

HANDBOOK ON

Health Inequality Monitoring

with a special focus on low- and middle-income countries



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Foreword



I welcome this comprehensive handbook on monitoring health inequalities at a time when health inequalities continue to persist around the world in general, and in low- and middle-income countries in particular. Inequalities in health become strikingly apparent when looking at social determinants. They are evident in the unequal way that health services are accessed by people of different income levels, gender, social classes and ethnic groups; they manifest in variations in health outcomes according to education level, and in the tendency for health systems to better meet the needs of populations in certain geographical areas.

As social determinants of health and progress towards universal health coverage emerge as priorities for global health, now is the time for action to tackle health inequalities. This means ensuring that all people can obtain the health services that they need without suffering financial hardship or meeting other barriers, which are usually related to the social determinants of health. Effective inequality monitoring systems are essential to achieving meaningful progress in tackling health inequality and for improving accountability in public policy-making. A necessary prerequisite to creating an equity-oriented health sector is to systematically identify where inequalities exist, and then monitor how inequalities change over time.

The evidence generated from monitoring contributes to better-informed policies, programmes and practices, providing the necessary feedback to determine whether actions in the health sector and beyond are successful in reducing inequalities. In an effort to meet the demand for evidence-based results and accountability the World Health Organization, together with seven other agencies working in public health, have issued a call for action to strengthen the capacity for analysis, synthesis, validation and use of health data in countries.¹ This includes ensuring that comparable estimates for common health indicators are made using the best available data and the most suitable methods, recognizing the need for coordination across settings.

The *Handbook on health inequality monitoring: with a special focus on low- and middle-income countries* is a resource that enables countries to do just that. It presents a comprehensive yet clear overview of health inequality monitoring in a user-friendly manner. The handbook succeeds in giving those involved in health inequality monitoring an appreciation of the complexities of the process, as well as building the practical knowledge and skills for systematic monitoring of health inequalities in low- and middle-income countries. The use of the handbook will enable countries to better monitor and evaluate their progress and performance

¹ M Chan et al. Meeting the demand for results and accountability: a call for action on health data from eight global health agencies. *PLoS Medicine*, 2010, 7(1):e1000223.

with a high degree of accountability and transparency, and allow them to use the results to formulate evidenced-based policies, programmes and practices to tackle inequalities in an effective manner.

By committing to major health goals such as universal health coverage and addressing the social determinants of health, low- and middle-income countries are on the path to reducing health inequality. To this end, improved health inequality monitoring in low- and middle-income countries is a critical and timely priority to ensure the betterment of health across all members of society, especially the most disadvantaged.

A handwritten signature in blue ink, appearing to read 'M. Kiény', with a stylized star-like flourish above the first name.

Marie-Paule Kiény

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Introduction

The World Health Organization developed the *Handbook on health inequality monitoring: with a special focus on low- and middle-income countries* to provide an overview for health inequality monitoring within low- and middle-income countries, and act as a resource for those involved in spearheading, improving or sustaining monitoring systems. The handbook was principally designed to be used by technical staff of ministries of health to build capacity for health inequality monitoring in World Health Organization Member States; however, it may also be of interest to public health professionals, researchers, students and others. We assume that the users of this handbook have basic statistical knowledge and some familiarity with monitoring-related issues. The aim of this handbook is to serve as a comprehensive resource to clarify the concepts associated with health inequality monitoring, illustrate the process through examples and promote the integration of health inequality monitoring within health information systems of low- and middle-income countries.

The early conceptualization of this handbook was informed by previous experiences working with ministries of health staff in low- and middle-income countries to develop competencies in health inequality monitoring. These experiences included developing and delivering training courses and modules and facilitating training workshops. This provided a foundation for the general approach of the handbook: to introduce and elaborate upon the stages of health inequality monitoring with a sustained focus on practical and useful applications of concepts at the country level.

The handbook presents the background and process of health inequality monitoring in five sections. The first section provides an overview of the health inequality monitoring process and its implications, and highlights considerations that underlie the selection of health indicators and equity stratifiers. Section 2 discusses issues related to finding appropriate data sources for inequality monitoring, including the types of data sources, their strengths, limitations and areas for improvement, and the process of data source mapping. In section 3, a number of measures used to calculate health inequality are introduced; the challenges that arise in their application and approaches to overcome these challenges are detailed. The guiding principles to navigate the task of reporting inequality monitoring are discussed in section 4. Finally, section 5 provides an example of health inequality monitoring in the Philippines, demonstrating how the concepts in sections 1–4 can be applied in the context of low- and middle-income countries.

One important feature throughout this handbook is the use of real examples from low- and middle-income country settings to explain and apply the main concepts. The examples primarily come from the field of reproductive, maternal and child health, because comparable data from low- and middle-income countries are readily available for inequality monitoring on this topic; however, the techniques and methods

described can be applied to any health topic in any country or at any administrative level. Unless otherwise indicated, the data for the examples contained in this handbook are published in the Global Health Observatory Health Equity Monitor.¹

Readers of this handbook will encounter informative features throughout the text. This supplementary material appears alongside explanations of theoretical concepts to familiarize the reader with its application and relevance within low- and middle-income countries.

- **Tips:** Short explanations elaborate on how to apply concepts to the actual practice of health inequality monitoring.
- **Extra information:** Building on the material in the main text, this supplementary information offers interested readers a deeper appreciation of the complexities of the subject and related topics.
- **Read more:** Recommended readings provide additional explanations, examples and discussions that reinforce and supplement topics in health inequality monitoring.
- **Highlights:** Summaries are provided for the reader to recall and review the most important information in the preceding section.
- **Tables and figures:** Various data visualization techniques help the reader to become accustomed to interpreting different forms of data presentation. The graphs, tables and visualizations that appear throughout the text were created using various software programs, including both simple, widely available programs, and more specialized statistical and visualization programs.

This handbook was created so that individuals can become familiar with the steps of health inequality monitoring, and better interpret the vast literature available on the subject. It is our hope that this will enable the introduction of health inequality monitoring in areas where it is not currently conducted, and foster the improvement of current health inequality monitoring efforts.

¹ World Health Organization. Global Health Observatory: Health Equity Monitor. http://www.who.int/gho/health_equity/en/index.html. The data used in the handbook were drawn from the Health Equity Monitor in April 2013, and subsequent updates are likely to have occurred.

Executive summary

Monitoring is a process of repeatedly observing a situation to watch for changes over time. Monitoring health at the population level helps to show if the health situation is improving, worsening or staying the same. The results of monitoring indicate whether policies, programmes and practices are accomplishing what they are designed to achieve. In the health sector, monitoring can be thought of as a continuous cycle. For any given health topic, the monitoring cycle can be broken down into five general steps: (1) identify relevant health indicators, (2) obtain data about the indicators, (3) analyse the data, (4) report the results, and (5) implement changes, when warranted, to improve relevant policies, programmes and practices. As the results of these changes unfold to shape a new health environment, the cycle begins anew.

This handbook explores health inequality monitoring, a specific type of health monitoring. Health inequality is the metric by which health inequity can be assessed. By extension, monitoring health inequality has the specific purpose of informing policies, programmes and practices to reduce differences in health that are unfair and unjust. Health inequality data provide a foundation for incorporating equity into evidence-based health planning, and also assessing whether current health initiatives promote equity. Throughout the handbook, the theoretical foundations and methodologies of health inequality monitoring are presented, focusing on applying the steps of the health monitoring cycle at the country level.

Before health inequality monitoring can begin, the concepts of *health* and *inequality* must be defined. Optimally, these should be construed broadly, inclusive of a wide range of health indicators and many dimensions of inequality. The World Health Organization's monitoring, evaluation and review framework categorizes health indicators into four components spanning various levels of the health sector: inputs and processes, outputs, outcomes and individual-level health impacts. Depending on the scope of the monitoring activity, health indicators may be selected to cover the entire health sector, or there may be a narrower focus on parts of the health sector that are directly related to a specific disease or health topic. Equity stratifiers – or the selected dimensions of inequality – should be relevant to both the population and the health indicator. Some commonly employed equity stratifiers include economic status, education level, sex, region, place of residence, and ethnicity or race. Identifying subgroups based on an equity stratifier can be a complex task; when possible, this should be done using systematic and established methods.

Health inequality monitoring requires linked data on health indicators and equity stratifiers (that is, the health indicator data can be associated with an individual or population subgroup). Data sources may be population based, such as household surveys, censuses and vital registration systems; institution based, such as resource records, service records and individual records; or based on surveillance systems,

which are a combination of population-based and institution-based data. Each of these sources has implicit advantages and disadvantages pertaining to data availability, scope, quality and representativeness. In low- and middle-income countries, household surveys are usually, by default, the most reliable data source of those available for health inequality monitoring, and thus the most commonly used. The process of assessing data sources begins with data source mapping, which catalogues all available data sources for health inequality monitoring according to the type of information contained within each source. Using data source mapping helps to identify where data can be obtained about health indicators and equity stratifiers of interest. Data source mapping can also reveal gaps where information is lacking.

Once relevant data have been obtained, the analysis step combines the health indicator and equity stratifier information. The mean level of the health indicator is calculated within each subgroup, and from here there are many diverse measures that can be used to analyse health inequality. Simple measures, such as difference and ratio, may be calculated to make pairwise comparisons between two subgroups. These measures are commonly used and easily interpreted; however, they cannot express inequality in more than two subgroups, and do not account for the subgroup size. Complex measures, such as slope index of inequality, concentration index, mean difference from the overall mean, Theil index and population attributable risk, may be useful in certain situations to overcome the limitations of simple measures. The selection of an appropriate set of measures to best quantify health inequality in a given situation requires an understanding of the distinctions – and their implications – that underlie these measures. Important distinctions are:

- measures that make pairwise comparisons between two subgroups versus those that summarize differences across numerous subgroups;
- measures of absolute inequality versus relative inequality;
- measures that show inequality across subgroups with a natural order (such as income- and education-based classifications) versus subgroups that are non-ordered (such as ethnicity and region);
- measures that consider the subgroups' population size (weighted data) versus those that do not (unweighted data);
- selection of the reference group (where applicable).

Reporting the results of health inequality monitoring strives to present a clear and complete overview of the situation, keeping the needs and technical knowledge of the target audience as the foremost priority. The main ways to present data include tables, graphs and maps. Well-designed tables, graphs and maps can be effective tools to visualize the most salient conclusions from health inequality monitoring. Reporting inequality at a national level should present data about the latest status, trend over time and benchmarking. These aspects of health inequality reporting provide an

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