they lead are markedly determined by social factors.

On life's journey the experience of benefits and insults to health occurs in what some philosophers call the life world. The notion of the life world developed in phenomenological writings and, in the context used here, in the work of Schutz in particular (Schutz, 1964, 1967, 1970). The argument also draws upon the work of Mead (1934).

The life world is a social space, partly physical but predominantly cognitive and subjective. It is the place where we make our own decisions, where we decide upon our immediate actions, where we judge ourselves and others, where we experience the social structure first hand in the form of opportunities, barriers, difficulties, disadvantage, and it is where our emotions are played out and our feelings are expressed.

Every individual human being subjectively inhabits his or her own personal life world. At its core is the subjective self, which is experienced as a continuous self existing though time and space within a more or less familiar world of places and people. Although the life world is uniquely personal, it is also inhabited by others who are recognized as physically and subjectively similar to, but separate from, the self.

These others who inhabit the centre of our life world are those individuals whom we meet and interact with, or think about and relate to, on a recurring basis. The people with whom we share our domestic arrangements, some of our workmates and perhaps friends and family, as well as those who are not intimates or friends but whom we meet with regularly, make up the life world. It is the interaction, real or imagined, on a repetitive basis which defines the inner zones of the life world. The level of intimacy is not the crucial issue. It is the repetitive and routine nature of the contacts with others that is important.

Schutz (1967, 1970) conceptualized the life world as a series of concentric circles. The innermost circle is the one where the everyday contacts and routines are highly predictable and are therefore taken for granted. They are salient and immediate and tend most of the time to be the most important. The more distant parts of the life world are inhabited by things and people we can recognize even though we do not know them, and whom we could and would understand were we to meet and interact with them. We therefore have some sense of these persons and things but their impact on us is nil or negligible. Schutz described the concentric circles of the life world as zones of relevance (Schutz, 1970). The closer to the centre, the greater the relevance of what goes on there to the 'I'. The values and prescriptions of the circles closest to the centre are important. The stock of knowledge or assumptions that an individual has of those parts of the life world is a crucial resource for making sense of things (Schutz, 1967).

It is very important to note that the innermost circle of the life world may not be, and Schutz never suggested it would be, a place that was benign and cosy. It may be violent and bullying. It may be cold and unforgiving. It may be unpleasant and chronically difficult. It will be the place where discrimination and disadvantage are experienced. However, it constitutes the centre of the existence of the person. Life worlds change gradually as individuals move through space and time. Groups of intimates change, children grow up, leave home and move to a more distant part of the individual's life world. New people come into our orbit of friends and acquaintances. The social group in the everyday life world of contacts – direct and indirect, real, imaginary or virtual – is potentially continually in a state of flux. The possible variability is enormous.

The key Schutzian point for us here is that the central realities and experiences of everyday life are the principal focus for sociological analysis of the variations in

modern societies. This is because life worlds are the building blocks of social life and individual behaviour originates and is rationalized and explained in the life world. The experiences and meanings attributed to disadvantage are constructed in the life world. It is the fulcrum of human existence around which everything else rests and the prism through which all meaning is refracted. It is the point where social structure impacts on the individual. It is the highly localized manifestation of the social structure and is where that social structure is experienced, is made meaningful and constrains human action in a very direct way. It is in fact where social structure originates.

The life world is the locus of experience: social, psychological *and physical*. It is that social and emotional space which all of us uniquely inhabit. It is the world of the everyday, it is the world of the immediate experience and the aspects of life that we take for granted. It is where life is at its most meaningful and its most painful. The life world is also about the physical space which we inhabit. It is where the social meets the biological. Life worlds are the point at which stressors are moderated, mediated or exacerbated. It is the point where insults are parried or where they have their noxious effects. It is the point where vulnerabilities translate stressors into physical and emotional damage. It is where immunities – biological, physical or psychological – work their protective powers. Social disadvantage is characterized by the inability or lesser ability to control the life world. Social advantage is characterized by the ability to make control of the life world sustainable.

There are four types of resources that help to control the life world. First, these are technical things like skills, knowledge, money and access to services and resources. Second, there are interpersonal resources constituted from the relationships, social support, safety and ease of communication in our world. Third, there are intra-personal resources – the ability to deal with the emotions of life and its psychological distresses with equanimity or otherwise. Finally there are the resources of being able to make sense of the life world, of being able to make it meaningful. If humans can do that, they seem better able to cope with the ups and downs of human existence.

The argument advanced here is that the trajectory through the life course, mediated through the life world, is how structural factors determine health. The life world is where the causal mechanisms of health inequities operate, and the pathways to ill health can be described. Disadvantage may be viewed as a differential opportunity (life chance) to control one's life world (Weber, 1948). Differences between life

worlds are the social manifestations of differences in physical life chances. Life worlds operationalize the differential experiences of power, exploitation and access to resources. Where life worlds abut, the experience of discrimination and disadvantage originates and within the life world the experience of pain and suffering are located. Our contention is that this model provides a promising framework in which to understand and develop the causal pathways.

14.3 *A plea for action*

The fact that health inequity is socially determined is one of the most important problems and challenges for global health policy. In due course precise causal pathways describing the links between the social factors and the human biology may be able to be described. This will allow policy to be targeted with a precision we lack today. It will also help to create ways to bring the macro social and economic determinants of health into the policy foreground. However, the fact that it is not yet possible to describe the causal pathways precisely, should not and must not be an excuse for inaction. Much is known about the social factors which affect health. What is known is not universal in its applicability. It must therefore be read through a lens which deals with its salience, meaning and relevance in particular local contexts. It must also be equity proofed (i.e. a policy or programme needs to identify, assess and address its potential health equity impacts so as to maximize the potential health equity outcomes and minimize any potential harm). However, as this guide demonstrates, it is possible to describe comprehensively what can be known and how it can be interpreted. It is also clear how it can be linked to policy and what can be done to get those policies and guidance deriving from them, implemented and monitored.

There is no such thing as value neutral science. The Commission on Social Determinants of Health has a specific commitment to equity and to taking action to reduce socially determined health inequities. Equity is normative; it is based on a value judgement. This will generate political opposition. The value of equity is not a universal one in spite of being located in a discourse of human rights – the right to good health. It is also important not to use the problem of values or the problem of the complexity which bedevils population health as excuses for inaction. This guide has identified ways of confronting the difficulties and finding workable solutions with

the evidence and data that are available now and of being clear and transparent about values.

The social determinants of health inequities is truly a field which is extensive in its coverage, diverse in its ways of formulating the problem, full of good ideas and replete with suggestions as to what might be done to help to improve things along with various political solutions. And yet the problem of health inequity remains stubbornly ubiquitous in spite of all these efforts. The world remains an unequal place in which the damaging effects of the inequity itself and the health consequences of those inequities remain as sharp as ever. In spite of all this knowledge it sometimes seems that we are powerless in the face of the problem. This guide takes a pragmatic approach and shows how it is possible to begin to marshal evidence in such a way that it may be effective. While it would be foolhardy to suggest that the work reported here will solve all these problems, the establishment of the WHO Commission on Social Determinants of Health and the scientific work it has sponsored mark an important watershed. The work undertaken by the WHO Commission and the methodological thinking which has informed this has helped to map the territory. No doubt the map will improve and in due course the methodological questions will be better defined and formulated than the current authors have been able to do in this guide.

This guide is a starting point which intellectually establishes the case that an evidence based approach is the one most likely to offer the hope of success, that the evidence comes in many shapes and forms, and that we must get smarter about synthesizing and appraising that evidence. We must move well beyond sterile debates about the superiority of particular disciplinary or epistemological positions. The unnecessary suffering and death wrought on the population by inequity is simply too big a problem to be brought to a standstill by the philosophical indulgences of academic solipsism. The world of political power needs to be engaged in ways that will be effective and will produce the necessary changes.

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Appendix I – Illustrative case studies

The following case studies have been chosen to illustrate one or more of the points in this guide. They feature SDH themes although they do not always describe interventions specifically to address SDH (there is little available in the literature). These case studies are intended for illustrative purposes only; they have not been critiqued and may be subject to the biases of the original author(s).

Chapters illustrated:

2 – Evidence based approach	8 – Generating evidence for policy and practice
3 – Gaps and gradients	9 – Evidence synthesis and action
5 – Understanding the policy-making process	10 – Effective implementation and evaluation
6 – Making the case	12 – Monitoring
7 – Equity proofing	

Case study	Chapter illustrated									
	2	3	5	6	7	8	9	10	12	
1. United Kingdom – Acheson Inquiry	x									
2. Brazil, Peru, United Republic of Tanzania – Failure to equity proof	x							x		
3. Bolivia – evaluation of social investment fund	x							x	x	
4. Brazil – Infant mortality in Ceará		x		x		x		x		
5. Canada – National children's policies			x	x						
6. Mexico – National health system			x	x		x				x
7. Thailand – Universal health coverage			x	x		x				x
8. Various countries – Linking research and evidence to policy-making			x							
9. Thailand – Mun river dam				x	x	x		x		
10. Brazil & Chile – National conferences				x						
11. Uganda – Community-based monitoring						x		x	x	
12. Various countries – Synthesis of data on tuberculosis treatment							x			

Case study	Chapter illustrated									
	2	3	5	6	7	8	9	10	12	
13. Various countries – Synthesis of data on school feeding programmes							x			
14. United Kingdom – National Institute for Health and Clinical Excellence							x			
15. Slovenia – Health impact assessment					x			x		
16. United Kingdom – Health impact assessment					x			x		
17. Mexico – <i>Oportunidades</i> programme								x	x	
18. Sweden – Intersectoral action								x	x	
19. Bangladesh – evaluation of Food for Education programme								x	x	
20. Kenya – Grassroots monitoring									x	
21. The Netherlands – Multilevel surveillance system					x				x	

Case study 1: United Kingdom – Using evidence to inform health policy: the Acheson Inquiry

Illustrates: Evidence based approach

This case study illustrates the work undertaken by the Evaluation Group of the Independent Inquiry into Inequalities in Health (the Acheson Inquiry). The Group was established to help the British government formulate policy to reduce health inequalities. This case study reports on the quality of the evidence used to support the Inquiry's 39 major recommendations.

In 1997, the Minister for Public Health commissioned Donald Acheson, the former Chief Medical Officer for England, to review the latest available information on health inequalities and to identify, in the light of scientific and expert evidence, priority areas for future policy development. The Inquiry reported in 1998. It presented both evidence about the problem (health-related effects of particular determinants and the possible link between the health effect and these determinants) and evidence about the effectiveness of interventions to address the problem.

The members of the Inquiry's Evaluation Group developed a matrix of criteria against which they believed policy recommendations should be judged for priority setting (see box below), but found that they were unable to use the criteria because the proposals lacked sufficient information. For example, submissions did not adequately describe methods and there was little empirical evidence of effectiveness. Where

Box 1. Criteria used by the Evaluation Group of the Acheson Inquiry to evaluate policy recommendations:

- Supported by systematic, empirical evidence
- Supported by cogent argument
- Scale of likely health benefit
- Likelihood that the policy would bring benefits other than health benefits
- Fit with existing or proposed government policy
- Possibility that the policy might do harm
- Ease of implementation
- Cost of implementation.

evidence for effectiveness was cited, it was usually clearer for more specific 'downstream' proposals such as medical interventions focused on individuals than for macro level 'upstream' proposals such as social, economic or educational interventions aimed at whole communities.

The Evaluation Group noted that their observation of the lack of empirical evidence did not mean that they thought the Inquiry should not propose policies formulated on the basis of logic and common sense or that they thought interventions aimed at whole communities are not effective. Rather it reflected the paucity of good quality studies of these more 'upstream' interventions.

The Group acknowledged that even their own recommendations for health equity were 'quite medical' in nature because they were the kind of interventions that often have evidence behind them. For this reason, an editorial in the British Medical Journal (Davey Smith et al., 2001) criticized the Evaluation Group's assessment of the evidence because 'health differentials between social groups, or between poor and rich countries, are not primarily generated by medical causes and require solutions at a different level'.

In 2001 England's then Health Development Agency examined the approach to gathering evidence of effectiveness of both the Acheson Inquiry and the country's new Social Exclusion Unit. The paper concluded that, given a favourable political environment, the 'logic and equity' used in the Acheson Inquiry are important factors in decision-making.

While the Social Exclusion Unit draws extensively on research and external expertise, it also relies on good practice and promising ideas, and members of the Unit visit and consult widely with local authorities, business, the voluntary sector, faith groups and other agencies, and people who have a direct experience of social exclusion. The Health Development Agency concluded that a pragmatic rather than doctrinaire approach to evidence of effectiveness is key to the process of developing healthy public policy.

Source: Public Health Agency of Canada, 2001b.

Case study 2: Brazil, Peru and United Republic of Tanzania – Failure to equity proof interventions for children in low and middle income countries

Illustrates: Equity proofing; Evaluation

The need for equity proofing is evidenced even in initiatives which by their essence are expected to reduce health inequities within and between countries.

The **I**ntegrated **M**anagement of **C**hildhood **I**llness (IMCI) strategy was designed by WHO and UNICEF to reduce infant mortality and the incidence and seriousness of illnesses that affect children under five, as well as improving their growth and development. It is one of the key strategies for meeting the Millennium Development Goals with greater equity.

Victoria and colleagues (2006) looked at the implementation of IMCI in three countries – Brazil, Peru and the United Republic of Tanzania. The objective was to assess whether the strategy was implemented in the areas with greatest child health needs.

The study was carried out through interviews with key stakeholders at the national and district levels, as well as an ecological study of factors associated with health worker training in IMCI. The baseline mortality rates in children under five years old before IMCI implementation were assessed. Also included were district characteristics (population, distance from the capital or main city, urbanization rate), environmental variables (water supply), and socioeconomic indicators (literacy, income and Gross Domestic Product (GDP)). The district Human Development Index, which combines data on GDP per capita, education (weighted average of adult literacy rate and gross school enrolment ratio) and life expectancy at birth was calculated.

In Brazil, IMCI was less likely to be implemented in municipalities with low scores on the Human Development Index, low per capita income, small populations and located further away from the state's capital. Indicators of literacy, urbanization, water supply and baseline under five mortality rate (U5MR) were not associated with IMCI

implementation. In Peru, no significant correlations were found between coverage of training of health workers in IMCI and any of the indicators studied. Though correlations were weak, IMCI coverage tended to be lower in departments with higher values of the Human Development Index, larger populations and poorer water supply. In Tanzania, the only significant correlation was the earlier introduction of IMCI in districts that were close to Dar es Salaam. None of the other correlations, including the baseline U5MR, were statistically significant.

Though WHO recommended clear criteria for selecting districts for early implementation, these did not include equity considerations (e.g. mortality levels). This incentivized the initial selection of districts that were close to the national capital or main city, with a strong experience in previous vertical child health programmes, managed by motivated teams and with sufficient funding available. In the expansion phase, IMCI tended to be adopted by other districts with similar characteristics. However, as the authors highlight, 'these characteristics are likely to be found in districts where the U5MRs are lower than the national average'.

Nonetheless, the authors stress that IMCI 'should not be singled out as the only strategy without explicit pro-equity implementation guidelines... Until recently, equity considerations were seldom addressed in international child health initiatives aimed at low and middle income countries... Unless pro-active efforts are made to deploy interventions where they are most needed, inequalities in child health may widen as a result of new programmes'.

Source: Victora et al., 2006.

Case study 3: Bolivia – Evaluating Bolivia’s Social Investment Fund

Illustrates: Equity proofing; Evaluation; Monitoring

Project description

The Bolivian Social Investment Fund (SIF) was established in 1991 as a financial institution promoting sustainable investment in the social sectors, notably health, education and sanitation. The policy goal is to direct investments to areas that have been historically neglected by public service networks, notably poor communities. SIF funds are therefore allocated according to a municipal poverty index, but within municipalities the programme is demand-driven, responding to community requests for projects at the local level. SIF operations were decentralized in 1994, enhancing the role of sector ministries and municipal governments in project design and approval. The Bolivian SIF was the first institution of its kind in the world and has served as a prototype for similar funds that have since been introduced in Latin America, Africa and Asia.

Impact evaluation

Despite the widespread implementation of social funds in the 1990s, there have been few rigorous attempts to assess their impact on poverty reduction. The Bolivian SIF evaluation, carried out jointly by the World Bank and SIF, began in 1991 and at time of writing (2002) was ongoing. The study features baseline (1993) and follow-up (1997) survey data that combine to allow a before-and-after impact assessment. It includes separate evaluations of education, health and water projects and is unique in that it applies a range of evaluation techniques and examines the benefits and drawbacks of these alternative methodologies.

Evaluation design

The evaluation programme includes separate evaluations of education, health and water projects that assess the effectiveness of the programme’s targeting to the poor. It also assesses the impact of its social service investments on desired community outcomes such as improved school enrolment rates, health conditions and water availability. It illustrates best-practice techniques in evaluation using baseline data in impact analysis. The evaluation is also innovative in that it applies two alternative

evaluation methodologies – randomization and matched comparison – to the analysis of education projects and contrasts the results obtained according to each method. This is an important contribution because randomization (random selection of programme beneficiaries within an eligible group) is widely viewed as the more statistically robust method, and yet matched comparison (using a non-random process to select a control group that most closely ‘matches’ the characteristics of programme beneficiaries) is more widely used in practice.

Data collection and analysis techniques

The 1993 baseline and 1997 follow-up surveys were applied to both the institutions that received SIF funding and the households and communities that benefit from the investments. Similar data were also collected from comparison (control group) institutions and households. The household survey gathered data on a range of characteristics, including consumption, access to basic services, and each household member’s health and education status. There were separate samples for health projects (4,155 households, 190 health centres), education projects (1,894 households, 156 schools), water projects (1,071 households, 18 water projects) and latrine projects (231 households, 15 projects).

The household survey consisted of three sub-samples: (a) a random sample of all households in rural Bolivia plus the Chaco region (one province); (b) a sample of households that lived near the schools in the treatment or control group for education projects; and (c) a sample of households that would benefit from water or latrine projects.

To analyse how well SIF investments were actually targeted to the poor, the study used the baseline (pre-SIF investment) data and information on where SIF investments were later placed to calculate the probability that individuals would be SIF beneficiaries conditional on their income level. The study then combined the baseline and follow-up survey data to estimate the average impact of SIF in those communities that received a SIF investment, using regression techniques. In addition to average impact, it explored whether the characteristics of communities, schools, or health centres associated with significantly greater than average impacts could be identified.

In education, for which SIF investments were randomly assigned among a larger pool of equally eligible communities, the study applied the ‘ideal’ randomized experiment

design (in which the counterfactual can be directly observed). In health and sanitation projects, in which projects were not assigned randomly, the study used the 'instrumental variable' method to compensate for the lack of a direct counterfactual. Instrumental variables are correlated with the intervention but do not have a direct correlation with the outcome.

Results

SIF II investments in education and health resulted in a clear improvement in infrastructure and equipment. Education projects had little impact on school dropout rates, but school achievement test scores among sixth graders were significantly higher in SIF schools. In health, SIF investments raised health service utilization rates and reduced mortality. SIF water projects were associated with little improvement in water quality but did improve water access and quantity and also reduced mortality rates.

A comparison of the randomized versus matched-comparison results in education showed that the matched-comparison approach yielded less comparable treatment and comparison groups and therefore less robust results in discerning programme impact. In illustration of this finding, evidence of improvements in school infrastructure (which one would clearly expect to be present in SIF schools) is picked up in the randomized evaluation design but not in the matched-comparison design.

Finally, the results showed that SIF II investments were generally not well targeted to the poor. Health and sanitation projects benefited households that were relatively better off in terms of per capita income, and there was no relationship between per capita income and SIF education benefits.

Policy application

The results on targeting reveal an inherent conflict between the goal of targeting the poor and the demand-driven nature of SIF. Bolivia introduced a popular participation law in 1994. Sub-projects then had to be submitted through municipal governments. The targeting results suggest that even in a highly decentralized system it is important to monitor targeting processes. In the Bolivian case, it appears that better-off, more organized communities, rather than the poorest, are those most likely to obtain SIF investments. In the case of SIF sanitation projects in particular, the bias against poorest communities may be hard to correct. Investment in basic sanitation is

most efficient in populated areas that already have access to a water system so that the project can take advantage of economies of scale.

The fact that SIF investments have had no perceptible impact on school attendance has prompted a restructuring of SIF interventions in this sector. Rather than focusing solely on providing infrastructure, projects will provide a combination of inputs designed to enhance school quality. Similarly, disappointing results on water quality (which showed no improvement resulting from SIF projects compared with the pre-existing source) have generated much attention, and project design in this sector was changed to include training of personnel.

Lessons learned about evaluation process

Effectiveness of the randomization technique. The randomized research design, in which a control group is selected at random from among potential programme beneficiaries, is far more effective at detecting programme impact than the matched-comparison method of generating a control group. Randomization must be built into programme design from the outset in determining the process through which programme beneficiaries will be selected, and random selection is not always feasible. However, when programme funds are insufficient to cover all beneficiaries, an argument can be made for random selection from among a larger pool of qualified beneficiaries.

Importance of institutionalizing the evaluation process. Evaluations can be extremely complex and time consuming. The Bolivia evaluation was carried out over the course of seven years in an attempt to rigorously capture project impact, and achieved important results in this regard. However, the evaluation was difficult to manage over this length of time and with the range of different actors involved (government agencies and financing institutions). Management and implementation of an evaluation effort can be streamlined by incorporating these processes into the normal course of local ministerial activities from the beginning. Further, extensive evaluation efforts may be best limited to only a few programmes – for example, large programmes in which there is extensive uncertainty regarding results – in which payoffs of the evaluation effort are likely to be greatest.

Evaluation costs and administration

Costs. The total estimated cost of the Bolivia SIF evaluation to date (2002) is US\$ 878,000, which represents 0.5% of the total project cost. Data collection

represents a relatively high proportion of these costs (69%), with the rest being spent on travel, World Bank staff time and consultants.

Administration. The evaluation was designed by World Bank staff and financed jointly by the World Bank, the KfW banking group, and the Dutch, Swedish and Danish governments. Survey work was conducted by the Bolivian National Statistical Institute and managed by SIF counterparts for the first round and later the Ministry of Finance for the second round.

Sources: Baker, 2002; Newman et al., 2002.

Case study 4: Brazil – Use of survey data to determine and refine state-wide policies and programmes; persistent inequities between rich and poor

Illustrates: Gaps and gradients; Making the case; Generating evidence for policy and practice; Effective implementation and evaluation

Early in the 1980s the infant mortality rate (IMR) in the state of Ceará, in the poor northeastern area of Brazil, was higher than 100 per 1000 live births and malnutrition was very common. In 1986 the new state government requested UNICEF support to help improve child health and a state-wide survey of child health and nutrition was commissioned. More than 4,500 children under three years old were surveyed in 8,000 families in forty different municipalities. Based on the survey conclusions, new health policies were implemented, including **G**rowth monitoring, **O**ral rehydration, **B**reastfeeding promotion, **I**mmunization and vitamin-A supplementation (known as the GOBI strategy). Since lack of access to health-care facilities was a major problem, a large new programme for community health workers was established and another programme for traditional birth attendants was expanded. Responsibility for health services was decentralized to rural municipalities which were the ones with the worst health indicators. A social mobilization campaign for child health was implemented, which included the use of the media and small radio stations to broadcast educational messages.

Similar surveys were repeated again in 1990 and 1994 and after each one the results were incorporated into health policy. This process was sustained by four consecutive state governors who all gave high priority to improving child health. The experience in Ceará drew international attention and in 1993 the State received the Maurice Pate Award, the annual UNICEF prize for successful progress towards child health and well-being.

Considerable advances in the population coverage of the four GOBI interventions had been made by 1994. The use of oral rehydration solution had increased to more than 50% in children with diarrhoea; nearly all children had a growth chart and a half had been weighed within the previous three months; immunization coverage was 90% or higher; and median breastfeeding duration – a difficult indicator to improve –

had apparently increased from 4.0 to 6.9 months. Disease frequency and mortality outcome indicators for the whole population also showed considerable improvement between 1987 and 1994. The prevalence of low weight-for-age fell from 13% to 9%, low height-for-age from 27% to 18%, and reported episodes of diarrhoea in children in the previous two weeks from 26% to 14%.

Infant mortality was estimated at 39 per 1000 live births in 1994, a 37% reduction on the estimated 63 per 1000 in 1987.

Immunization rates improved remarkably in all income groups, with the inequity gap between rich and poor closing as the wealthy reached near universal coverage. For both growth monitoring and use of oral rehydration solution, the inequity gap was also narrowed. Assessment of breastfeeding duration showed that in 1987 it was longer among the poorest, whereas by 1994 the gap between rich and poor had narrowed in favour of the wealthier – an interesting ‘trickle up’ phenomenon, since health messages had been primarily directed to the poorest people.

Despite the progress achieved in improving coverage for public health interventions, inequity between rich and poor for disease frequency and infant mortality remained largely unchanged between 1987 and 1994. The proportions of children in the extreme categories of family income remained almost the same in both years, showing that income inequalities had persisted and remained largely unchanged. Cases of diarrhoea remained about 60% higher among the poor.

In Ceará, despite the implementation of child health interventions for the poorest families, inequities appeared to remain largely unchanged for four health status impact indicators – weight, stunted growth, prevalence of diarrhoea, and infant mortality. Despite an overall improvement in health, the inequity ratio between rich and poor remained the same. An explanation is that wealthy families had made greater and earlier use of both public sector and private services to protect their children’s health.

The conclusions from Ceará suggest that, even with public-health programmes targeted at the poorest, it is difficult to close the inequity gap if the rich have not yet achieved high levels of vaccination coverage and consequently low levels of morbidity or mortality.

Source: Victora et al., 2000.

Case study 5: Canada – A decade of children’s policies based on evidence (1990-2001)

Illustrates: Understanding the policy-making process: Making the case

This case study explores how evidence influenced the development of national policies to enhance children’s health and well-being in Canada over the previous decade (1990-2001). The goal of national child development policies in Canada is optimal well-being for all children while recognizing special needs and disadvantage when resources are scarce.

Evidence was successfully used to influence policy decisions. Key ingredients in this success were:

- The weight of evidence on healthy child development was compelling
- The evidence was consistent with the context and values of the time
- The nature of the evidence on the determinants of health helped rally various stakeholders to create mutually acceptable goals.

Base decisions on evidence

In a population health approach, evidence on health status, the determinants of health and the effectiveness of interventions is used to assess health, identify priorities and develop strategies to improve the health of the entire population and reduce inequities in health status among population groups. The case study highlights Canada’s success in presenting the evidence on children’s health status and the determinants of healthy child development to the public and decision-makers. This success resulted from:

- *Accurate recording and monitoring of health status through population-based surveys, surveillance and record keeping* which showed that although the majority of Canadian children and youth enjoyed very good health, disparities existed, such as those related to income. As well, Aboriginal children and their families fared poorly in almost all health and social indicators, compared to the general population. The National Longitudinal Study on Children and Youth (NLSCY), initiated in 1994, looks at physical and emotional health, behaviour, income, learning, social well-being, and parental and community involvement. The NLSCY data

showed that by kindergarten age (age 4-6), a socioeconomic gradient in readiness for school had emerged in Canada.

- *Credible interdisciplinary research groups*, both inside and outside of government which carried out child development research that took into account all the determinants of health. For example, investigators in the Canadian Institute for Advanced Research (CIAR) persuasively summarized the evidence on brain development from neurobiology and developmental psychology.

Collaborate across sectors and levels

The weight of evidence on healthy child development helped to answer the question of who is responsible for making things better. The fact that health, well-being and competence have essentially the same principal determinants (e.g. a healthy pregnancy, secure attachment, safe neighbourhoods, stable income, preschool stimulation) means that the objectives of a wide variety of government departments and levels of government can be met by working in concert.

Assess contextual conditions, characteristics and trends

In addition to gathering evidence, a population health approach scans the prevailing context and trends to assess current conditions. As this case study points out, evidence is only one factor in decision-making. Two other key factors are: the values that politicians, the public and interest groups hold on any issue; and the policy context in which the evidence is considered. Important contextual pieces that underlay the development of child policy work in Canada in the 1990s include:

- After the fiscal restraint in the early to mid 1990s, the Canadian public was anxious to re-invest in health and social policy. In a 1998 national opinion poll, Canadians included 'better support and nurturing for children' among their top priorities for national action
- The evidence linking a healthy childhood to a healthy, skilled adulthood resonated with the growing political need to develop a strong knowledge-based economy. It made sense that 'investing' in young children *now* would lead to a healthy, prosperous and productive society in the future
- The adoption of a population health framework by many governments in the mid 1990s set the stage for the acceptance of early childhood development as a primary determinant of health and prosperity for adults, as well as for children.

Increase upstream investments and apply multiple strategies

Research on the determinants of healthy child development showed that investing in children and youth requires a mix of policies dealing with income, education, health and the environment. Evidence also showed that all levels of society have an effect on child development. While parents, caregivers and family have the primary role, neighbourhoods, communities, governments, private industry and the voluntary sector all have a part to play. These findings underscored the importance of a multi-level strategy with a focus on upstream investments. The following list of selected policy initiatives in Canada reflects an integration of economic, social and health policy at different levels to improve children's health and well-being.

Table 1: Some key policy initiatives to enhance the well-being of children in Canada, 1991-2001

Year	Policy Initiatives
1991	Ratification of the Convention on the Rights of the Child
1992	Community-Based Initiatives : Community Action Program for Children; Aboriginal Head Start; The Canada Prenatal Nutrition Program; Fetal Alcohol Syndrome/Fetal Alcohol Effects Initiative
1993	School Net : connects all Canadian public schools and public libraries to the Internet
1998	National Child Benefit : a tax benefit policy to prevent and reduce child poverty
1999	National Children's Agenda : a cooperative effort by all governments to ensure that all children have the best opportunity to develop to their fullest potential
1999	Social Union Framework Agreement : a collaborative framework for social policy in Canada with an emphasis on children in poverty
2000	Health Accord and Early Childhood Development Initiative (ECD) : affirmed a commitment by all governments to invest in early childhood development
2001	Employment Insurance : maternity and paternity benefits doubled from six months to one year; adoptive leave tripled from 10 weeks to 35 weeks; commitment to 'family friendly' workplaces in federal jurisdictions.

Demonstrate accountability for health outcomes

Population health focuses on health outcomes and on determining the degree of change that can actually be attributed to interventions. In the national policies to enhance children's health and well-being in Canada, accountability mechanisms are built in and agreed to by all levels of government. For example, the Early Childhood Development Initiative, agreed to at the First Ministers meeting in 2000, commits all governments to reporting publicly on their efforts and the results.

Lessons learned

The case study concludes with lessons learned for successfully turning knowledge into policy. One key strategy recommended is to use credible experts as messengers and champions. For instance Dr. Fraser Mustard, an early development expert and researcher with the CIAR, managed to gain audiences with key politicians in every level of government.

Lessons learned were to:

- Use credible experts as champions
- Build the weight of the evidence
- Value evidence from various sources
- Invest in effective research transfer strategies
- Popularize research results
- Form partnerships and formal links between researchers and decision-makers
- Share intersectoral data
- Find win-win in intersectoral collaboration
- Support independent interdisciplinary research groups.

Source: Public Health Agency of Canada, 2001a.

Case study 6: Mexico – Use of evidence to reform national health system

Illustrates: Understanding the policy-making process; Making the case; Generating evidence for policy and practice; Monitoring

Since 2000 Mexico has been immersed in a process of transformation of its health system that may hold important lessons for other developing nations. Mexico is a heterogeneous middle-income country with a population of more than 100 million. Its high degree of social inequality means that it represents the gamut of health problems affecting the world.

In the design, implementation, and evaluation of its reform, Mexico has made intensive use of the best available evidence, which has been derived from national analysis and knowledge-related global public goods, such as systematic comparisons of the experiences of other countries, measurement methods, and conceptual frameworks. In particular, Mexico has assimilated lessons from innovations introduced in many other countries around the world, while making its own experiences available to other countries.

In Mexico, as in many other developing countries, the health system had been unable to keep up with growing financial pressures. Although social insurance was introduced in 1943, it had been limited to salaried employees in private firms or in public-sector institutions, and to their families. This arrangement excluded the self-employed, the unemployed, and those who were out of the labour market or worked in the informal sector of the economy. The net result was that by 2000, half of Mexican families, most of them poor, had no social protection against the financial consequences of ill health.

Empowerment through evidence

The reform of the Mexican health system invested heavily in the generation and application of relevant knowledge, in what the author feels is probably a textbook case of evidence based policy. For instance, the calculation of national health accounts showed that more than half the total health expenditure in Mexico was out-of-pocket since about half the population had no health insurance. Furthermore, out-

of-pocket expenditures were shown to be regressive, since they represented a higher proportion of income in poor households than in richer ones.

These findings were unexpected, because the Mexican health system was generally assumed to be based on public funding. Instead, the analysis for 2000 revealed that in one trimester almost 1.5 million households had an economic catastrophe, were driven below the poverty line, or were forced deeper into poverty by out-of-pocket spending. In this way, sound evidence made the public aware of a reality that had hitherto been outside the policy debate – namely, that health care itself could become a direct cause of impoverishment.

The WHO framework for the assessment of health-systems performance also helped to make the local case for reform. This framework highlighted fairness of financing as one of the intrinsic goals of health systems. As a result of its high degree of out-of-pocket spending, Mexico did very poorly on the international comparative analysis of fair financing. Instead of generating a defensive reaction, this poor result spurred detailed country-level analysis in 2001 that showed that catastrophic expenditures were concentrated in poor and uninsured households. Such analysis was based on data from the national income and expenditure surveys for Mexico. These surveys are produced by many countries in the world, and provide homogeneous datasets that are very valuable for cross-national comparisons, but they have not been fully exploited for health-policy formulation.

From evidence to action

Major legislative reform was undertaken to establish a system of social protection in health and was approved by a large majority from all political parties in the Mexican Congress. The new public, voluntary scheme called Popular Health Insurance or *Seguro Popular* came into effect on 1 January 2004. It was due to expand at the rate of 1.7 million families per year until universal coverage is achieved in 2010. The *Seguro Popular* has elicited an enthusiastic response from the population, so that by the end of 2006 it should have enrolled the targeted 5.1 million families (about 22 million people).

The insured are entitled to a specific package of benefits. An antecedent to this approach was the *Oportunidades* programme which aimed to enhance the basic capabilities of families living in extreme poverty (see case study 18 for more details of this programme).

Expanded coverage by the *Seguro Popular* has already offered more financial protection for poor families. Comparisons between several rounds of the national income and expenditure surveys show reduction by a third in the number of households from the poorest 20% of the population affected by catastrophic health-care payments.

Results can also be assessed through two national health and nutrition surveys, carried out in 2000 and in 2005-06. During the period between the two surveys there was a major increase in the use of early detection services for several non-communicable diseases, most notably hypertension (52% increase in blood-pressure measurement) and breast cancer (71% increase in the use of mammography).

The assessment experience gathered by the *Oportunidades* programme is being applied to the current health system reform. In addition to its technical aspects, rigorous evaluation has political value to assure the continuity of innovations through changes in administration. In the case of *Oportunidades*, scientific evidence persuaded the government not only to continue with the programme, but also to expand it.

A hallmark of the Mexican experience has been a substantial investment in research to design the reform, monitor progress towards its implementation, and assess its results. This is a clear example of the possibility of use of science to promote social change by harmonizing two core values of research: scientific excellence and relevance to decision-making.

The path is clear: sound evidence must be the guiding light for designing, implementing, and evaluating programmes in national governments, bilateral aid agencies, and multilateral organizations. This is the path that will lead to more equitable development through better policy-making for health.

Source: Frenk, 2006.

Case study 7: Thailand – Introduction of universal health coverage

Illustrates: Understanding the policy-making process; Making the case; Generating evidence for policy and practice; Monitoring

Use of research to support policy development

By early 2002 Thailand had achieved universal coverage (UC) of healthcare by introducing a tax-funded health insurance scheme to 47 million people (73% of the population) who were not already covered by the other schemes available. The UC programme was characterized by clear policy goals, limited participation, strong institutional capacity and very rapid implementation (one year).

An important factor in early policy formulation was the extent to which national research provided evidence to support development of the policy. The effective interface between the research community and policy-makers was a key factor in evidence based policy development. While the agenda for UC was set by the Prime Minister after a landslide electoral victory in January 2001, policy formulation was led by civil servants supported by key policy entrepreneurs (known as reformists) and researchers who continuously generated evidence and proposed policy options. This was possible due to initiatives such as:

- The Health Systems Research Institute (HSRI) supporting the development of the National Health Account, a tool for monitoring financial flows. Researchers were able to maintain and continually update it
- The International Health Policy Program (IHPP) and its predecessor the Senior Research Scholar programme continuously building up capacity in health policy and health systems research through apprenticeships and long-term fellowships
- Strong research programmes and institutional collaboration developed between the Health Planning Division of the Ministry of Public Health, IHPP and London School of Hygiene and Tropical Medicine
- Partnership working developed over the last decade between the Ministry of Public Health and the National Statistics Office.

Close relationships were observed between politicians and reformists, and between reformists and researchers, which undoubtedly helped with the speed of development and implementation of the policy. The reformists had a bridging role between the technical capacity to produce sound evidence and the political will. Politicians, reformists and researchers were mostly of the generation of student activists who protested against the military government in the 1970s. Many student leaders also became civic movement leaders and civil society was mobilized in support of the UC bill.

Use of research to support programme design

Researchers and policy-makers were able to learn from previous experience with existing non-universal health schemes, in particular the Civil Service Medical Benefit Scheme (CSMBS) introduced in 1963 and the Social Health Insurance (SHI) scheme introduced in 1990. Experience with and evaluation of these two schemes directly affected the design of the UC programme. Notably:

- Cumulative experience of fee for services in the CMBS resulted in a consensus between reformists that such a model would not be appropriate for the UC scheme
- The capitation payment method and purchaser-provider were adopted from the SHI scheme
- The UC scheme has proper referral processes and better use of primary care than SHI.

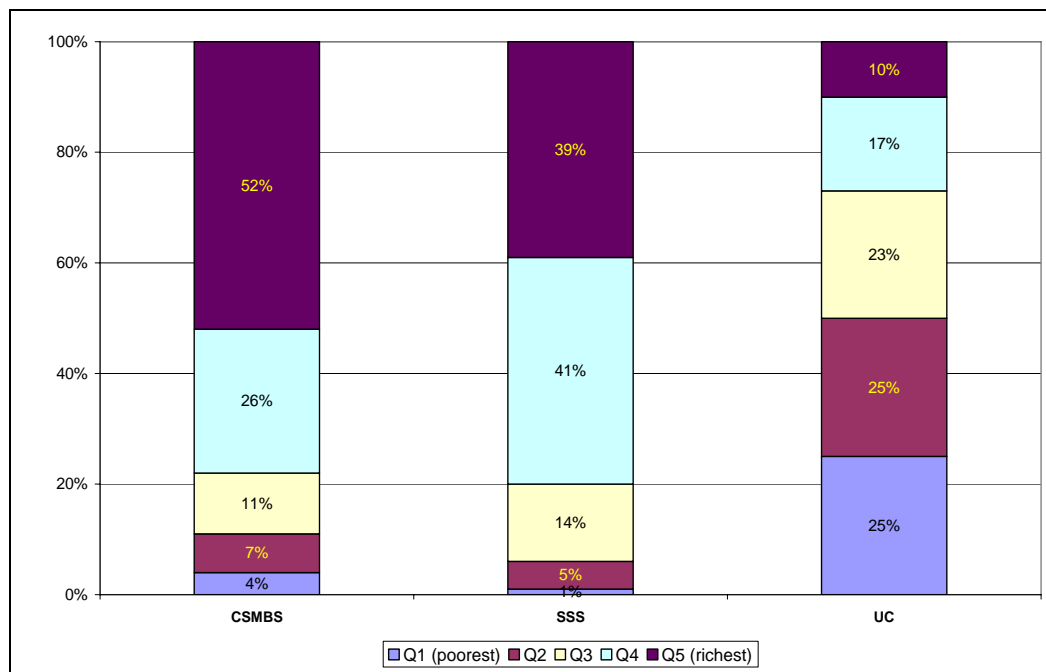
Results

Direct taxation was chosen as the funding mechanism for pragmatic reasons because of the desire for speedy implementation. It has since been assessed as an equitable funding model in comparison with social insurance or other contributory schemes.

The National Statistics Office conducted a health and welfare survey in 2004 which assessed coverage of the UC scheme. This indicated that the beneficiaries of the scheme are principally in the low income groups, unlike the two other main health insurance schemes (see Figure 1).

The scheme has also resulted in a reduced incidence of catastrophic health expenditure from 5.4% to 2.8 - 3.3%.

Figure 1 Scheme beneficiaries by income quintiles, 2004



Source: NSO Health and Welfare Survey 2004, cited in Tangcharoensathien, 2007.

The Ministry of Public Health and the National Statistics Office are working on developing and deepening the data available from such surveys and intend to use the data to continue to monitor the impact of the UC scheme on health inequities.

Source: Tangcharoensathien, 2007.

Case study 8: Various countries – Linking research and evidence to policy-making

Illustrates: Understanding the policy-making process

There is increasing demand for evidence based public health policy on the social determinants of health and on the reduction of health inequities. However, turning evidence into policy requires links between knowledge producers and knowledge users. These links are not straightforward since there are:

- Cultural differences between the world of research and the world of politics
- Language differences, i.e. to what extent is the language of research compatible with the language of politics?
- Timescale differences, i.e. 'a week is a long time in politics'
- Differences in objectives: solving real life problems or building an academic reputation.

These differences translate into disconnects between research questions and policy questions:

- Research questions answer academic questions
- Academic research focuses on controlling out key implementation variables
- Absence of process information
- Problems of getting evidence into practice.

High income countries

Petticrew, Whitehead and colleagues explored how research evidence influences public health policy-making and how its utility and relevance could be improved. Special attention was paid to evidence on the production and reduction of health inequities. Seven senior policy advisors with a substantive role in policy development across a range of sectors participated in one focused workshop, and eight senior research leaders, most of whom were currently involved in evaluations of the health effects of major policies, participated in another. They were all from English-speaking high income countries.

Policy-makers highlighted the prevalence of 'policy free evidence' and identified gaps in the evidence base on health inequities. They consider that much of the research is

descriptive and etiological, rather than evaluative. From their perspective, the key features of knowledge and evidence should be:

- simplicity
- timeliness
- relevance
- clarity.

On the other hand, research leaders identified five types of evidence which is thought to be particularly effective with policy-makers. These are:

- Observational studies which have identified a problem
- Politically timely studies which capture the imagination
- Controlled evaluations of interventions
- Natural policy experiments
- Historical evidence with a long shelf life.

The researchers proposed the following strategies in order to improve the availability and use of these types of evidence:

- Assembling the evidence jigsaw
- Nurturing an 'evaluation culture'
- Creating closer engagement between researchers and policy-makers.

Although this study was primarily carried out to identify the different perspectives on the production and use of evidence on health inequities between policy-makers and researchers, there was a remarkable similarity between the results of the two workshops. The most evident similarity was on the types of evidence expected to have the most powerful impact on policy, and there was a common understanding of the different types of evidence needed for different types of policy questions.

Mexico

In another part of the world, Trostle and colleagues (1999) discussed the relationship between Mexican health research and policy. Sixty-seven researchers and policy-makers were interviewed about the factors which promote or impede exchanges between researchers and policy-makers in four priority health topics: AIDS, family planning, immunization and cholera.

Content of research

The quality of the research was mentioned as an important promoting factor. This was not however measured through the publication and peer review process, but was largely determined by the identity and fame of the researcher, the reputation of the journal or book, and the judgement of the policy-maker. Other factors which promoted the role of research were: the recent importance given to social research as a source of information despite the fact that more attention is paid to biomedical research results; and the specificity, concreteness and cost-effectiveness of the research recommendations. The factors which obstruct interaction between researchers and policy-makers are differences in vocabulary between researchers and policy-makers, and the perceived usefulness of each group's knowledge.

Actors

In terms of individual and collective stakeholders, three promoting factors were acknowledged: groups of researchers and policy-makers identifying priority problems, the level of international support for research, and the critical role of official research organizations in the health sector in Mexico. The interviewees also mentioned three types of obstacles: the lack of technical background of decision-makers and the mass media, a political culture where decision-making is based on experience and pressure rather than research results, and the actions of interest groups (especially commercial ones).

Process

Informal communication was mentioned as a critical channel between researchers and policy-makers, as well as balanced interests and formal communication channels, while narrow professional interests are considered an impediment.

Context

The stability of the PRI (Institutional Revolutionary Party) in Mexican government was recognized as a promoting contextual factor. So were the rotation of researchers into policy-making positions, the small size and relative homogeneity of the research community, and the urgency of a health problem. As impeding factors were mentioned for example the centralization of power and information, restrictions on funding, and changes in top-level management in the health system.

Apart from the results in common between the four health topics, several differences were found as well: the extent of reliance on formal communication channels, the role

of the mass media in building social consensus or discord, levels of interest group polarization and social conflict, the role of foreign donors in supporting local research and policy initiatives, and the level of support for biomedical versus social research.

Further democratic changes in Mexico were mentioned as the most important incentive to increase the use of research in policy-making. The two major challenges are: the fact that researchers are but one of many interest groups and research is but one input among many others to be considered by policy-makers; and the relatively small role of the public in policy-making in Mexico.

Sources: Bronfman et al., 2000 ; Petticrew et al., 2004; Trostle et al., 1999; Whitehead et al., 2004

Case study 9: Thailand – Use of locally-defined health determinants to push for change, Mun River dam

Illustrates: Making the case; Generating evidence for policy and practice; Health impact assessment

In 1994, a dam was built on the Mun river in Thailand 5.5 kms before it reaches the Mae Kong river. This Pak Mun dam obstructs fish migration from the Mae Kong to the Mun. The fishery resource has thus been greatly reduced, leading to sharp reductions in income for the local fishery households. A health impact assessment (HIA) was set up to provide evidence based information to advocate for a change in public policy in managing the dam, with the support of other related studies.

After long protest and negotiations, the Thai government decided in 2001 to open the dam gate for four months (later for one year) in order to conduct a study on the 'Approach to restoration of ecosystem, livelihood and culture'. This provided a good opportunity to gather evidence based information to be used for public decision-making.

The big debate was about the impact of the dam on fishery resources, income and compensation. However, other issues also related to the health of the local population. To avoid too narrow a scope for the HIA, the local definition of health and determinants of health were identified. For the villagers health was *'living happily and peacefully together with the family and community, and within the natural environment, which can ensure their secure livelihoods and community culture'*. The villagers also identified six factors for healthy living: having enough food, secure livelihood, happy family, healthy body, peaceful spirituality and a generous community. The local population put great emphasis on: natural resource security, food security, economic security and social environment. Changes in these things resulting from opening the dam gates were analysed. Data collection and analysis were carried out using a participatory approach. Table 1 shows the health impact of both the dam construction and the opening of its gates.

Although the impact assessment studies recommended the Thai government should keep the dam gate open as the main way to restore the ecosystem, livelihood, health

Table 1 Health impacts of dam construction and opening of dam gates, according to four determinants of health

Health aspects	Effects of dam construction	Effects of opening dam gates
Physical health	Food insecurity, due to the loss of local food sources.	Much better due to improvement in fishery and other resources.
	Skin rashes from low water quality.	Much better because of better water quality.
	Disorders due to high tension.	Better but still anxiety about long-term government decisions.
	Accidents due to broader river.	Lower risks but still some incidence.
Mental health	Pressure due to economic hardship and insecurities.	Much better due to better economic situation and food security.
	Anxiety due to various insecurities.	Better but still anxiety about long-term government decisions.
	Conflicts based on different standpoints about dam issue.	Still exists but people start to join and share the same fishing grounds.
	Oppression due to negative response from government.	Still exists but people feel more confident to come up for their own rights.
Social health	Loss of togetherness due to the emigration and hardships.	Much better especially for fishery households.
	Weaker supportive relationship due to conflict on dam issue.	Still exists but people start to join and share the same fishing grounds.
	Broader social networks to support their movement.	Still the same.
Spiritual health	Losses of spiritual infrastructure, especially those related to the river and rapids.	The holy places and ceremonies gradually returned.
	Loss of shared activities, especially those related to fishing.	The shared activities gradually return, but remaining conflict obstructed their progress.
	Deterioration of conducive environment due to hardship and conflict.	The hardship was reduced. More donation and spiritual practices were expected, but the remaining conflict may affect the progress.

and local culture, the government decided to open the dam gate only for a period of four months a year. The unsuccessful influencing of government decision-making in this case may have occurred because of incomplete integration of knowledge management, civic empowerment and political involvement. The process of impact assessment studies was successful in terms of civic empowerment, since it allowed both local NGOs and local people to participate. Knowledge management improved at the local level, although this needs further improvement. However the weak point in this study was political involvement. Since this was not adequately and properly designed, the impact assessment studies failed to convince policy-makers to follow their suggestions. The future of the Mun river and the health of its people are still insecure.

Source: Sukkumnoed et al., 2003.

Case study 10: Brazil and Chile – Use of national conferences to bring together policy and evidence

Illustrates: Making the case

Two Latin American countries have developed a tradition of using national conferences as a bridge between evidence and policy-making.

Chile – National Convention on Women’s Health and women’s health parliaments

The National Convention on Women’s Health was held in 1994. It was intended to produce a diagnosis and propositions for women’s health from women and via a ‘citizenship’ approach to health. The convention was an opportunity for women to discuss their own health, to define their priorities and to draw up proposals for action and for policy implementation. The process took place in eight of Chile’s regions. It began on 28 May 1994, International Day of Action for Women’s Health, and lasted all year, involving some 230 organizations and approximately 3,000 women throughout the country. The process involved housewives, peasants, adolescents, fishermen’s wives, sex workers, healthcare providers, indigenous women, women politicians, elderly women and temporary women workers.

The first priority was quality of care in sexual and reproductive health and the concept of quality of care in the broader sense. For women the following were fundamental: treatment, quality of services, the patient-physician relationship, availability of proper equipment and facilities as well as of suitable health professionals. Attention continued to focus on quality of care in sexual and reproductive health through the follow-up and monitoring of the agreements of the United Nations International Conference on Population and Development in 1994.

A later version of this exercise in civic participation has been the organization since 2002 of four women’s health parliaments, bringing together more than 1,000 women, which have addressed analysis of health reform and put forward proposals from the gender perspective.

As a result of these efforts, and in line with global progress on women's rights, in 1994 the Ministry of Health decided to transform the traditional Maternal and Perinatal Health Programme into a women's health programme, with the aim of decentralizing reproductive health care to cover other aspects of women's life cycles and to progress towards a concept of comprehensive health, with the gradual inclusion of the gender perspective.

Source: Nazarit, 2007.

Brazil – National Health Conferences

Brazil's National Health Conferences began in 1942 but were initially limited to public health experts. Since 1986 they have been open to a large number of delegates from social organizations and professionals from all over the country, and are held each four years. The 13th Conference took place in 2007.

Key participants in the health conferences are the Health Councils. These are statutorily constituted. They are described in health law 8142:

The Health Council, in a permanent and deliberative capacity, is a collegiate agency consisting of government representatives, service providers, health workers and users, acting in the development of strategies and in monitoring the enforcement of health policy at the specific government level, including in its economic and financial aspects, where decisions are ratified by the head of the legally constituted power in each sphere of government.

At present there are approximately 6,000 Health Councils in Brazil.

Participatory health sector activity is supplemented and enriched by the holding of National Health Conferences each four years and by similar preparatory events preceding the meetings in each state and county. The latter also provide a forum for the highly competitive elections to appoint delegates to represent the Health Councils at the national conferences. Conferences are governed by a strict set of bylaws; their sessions discuss each topic on the program, vote on each resolution, and then adopt them for subsequent inclusion in a final report. Numerous other events are held aside from the conferences, e.g., focus conferences (mental health, indigenous health, sexually transmitted diseases/AIDS, drugs, human resources, etc.) and various forums.

Source: Labra & Giovanela, 2007.

Case study 11: Uganda – Community-based monitoring and evaluation of Poverty Action Fund

Illustrates: Generating evidence for policy and practice; Evaluation; Monitoring

The Uganda Debt Network (UDN) is a civil society organization monitoring the Poverty Action Fund (PAF) set up in 17 districts. The PAF was to be used for five sectors, including health. In May 2000, the UDN established PAF Monitoring Committees in each of the 17 districts with the objective of enabling community members to monitor the functioning of PAFs and to check for corruption. However, these district level structures were found to be inaccessible by members of the community.

The UDN then decentralized the monitoring further through a community based monitoring and evaluation system (CBMES). The CBMES monitors PAF at not only district level but also sub-county, parish and village levels. The CBMES was piloted, along with the Kamuli District PAF monitoring committee, in eight villages in two sub-counties. The initial meetings to select participants were held in public spaces accessible to all, with approximately 33% of the participants being women. Of these participants, 80 were selected for training, with women constituting nearly 40% of those selected.

The participants in the training programme identified the following indicators for monitoring health:

- Number of medical personnel in health centres, their time of reporting and hospitality
- Availability of medicines, syringes, gloves and cotton wool
- Waiting time for services
- Distance of health centre
- Availability of immunization services
- Number of beds.

The participants were trained in collecting and recording data on these indicators and in interacting with government officials. The findings were fed back to the district officials, chairperson and members of the sub-counties, members of the press and

local radio, government officials and members of the communities. During these feedback meetings, the members of the other CBMES committees (beyond the pilot phase) were selected and the indicators for monitoring were refined.

The following changes were reported in the health services in the pilot area due to the CBMES:

- Removal of user fees (one county)
- Improvement in stock of medicines and supplies (one county)
- Establishment of immunization outreach services (one country)
- Increase in beds in general ward and in labour ward (both counties).

However, problems remain:

- The availability of beds and drugs was far from adequate
- In one county, treatment for HIV/AIDS continued to be unavailable
- Corruption and long distances to reach health care services continued to pose problems.
- Inadequate resources to cope with increase in demand after the improvement in infrastructure and removal of user fees led to a slight deterioration in quality of service.

Lack of adequate resources for travel and other costs incurred by monitors posed problems in replication.

Source: Murthy, 2007.

Case study 12: Various countries – Synthesis of qualitative studies of effectiveness of tuberculosis treatment

Illustrates: Evidence synthesis

Introduction

Asking people to visit a health worker, or other appointed person, to receive and be observed taking a dose of medication for tuberculosis (TB) is called 'directly observed therapy' (DOT). The implementation of DOT has received much commentary as it appears to contravene notions of patient autonomy, self-care and the right to privacy.

In 1997, Volmink and Garner (1997) published a Cochrane systematic review of randomized controlled trials (RCTs) involving DOT as an intervention to improve adherence to TB regimens. The review showed an absence of any evidence for or against DOT compared with people treating themselves at home. The authors undertook a systematic review of qualitative research focusing on lay experiences and perceptions of TB treatment to see whether these studies could help explain the results of the RCTs

This case study looks more at the methodology used to select and synthesize the evidence than at results of the research.

Methods

As far as possible the work followed the main steps identified in the methodological literature on the conduct of systematic reviews (see Cochrane, 2006). Predictably, however, because the work involved a systematic review of qualitative research, important aspects of accepted systematic review methodology could not be directly translated. These issues will be explained in further detail below.

The review addressed two broad questions:

- What does qualitative research tell us about the facilitators and barriers to accessing and complying with TB treatment?
- What does qualitative research tell us about the diverse results and effect sizes of the RCT included in the quantitative systematic review?

Search strategy

All principal researchers involved in the six RCTs were contacted and relevant qualitative studies that were associated with, or conducted alongside, the RCTs were obtained and where necessary translated. A systematic search of the wider English language literature was undertaken and a variety of sources were searched to minimize bias. The timeframe was 1990 to December 2005 as DOT was not used before this period.

The authors searched Medline, CINAHL, HMIC, Embase, British Nursing Index, International Bibliography of the Social Sciences, Sociological Abstracts, SIGLE, ASSIA, Psych Info, Econ lit, Ovid, Pubmed, the London School of Hygiene and Tropical Medicine database of TB studies, and Google Scholar. Reference lists contained within published papers were also scrutinized. A network of personal contacts was also used to identify papers.

The search produced over 2500 records. Lack of specificity is a recognized and common problem with qualitative reviews and makes reproducibility of the search strategy difficult.

Quality appraisal

Unlike with a Cochrane systematic review of RCTs, the authors decided to appraise studies but not exclude any due to quality. At the end of the synthesis, they undertook an analysis of whether anything substantially different was found in weaker studies, which it was not.

Data extraction and synthesis

The framework for data extraction consisted of two main domains: information about the study focus and methods, and findings illuminating the factors that shape decision-making about treatment for TB. Data extraction and synthesis was thematic – akin to the approach to analysis in much qualitative research. The thematic framework evolved as the data extraction and synthesis proceeded rather than being constructed before the process began and remaining unchanged throughout the review. Papers were reviewed in chronological order, with the oldest first. An initial set of themes began to emerge. As subsequent papers were reviewed, new themes were identified or existing themes refined until no further new themes emerged.

A narrative summary approach was used to explore the facilitators and barriers to accessing and complying with treatment, and to consider the implications of this for understanding the outcomes of the RCTs included in the Cochrane review.

Findings

What does qualitative research tell us about the facilitators and barriers to accessing and complying with treatment?

Five themes emerged:

- Socioeconomic circumstances, material resources and individual agency
- Explanatory models and knowledge systems in relation to TB and its treatment
- The experience of stigma and public discourses around TB
- Sanctions, incentives and support
- The social organization and social relationships of care.

Socioeconomic circumstances, material resources and individual agency

The most prominent theme to emerge across all the included studies, regardless of the country in which the research was based or the social group on which they focused, was the dominance of poverty and disadvantage as both a risk factor in contacting TB and as a barrier to early diagnosis and effective treatment. In this respect, the social groups mirror those in the RCTs.

The ways in which poverty and disadvantaged circumstances mediate decisions about diagnosis and treatment appear to be both numerous and complex. They include the inability to give up work or risk the loss of earnings in order to participate in treatment regimes; the cost of transport to services, which can prohibit access entirely or disrupt treatment episodes; inability to pay for drugs where this is necessary or for extra food when treatment results in increased appetites; and the risks of drugs being stolen in homelessness shelters or other insecure accommodation.

Another prominent finding in many studies was the creativity and perseverance of individuals seeking treatment for TB, despite the often overwhelming barriers they faced. Such actions included: going without food or selling land to pay for TB drugs; initiating self-medication because of fear of infecting others; and placing considerable

value on 'staying well' and following treatment regimes as far as finances and other pressures allow.

Explanatory models and knowledge systems in relation to TB and its treatment

Many of the studies reviewed pointed to the importance of understanding the knowledge people have about the causes of TB and the effects of the drugs involved in treatment when designing and delivering prevention and treatment programmes. There were instances when the information that people with TB had about the causes of the disease or the effects of the drugs used in treatment – which would affect uptake – could be considered problematic or incorrect.

The experience of stigma and public discourses around TB

Across many – albeit not all – cultures and social groups there is a widespread stigma associated with TB, which means that people will be reluctant to seek a diagnosis or to be seen to be receiving treatment or alternatively may keep the diagnosis secret. Public discourses around TB in rich and poor countries alike reinforce the associated stigma, and stigmatizing views may be held and articulated by people providing services.

Sanctions, incentives and support

Across studies, findings suggest that punitive sanctions associated with TB treatment – intended or not – may be an important barrier to uptake in rich and poor countries alike. In contrast, some studies pointed to the way in which positive incentives could increase people's willingness to take up treatment and follow guidance.

The authors identified relatively few studies that explored the nature of support that people with TB received or would wish to receive. The limited evidence that is available, however, suggests that the financial and social support of family members or friends may be pivotal in determining whether people are able to access and follow treatment regimes.

The organization and social relationships of care

There is good evidence across countries and cultures that the way in which TB treatment services are organized is a major factor in the decisions people make about seeking and following treatment regimes. In general, the research suggests that services were rarely designed with users' needs in mind and often did not fit

readily into the tempo of people's lives, making it difficult, for example, to combine work with treatment regimes or to retain confidentiality.

What does qualitative research tell us about the diverse results and effect sizes of the RCTs included in the Cochrane quantitative systematic reviews?

The meta-analysis of trials did not show statistically significant differences between DOT and self-supervision, thereby suggesting that it is not DOT *per se* that has led to an improvement in treatment outcomes.

What does qualitative research add?

The variants of DOT differ in important ways in terms of who is being observed, where the observation takes place and how often observation occurs. The synthesis of qualitative research suggests that these elements of DOT will be crucial in determining how effective a particular type of DOT will be in terms of increased cure rates. In addition, the qualitative review has highlighted the key role of social and economic factors and physical side effects of medication in shaping behaviour in relation to seeking diagnosis and adhering to treatment.

More specifically, a predominantly inspectorial approach to observation is not likely to increase uptake of service or adherence with medication. Inspectorial elements may be needed in DOTS packages, but when the primary focus of direct observation was inspectorial rather than supportive in nature, observation was least effective. Direct observation of an inspectorial nature had the most negative impact on those who had the most to fear from disclosure, such as disadvantaged women, who experienced gender-related discrimination. In contrast, DOTS packages in which the emphasis is on person-centred support are more likely to increase uptake and adherence. The review also provided some insights into the type of support that people with TB find most helpful. Primarily, the ability of the observer to add value depended on the observer and the service being able to adapt to the widely-varying individual circumstances of the person being observed (age, gender, agency, location, income, etc.). Given the heterogeneity amongst those with TB, findings support the need for locally tailored, patient centred programmes rather than a single world-wide intervention.

Source: Noyes et al., 2007.

Case study 13: Various countries – Synthesis of different types of evidence to assess the impact of school feeding

Illustrates: Evidence synthesis

Background

Early malnutrition and/or micronutrient deficiencies can adversely affect physical, mental and social aspects of child health. School feeding programs are designed to improve attendance, achievement, growth and other health outcomes. However there is some controversy over the effectiveness of such programs.

The main objective of the research was to determine the effectiveness of school feeding programs in improving physical and psychosocial health for disadvantaged school children. This case study looks more at the methodology used to select and synthesize the evidence than at results of the research.

Search strategy

A number of databases were searched including:

- CENTRAL (2006 Issue 2)
- MEDLINE (1966 to May 2006)
- EMBASE (1980 to May 2006)
- PsycINFO (1980 to May 2006)
- CINAHL (1982 to May 2006).

The electronic versions of the following were handsearched:

- American Journal of Clinical Nutrition (beginning 1998 – May 2006)
- Journal of Nutrition (beginning 1998 – May 2006)
- European Journal of Clinical Nutrition (beginning 1998 – May 2006)
- Nutrition Reviews (beginning 1998 – May 2006)
- Social Sciences and Medicine (beginning 1998 – May 2006)
- Public Health Nutrition (beginning 1999 – 2006).

References of included articles and relevant reviews were scanned for eligible studies. The annotated bibliography 'School Feeding Works' was also scanned for relevant studies. People and/or organizations focusing on nutrition, hunger and

international development were contacted by email to identify relevant studies on school feeding programmes that might have been missed.

Selection criteria

Data from randomized controlled trials (RCTs), non-randomized controlled clinical trials (CCTs), controlled before and after studies (CBAs) and interrupted time series studies (ITSs) were included. Other study designs were excluded. Feeding had to be done in school and the majority of participants had to be socioeconomically disadvantaged.

Lower Income countries

Included: Those studies in which children were classified as 'predominantly disadvantaged' by one or more of the following criteria: (a) living in a rural area or village; (b) living in an urban area and described as socioeconomically disadvantaged (e.g. poor or low-income) or from poor areas (e.g. slums); (c) if statistics were presented showing that 30% or more of the children in the sample were underweight or stunted or that the average weight, height and body mass index (BMI) were low; or (d) studies were implicitly or explicitly aimed at disadvantaged children, and indicators of disadvantage were provided in the paper.

Excluded: Studies were excluded if: (a) children were from urban areas only with a large proportion of high socioeconomic status (SES) children and results could not be broken out by SES or other proxy variables; or (b) where information was insufficient to allow judgement of the extent of disadvantage.

Higher-income countries

Included: Those in which children were classified as disadvantaged by the following criteria: (a) they were from areas described as economically marginalized or disadvantaged (e.g. low income area, ghetto, social housing projects, from mining communities); (b) they were described as low SES (e.g. working class); (c) more than half were from lower SES groups (including unemployed parents); or (d) they were described as marginalized or 'at-risk' due to social circumstances.

Studies were also included in which some children were advantaged but results could be broken down by SES or baseline nutritional status.

Excluded: (a) Students were described as being from middle or high SES backgrounds only; (b) students were from mixed high and low SES and results were not broken down by SES; or (c) if information was insufficient to allow judgement of the extent of disadvantage.

Data collection and analysis

After initial screening of titles and abstracts, 400 potentially useful articles were retrieved. Many of the articles on school feeding did not use rigorous outcome assessment. Many articles simply provided descriptions of the nutritional quality of school meals and/or the dietary intake of participants; others described programme operation, management or cost; others simply surveyed participants, parents or providers. Another group of studies comprised cross-sectional comparisons of participants and non-participants; still others were longitudinal studies with no control.

The reviewers agreed that 30 studies were potentially relevant and of the appropriate design. They were the only studies found which assessed effectiveness with a reasonable degree of rigour. Each was read in full. Of these, 18 studies met the inclusion criteria above and 12 were excluded.

The 18 included studies comprised seven randomized controlled trials, nine controlled before and after studies and two interrupted time series. Nine studies were from lower income countries: five of the seven RCTs and four of the eight CBAs. Of the nine studies performed in higher-income countries, two were RCTs, six were CBAs and two were interrupted time series. The quality of the studies was assessed using criteria modified from the Cochrane Effective Practice and Organisation of Care Group (EPOC) checklist. The purpose of quality ratings was not to give an overall score, but rather to provide a descriptive overview of the methodological robustness of the included studies.

The following data was extracted from the 18 studies:

- Study design
- Description of the intervention (including process)
- Details on participants (including age, sex, number in each group)
- Length of intervention
- Definition of poor/low income

- Other sociodemographic variables, including place of residence, race/ethnicity, age and nutritional status
- Critical appraisal
- Physical, cognitive and behavioural outcomes.

It had been planned to extract data on cost-effectiveness, but none was found. Where possible, effects were recorded by socioeconomic position.

If sufficient data were available, they were synthesized using random effects meta-analysis, adjusting for clustering if needed. Analyses were performed separately for RCTs and CBAs. Results were also analysed separately for lower and higher income countries because the settings and populations are so different it would have been misleading to combine them.

Main results

Results from higher income countries were mixed but generally positive. For height, results from lower income countries were mixed; in RCTs, differences in gains were important only for younger children, but results from the CBAs were large and significant overall. Results for height from higher income countries were mixed, but generally positive. In lower income countries, children who were fed at school attended school more frequently than those in control groups; this finding translated to an average increase of 4 to 6 days a year per child. For educational and cognitive outcomes, children who were fed at school gained more than the controls did on maths achievement and on some short-term cognitive tasks. School meals may have small physical and psychosocial benefits for disadvantaged children.

Source: Kristjansson et al., 2007.

Case study 14: United Kingdom – Development of evidence based guidance

Illustrates: Evidence synthesis and action

The National Institute for Health and Clinical Excellence (NICE) in the United Kingdom ensures that evidence collected and collated to produce its public health recommendations takes account of inequalities by asking the following sub-set of questions as well as questions of general effectiveness:

- How does the effectiveness of the intervention vary according to age, gender, ethnicity and other dimensions of social inequality?
- Is there any differential impact on inequities in health between different population groups?
- What are the adverse or unintended outcomes?

NICE produces its public health guidance in four distinct phases: scoping; reviewing evidence and drafting recommendations; testing the recommendations through fieldwork; internal validation and publishing. Stakeholders (including the professionals who will have a responsibility to implement the guidance and the general public who may be targets of it) have opportunities to contribute to the development of the guidance during the first three phases of the process.

NICE public health recommendations are not graded, but they are formulated and prioritized based on:

- Strength (quality and quantity) of the supporting evidence and its applicability to the populations and settings in question
- Importance of the outcomes (including impact on inequalities)
- Size of effect and potential impact on individual and population health
- Cost effectiveness
- Any other considerations (e.g. risks to health, implementability).

Recommendations are drafted based on the suitability of the evidence to answer the key questions from the scoping phase. If the evidence is very strong (i.e. it is consistent and of good quality), it is directly applicable and there is good evidence to suggest the intervention is implementable, then it is translated into a recommendation.

Although there is no formal procedure or established method for prioritizing guidance, NICE provides some criteria to take into consideration:

- The anticipated impact on improving health and/or reducing inequities in health
- How much change is required in practice to implement the recommendations (if possible, NICE avoids recommending action which is already underway)
- The cost effective use of resources
- The balance of risks and benefits.

Source: National Institute for Health and Clinical Excellence. More information is available from www.nice.org.uk/publichealth.

Case study 15: Slovenia – Health impact assessment of agriculture, food and nutrition policies

Illustrates: Health impact assessment

Background

In December 2001 the Slovenian Ministry of Health and the WHO European region proposed to undertake a health impact assessment (HIA) of agriculture, food, and nutrition policies. The HIA project in Slovenia was conducted as a pilot project to develop both the methods of HIA and the evidence base, with the aim that the outputs and lessons learnt could be used by other countries.

The Republic of Slovenia is a small country of approximately two million inhabitants, and is bordered by Austria, Croatia, Hungary and Italy. Formerly a constituent part of Yugoslavia, Slovenia declared its independence in 1991. Although agriculture contributes only 3.2% of gross domestic product (GDP), main industries include food and beverage manufacture. The agricultural sector is dominated by dairy farming and animal stock, with the main crops being corn, barley and wheat.

The most important stimulus for the HIA was Slovenia's application to join the European Union (EU), and the influence that adoption of the Common Agricultural Policy (CAP) legislation would have on national agricultural policy. However, there were also national Slovenian concerns and priorities that supported development of the HIA work. For instance, the State Secretary for Health had been concerned that there were marked differences in standardized mortality rates between the regions in the east and west of Slovenia. The reasons for the differences had not been explained, but the north-east region, Promurje, which has the highest all-cause mortality, is also the region with the largest agricultural sector in the country.

HIA methods

The HIA followed a six-stage process:

1. Policy analysis
2. Rapid appraisal workshops with stakeholders from a range of backgrounds
3. Review of research evidence relevant to the policy

4. Analysis of Slovenian data for key health-related indicators
5. Report on the findings to a cross-government group
6. Evaluation.

Stage 1. Policy analysis

The major difficulty in the initial stages of the HIA was clarifying the policy options to be assessed. It was decided that the main focus of the HIA should be on the broad effects of the CAP adoption. The authors also looked specifically at the effects of some of the regimes for specific commodities including the fruit and vegetable, wine and dairy sectors, and the policy instruments for rural development.

Stage 2. Workshops with stakeholders

The most important part of a HIA is identifying and collecting information for health impacts that a policy might create. It had been decided that the HIA approach taken in Slovenia would involve national and regional stakeholders. The first HIA workshops were held in March 2002 in the north-east region of Promurje. A total of 66 people participated, including representatives of local farmers, food processors, consumer organizations, schools, public health, nongovernmental organizations, national and regional development agencies, and officials from several government ministries. The participants were asked to identify potential positive and negative health impacts of the proposed agricultural policies. They were asked to identify which population groups would be most affected by each policy area. The main issues identified by stakeholders are summarized in box 1.

Box 1. Key determinants of health potentially affected by agricultural policy development in Slovenia
<ul style="list-style-type: none"> • Changes in income, employment, housing, and issues of social capital in rural areas • Changes in the rural landscape and cultural impacts • Increased food imports and effects on exports • Nutritional value and food safety of produce and food products • Environmental issues: farm intensification leading to water and soil pollution • Potential benefits of organic agriculture and food • Barriers to increasing organic production or small-scale on-farm industries (including knowledge of farmers and absorption capacity for European Union money) • Occupational health of farm workers and food processors • Capacity of local services and institutions, including employment, education, health, and social services.

Stage 3: Evidence review

The next step was the evidence review. An expert meeting was held to assess the strength of the evidence for the links between the policy issues identified in the workshops, and health determinants and health outcomes. Unsurprisingly, for several key areas the evidence was found to be patchy or not available in an up-to-date, easily synthesisable form. Evidence reviews were therefore commissioned that linked relevant agriculturally-related health determinants and health outcomes for six policy topics that had been key issues in the stakeholder workshops. These policy topics were: environmentally friendly and organic farming methods; mental health and rural communities; socioeconomic factors and social capital; food safety; occupational exposure; and issues of food policy including price, availability, diet and nutrition.

Stage 4: Analysis of Slovenian indicators

The next aspect of the project collected health and social indicators in Slovenia (see box 2). These indicators are determinants of health and were used in the HIA as measures of intermediate health outcomes. As with many HIAs, the uncertainty of the extent of policy change meant that for many indicators the authors were unable to quantify the health outcomes precisely and could only predict the direction of the effect.

Box 2. Categories of indicators collected in Slovenia at the national and regional level
<ul style="list-style-type: none"> • Levels of food production • Methods of food production, including extent of agrochemical use, organic food or environmentally friendly food production • Environmental pollution in agricultural areas • Levels of food imports and exports • Working conditions and occupational health of those in the food and agricultural industry • Socioeconomic factors in rural communities, including employment by sectors, unemployment statistics • Access of consumers to food – food retailing, prices • Patterns of food consumption • Food safety statistics • Food processing, including on-farm processing • Agro-tourism development.

Stage 5: Report

The final results of the HIA were presented to the Intergovernmental Committee on Health at the launch of the National Food and Nutrition Action Plan in Slovenia in May 2003. This report presented the results and recommendations for the

government of Slovenia on a range of agricultural issues including the fruit and vegetable, grain and dairy sectors, and rural development funding.

Stage 6: Evaluation

A retrospective evaluation of the HIA was planned at time of writing (2003).

Intermediate outcomes and lessons learnt from the HIA process

As far as the authors are aware, this was the first time that any project had set out to estimate specific national health impacts of incorporating the CAP, and it was the first HIA attempted of national agricultural and food policy. Several important learning points arose:

- This is such a complex policy area that it was essential to have effective cross-governmental working at a national and regional level to tackle agricultural policy issues.
- In common with many HIAs at project or policy level, this HIA was limited by pressures of time and human resources.
- At the start of the work most people in Slovenia were unfamiliar with the methods or aims of HIA. A two-day HIA training course was developed and run jointly between the WHO European region, the London School of Hygiene and Tropical Medicine, and the Slovenian Institute of Public Health. This need for HIA capacity building was addressed six months after the work had begun. In hindsight, it would have been preferable to conduct training in advance of the HIA starting.
- Even though this was planned as a pilot project feeding into national policy development, the political timeframes created pressure to provide support for the Slovenian government during the negotiations on the CAP subsidies.
- The process of conducting the HIA had some important intermediate outcomes that were not initially foreseen. The health and agricultural sectors began to support each other in the types of agriculture and food policies that they wanted implemented in Slovenia after EU accession. The EU negotiations were very successful and Slovenia was allocated much more in relative terms than other accession countries. They will potentially have much more diversification in the rural economy, support smaller-scale environmentally friendly farming, and maintain local

production systems. It is obviously difficult to specify the exact influence of the HIA in this.

- The experience of HIA of agriculture and food policies in Slovenia is similar to that found in other countries and other policy contexts. The major benefits seem to be in strengthening policy-makers' understanding of the interactions between health and other policy areas, and in creating new opportunities for improving intersectoral relationships.
- It is still not clear when is the best time to conduct a HIA of a policy. In the HIA of agricultural policy in Slovenia, as has been the experience in the Netherlands and Wales, if a HIA is attempted at too early a stage the policies are still too vague or change too frequently to make a strong definitive assessment possible. Conversely, if the HIA feeds into the decision-making too late it will have little or no ability to effect change.

Source: Lock et al., 2003.

Case study 16: United Kingdom – Health impact assessment of a housing estate regeneration project

Illustrates: Health impact assessment

The Ferrier housing estate in south London with 6,800 residents was the subject of a £10m (US\$ 15m) regeneration project as part of a regeneration strategy for the area. Given the size of the project and the established links between health and housing, the project wanted to ensure that the potential positive health impacts were maximized and negative ones diminished. A health impact assessment (HIA) of the project was therefore commissioned. This case study was written in 2000 when the HIA was underway.

The aims of the HIA were:

- to assess the potential health impacts on residents, both positive and negative, of changes in housing and land use on the Ferrier Estate
- to highlight the impact of the proposed development on health inequities
- to make recommendations to enhance the predicted positive impacts and minimize the negative ones.

The HIA – process and content

The HIA was carried out at a very early stage in the development of the options for the estate, when there was little detail or clarity about what changes would be made. This lack of clarity presented considerable challenges in designing and carrying out the HIA. In fact the HIA became part of the process to formulate and assess the options. The work started in January 2000 and the first report, which informed the options for the development of the estate, was in May 2000.

The HIA was led by the local health authority but there was a strong emphasis on partnership with the local authority (social services, housing and education services) and community and voluntary groups. All of these organizations were represented on the project steering group. A working group with local representation was responsible for the day-to-day work of the HIA. Members of the working group were involved in shaping the nature of and facilitating community involvement in the project, and designing and carrying out parts of the research. In addition public participation was

key. Community representatives were involved both formally and informally. The aim was to involve residents in the HIA and ensure its widest possible ownership.

Health determinants and health outcome measures

The WHO definition of health and, in line with this, a social model of health determinants underpinned the HIA. Examples of these determinants were used in interviews with key stakeholders to help identify the potential health impacts of the regeneration project. Established links between health and housing suggest that improvements in housing design and the environment might lead to a number of long-term health outcomes:

- Decrease in accident rates
- Decrease in respiratory disease
- Decrease in excess winter deaths
- Decrease in cardiovascular morbidity and mortality.

In addition several process indicators for long-term changes in health status were identified from the literature and from discussions with the steering group, the working group and some key individual stakeholders:

- Access to better transport routes
- Access to green spaces
- Access to better food and nutrition through improved local shopping facilities
- Design provision for lifetime homes
- Enhanced community safety measures, leading to better mental health
- Energy efficient central heating
- Good pest infestation control.

Learning points

These relate to the planning and commissioning stages of the HIA.

Planning: A clear understanding of the political processes and structures involved in policy- and decision-making was necessary to identify and involve key people early and consistently in the HIA.

Skills: The skills required for an HIA include:

- Public health, epidemiological and social science research skills

- Experience of community development and involvement
- Team working
- Interpersonal and communication skills
- Influencing and negotiating skills at a range of levels
- Good project management and organizational skills.

Timing: External political decision-making processes can make it difficult to plan an HIA and carry it out at the most effective stage of the project. Care needs to be taken not to develop an extensive database if it is completed too late to be of use.

Support and commitment: Gaining support and commitment from other organizations and getting them to see health as part of their agenda is crucial to be able to influence the decision-making process.

Data issues: Some data issues had been identified but not resolved at the time of writing the case study:

- How to decide what is or is not important in terms of health determinants
- How to weight the contributions of the various stakeholders
- How to balance the qualitative and quantitative data.

Source: Barnes & MacArthur, 2000.

Case study 17: Mexico – Use of monitoring and evaluation to continuously improve the Oportunidades programme

Illustrates: Evaluation; Monitoring

The human development programme *Oportunidades* (Opportunities) was designed to improve the educational, health and nutrition conditions of people in extreme poverty in Mexico. The programme started in 1997 in rural areas; in 2001 it was expanded to semi-urban areas and in 2002 to urban areas. In 2005 it covered 5 million families or approximately 25 million people, one fourth of Mexico's total population.

The programme combines traditional cash transfers with incentives on education, health and nutrition. These require active family participation in taking care of their education and health. In order to receive food benefits, family members must (a) receive a preventive health check; (b) monitor the weight and height of children under five years old; (c) breastfeeding mothers must take care of their nutrition; and (d) pregnant women must attend antenatal care. To receive the cash benefits for education, families must be responsible for their children's school enrolment and must ensure a minimum annual attendance of 85%. The subsidy is not given twice for the same grade, thus it is lost in case of grade repeats.

One of the programme's salient features is that right from the start it incorporated an evaluation component to identify and measure the programme's impacts. This includes both quantitative and qualitative evaluations, which are carried out by well-known national and international research and academic institutions.

Rigorous and continuous evaluations have not been a characteristic of Latin America. The evaluation component of *Oportunidades* has become a benchmark in social policy in the region. In the words of the former Mexican Undersecretary for Social Development, Fernando Medina, 'there is no turning back after the evaluation experience of *Oportunidades*'. Furthermore, the need for evaluation has permeated the highest decision-making levels. According to Medina, senior officials have become conscious of the need for valid and timely programme evaluations to follow up on processes and the impact on the target population.

The evaluation methods themselves are continuously adjusted in terms of design and implementation. The four main areas of evaluation are: (a) measurement of short, medium and long term results and impacts; (b) identifying results and impacts which may be attributed to the programme and distinguishing them from other individual, family or community contextual factors; (c) analysing the indirect effects of the programme; and (d) providing continuous feedback to improve the programme.

Besides its diversity of methodologies and sources, the evaluation of *Oportunidades* has been characterized by the wide variety of factors it assesses, especially on gender issues. Some of these issues are:

Education: School enrolment, nutrition and scholastic achievements, extracurricular development, educational expectations, transition rates to secondary education.

Health: Health services utilization, morbidity and health status, obesity, chronic illnesses, reproductive health.

Nutrition: Nutritional status, child development, language acquisition in urban children.

Social and economic aspects: Rural and urban consumption, effects on rural micro-enterprises, demographic and migration effects, child and young labour, female participation in the labour force, gender equity.

In addition to measuring the impacts directly relating to the programme's objectives, the evaluation also assesses some indirect effects like its impact on family relations, both within the couple and between parents and children. Since the cash transfers are received by women directly, there was a particular concern in assessing its potential impact on the violence of the male partner (psychological, physical, sexual and economic), one of Mexico's major public health problems.

Sources: Escobar & González, 2005; Espinosa, 2004; Gertler, 2001; Maldonado et al., 2005; Medina, 2001; Rivera et al., 2005; Todd et al., 2005.

Case study 18: Sweden – Use of evidence to develop the intersectoral National Public Health Strategy and the challenges of monitoring its implementation

Illustrates: Effective implementation and evaluation; Monitoring

Developing an evidence based strategy

In the 1980s, health inequity was identified and prioritized as a key area for research and intervention in Sweden. In the 1990s, this focus was linked to a social determinants framework, with an overt intersectoral action on health (IAH) component. In 1997 a National Public Health Commission was appointed. The Commission was composed of experts and political representatives. It followed a three stage process for setting national targets: (a) developing a framework and starting a public discussion; (b) ethical values, scientific facts and priority-setting; and (c) finalizing the strategies with input from key stakeholders and a knowledge base update. The National Public Health Strategy proposed by the Commission was adopted in 2003.

The strategy aims to create social conditions for good health on equal terms for the entire population, via eleven domains of objectives. These are:

1. Participation and influence in society
2. Economic and social security
3. Secure and favourable conditions during childhood and adolescence
4. Healthier working life
5. Healthy and safe environments and products
6. A more health-promoting health service
7. Effective protection against communicable diseases
8. Safe sexuality and good reproductive health
9. Increased physical activity
10. Good eating habits and safe food
11. Reduced use of tobacco and alcohol, a society free from illicit drugs and doping and a reduction in the harmful effects of excessive gambling.

All of these domains relate to major public health determinants (both structural and lifestyle) and this enables IAH to be located at the core of the policy. IAH is reflected in the strategy through various content and process areas, including: prioritizing

health determinants; gathering scientific evidence; attaining political buy-in; and ensuring public participation and awareness-raising.

The development of the strategy was underpinned by a strong call for scientific evidence to support its claims. Nineteen background papers were commissioned from expert groups and fed into the strategy proposal. From the outset, this emphasis on scientific evidence ensured a solid basis and credibility for an IAH-centred strategy. It also mobilized the research community in an intersectoral way and allowed for a multidisciplinary research approach to health determinants.

Monitoring and evaluation

Accountability is central to the strategy: the government is tasked with reporting on its progress to the Riksdag (parliament) once every election period and the Swedish National Institute of Public Health is charged with co-ordinating the national monitoring and evaluation of intersectoral public health efforts; overseeing the comprehensive evaluation of the overall public health aim; and presenting a Public Health Policy Report to the government every four years.

The limited information that is available on the implementation of the policy illustrates the logistical challenge of co-ordinating IAH, with an estimated 50 or so government agencies working towards the domain of objectives. Although Sweden's National Public Health Strategy governs IAH and creates the enabling structures and mechanisms for its implementation, monitoring and evaluation, health care delivery is a sub-national (rather than national) responsibility borne by the county councils, which also operate locally through the municipalities. There are 21 county councils and 290 municipalities across Sweden.

Finding a set of methodologies for monitoring and evaluating (M&E) the IAH component of the National Public Health Strategy promises to be a challenging exercise. The Swedish National Institute of Public Health has been tasked with an explicit M&E function. Such co-ordination and centralization will allow for lesson-learning across IAH projects. But it is important that M&E functions are not restricted to the Institute only as this could result in their marginalization within IAH projects themselves.

More generally, an absence of planning for, and incorporating, practical M&E steps directly into a new IAH project (particularly while the strategy is still in its initialization

stage and involves the key players) could represent a missed opportunity. For example, if M&E is not practically structured into the workplan and design of intersectoral actions from the outset, there may not be enough funding/ capacity to ensure these activities take place at the end of the implementation phase, and baseline data will not be available for comparison. Similarly, if pilot IAH projects are not thoroughly evaluated (due to funding/ capacity shortages), then future interventions may not be as effective or relevant as they might with M&E. It is important that the monitoring and evaluation of projects is not restricted to the design and implementation of project activities but also that IAH financing is carefully reviewed, and that the impact on the various dimensions of equity remains a key indicator of success.

Source: Harris, 2006.

Case study 19: Bangladesh – Evaluating the Food for Education programme using existing data sources

Illustrates: Effective implementation and evaluation; Monitoring

Project description

The Food for Education (FFE) programme in Bangladesh was designed to increase primary school attendance by providing rice or wheat to selected households as an incentive to parents. This began as a pilot programme, but grew in size and importance: its share of the Primary and Mass Education Division's budget grew from 11 percent in 1993–94 to 26 percent in 1995–96 and reached 2.2 million children, or 13 percent of total enrolment. FFE was given to all schools in selected economically backward geographic units with low schooling levels. Households were chosen to receive the food by community groups within the geographic units, based on set (albeit somewhat discretionary) criteria – landless households, female-headed households and low-income households. Children in these households must attend at least 85 percent of the classes each month.

Highlights of evaluation

This evaluation illustrates what can be done when the intervention design is not conducive to standard evaluation techniques and when the evaluation has to be done using existing data sources. In fact, the approach in the FFE was almost the polar opposite to a completely random assignment: not only were the geographic areas chosen because they had certain characteristics but the individuals within them were chosen because they needed help. Thus, since the programme was targeted at the poorest of the poor, simple analysis will understate its impact.

Research questions and evaluation design

The research question was to quantify the impact of the FFE on school attendance, measured as the attendance rate for each household. The evaluation was performed with already existing data – in particular, using both a nationally representative household expenditure survey and a detailed community survey.

Data

The data were from the 1995–96 Household Expenditure Survey (HES), a nationally representative survey conducted by the Bangladesh Bureau of Statistics that both includes questions on FFE participation and has a local level survey component. The authors used responses on demographic household characteristics, land ownership, school and programme variables from 3,625 rural households to identify the impact on school attendance.

School attendance for each child is directly measured in the HES: both the days that are missed and the days that the school is closed are counted. The dependent variable was constructed to be the household average number of days school was attended as a proportion of the feasible number of days. Both parts of this survey are critical. On the one hand, information on the household helps to capture the impact of demographic characteristics on school attendance. On the other hand, information on the characteristics of geographic location helps to model the decision-making strategy of the centralized government and reduce the selection bias noted above.

Results

The authors used an innovative evaluation method (more detail is available in the source document) to compensate for the disadvantages outlined above. Using this evaluation method, the average amount of grain in the programme appeared to increase school attendance by 24 percent.

Lessons learned

Many evaluations do not have the luxury of designing a data collection strategy from the ground up, either because the evaluation was not an integral part of the project from the beginning, or simply for cost reasons. This is an important evaluation to study for two reasons. First, it documents the degree of bias that can occur if the wrong econometric approach is used. Second, it describes an econometrically valid way of estimating the impact of the intervention without the cost and time lag involved in a prospective evaluation.

Source: Baker, 2002.

Case study 20: Kenya – Impact of grassroots involvement in gathering data on successful introduction of change

Illustrates: Monitoring

Closing the information-utilization gap is one of the main objectives of PIMIRA (Program-linked Information Management by Integrative-participatory Research Approach), carried out as part of the Kenya Partnership for Health (KPH) programme and implemented in the Trans-Nzoia district in the Rift Valley province. PIMIRA's purpose is to develop community-based health information management on the social, cultural, political and economic determinants of health and its utilization in decision-making.

KPH's Healthy Villages Initiative (HVI) defines a healthy village as an administrative area where there is a minimal public health requirement to prevent malaria and diarrhoea diseases. PIMIRA has developed community based health surveillance through routine data collection on reported malaria and diarrhoea, expecting to include HIV/AIDS and the Child Health Essential Services package in the future.

The PIMIRA model's underlying principles are (a) that 'people have beliefs about the causes of diseases which may or may not be consistent with the scientific explanations of the disease'; and (b) that 'no lasting change in people's behaviour may occur without awareness, understanding and believing in the change'. The first principle appeals to what has been called 'popular epidemiology' or 'lay epidemiology'. The second one relies on the empowerment of the community around its lay knowledge.

The programme has developed a community-based toolkit which includes (a) *pocket charts* to collect and tabulate data on where people defecate and where they collect water; (b) *community maps* showing available water supply resources, permanent mosquito breeding sites and disease distribution by lay definitions; (c) *resource maps* showing the community's income generating activities; (d) *flow charts* showing possible water and food contamination routes; (e) *matrix classifications* on common causes and barriers to health and communication, based on pictures to communicate epidemiological concepts to the community; (f) *Venn diagrams* to collect information

on traditional and modern organizations involved in managing local water resources and information systems; (g) *community surveillance tally cards* with representations of the main signs of water-related diseases and routine activities related to malaria; (h) *facility morbidity tally sheets* to record village-specific water-related diseases and malaria; and (i) *historical analytic charts and seasonal calendars* to record how the community has traditionally handled certain diseases.

This information was later used by the community for eliminating mosquito breeding sites and protecting the communal water springs. Information on the use of safe water was extended to the household level to avoid contamination of water coming from protected springs.

Due to increased awareness of the impact of clean water on health through the community-owned health surveillance, the number of protected springs maintained and repaired by the community increased and spring committees were created. An influence has also been observed in neighbouring villages which are now demanding these preventive measures.

This initiative has resulted in the lack of a malaria outbreak in this district since 2001 and in a reduction in the number of diarrhoeal cases reported.

Source: Solomon, 2005.

Case study 21: The Netherlands – Introduction of a multi-level surveillance system for monitoring health inequalities

Illustrates: Equity proofing; Monitoring

A government advisory committee in the Netherlands proposed a set of quantitative targets for tackling health inequalities (e.g. targets on disparities in income, working conditions, smoking, health care utilization). These targets have been used for the development of a monitoring system which covers social determinants, health outcomes and relevant health determinants.

The committee decided to base its strategy on a number of quantitative targets because these can help in plotting a clear policy course and can function as milestones for interim assessments of the strategy. The committee took the World Health Organization second 'Health for All' target as its starting point and reformulated it for the Netherlands as: 'By the year 2020, the difference in healthy life expectancy between people with a low socioeconomic status and people with a high socioeconomic status should be reduced from 12 to 9 years, due to a (greater) increase in healthy life expectancy in the lowest socioeconomic groups.'

Major efforts are required to attain such an ambitious goal if only because the trends of the latter decades have shown an increase rather than a decrease in socioeconomic inequalities in health. Although it was considered unwise to give up on the ambition laid down in the 'inspirational' target above, the strategy focused on a set of intermediate targets that seemed feasible in the near future (see table 1 below). These targets were chosen to represent each of the main entry-points for reducing socioeconomic inequalities in health, and were limited to intermediate outcomes for which quantitative data for the Netherlands were available.

Table 1. Quantitative policy targets proposed by Dutch government advisory committee on tackling health inequalities

<p><i>Targets relating to socioeconomic disadvantage</i></p> <ul style="list-style-type: none"> • Percentage of children from lower social class families who enter secondary education to be increased from 12% in 1989 to 25% or higher in 2020 • Income inequalities in the Netherlands to be maintained at the level of 1996 (Gini coefficient = 0.24) • Percentage of households with an income below 105% of the 'social minimum' to be reduced from 10.6% in 1998 to 8% or lower in 2020. <p><i>Targets related to health-related selection</i></p> <ul style="list-style-type: none"> • Disability benefit for total work incapacity due to occupational health problems to be maintained at the level of the year 2000 • Percentage of chronically ill persons between the age of 25 and 64 who are in paid employment to be increased from 48% in 1995 to 57% or higher in 2020. <p><i>Targets related to factors mediating the effect of socioeconomic disadvantage on health</i></p> <ul style="list-style-type: none"> • Difference in smoking between lower and higher educated persons to be halved by decreasing the percentage of smokers among those with primary school education only from over 38% in 1998 to 32% or lower in 2020 • Difference in physical inactivity between lower and higher educated persons to be halved by decreasing the percentage of physically inactive persons among those with primary school education only from over 57% in 1994 to 49% or lower in 2020 • Difference in obesity between lower and higher educated persons to be halved by decreasing the percentage of obese persons among those with primary school education only from over 15% in 1998 to 9% or lower in 2020 • Difference in heavy physical labour between lower and higher educated persons to be halved by decreasing the percentage of persons with complaints resulting from physical labour among those with primary school education only from 53% in 1999 to 43% or lower in 2020 • Difference in control in the workplace between lower and higher educated persons to be halved by increasing the percentage of persons who control the execution of their work among those with primary school education only from 58% in 1999 to 68% or higher in 2020. <p><i>Targets related to accessibility and quality of health care services</i></p> <ul style="list-style-type: none"> • Differences in utilization of health care facilities (consultations with GPs, medical specialists and dentists, hospital admissions, prescribed drugs) between lower and higher educated persons to be maintained at the level of the year 1998.
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Source: Mackenbach & Stronks, 2002.

Based on these targets, the National Institute for Public Health and the Environment developed a surveillance system (see table 2), which is now regularly generating data on trends in inequalities of important health determinants. One of the main findings in its first years was the lagging behind of lower socioeconomic groups in smoking cessation. Because of the importance of inequalities in smoking as a determinant of health inequalities in high income countries like the Netherlands, the

National Institute for Public Health and the Environment carried out a mathematical modelling exercise to calculate the potential impact of reducing smoking prevalence in lower socioeconomic groups on health inequalities.

Table 2 Content of the 'health inequalities monitor' in the Netherlands

<p><u>Independent variables</u></p> <p><i>Socioeconomic status</i></p> <ul style="list-style-type: none"> • Education • Income • Geographical SES indicator based on postcode <p><i>Sociodemographic background characteristics (confounders or stratifiers)</i></p> <ul style="list-style-type: none"> • Gender • Age • Ethnicity <p><u>Dependent variables</u></p> <p><i>Health-related selection</i></p> <ul style="list-style-type: none"> • Income while working as disabled • Labour market position of chronically ill <p><i>Health outcomes</i></p> <ul style="list-style-type: none"> • Mortality • Self-assessed health • Healthy life expectancy • Mental health • Disabilities and chronic conditions • Overweight <p><i>Health-related behaviours</i></p> <ul style="list-style-type: none"> • Smoking • Physical exercise • Alcohol consumption • Diet <p><i>Environmental factors</i></p> <ul style="list-style-type: none"> • Working conditions • Material and financial situation • Recreation facilities and access to green spaces • Social support and social networks • Safety <p><i>Health care utilization</i></p> <ul style="list-style-type: none"> • General practitioner • Medical specialist • Hospital stay • Paramedical consultations
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Source: Droomers et al 2003.

This health inequalities monitor has been in operation since 2006, and is presented online (<http://www.rivm.nl/vtv/root/o22.html>) although only in Dutch. The web site presents data stratified by sex and age (16-29, 30-44, 45-64, 65 and over). The

information covers socioeconomic inequalities in health (several indicators), health determinants (mainly health-related behaviours), and use of preventive and curative health care, with both current and time trends where available.

Differences are shown in absolute terms (prevalence by level of education) and relative terms such as the Relative Index of Inequality (RII), an odds ratio which shows differences between the most disadvantaged and the most advantaged social groups.

The experience has been too short to know exactly how useful it is, but this monitor has helped to keep the issue on the agenda. By pointing at possible determinants of health inequalities it also shows entry points for policies to tackle these inequalities.

Source: Mackenbach & Stronks, 2002; Monitor Gezondheidsachterstanden (Monitor Health Inequities) from the Rijksinstituut voor Volksgezondheid en Milieu (RIVM) (National Institute for Public Health and the Environment)
<http://www.rivm.nl/vtv/root/o22.html>

Appendix II – Low and middle income countries by income group, equity and health indicators, and data sources

CONSTRUCTING THE EVIDENCE BASE ON THE SOCIAL DETERMINANTS OF HEALTH: A GUIDE

WHO Regions, countries and territories	Income group	Gini coefficient		% share income / consumption		HDI value 2004	Death registries			Mortality rates					
		Survey year	Value	Lowest 20%	Highest 20%		Latest year	Completeness (%)	Coverage (%)	General			Infant		
										Year	Code	Rate	Year	Code	Rate
Africa															
Algeria	Lower middle	1995a	35.3	7.0	42.6	0.728				2002	U	...	2002	U	...
Angola	Lower middle					0.439									
Benin	Low	2003a	36.5	7.4	44.5	0.428				2001	|	13.0	2001	|	94.8
Botswana	Upper middle	1993a	60.5	3.2	65.1	0.570				2001	|	12.4	2001	|	29.3
Burkina Faso	Low	2003a	39.5	6.9	47.2	0.342									
Burundi	Low	1998a	42.4	5.1	48.0	0.384				1998	|	18.4	1998	|	157.0
Cameroon	Lower middle	2001a	44.6	5.6	50.9	0.506									
Cape Verde	Lower middle					0.722				1996	C	7.0	1995	C	...
Central African Republic	Low	1993a	61.3	2.0	65.0	0.353									
Chad	Low					0.368				2001	...	...	...	...	...
Comoros	Low					0.556				1986	...	...	1986	...	...
Congo, Dem. Rep.	Low					0.391				...	...	...	...	...	...
Congo, Rep.	Lower middle					0.520									
Côte d'Ivoire	Low	2002a	44.6	5.2	50.7	0.421				2000	|	12.3	2000	|	71.7
Equatorial Guinea	Upper middle					0.653									
Eritrea	Low					0.454									
Ethiopia	Low	199-2001	30.0	9.1	39.4	0.371				1999	...	...	1999	...	...
Gabon	Upper middle					0.633									
Gambia, The	Low	1998a	50.2	4.8	53.4	0.479									
Ghana	Low	1998-99	40.8	5.6	46.6	0.532				2002	...	...	2002	...	...
Guinea	Low	2003a	38.6	7.0	46.1	0.445									
Guinea-Bissau	Low	1993a	47.0	5.2	53.4	0.349				1981	U	...	1981	U	...
Kenya	Low	1997a	42.5	6.0	49.1	0.491				2005	U	...	2005	U	...
Lesotho	Lower middle	1995a	63.2	1.5	66.5	0.494				...	...	...	...	...	...
Liberia	Low									...	...	...	...	...	...

CONSTRUCTING THE EVIDENCE BASE ON THE SOCIAL DETERMINANTS OF HEALTH: A GUIDE

WHO Regions, countries and territories	Life expectancy			Census Round			DHS	MICS	WHS	DSS	LSMS
	Year	Male	Female	1990	2000	2010					
Africa											
Algeria	2000-05	70	72	1987	1998			1996 (mid)			
Angola	2000-05	39	42	1970	-	2007	2006	1996			
Benin	2000-05	53	55	1992	2002	(2012)	1996, 2001, 2006				
Botswana	2000-05	36	37	1991	2001	(2011)	1988	2000			
Burkina Faso	2000-05	47	48	1985*	1996	2006	1992/3, 1998/9, 2003	√	√	√	
Burundi	2000-05	42	44	1990	-	2007	1987	2000			
Cameroon	2000-05	45	47	1987	-	2005	1991, 1998, 2004	2000			
Cape Verde	2000-05	67	73	1990	2000	(2010)					
Central African Republic	2000-05	39	40	1988	2003	(2013)	1994/5	√			
Chad	2000-05	43	45	1993	-	(2008)	1996/7, 2004	2000	√		
Comoros	2000-05	61	65	1991	2003	(2013)	1996	2000	√		
Congo, Dem. Rep.	2000-05	42	44	1984	-	(2008)	2007			1995 (mid) & 2001	
Congo, Rep.	2000-05	51	53	1994	1996	2006	2005				
Côte d'Ivoire	2000-05	45	47	1988	1998	(2008)	1994, 1998/9, 2005**	2000	√		1985, 1986, 1987, 1988
Equatorial Guinea	2000-05	43	44	1994*	2002	(...)					
Eritrea	2000-05	52	55	1984	-	(...)	1995, 2002				
Ethiopia	2000-05	47	49	1994	-	2007	2000, 2005		√	√	
Gabon	2000-05	54	55	1993*	2003	(2013)	2000				
Gambia, The	2000-05	54	57	1993*	2003	(2013)		2000		√	
Ghana	2000-05	56	57	-	2000	(2010)	1998, 1993, 1998, 2001	2006	√	√	1987/8, 1988/9, 1991/2, 1998/9
Guinea	2000-05	53	54	-	1996	2007	1992, 1999, 2005				
Guinea-Bissau	2000-05	43	46	1991	-	2007		2000		√	
Kenya	2000-05	48	46	1989*	1999	(2009)	1989, 1993, 1998, 2001	√	√	√	
Lesotho	2000-05	35	38	1986*	1996	2006	2004	2000			
Liberia	2000-05	41	44	1984	-	(2008)	1986, 2006		1995 (mid)		

CONSTRUCTING THE EVIDENCE BASE ON THE SOCIAL DETERMINANTS OF HEALTH: A GUIDE

WHO Regions, countries and territories	Income group	Gini coefficient		% share income / consumption		HDI value 2004	Death registries			Mortality rates					
		Survey year	Value	Lowest 20%	Highest 20%		Latest year	Completeness (%)	Coverage (%)	General			Infant		
										Year	Code	Rate	Year	Code	Rate
Africa															
Madagascar	Low	2001a	47.5	4.9	53.5	0.509				1993	|	7.5	...	...	...
Malawi	Low	2004-05	39.0	7.0	46.6	0.400				2006	U	...	1998	|	90.5
Mali	Low	2001a	40.1	6.1	46.6	0.338				1987	|	12.5	1987	|	71.3
Mauritania	Low	2000a	39.0	6.2	45.7	0.486				1996	|	15.1	1996	|	113.7
Mauritius	Upper middle					0.800	2000	100	100						
Mozambique	Low	2002-03	47.3	5.4	53.6	0.390				2001	|	18.8	2001	|	131.6
Namibia	Lower middle	1993c	74.3	1.4	78.7	0.626				2001	|	20.5	...	...	...
Niger	Low	1995a	50.5	2.6	53.3	0.311									
Nigeria	Low	2003a	43.7	5.0	49.2	0.448				1988	...	...	1988	...	...
Rwanda	Low	2000a	46.8	5.3	53.0	0.450				1990	U	...	1982	U	...
São Tomé and Príncipe	Low					0.607	1987	..	...	2001	C	8.3	2001	C	54.2
Senegal	Low	2001a	41.3	6.6	48.4	0.460									
Seychelles	Upper middle					0.842	1987	..	...	2005 *	+C	...	2005 *	+C	...
Sierra Leone	Low	1989a	62.9	1.1	63.4	0.335				1986	...	...	...	...	...
South Africa	Upper middle	2000a	57.8	3.5	62.2	0.653	1996	88	< 50	1996	...	...	1996	...	...
Swaziland	Lower middle	2000-01	50.4	4.3	56.3	0.500				1997	|	9.1	1997	|	37.7
Tanzania	Low	2000-01	34.6	7.3	42.4	0.430									
Togo	Low					0.495									
Uganda	Low	2002a	45.7	5.7	52.5	0.502									
Zambia	Low	2004a	50.8	3.6	55.1	0.407				2006	C	12.9	...	...	...
Zimbabwe	Low	1995-96	50.1	4.6	55.7	0.491	1990	..	< 50	1992	|	9.5	1992	|	57.3

CONSTRUCTING THE EVIDENCE BASE ON THE SOCIAL DETERMINANTS OF HEALTH: A GUIDE

WHO Regions, countries and territories	Life expectancy			Census Round			DHS	MICS	WHS	DSS	LSMS
	Year	Male	Female	1990	2000	2010					
Africa											
Madagascar	2000-05	54	57	1993	-	(2009)	1992, 1997, 2003/4	2000			
Malawi	2000-05	40	40	1987	1998	(2008)	1992, 2000, 2004	2006	√	√	2004/5
Mali	2000-05	47	48	1987	1998	(2008)	1987, 1995/6, 2001, 2006		√		
Mauritania	2000-05	51	54	1988	2000*	(2010)	2000/1, 2003	√	√		
Mauritius	2000-05	69	76	1990*	2000*	(2010)			√		
Mozambique	2000-05	41	43	-	1997*	2007	1997, 2003	1995 (mid)		√	
Namibia	2000-05	48	49	1991	2001	(2011)	1992, 2000, 2006		√		
Niger	2000-05	44	44	1988	2001	(2010)	1992, 1998, 2006	2006			
Nigeria	2000-05	43	44	1991*	-	2006	1990, 1999, 2003				
Rwanda	2000-05	42	45	1991	2002	(2012)	1992, 2000, 2001, 2004	2000			
São Tomé and Príncipe	2000-05	62	64	1991	2001	(2011)		2000			
Senegal	2000-05	54	57	1988	2002	(...)	1986, 1992/3, 1997, 1998	1996 (r)	√	√	
Seychelles	2000-05			1987*	2002	(2010)					
Sierra Leone	2000-05	39	42	1985	2004	(2014)		2005			
South Africa	2000-05	47	51	1985	2001	(2011)	1998, 2004		√	√	1993
Swaziland	2000-05	32	33	1986	1997	2007	2006	2000	√		
Tanzania	2000-05	46	46	1988	2002	(2012)	1992, 1996, 2003, 2004, 2003**, 2007**			√	1991b, 1993, 2004b
Togo	2000-05	38	37	1981	-	2007	1988, 1998	2000			
Uganda	2000-05	46	47	1991	2002	(2012)	1988, 1995, 2000/1, 2004**, 2006			√	
Zambia	2000-05	38	37	1990	2000	(2010)	1992, 1996, 2001/2, 2004	1995 (r)	√		
Zimbabwe	2000-05	38	37	1992	2002	(2012)	1988, 1994, 1999, 2005/6		√		

CONSTRUCTING THE EVIDENCE BASE ON THE SOCIAL DETERMINANTS OF HEALTH: A GUIDE

WHO Regions, countries and territories	Income group	Gini coefficient		% share income / consumption		HDI value 2004	Death registries			Mortality rates					
		Survey year	Value	Lowest 20%	Highest 20%		Latest year	Completeness (%)	Coverage (%)	General			Infant		
										Year	Code	Rate	Year	Code	Rate
Americas															
Argentina	Upper middle	2004c	51.3	3.1	55.4	0.863	2001	100	100	2005 *	C	7.6	2005 *	C	13.2
Barbados	Upper middle					0.879	2000	100	100	2000	+C	6.2	1995	+C	...
Belize	Upper middle					0.751	2000	100	100	2005	U	...	2005	U	...
Bolivia	Lower middle	2002c	60.1	1.5	63.0	0.692				2000	U	...	2000	U	...
Brazil	Lower middle	2004c	57.0	2.8	61.1	0.792	2000	84	79.2	2005	U	...	2005	U	...
Chile	Upper middle	2003c	54.9	3.8	60.0	0.859	2001	100	100	2004 *	C	5.4	2004 *	C	8.4
Colombia	Lower middle	2003c	58.6	2.48	62.67	0.790	1999	81	79.3	2004 *	U	...	2004 *	U	...
Costa Rica	Upper middle	2003c	49.8	3.5	54.1	0.841	2002	90	79.3	2006 *	C	3.9	2006 *	C	9.7
Cuba	Lower middle					0.826	2001	100	100	2005 *	C	7.5	2005 *	C	6.2
Dominica	Upper middle					0.793	1999	..	100	2001	+C	7.2	2001	+C	...
Dominican Republic	Lower middle	2004c	51.6	4.0	56.7	0.751	1998	47	< 50	2004	+U	...	2000	+U	...
Ecuador	Lower middle	1998c	53.6	3.3	58.0	0.765	2000	70	75.5	2004	U	...	2004	U	...
El Salvador	Lower middle	2002c	52.4	2.7	55.9	0.729	1999	76	73.1	2004	C	4.4	2004	C	10.5
Grenada	Upper middle					0.762	1996	..	76.7	2001	+C	7.2	2001	+C	17.4
Guatemala	Lower middle	2002c	55.1	2.9	59.5	0.673	1999	87	86.3	2005 *	C	5.6	2005 *	C	26.6
Guyana	Lower middle					0.725	1996	67	74						
Haiti	Low	2001c	59.2	2.4	63.4	0.482	1983	..	...				
Honduras	Lower middle	2003c	53.8	3.4	58.3	0.683	1983	..	...	1994	+U	...	1987	+U	...
Jamaica	Lower middle	2004a	45.5	5.3	51.6	0.724	1991	75	60.1	2006	+U	...	2004	U	...
Mexico	Upper middle	2004a	46.1	4.3	55.1	0.821	2001	100	96	2003	C	4.5	2003	U	...
Nicaragua	Lower middle	2001a	43.1	5.6	49.3	0.698	2000	58	55	2003	+U	...	2003	+U	...
Panama	Upper middle	2003c	56.1	2.5	59.9	0.809	2000	88	86.3	2004	U	...	2004	U	...
Paraguay	Lower middle	2003c	58.4	2.4	61.9	0.757	2000	74	73.8	2004	U	...	2004	U	...
Peru	Lower middle	2003c	52.0	3.7	56.7	0.767	2000	50	51	2003	+U	...	2003	+U	...

CONSTRUCTING THE EVIDENCE BASE ON THE SOCIAL DETERMINANTS OF HEALTH: A GUIDE

<i>WHO Regions, countries and territories</i>	<i>Life expectancy</i>			<i>Census Round</i>			<i>DHS</i>	<i>MICS</i>	<i>WHS</i>	<i>DSS</i>	<i>LSMS</i>
	<i>Year</i>	<i>Male</i>	<i>Female</i>	<i>1990</i>	<i>2000</i>	<i>2010</i>					
Americas											
Argentina	2000-05	71	78	1991	2001						
Barbados	2000-05	71	78	1990	2000						
Belize	2000-05	69	75	1991	2000			√			
Bolivia	2000-05	62	66	1992	2001		1989, 1994, 1998, 2001	2000			
Brazil	2000-05	66	74	1991	2000		1986, 1991, 1996		√		1996-97
Chile	2000-05	75	81	1992	2002						
Colombia	2000-05	69	75	1993	2005		1986, 1990, 1995, 2000, 2005				
Costa Rica	2000-05	76	81	-	2000						
Cuba	2000-05	75	79	-	2002			√			
Dominica					2001						
Dominican Republic	2000-05	64	71	1993	2002		1986, 1996, 2002, 2007	2006	√		
Ecuador	2000-05	71	77	1990	2001		1987		√		1994, 1995, 1998
El Salvador	2000-05	68	74	1992	2002		1985				
Grenada					2001						
Guatemala	2000-05	63	71	1994	2002		1987, 1995, 1997, 1998/99		√		2000
Guyana	2000-05	60	66	1991	2002		2004, 2005**	2000			1992-3
Haiti	2000-05	51	52	1994	2003		1994/95, 2000, 2005				
Honduras	2000-05	66	70	-	2001		2005				
Jamaica	2000-05	69	73		2001			√			1998-2000
Mexico	2000-05	72	77	1990	2000		1987		√		
Nicaragua	2000-05	67	72	1995	2005		1997/98, 2001			2003	1993, 1998-99, 2001
Panama	2000-05	72	77	1990	2000						1997, 2003
Paraguay	2000-05	69	73	1992	2002		1990		√		
Peru	2000-05	67	72	1993	2005		1986, 1992, 1996, 2000, 2004-2008				1985, 1990c, 1991, 1994

CONSTRUCTING THE EVIDENCE BASE ON THE SOCIAL DETERMINANTS OF HEALTH: A GUIDE

WHO Regions, countries and territories	Income group	Gini coefficient		% share income / consumption		HDI value 2004	Death registries			Mortality rates					
		Survey year	Value	Lowest 20%	Highest 20%		Latest year	Completeness (%)	Coverage (%)	General			Infant		
										Year	Code	Rate	Year	Code	Rate
Americas															
St. Kitts and Nevis	Upper middle					0.825	1995	..	100	2001	+C	7.6	1998	+C	...
St. Lucia	Upper middle					0.790	2001	100	100	2004 *	C	6.9	2004 *	C	19.4
St. Vincent and the Grenadines	Upper middle					0.759	1999	100	100	2002	+C	7.1	2002	+C	18.1
Suriname	Lower middle					0.759	1992	100	66.1	2004	C	6.8	2004	C	13.2
Trinidad and Tobago	Upper middle	1992c	38.9	5.9	44.9	0.809	1998	100	92.4	2002	C	7.7	2002	C	24.2
Uruguay	Upper middle	2003c	44.9	5.0	50.5	0.851	2000	100	100	2004 *	C	9.8	2005 *	C	12.7
Venezuela, RB	Upper middle	2003c	48.2	3.3	52.1	0.784	2000	96	97.2	2004	C	4.4	2002	C	15.5
Eastern Mediterranean															
Afghanistan	Low														
Djibouti	Lower middle					0.494				...	...	...	...	...	...
Egypt, Arab Rep.	Lower middle	1999–2001	34.4	8.6	43.6	0.702	2000	85	80.3	2003	C	6.5	2003	C	21.9
Iran, Islamic Rep.	Lower middle	1998a	43.0	5.1	49.9	0.746				2004	C	4.4	1999	C	33.3
Iraq	Lower middle									2000	U	...	1994	U	...
Jordan	Lower middle	2002–03	38.8	6.7	46.3	0.760				2004	C	3.3	1980	U	...
Lebanon	Upper middle					0.774				2003	U	...	...	...	...
Libya	Upper middle					0.798				2002	U	...	2001	U	...
Morocco	Lower middle	1998–99	39.5	6.5	46.6	0.640				2001	U	...	2001	U	...
Oman	Upper middle					0.810				2004	U	...	2004	U	...
Pakistan	Low	2002a	30.6	9.3	40.3	0.539				2003	|	6.6	2003	|	76.2
Somalia	Low														
Sudan	Low					0.516				1993	|	12.6	...	...	...
Syrian Arab Republic	Lower middle					0.716	1985	..	...	2003	U	...	1993	U	...
Tunisia	Lower middle	2000a	39.8	6.0	47.3	0.760				2001 *	U	...	1999	U	...
West Bank and Gaza	Lower middle									2005	U	...	2005	U	...
Yemen, Rep.	Low	1998a	33.4	7.4	41.2	0.492				1990	...	...	1990	...	...

CONSTRUCTING THE EVIDENCE BASE ON THE SOCIAL DETERMINANTS OF HEALTH: A GUIDE

<i>WHO Regions, countries and territories</i>	<i>Life expectancy</i>			<i>Census Round</i>			<i>DHS</i>	<i>MICS</i>	<i>WHS</i>	<i>DSS</i>	<i>LSMS</i>
	<i>Year</i>	<i>Male</i>	<i>Female</i>	<i>1990</i>	<i>2000</i>	<i>2010</i>					
Americas											
St. Kitts and Nevis	1998	68	71	1991	2001						
St. Lucia	2000-05	71	74		2001						
St. Vincent and the Grenadines	2000-05	68	74		2001						
Suriname	2000-05	66	73		2004			2000			
Trinidad and Tobago	2000-05	67	73		2000		1987	2000			
Uruguay	2000-05	72	79	1996	2004				√		
Venezuela, RB	2000-05	70	76	1990	2001			2000			
Eastern Mediterranean											
Afghanistan	2000-05	46	46	1979	-	(2008)					
Djibouti	2000-05	51	54	1960				2006			
Egypt, Arab Rep.	2000-05	67	72	1986	1996		1988, 1992, 1995, 2000	1997 (mid)			
Iran, Islamic Rep.	2000-05	69	72	1986	1996	2006					
Iraq	2000-05	57	60	1987	1997	2007		2006			
Jordan	2000-05	70	73	1994	2004	(2014)	1990, 1997, 2002				
Lebanon	2000-05	70	74	1970	-	(...)		2000			
Libya	2000-05	71	76	1984	1995	2003					
Morocco	2000-05	67	72	1982	1994	2004	1987, 1992, 2003/4	√	√		1991
Oman	2000-05	73	76	1993	2003	(2010)					
Pakistan	2000-05	63	63	-	1998	(2008)	1990/1, 2006		√		1991
Somalia	2000-05	45	47	1987	-	(...)		2000			
Sudan	2000-05	55	58	1993*	-	2007	1990	2000			
Syrian Arab Republic	2000-05	71	75	1994	2004	(2014)		2000			
Tunisia	2000-05	71	75	1994	2004		1988	2000	√		
West Bank and Gaza	2000-05	71	74	-	1997	2007		2006			
Yemen, Rep.	2000-05	59	62	1986	1994	(2014)	1991/2, 1997	√			

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WHO Regions, countries and territories	Income group	Gini coefficient		% share income / consumption		HDI value 2004	Death registries			Mortality rates					
		Survey year	Value	Lowest 20%	Highest 20%		Latest year	Completeness (%)	Coverage (%)	General			Infant		
										Year	Code	Rate	Year	Code	Rate
Europe															
Albania	Lower middle	2004a	31.1	8.2	39.5	0.784	2001	60	68.9	2004	C	5.7	2004 *	C	7.8
Armenia	Lower middle	2003a	33.8	8.5	42.8	0.768	2002	68	97.7	2004	C	8.0	2004	C	11.5
Azerbaijan	Lower middle	2001a	36.5	7.4	44.5	0.736	2002	74	71.8	2006	+C	6.2	2006	+C	10.1
Belarus	Lower middle	2002a	29.7	8.5	38.3	0.794	2001	100	97.6	2004	C	14.3	2004	C	6.9
Bosnia and Herzegovina	Lower middle	2001a	26.2	9.5	35.8	0.800	1991	100	100	2004	C	8.3	2004	C	7.4
Bulgaria	Lower middle	2003a	29.2	8.7	38.3	0.816	2002	100	100	2004 *	C	14.2	2004 *	C	11.6
Croatia	Upper middle	2001a	29.0	8.3	39.6	0.846	2002	100	100	2004	C	11.2	2004	C	6.1
Czech Republic	Upper middle	1996c	25.4	10.3	35.9	0.885	2002	100	100	2004	C	10.5	2004	C	3.7
Estonia	Upper middle	2003a	35.8	6.7	42.8	0.858	2002	100	100	2004 *	C	13.2	2004 *	C	6.3
Georgia	Lower middle	2003a	40.4	5.6	46.4	0.743	2001	75	63.6	2005	C	9.9	2005	C	19.7
Hungary	Upper middle	2002a	26.9	9.5	36.5	0.869	2002	100	100	2004	C	13.1	2004	C	6.6
Kazakhstan	Lower middle	2003a	33.9	7.4	41.5	0.774	2002	89	80.8	2006 *	C	10.3	2006 *	C	13.9
Kyrgyz Republic	Low	2003a	30.3	8.9	39.4	0.705	2002	84	77.8						
Latvia	Upper middle	2003a	37.7	6.6	44.7	0.845	2002	100	99.2	2005	C	14.2	2005	C	7.8
Lithuania	Upper middle	2003a	36.0	6.8	43.2	0.857	2002	100	99	2005	C	12.8	2005	C	6.8
Macedonia, FYR	Lower middle	2003a	39.0	6.1	45.5	0.796	2000	100	91.9	2004	C	8.8	2004	C	13.2
Moldova	Lower middle	2003a	33.2	7.8	41.4	0.694	2002	100	86.8	2004	C	11.6	2004	C	12.1
Poland	Upper middle	2002a	34.5	7.5	42.2	0.862	2002	100	100	2004	C	9.5	2004	C	6.8
Romania	Upper middle	2003a	31.0	8.1	39.2	0.805	2002	100	100	2003	C	12.3	2003	C	16.7
Russian Federation	Upper middle	2002a	39.9	6.1	46.6	0.797	2002	100	100	2004	C	16.0	2004	C	11.5
Serbia and Montenegro	Lower middle	2003a	30.0	8.3	38.4		2000	100	97.4	2002	C	8.9	2002	C	10.8
Slovak Republic	Upper middle	1996c	25.8	8.8	34.8	0.856	2001	100	100	2002	+C	13.7	2002	+C	10.1
Tajikistan	Low	2003a	32.6	7.9	40.8	0.652	2001	60	49.7	2004	C	9.6	2004	C	6.8
Turkey	Upper middle	2003a	43.6	5.3	49.7	0.757				2003	C	5.0	2000	C	12.6
Turkmenistan	Lower middle	1998a	40.8	6.1	47.5	0.724	1998	78	76	2004	|	6.2	2004	|	24.6
Ukraine	Lower middle	2003a	28.1	9.2	37.5	0.774	2002	100	96.2	1998	C	6.1	1998 *	C	33.2
Uzbekistan	Low	2003a	36.8	7.2	44.7	0.696	2000	91	81.7	2005 *	C	16.6	2005 *	C	10.0

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<i>WHO Regions, countries and territories</i>	<i>Life expectancy</i>			<i>Census Round</i>			<i>DHS</i>	<i>MICS</i>	<i>WHS</i>	<i>DSS</i>	<i>LSMS</i>
	<i>Year</i>	<i>Male</i>	<i>Female</i>	<i>1990</i>	<i>2000</i>	<i>2010</i>					
Europe											
Albania	2000-05	71	77	1989	2001			√			1996, 2002, 2003, 2004, 2005
Armenia	2000-05	68	75	1989	2001	(2011)	2000, 2005				1996
Azerbaijan	2000-05	63	70	1989	1999	(2009)	2006				1995
Belarus	2000-05	62	74		1999	(2009)		√			
Bosnia and Herzegovina	2000-05	71	77	1991				√	√		2001, 2002, 2003, 2004
Bulgaria	2000-05	69	76	1985	1992	2001					1995, 1997, 2001
Croatia	2000-05	71	78		2001				√		
Czech Republic	2000-05	72	79		2001				√		
Estonia	2000-05	65	77		2000				√		
Georgia	2000-05	67	74	1989	2002	(2010)		√	√		
Hungary	2000-05	68	77		2001				√		
Kazakhstan	2000-05	58	69	1989	1999	(2009)	1995, 1999	√	√		1996
Kyrgyz Republic	2000-05	63	71		1999		1997	√			1993, 1996, 1997, 1998
Latvia	2000-05	66	77	1989	2000	(2010-11)			√		
Lithuania	2000-05	66	78	1989	2001						
Macedonia, FYR	2000-05	71	76		2002			2000			
Moldova	2000-05	64	71	1989	2004		2005	2000			
Poland	2000-05	70	78	1988	2002						
Romania	2000-05	68	75	1992	2002						1994-1995
Russian Federation	2000-05	59	72		2002				√		1992
Serbia and Montenegro	2000-05	71	76		2003			√			
Slovak Republic	2000-05	70	78		2001	(2011)			√		
Tajikistan	2000-05	61	66	1989	2000	(...)		2005			1999, 2003
Turkey	2000-05	66	71	1985	2000	(2010)	1993, 1998		√		
Turkmenistan	2000-05	58	67	1989	1995	(2009)	2000	√			
Ukraine	2000-05	60	72		2001		2007	2000	√		
Uzbekistan	2000-05	63	70	1989	-	(...)	1996, 2002	2000			

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WHO Regions, countries and territories	Income group	Gini coefficient		% share income / consumption		HDI value 2004	Death registries			Mortality rates					
		Survey year	Value	Lowest 20%	Highest 20%		Latest year	Completeness (%)	Coverage (%)	General			Infant		
										Year	Code	Rate	Year	Code	Rate
South-East Asia															
Bangladesh	Low	2000a	33.4	8.6	42.7	0.530				1997	U	...	1997	U	...
Bhutan	Low					0.538				2005	|	7.1	2005	|	40.1
Korea, Dem. Rep.	Low	1998c	31.6	7.9	37.5		2001	89	88.1	1993	|	5.4	...	...	...
India	Low	2004-05e	36.8	8.1	45.3	0.611				2005	|	7.6	2005	|	58.0
Indonesia	Lower middle	2002a	34.3	8.4	43.3	0.711				1987	...	...	1987	...	...
Maldives	Lower middle					0.739				2004	C	3.5	2004	C	14.6
Myanmar	Low					0.581									
Nepal	Low	2003-04e	47.2	6.0	54.6	0.527				2001	|	4.6	2001	|	...
Sri Lanka	Lower middle	2002a	40.2	7.0	48.0	0.755	1995	91	76.5	2004 *	+C	5.8	2001 *	+C	12.2
Thailand	Lower middle	2002a	42.0	6.3	49.0	0.784	2000	86	89.1	2003	+U	...	2003	+U	...
Timor-Leste	Low					0.512									

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<i>WHO Regions, countries and territories</i>	<i>Life expectancy</i>			<i>Census Round</i>			<i>DHS</i>	<i>MICS</i>	<i>WHS</i>	<i>DSS</i>	<i>LSMS</i>
	<i>Year</i>	<i>Male</i>	<i>Female</i>	<i>1990</i>	<i>2000</i>	<i>2010</i>					
South-East Asia											
Bangladesh	2000-05	62	63	1991	2001	(2011)	1993/4, 1996/7, 1999/2000	1996 (m)	√	√	
Bhutan	2000-05	61	64	-	-	(2005)					
Korea, Dem. Rep.	2000-05	60	66	1993*	-	(2008)		2000			
India	2000-05	62	65	1991	2001	(2011)	1992/3, 1998/9, 2005/6	2000	√	√	1997/98a
Indonesia	2000-05	65	69	1990	2000	(2010)	1987, 1991, '94, '97, 2000	2000		√	
Maldives	2000-05	67	66	1985	2000	2006		2000			
Myanmar	2000-05	57	63	1983	(2004)	(...)		1995 (m)	√		
Nepal	2000-05	61	62	1991	2001	(2011)	1996, 2001, 2006		√		1996, 2003
Sri Lanka	2000-05	71	77	-	2001	(2011)	1987	√	√		
Thailand	2000-05	66	74	1990	2000	(2010)	1987	2005-06		√	
Timor-Leste	2000-05	54	56	1990	2004	(2010)					2001

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WHO Regions, countries and territories	Income group	Gini coefficient		% share income / consumption		HDI value 2004	Death registries			Mortality rates					
		Survey year	Value	Lowest 20%	Highest 20%		Latest year	Completeness (%)	Coverage (%)	General			Infant		
										Year	Code	Rate	Year	Code	Rate
Western Pacific															
American Samoa	Upper middle					0.778				2005	C	4.3	2005	C	...
Cambodia	Low	2004a	41.7	6.8	49.6	0.583				2004	U	...	2004	...	...
China	Lower middle	2004c	46.9	4.3	51.9	0.768				2004	|	6.4	...	...	...
Fiji	Lower middle					0.758	1999	100	66.3	1999	+C	4.5	1999	+C	16.3
Kiribati	Lower middle									...	...	...	...	...	...
Lao PDR	Low	2002a	34.6	8.1	43.3	0.553				1995	|	10.4	1995	|	87.8
Malaysia	Upper middle	1997c	49.2	4.4	54.3	0.805	1997	< 50	< 50	2006 *	C	4.4	2006 *	C	6.1
Marshall Islands	Lower middle									2001	+U	...	2001	+U	...
Micronesia, Fed. Sts.	Lower middle									1997	U	...	1997	U	...
Mongolia	Low	2002a	32.8	7.5	40.5	0.691	1994	100	84.2	2005 *	C	6.4	2005 *	C	20.8
Northern Mariana Islands	Upper middle									2002	U	...	2002	U	...
Palau	Upper middle									2003	C	6.7	2003	C	...
Papua New Guinea	Low	1996a	50.9	4.5	56.5	0.523	1980	..	...	2003	U	...	2003	U	...
Philippines	Lower middle	2003a	44.5	5.4	50.6	0.763	1998	77	85	2003	C	4.9	2003	C	13.7
Samoa	Lower middle									1998	U	...	1998 *	U	...
Solomon Islands	Low					0.592									
Tonga	Lower middle					0.815				2003	+C	...	2000	+C	...
Vanuatu	Lower middle					0.670									
Vietnam	Low	2004a	34.4	9.0	44.3	0.709				1990	1990

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<i>WHO Regions, countries and territories</i>	<i>Life expectancy</i>			<i>Census Round</i>			<i>DHS</i>	<i>MICS</i>	<i>WHS</i>	<i>DSS</i>	<i>LSMS</i>
	<i>Year</i>	<i>Male</i>	<i>Female</i>	<i>1990</i>	<i>2000</i>	<i>2010</i>					
Western Pacific											
American Samoa	2000	69	76	1990	2000						
Cambodia	2000-05	52	60	-	1998*	(2008)	1998, 2000, 2005	2000			
China	2000-05	70	73	1990	2000	(2010)			√		1995, 1997
Fiji	2000-05	66	70		1996	2007					
Kiribati	2000	58	67	1990	2000	2005					
Lao PDR	2000-05	53	56	1985*	1995	2005		2000	√		
Malaysia	2000-05	71	75	1991	2000	(2010)			√		
Marshall Islands	1999	66	69	1988	1999						
Micronesia, Fed. Sts.	2000-05	67	68	1994	2000						
Mongolia	2000-05	62	66	1989	2000	(2010)		2005-06			
Northern Mariana Islands	2000	73	78	1990	2000						
Palau	2001	67	75	1995	2000						
Papua New Guinea	2000-05	55	56	1990	2000					√	1996
Philippines	2000-05	68	72	1990	2000	(2010)	1993, 1998, 2003	2000	√		
Samoa	2000-05	67	74	1990	2001						
Solomon Islands	2000-05	62	63	1986	1999						
Tonga	2000-05	71	73	1993	1996	2006					
Vanuatu	2000-05	67	70	1986	1999						
Vietnam	2000-05	68	72	1989	1999	(2009)	1997, 2002, 2005, 2009	√	√	√	1992/93, 1997/98

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Notes:	
Mortality rates:	+ Data tabulated by year of registration rather than occurrence
... Data or information not available/rates not computed	C Civil registration, estimated 90 per cent or more complete
- Magnitude zero	U Civil registration, estimated less than 90 per cent complete
* Provisional figure	| Source other than civil registration, estimated reliable
Sources:	
<i>Income group:</i> World Bank: http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20421402~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html	
<i>Gini coefficient:</i> United Nations Development Program: <i>Human Development Report 2006</i> : http://hdr.undp.org/hdr2006/	
<i>Percentage of share income or consumption:</i> United Nations Development Program: <i>Human Development Report 2006</i> : http://hdr.undp.org/hdr2006/	
<i>Human Development Index (HDI):</i> United Nations Development Program: <i>Human Development Report 2006</i> : http://hdr.undp.org/hdr2006/	
<i>Death registries:</i> World Health Organisation.	
<i>Completeness:</i> Table 3: Estimated completeness of mortality data for latest year*: http://www.who.int/whosis/database/mort/table3.cfm	
<i>Coverage:</i> Table 4: Estimated coverage of mortality data for latest year: http://www.who.int/whosis/database/mort/table4.cfm	
<i>Mortality rates:</i> United Nations Statistics Division: unstats.un.org/unsd/Demographic/products/vitstats/serATab3.pdf	
<i>Life expectancy:</i> United Nations Statistics Division: http://unstats.un.org/unsd/Demographic/products/socind/health.htm	
<i>Census Round:</i>	
<i>Demographic and Health Surveys (DHS):</i> http://www.measuredhs.com/aboutsurveys/search/search_survey_main.cfm?SrvyTp=country	
<i>Multiple Indicator Cluster Surveys (MICS):</i> http://www.childinfo.org/	
<i>World Health Surveys (WHS):</i> http://www.who.int/healthinfo/survey/en/index.html	
<i>Demographic Surveillance Surveys (DSS):</i> http://www.indepth-network.org/dss_site_profiles/dss_site_summary.htm	
<i>Living Standard Measurement Surveys (LSMS):</i> http://www.worldbank.org/LSMS/	

Appendix III – Content of standard surveys

Survey	Population	Stratifiers	Health items	Social determinants
DHS	<p><i>Household</i> (all household members)</p> <p><i>Individual questionnaires:</i></p> <ul style="list-style-type: none"> - Women in fertile age - Children - Men. 	<ul style="list-style-type: none"> - Gender - Age - Education - Residence - Employment - Religion - Ethnicity - Wealth status 	<ul style="list-style-type: none"> - Nutritional status - Anaemia - Coverage by health insurance - Height* - Weight* - Haemoglobin measurement* - Chronic illness - Survivorship of child's parents - Care and support - Women: Reproduction: <ul style="list-style-type: none"> - Lifetime fertility - Detailed birth history - Pregnancy history - Menstruation - Contraception - Pregnancy - Delivery - Postpartum care - Breastfeeding - Children's health, nutrition and immunization - Marriage and sexual activity - Fertility preferences - AIDS and other STD's - Tuberculosis - Injection safety - Environmental health Smoking 	<p>Housing:</p> <ul style="list-style-type: none"> - Water and toilet facilities - Household possessions - Cooking fuel - Dwelling characteristics - Ownership and use of mosquito nets <p>Employment</p> <p>Education: School attendance</p> <p>Birth registration</p> <p>Women:</p> <ul style="list-style-type: none"> - Husband's information (age, education, occupation) - Women's employment and occupation - Role in decision-taking at home

Survey	Population	Stratifiers	Health items	Social determinants
			<p><i>Men:</i> Reproduction Contraception AIDS and other STD's Smoking Tuberculosis Circumcision Injections, etc.</p> <p><i>Optional:</i> HIV/AIDS and sexual activity Consanguinity Domestic violence Female genital cutting Malaria Maternal mortality Pill failure and behaviour Sterilization experience Environmental health</p> <p>*not automatically</p>	
LSMS	<i>All household members</i>	<ul style="list-style-type: none"> - Gender - Age - Income - Education - Ethnicity - Employment - Migration 	<ul style="list-style-type: none"> - Anthropometric measurements - Health behaviours - Fertility preferences - HIV/AIDS - Health care services - Illness/Injury - Health insurance - Maternal/children's health - Medical service used - Access to health care - Mental health - Chronic diseases - Health care expenses - Health status - Public health education 	<ul style="list-style-type: none"> - Dwelling/housing - Possessions - Labour/employment - Migration - Credit - Social assistance - Household consumption.

Survey	Population	Stratifiers	Health items	Social determinants
			<ul style="list-style-type: none"> - Reproductive health - Transport - Vaccinations - Violence against women - <i>Health care services:</i> <ul style="list-style-type: none"> Availability equipment & support Child services Family planning services Feedback General information Maternal health services Monitoring/supervision STD/HIV/AIDS 	
MICS	<p><i>Household:</i> administered to head of household & mothers</p> <p><i>Children under 5</i> (administered to mothers or caretakers)</p> <p><i>Women 15-49</i></p> <p><i>Men 15-49</i></p>	<ul style="list-style-type: none"> - Gender - Age - Education - Ethnicity - Wealth 	<p><i>Household questionnaire:</i></p> <ul style="list-style-type: none"> Salt iodization Drinking water <p><i>Children under 5:</i></p> <ul style="list-style-type: none"> Vitamin A Breastfeeding Care of Illness Malaria Immunization Anthropometry <p><i>Women 15-49:</i></p> <ul style="list-style-type: none"> Child Mortality Birth History Tetanus Toxoid Maternal and Newborn Health Marriage/Union 	<ul style="list-style-type: none"> - Birth registration - Household facilities - Water - Housing (materials) - Cooking fuel - Child labour - Household possessions.

Survey	Population	Stratifiers	Health items	Social determinants
			<p>Contraception Sexual Behaviour HIV/AIDS Maternal Mortality</p> <p><i>Men 15-49:</i> Marriage/Union Contraception Sexual Behaviour HIV/AIDS</p> <p><i>Additional question:</i></p> <ul style="list-style-type: none"> - Malaria - insecticide treated nets - intermittent preventive treatment for pregnant women (maternal and newborn health module) - malaria module for under 5s - Children orphaned and made vulnerable by HIV/AIDS (with extended household listing) - Nutrition - Marriage/union with polygamy - Female genital cutting - Sexual behaviour for 15-24 year old women <p><i>Optional questions:</i></p> <ul style="list-style-type: none"> - Contraception and unmet needs - Attitudes towards domestic violence - Child development - Disability 	

Survey	Population	Stratifiers	Health items	Social determinants
			- Maternal mortality	
DSS		<ul style="list-style-type: none"> - Gender - Educational level - Ethnicity - Assets 	<ul style="list-style-type: none"> - Drinking water - Food security - Hygiene 	Housing conditions
CWIQ	<i>All household members</i>	<ul style="list-style-type: none"> - Gender - Age - Marital status - Education - Employment - Income - Assets - Land and livestock 	<ul style="list-style-type: none"> Live birth (women only) Prenatal care (women only) - Illness or injury - Physical or mental handicap - Consult health provider or traditional healer 	<ul style="list-style-type: none"> Literacy School attendance Housing - Employment - Poverty - Rural-urban differences - Primary school enrolment - Quality of services - User satisfaction
WHS	<p><i>Household survey:</i> administered to any person from household about all household members</p> <p><i>Individual questionnaire:</i> Not specified...</p>	<ul style="list-style-type: none"> - Gender - Sex - Education - Permanent income - Household expenditure <p><i>Individual questionnaire: -</i></p> <ul style="list-style-type: none"> Language - Marital status - Employment - Occupation 	<ul style="list-style-type: none"> - Malaria prevention - Household care - Health insurance - Community health insurance programmes <p><i>Individual questionnaire:</i></p> <ul style="list-style-type: none"> - Height - Weight - Overall health - Self care - Mobility - Pain and discomfort - Cognition - Interpersonal activity - Vision - Sleep and energy - Affect 	<ul style="list-style-type: none"> - Minimizing health inequities - Social capital - Health system

Survey	Population	Stratifiers	Health items	Social determinants
			<ul style="list-style-type: none"> - Health state valuations <i>Risk factors:</i> - Alcohol - Tobacco - Nutrition - Physical activity - Environmental risk factors / water sanitation <i>Mortality:</i> - Birth history (women only) - Assessment of adult mortality - Verbal autopsy - Chronic conditions – diagnosis and treatment - Tuberculosis diagnosis and treatment - Inventory of medicines and drugs - Cervical cancer and breast cancer screening (women only) - Maternal health care (women only) - Child health: <ul style="list-style-type: none"> Preventive care Curative care - Reproductive and sexual health care - Vision care - Oral health care 	

Survey	Population	Stratifiers	Health items	Social determinants
			<ul style="list-style-type: none"> · Care for road traffic and other injuries · Health system responsiveness · Seeing health care providers · Outpatient and care at home · Inpatient hospital · Health goals and social capital. 	

Sources:

DHS: http://www.measuredhs.com/aboutsurveys/dhs/questionnaire_archive.cfm

LSMS: <http://www.worldbank.org/LSMS/guide/describe.html>

MICS: <http://www.childinfo.org/MICS2/finques/M2finQ.htm>

DSS: http://www.indepth-network.org/dss_site_profiles/dss_sites.htm

CWIQ: <http://siteresources.worldbank.org/INTSTATINAFR/Resources/cwiq.pdf>

WHS: <http://www.who.int/healthinfo/survey/instruments/en/index.html>

Appendix IV – Recommendations from MEKN final report

The following recommendations for policy-makers and practitioners were made in the MEKN final report, *The social determinants of health: Developing an evidence base for political action* (Kelly et al., 2007):

1. Actions to tackle the social determinants of poor health and health inequities must focus on the causes of health inequities rather than general health improvement. Attention should be drawn to the difference between the social determinants of health and the social determinants of health inequities.
2. Actions to tackle the social determinants of health must focus on the whole spectrum of the population, taking account of the needs of different groups. This must be based on accurate descriptions of the social structure and must recognize the dynamic nature of that social structure.
3. Actions to tackle the social determinants of health must be evidence based. That evidence may be drawn from a variety of disciplines and methodological traditions. There should be no hierarchy of evidence – the quality of the research is more important than the type of research.
4. Where evidence based policies or actions are developed they must be equity proofed prior to implementation using health equity impact assessment and during implementation using health equity audits or other equity proofing tools.
5. Where evidence based policies and actions are to be developed, due regard must be taken of the difficulties of getting evidence into practice and into policy; specifically the barriers to the use of evidence need to be understood.
6. Actions on the social determinants of health must involve sectors other than health and must involve meaningful partnerships.

7. Situation analysis to determine entry points and communication strategies must precede all interventions and actions.
8. Evaluation and monitoring of the impact of actions must be an integral part of any intervention or action. This should be informed by a model of evaluation in which the theoretical causal link between the intervention and the outcome is articulated in advance and explicitly.
9. It is vital to continue to develop evidence bases about the social determinants. These should be rich in terms of the methods used. There are a variety of ways of collecting and synthesizing evidence. Best practice suited to the method should be used. The evidence base should include the tacit knowledge of all involved, especially the planned beneficiaries of the interventions or actions. These data should also include routine data sets.
10. Cross cultural and cross national research is required to allow comparisons to be made between the links between social and economic disadvantage and health disparities.

Appendix V – List of abbreviations

ACF	Advocacy coalition framework
CAP	Common Agricultural Policy, EU
CBA	Controlled before-and-after study
CCT	Controlled clinical trial
CBMES	Community Based Monitoring and Evaluation System
CDC	Centre for Disease Control and Prevention (Atlanta, USA)
CELADE	Latin American Demographic Centre
CHIS	California Health Interview Survey, USA.
CIAR	Canadian Institute for Advanced Research
CIHR	Canadian Institutes of Health Research
CSDH	Commission on Social Determinants of Health, WHO
CSMBS	Civil Service Medical Benefit Scheme, Thailand
CWIQ	Core Welfare Indicators Questionnaire
DCW	Digital Chart of the World
DOT(S)	Directly observed therapy (strategy)
DHS	Demographic and Health Surveys
DSS	Demographic Surveillance Systems
ECHP	European Centre for Health Policy
ECLAC	Economic Commission for Latin America and the Caribbean
EFHIA	Equity-focused health impact assessment
EGP	Erikson, Goldthorpe and Portocarero
EPOC	Effective Practice and Organisation of Care Group (Cochrane)
EPPI	Evidence for Policy and Practice Information and Coordinating Centre, UK
EU	European Union
FFE	Food for Education, Bangladesh
GDP	Gross domestic product

GEGA	Global Equity Gauge Alliance
GIS	Geographic information system
GOBI	Growth monitoring, Oral rehydration, Breastfeeding and Immunization
GPI	Gender Parity Index
GPW	Gridded Population of the World
HEA	Health equity audit, health equity auditing
HES	Household Expenditure Survey
HIA	Health impact assessment
HIC	High income countries
HIV/AIDS	Human immunodeficiency virus / acquired immune deficiency syndrome
HSRI	Health Systems Research Institute, Thailand
HVI	Healthy Villages Initiative, Kenya
IAH	Intersectoral action on health
IFHIPAL	Proyecto Investigación Fecundidad Hijos Propios para América Latina (Research into Fertility Using the Own-Children Method in Latin America)
IHPP	International Health Policy Program, Thailand
IHS	Integrated Household Surveys
IMCI	Integrated Management of Childhood Illness
IMIAL	<i>Investigación en Mortalidad Infantil en América Latina</i> (Research on Infant Mortality in Latin America)
IMR	Infant mortality rate
ISCED	International Standard Classification of Educations
ITS	Interrupted time series
KN, KNs	Knowledge network(s)
KPH	Kenya Partnership for Health
LMIC	Low and middle income countries
LSMS	Living Standards Measurement Surveys
MDG, MDGs	Millennium Development Goal(s)

M&E	Monitoring and evaluation
MEKN	Measurement and Evidence Knowledge Network, CSDH
MICS	Multiple Indicator Cluster Survey
NGO, NGOs	Non-governmental organization(s)
NHIS	National Health Interview Survey, USA
NHMRC	National Health and Medical Research Council (Canberra, Australia)
NHS	National Health Service, UK
NICE	National Institute for Health and Clinical Evidence, UK
NSW	New South Wales, Australia
NLSCY	National Longitudinal Study on Children and Youth
PAF	Poverty Action Fund, Uganda
PAHO	Pan American Health Organization (WHO)
PARIS21	Partnership in Statistics for Development in the 21st Century
PE	Program Evaluation, CDC
PIMIRA	(Program-linked Information Management by Integrative-participatory Research Approach), Kenya
RCT, RCTs	Randomized controlled trial(s)
RII	Relative index of inequality
SDH	Social determinants of health
SE	Socioeconomic
SES	Socioeconomic status
SHI	Social Health Insurance, Thailand
SIF	Social Investment Fund, Bolivia
STD	Sexually transmitted disease
TB	Tuberculosis
U5MR	Under five mortality rate
UC	Universal coverage
UCL	University College London, UK
UDD	Universidad del Desarrollo, Chile

UDN	Uganda Debt Network
UK	United Kingdom
UNDP	United Nations Development Program
UNESCO	United Nation Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
USA	United States of America
WHO	World Health Organization
WHS	World Health Surveys