

SECTION 1

INTRODUCTION

The existence and persistence of inequalities in health has been a matter of public record and commentary in the U.K. for a very long time. In fact, the Registrar General's Social Class Classification was designed for use with the 1911 Census, in order to help search for an explanation for differences in fertility and mortality between the industrial proletariat and the wealthier classes [1].

In 1980, discussion on the issue was re-ignited by the partial suppression by the Conservative Government of the report on inequalities in health commissioned under the previous Labour Government (the Black Report) 'Inequalities in Health' [2]. Scholars in other European countries quickly documented similar kinds of disparities between the health status of groups defined by a variety of socio-economic categorisations, and by 1987, the European Region of the World Health Organisation (WHO) adopted the reduction of 25% in health inequalities as the first target of its 'Health for All' by the Year 2000 programme.

Most of the topics addressed in this manual have already been the subject of extensive review. The measurement of inequality in general has been comprehensively reviewed by Atkinson [3], while Bowling [4] and Wilkin et al. [5] have reviewed the measures for measuring health in both clinical and community settings. Equally, various measures of deprivation have been reviewed by Morris and Carstairs [6]; and the problems of measuring socio-economic inequalities in health have been reviewed by Kunst and Mackenbach, Valkonen and Wagstaff [7–9].

All these works have provided excellent starting points, although they have not always been clear on the criteria they use to include and evaluate measures, and the suitability of these criteria for the tasks initially proposed.¹

¹ For example, the analysis by Morris and Carstairs [6] focussed on the comparative performance of different measures of deprivation with the same criterion (whether use of medical care, or morbidity, or mortality), whilst from another perspective, it is the comparative performance of any given deprivation measure *across* criteria which is of interest.

However, none of them bring together, in an easily accessible form, all the relevant issues.

1.1 Inequality and its Measurement

The existence of substantial and persisting inequalities in health and particularly in death is rarely disputed, but there have been contentious arguments over:

- ◆ The extent of these inequalities and whether they are increasing or decreasing.
- ◆ The causes of the inequalities observed.
- ◆ Appropriate methods of measurement and monitoring them.
- ◆ What can be done about them.

Existing research in the U.K.

Whilst there is a substantial corpus of research in the U.K. in this area, this has not always served to clarify these questions. In many cases, there has been a confusion in methods of measurement with analysis of the extent of inequalities, or of their causes.

The Health for All 2000 WHO initiative

In contrast, the WHO European Region, faced with a similar task for their Regional Observatories, commissioned a review of methods which could be used by countries in monitoring their progress towards the Health for All by the Year 2000 target [7]. Their's is a clear summary of many of the issues covered in this handbook. Kunst and Mackenbach [7] focussed on the technical properties of the methods of measurement, using concrete analyses to illustrate different methods, but did not use the findings of the analysis as a reason for excluding some methods and privileging others. However, the review was limited to classic socio-economic status measures (occupation, education and income) and to measures of mortality and generalised measures of health. Socio-economic status is an important group classifier but so are, for example, gender and location, amongst others.

1.2 This Handbook

This handbook aims to provide a more comprehensive collection of material for those concerned to document and understand inequalities in health in their area. This includes people working at all levels in the health care sector.

The handbook focuses on the measurement of inequalities in health (and death); inequalities in access to healthcare or quality of care are not explicitly considered. Nevertheless, the issue of the measurement of inequality is quite general, and much of the methodological material will be useful to those working in other sectors. The intention is to provide a *menu* of possible dimensions of inequality and methods of measuring and monitoring inequalities to which the local researcher can refer.

1.3 Core Issues Addressed by the Handbook

There are two basic issues in the measurement of inequalities in health:

- ◆ What is meant by inequality?
- ◆ How to measure inequality?

What is meant by inequality

Three concepts are frequently used:

- ◆ *Differences* or *variations* in health (or income) between groups.
- ◆ *Inequalities* in health(or income).
- ◆ *Inequities* or the unfairness of differences.

These issues are discussed in [Section 10](#) of the handbook. In this handbook, the term ‘variations’ is reserved for purely statistical usage and ‘inequalities’ is used in its descriptive sense. Although the fairness of the differences in health between groups is not discussed here, the purpose of measuring inequalities is because they point to *likely* inequities.

Kunst and Mackenbach use the following working definition of health inequalities: “Differences in the prevalence or incidence of health problems between individual people of higher and lower socio-economic status” (1995)

It should be emphasised that although the definition refers to individuals, *the crucial characteristic is their membership of one group rather than another*. Whilst differences between individuals may well be interesting in themselves, they are only meaningful in terms of inequity if those differences are linked to the membership of a group.

How to measure inequality

Most measurement of health inequality involves the use of indicators or indexes to measure health, but it also involves decisions on what groups or

areas to compare and what is the most appropriate form of analysis for the question being investigated.

In short, devising a method for measuring inequalities requires answers to six questions:

- ◆ What is the comparator, are inequalities to be measured between:
 - Groups or populations of small areas ([Section 2](#)).
 - Countries or populations to which different socio-economic classification have been applied ([Sections 2 and 10](#)).
 - Similar groups or populations over time ([Section 10](#)).
- ◆ What type of inequality is of interest:
 - Relative or absolute inequality ([Sections 9 and 10](#)).
 - Risk-based versus outcome-based measures ([Section 10](#)).
- ◆ What is the intended use for the index of inequality:
 - To monitor the impact of policies on specific populations ([Sections 10 and 11](#)).
 - To compile league tables ([Sections 10 and 11](#)).
- ◆ What indicator/marker of inequality to choose:
 - Socio-economic categories ([Section 2](#)).
 - A deprivation index ([Sections 5 and 6](#)).
 - A single variable or an index ([Section 7](#)).
- ◆ What indicator of health to choose:
 - Routine health data ([Section 3](#)).
 - Data from surveys ([Sections 4 and 9](#)).
- ◆ What data source to use:
 - Existing data sources ([Section 8](#)).
 - Generating your own survey data ([Section 9](#)).

The importance of distinguishing between methods and results

When measuring inequalities, it is soon apparent that different methods of constructing indexes and different approaches to analysis can give different results or suggest different causes for inequality. One problem with the debates on the nature and extent of inequalities and the direction of historical trends ([Section 11](#)) has been that some researchers have tended to privilege the measures and methods that lead to a pre-determined conclusion. Hence, it is always important to understand the relationship between the methods and the results.

1.4 Structure of This Handbook

This handbook tries to address these issues in a practical manner, with each section covering a different stage in the measurement and interpretation of health inequalities.

It is divided into eleven sections:

1. Introduction.
2. Measuring inequality by social categories.
3. Measuring inequality by health and disease categories (using data from administrative sources).
4. Measuring inequality by health and disease categories (using data from surveys).
5. Measuring deprivation with indexes – introduction and summary.
6. Measuring deprivation with indexes – a selection of indexes.
7. The properties of the tools for measuring inequality: what is an index and how is it tested?
8. Overview of existing data sources, availability and problems.
9. Designing surveys to measure inequality.
10. Inequalities and methods of measurement.
11. Context, history and theories of inequality.

In general, the sections address the following questions.

What groups or areas are thought to be unequal? (Section 2)

An early decision in the investigation of inequalities is to specify the types of groups, such as social classes, income groups, or geographical areas, between which inequalities may exist. [Section 2](#) provides a discussion of various socio-demographic, socio-economic and other classifiers that might be used to document inequalities. Definitional issues are raised in relation to each of the topics, as well as questions of data quality and availability.

In what respects are they unequal? (Sections 3–6)

A second decision relates to the dimension of inequality to be investigated. [Sections 3 and 4](#) present a wide range of measures of health that should be suitable for detecting inequalities. [Sections 5 and 6](#) summarise most of the U.K. deprivation indexes which are used to measure inequality, but also have a role in defining groups or areas for the purposes of investigating other forms of inequality, such as differences in health.

What is an index and how is it tested? (Section 7)

Measures of health and deprivation often take the form of indicators and indexes, formulae that combine different characteristics of a phenomenon in order to provide some overall score or ranking. [Section 7](#) unpacks some of the technical characteristics of indexes and introduces some of the methods used in their development and testing.

Obtaining data on inequalities (Sections 8 and 9)

Most measures of health and deprivation rely on data from surveys or administrative systems, such as NHS hospital admissions, and Department of Health (DH) and Social Security benefit systems. Some measures combine material from both types of sources.

Sections 8 and 9 give general advice on obtaining relevant data. Section 8 gives a brief introduction to designing a survey to collect data on inequality and Section 9 introduces some of the more substantial data sources and archives.

How to measure, represent and interpret inequalities (Section 10)

The instruments that measure the dimensions of inequality will provide scores or rankings, or some other form of metric, but they do not always provide an adequate summary of the extent of inequalities. For this, it may be necessary to use some type of summary measure, such as the Gini coefficient. The chosen measure will be related to the study design, e.g. cross-sectional or longitudinal. The choice will also reflect one's interpretation of the nature and meaning of inequality. Section 10 introduces issues on the representation and interpretation of inequalities, together with some of the commonly used summary measures.

The historical and theoretical context (Section 11)

At almost every stage in the investigation of inequality, decisions about the measures to use, the dimensions to investigate, the type of design to adopt and the type of summary measure to employ are likely to influence the results. This is not a pure science. Choices are informed by inherently biased views on the likely nature, extent, and causes of inequality. Section 11 introduces and compares some of the theories to measuring inequality.

Box 1**Example**

The Department of Health Inequalities Programme has established a national target on infant mortality.

“Starting with children under one year, by 2010 to reduce by at least 10 per cent the gap in mortality between manual groups and the population as a whole.”

- ◆ Issues relevant to the types of measurement that are necessary to monitor progress towards this target, and the nature of the target itself, are discussed at various points in the handbook.
- ◆ The classifier used to document inequality is the Registrar General’s classification of social class ([Sections 2 and 7](#) address the nature and properties of this classification) including the point, that the Department of Health admits that social class is based on father’s occupation, and hence is not available for births registered by the mother only.
- ◆ The dimension of inequality is infant mortality (based on 3-year averages). [Section 8](#) details how this is computed, possible alternatives, and where to obtain these data. The measure is the mortality rate, but is restricted to those records for which infant deaths could be linked to a birth record.
- ◆ The method of analysis, presentation and interpretation involves comparison of 3-year averages (and in some cases year rates) for two social groupings defined by social class. The logic, purpose and limitations of such a comparison are considered in [Sections 10 and 11](#).