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### Statistical Commission

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**Items for discussion and decision: health statistics**

### Report of the Intersecretariat Working Group on Health Statistics

#### Note by the Secretary-General

In accordance with a request of the Statistical Commission at its thirty-ninth session,\*\* the Secretary-General has the honour to transmit the report of the Intersecretariat Working Group on Health Statistics. The Commission is requested to consider and approve the proposals made by the Intersecretariat Working Group on Health Statistics. Specifically, the Intersecretariat Working Group proposes to continue to develop the Framework over the next year and to convene an Expert Group to review and evaluate the Framework once the initial draft is complete.

### Report of the Intersecretariat Working Group on Health Statistics

#### I. Summary of proceedings

1. The Intersecretariat Working Group on Health Statistics had its fifth meeting (held in two sessions) in Shanghai, China, 13 and 17 October 2008, in conjunction with the conference of the International Association of Official Statistics (IAOS). Both sessions of the meeting were chaired by Jennifer Madans (United States). Representatives of the following countries participated in the meeting: Australia, Brazil, Canada, Norway, the Philippines, and the United States (the South African representative was unable to attend). In addition, an IAOS session focusing on the use of administrative data for health statistics was sponsored by the Working Group. The United States organized the session on behalf of the Working Group and served as chair, with papers presented by members from Canada, the Philippines and South Africa. Closing remarks were given by the member from Brazil.

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\* E/CN.3/2009/1.

\*\* See *Official Records of the Economic and Social Council, 2008, Supplement No. 4 (E/2008/24)*, chap. I.B, decision 39/115.



2. At its meeting in November 2007, the Working Group proposed that it take on the task of developing a Framework for health statistics with the initial development to take place over the following year. The Framework would outline the content of health statistics and the relationship between content and the most common sources of health data. This proposal was put forth to the United Nations Statistical Commission at its thirty-ninth session. The Commission expressed its support for the ongoing work of the Working Group to improve coordination of health statistics and for the proposed development of a framework. Since then, the Working Group has been working on developing an outline and first draft of sections of the Framework. The meetings in Shanghai were held to review and discuss draft sections of the report that had been developed by Working Group members. While the Framework is still being developed, a preliminary draft is annexed to the present report.

3. The Framework is being created in response to the lack of core health statistics for use by countries and for cross-national comparisons. The Framework will facilitate greater coordination between the national statistical authorities and ministries of health. It will also provide a mechanism whereby the funding provided by international agencies and other donors that support a significant amount of health data collection can be directed so that it provides health information for use at the country and international levels. The lack of coordination between ministries and the statistical system and the importance of donors in funding data collection are particularly important in the area of health statistics. A proper framework would also improve the quality of data collection, analysis, and dissemination as well as facilitate the development of technical capacity at the country level.

4. The Framework under development provides a structure for identifying the kinds of information that should be collected, assessing the extent to which these data are available, identifying data gaps, evaluating data quality, and identifying where international standards are needed to support the collection of high-quality information. Specifically, the Framework would clarify the content of health statistics, reflect the nature of relationships between and within content areas, make it possible to identify an overall and coherent data collection system that would provide information for a range of topics so that piecemeal or silo statistical systems can be eliminated, and facilitate the identification of areas where innovative approaches to data collection are needed.

5. The involvement of the statistical community, through the Working Group, in the development of the Framework ensures that the Fundamental Principles of Official Statistics, adopted by the Statistical Commission in April 1994, will be addressed and incorporated, enhances accountability and increases the probability that health statistics will become part of ongoing national data collection systems.

6. Section 1 of the Framework contains a discussion of why a framework is needed and states the objectives it is designed to meet. In section 2, the scope and components of health are discussed. The intent is not to catalogue or evaluate all aspects of health but to provide an overview of the topics that could come under the purview of health statistics. In section 3, the sources of health data are discussed, and, as is the case for section 2, the intent is not to catalogue or evaluate all sources of health and health-care data but to provide an overview of these sources. In section 4 the structure of the Framework is laid out. The intent is to expand on this structure and to describe the components and how they fit together, including the organization of the different topics in the Framework and their interrelationships and to provide examples of measures within each component. Also included would

be a discussion of the issues related to the difficulty of obtaining internationally comparable health measures. Section 5, which has not yet been developed, will present ongoing work in health statistics that can be used to “populate” the Framework (i.e., provide measures for the concepts in the Framework), such as World Health Organization-Family of International Classifications (WHO-FIC), the Washington Group, the Budapest Initiative, disease-specific work groups, the Health Metrics Network, the Statistical Office of the European Communities (Eurostat), and others. A room document is available to update the Commission on the status of the Budapest Initiative and the Washington Group. Section 5 will build on sections 1-4 by linking measures to other ongoing work and current data sources. By doing so it will be possible to identify where there are data gaps and/or the need for international standards development.

7. All of the sections of the Framework included in the annex are in draft form and some are further along in their development than others. The Working Group anticipates that the sections will evolve as they are developed, but this version reflects our ideas about the structure and content of the Framework. In particular, it was necessary to develop sections 1-4 before starting on section 5, which brings together the various components of the Framework. As the Framework is further developed, the Working Group will need to make decisions on how detailed the Framework should be and on the best mechanism to obtain input from those not currently members of the Working Group. This will be particularly important if specific measures are put forward as core measures. Presenting the Framework at a meeting of an expert group, such as was done for social statistics, would be an excellent mechanism for obtaining input from the broader statistical community.

8. In addition to developing the Framework, the Working Group can provide a mechanism to facilitate the institutionalization of health statistics by acting as a link between the statistical system and organizations interested in health and health data, particularly Ministries of Health, WHO and other United Nations system agencies. Rather than duplicate the work in health statistics done by other organizations, the Working Group can suggest new initiatives when needed and could act to vet proposals made by other groups. The Working Group furthers broader accountability given that country members represent their national statistical authorities and the Group reports to the Statistical Commission.

9. Membership in the Working Group should be extended to all countries and international organizations with an interest in this topic and a willingness to devote time to solving long-standing problems. It is also essential that membership of the Group be balanced in terms of geographic region and the level of development of statistical systems. The work of the Working Group over the next several years will be greatly facilitated by a limited number of face-to-face meetings. Some funding will be needed to offset travel costs for some participants. The Working Group is considering holding a meeting in conjunction with the International Statistical Institute meeting in Durban, South Africa, and sponsoring a session at the meeting.

10. The Statistical Commission may wish to comment on the Framework and provide guidance on the overall approach taken, encourage other countries and international organizations to participate in the work of the Working Group, and endorse the Group’s continued work on the development of the Framework. The Commission may also wish to endorse the proposal of holding an expert group meeting in which the Framework is presented and evaluated. Such a meeting would be held once the initial draft of the Framework is completed.

## Annex

### **A Framework for Health Statistics: a preliminary draft prepared by the Intersecretariat Working Group on Health Statistics, November, 2009**

#### **Section 1. The Need for a Framework for Health Statistics**

The field of health statistics has lagged behind other areas of statistics, particularly in relation to reliable, timely, core information on health for use within countries and for cross-national comparisons. One reason for this is that health and health systems are extremely complex. In addition, there is a lack of coordination in the collection and dissemination of health statistics in most countries, which itself is related to the lack of a clear framework and associated standards for health statistics analogous to those developed, for example, by the Organization for Economic Cooperation and Development (OECD) for education ([http://www.oecd.org/LongAbstract/0,3425,en\\_2649\\_37455\\_31603886\\_1\\_1\\_1\\_37455,00.html](http://www.oecd.org/LongAbstract/0,3425,en_2649_37455_31603886_1_1_1_37455,00.html)), and by the United Nations Statistical Commission's Canberra Group on household income statistics (<http://unstats.un.org/unsd/methods/citygroup/canberra.htm>, <http://www.lisproject.org/links/canberra/finalreport.pdf>). The need for improved coordination between the national statistical authorities and ministries of health is a major concern that should be addressed. The availability and quality of health statistics are also greatly influenced by the fact that much of the health information collected in many countries is funded and led by international agencies or other donors that focus mainly on monitoring specific programme activities. Hence, the result is a fragmented system that does not meet basic needs for health statistics either for use by countries or for cross-country comparisons.

The development and adoption of an overarching framework would improve the coordination and quality of health data collection, analysis, and dissemination with the ultimate goal of improved health outcomes. Frameworks provide direction for developing and organizing statistics. In sectors where international frameworks for the production of statistics exist, they facilitate the coordination and improvement of statistical systems and activities by identifying both gaps and areas where statistical development is needed. As a consequence, a framework provides a relatively comprehensive basis for resource allocation at the country level and, for developing countries (where capacity is a challenge both to planning and to managing for results), a relatively clear direction for donor support for priority areas. A framework will also enable donors to streamline their support among programmes and countries and will facilitate the work of international agencies in the development of new methodologies or new ways of adapting existing methodologies to hitherto unfamiliar situations in some developing countries.

#### **Objectives of the Framework**

The Framework will provide a structure for identifying the kinds of information that should be collected; for assessing the extent to which these data are available and with what quality and comparability; for identifying data gaps; and for identifying where international standards are needed to support the collection of high-quality information. It will facilitate dialogue among the national statistical

authorities and other parties that fund or conduct health data collection, including health ministries and other para-statistical organizations such as institutes for public health. Specifically, the Framework will:

(a) Clarify the content of health statistics (e.g., ranging across levels and causes of death, morbidity, health status in terms of functioning, risk factors, determinants of health, health-care service availability, quality and utilization, and health-care expenditures) and the relationship between content and the most common sources of health data (civil registration, population and institutional surveys, disease surveillance and health care, and administrative records);

(b) Reflect the hierarchical nature of information within content areas and highlight the pressing need for general measures of population health but also ones that relate specifically to biomedically defined physiologic conditions and determinants of those conditions;

(c) Make it possible to identify an overall and coherent data-collection system that would provide information for a range of topics so that piecemeal or silo statistical systems can be eliminated;

(d) Facilitate the identification of areas where innovative approaches to data collection are needed;

(e) Facilitate the institutionalization of partnerships among the national statistical offices, ministries of health, and other constituencies within countries.

The development of a Framework for Health Statistics is consistent with the resolution passed by the Executive Board of the World Health Assembly at its 118th session and complements the Health Metrics Network Framework and Standards for Country Health Information Systems. Much work is currently being undertaken in the area of health statistics, including the work of the Washington Group, the Budapest Initiative, Eurostat, OECD, and the World Health Organization (WHO) Family of International Classifications (FIC). This work would be placed within the context of the Framework of Health Statistics.

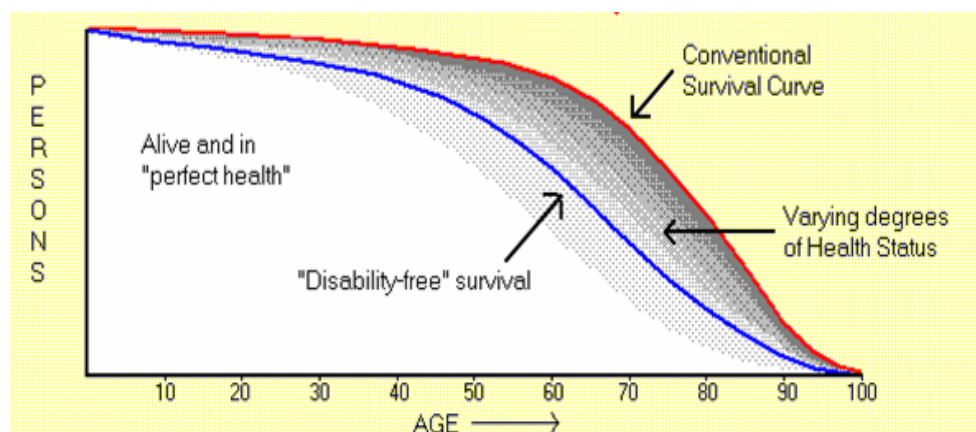
In section 2 of the present document, the scope and components of health is discussed. The intent is not to catalogue or evaluate all aspects of health but to provide an overview of the topics that come under the purview of health statistics. Section 3 contains a discussion of the sources of health data and, as noted for section 2, the intent is not to catalogue or evaluate all sources of health and health-care data but to provide an overview of these sources. In section 4, the structure of the Framework is laid out. The intent is to expand on this structure and to describe the components and how they fit together including the organization of the different topics in the Framework and their interrelationships, examples of measures, and examples of how different sources could be used to obtain measures for different aspects of the Framework. Also included would be a discussion of the issues related to the difficulty of obtaining internationally comparable health measures. Section 5, which has not yet been drafted, will present a discussion of ongoing work in health statistics that can be used to “populate” the Framework (i.e., provide measures for the concepts in the Framework) such as WHO-FIC, the Washington Group, the Budapest Initiative, disease-specific work groups, the Health Metrics Network, Eurostat and others. All sections are in draft form and some are further along in their development than others. The Working Group anticipates that the sections will

evolve as they are developed but this version reflects our ideas about the structure and content of the Framework.

## Section 2. Scope and components of health

Health, defined in the broadest sense, encompasses or can be associated with most aspects of physical, mental, and social well-being. However, the purpose of the present section is not to catalogue or evaluate all aspects of health but to provide an overview of the topics that come under the purview of health statistics.

It should be noted that mortality is often relied on as the sole or central measure of health. While mortality is an important component of health, focusing solely on mortality falls far short of describing the health of a population. As noted in the figure below (Wolfson, M.), mortality statistics produce the conventional survival curve used to measure life expectancy. However, it is important to divide the years lived into those that are lived in varying states which range from “perfect or optimal health” to states that are defined by disease or functional limitation of varying levels. The fewest years lived are in “perfect” health and there are various ways to characterize the remaining years of life. The Framework will address the different measures that can be used to define “perfect” health and to describe “non-perfect” health.



Health information is collected by a variety of stakeholders for a wide range of purposes and reflects the complexity and fragmented nature of many countries’ health systems. This is a key factor in the difficulty of comprehensive and standardized reporting both within and across many countries. However, breaking health down to a range of topics or components which are commonly reported on is one way of scoping the concept of health. Different sources of data and the purpose of their collection (e.g., monitoring population health outcomes, evaluating policy, etc.) play a large role in defining these components. By nature many topics/elements of health information are collected within the health system or from related administrative records and provide information on the health-care system itself as well as on the characteristics of encounters. Information obtained through surveys, or longitudinal data sets, provide different aspects of the picture including aspects of health status, experiences with the health-care system, risk factors, and social determinants. This is discussed further in section 3.

The remainder of the present section divides the components of health into six broad areas for ease of presentation. However, in reality most topics are interrelated. Within each broad area, health statistics should cover distributional issues, with disaggregation by key stratification dimensions including sex, age, socio-economic status, education, ethnicity, geography, and so on. These six areas are the following:

### **1. Mortality**

Mortality is a core component of health. Mortality described for subgroups defined by age, sex, and cause provides a detailed picture of the causes and conditions responsible for the loss of life in a country or population. Of particular interest are child, infant mortality, and life expectancy which are often used as an indicator of the general health and well-being of a population.

### **2. Health status**

The monitoring of the health status of individual groups and communities is a key activity of most health systems. Estimates of prevalence of various conditions in the population provide both benchmarks for improving health outcomes and the information base for the planning, provision and costing of services. New methodological and technological developments permit accurate and unbiased measurement using clinical measures and biomarkers (e.g., for malaria and HIV). Such measures may also extend to broader measures of well-being such as subjective well-being and self-assessed health status. Detailed measures of health status allow comparisons to be made across sections of the population to identify those groups with poorer health outcomes and can also identify where the most opportunity for improvement exists (both across the population and across conditions). Information on co-morbidity can also be an important factor in this type of analysis.

### **3. Disability/functioning**

While closely related to health status from one perspective, data on disability or functioning provide information on the extent to which disabling conditions affect the functioning and activity limitations within a population. Unlike health status or health service use, which can be episodic in nature, functioning usually focuses on longer-term conditions and needs. Issues such as the severity of disability, the length of time with disability, the level of independence, and the need and demand for support are key elements of this type of data.

### **4. Risk factors/prevention**

Information about the biological, genetic, environment and behavioural factors that can lead to ill health is key to prevention for many health conditions. While the risk factors themselves may vary significantly across conditions, information on risk factors is equally relevant for communicable and chronic diseases. Effective prevention improves health outcomes and reduces health system costs. Risk factor information can extend from biomedical measurements (e.g., blood pressure or cholesterol level) through to lifestyle behaviours (e.g., smoking and patterns of physical activity) and socio-economic factors (e.g., income and education). Other issues such as health-related actions, self-management, and health literacy are

elements of risk factor and prevention information, as is the issue of co-morbidity (not only of health conditions but of risk factors themselves).

#### **5. Health systems/services**

The performance of the health system is a key factor in the health outcomes for a population. Performance reflects a complex array of elements, including the availability, accessibility, quality, and use of health-care services. In answering the question “How well is a health system performing in delivering such outcomes?”, issues such as effectiveness, appropriateness, access, efficiency, responsiveness, and sustainability are key. Included in this component are primary and secondary care, interventions, medications, treatments provided and their cost and effectiveness, patient safety and standards of care. As mentioned above, much of the data used to address this component are often system-focused and are generated within the system itself. Data are also generated from requirements for compliance, accountability, and policy evaluation and monitoring. Sustainability around costs and health workforce issues are also key concerns in this area. Statistics on the inputs and processes of health system functioning, including the availability and distribution of health infrastructure, health workforce, and essential medicines, equipment and technologies, are essential for health sector planning and management. Services are evaluated not only on their availability but also on accessibility, affordability, quality and acceptability. Statistics on the use of health-care services, disaggregated by key stratification dimensions are needed to enable health planners to appropriately target vulnerable or neglected population groups.

#### **6. Health expenditure**

The balance of public, private (both business and household), and foreign expenditures on health can affect the effectiveness and cost of health systems, access to treatment, and ultimately can lead to differential health outcomes across the population. However, expenditure on health is a major component of domestic spending, with even the more affluent countries facing issues of sustainability and the need for efficiency as a result of population ageing. Detailed information about expenditure patterns, unit costs, health insurance systems, subsidies, and cost projections are key elements of this topic. In many settings, resource allocation is the responsibility of district level health-care managers; financial data are needed to reflect this trend.

### **Section 3. Sources of health data**

Health data are collected through a broad range of approaches and are found in multiple sources. The Framework can help to bring consistency to these different data sources and improve the quality of the information. The present section reviews the more important data sources for health data. It outlines their strengths and weaknesses and addresses how they can be improved for use in health planning and policymaking as well as towards effective and cost-efficient health intervention programmes.



## Basic requirements of statistical sources

Health statistics at present are not bound by any health data standards except for general standards such as the Fundamental Principles of Official Statistics, the European Statistics Code of Practice, and other statistical quality standards. While there are no existing efforts to develop a specific standard for health statistics, there are some current efforts focused on building health frameworks such as the Health Metrics Network and the National Health Accounts framework. There are a number of disease-specific quality frameworks along with the classification systems operated by WHO.

**Fundamental Principles of Official Statistics.** The Fundamental Principles highlight the importance of official statistics in addressing the information needs of a country and elaborate on the required quality, utilization, and dissemination of official statistics. They prescribe the need for laws to back up their use and ensure privacy (confidentiality) of data. Health statistics, if official, have to conform to the Fundamental Principles. Principle 5 addresses specifically official statistics sources: data for statistical purposes may be drawn from all types of sources, be they statistical surveys or administrative records. Statistical agencies are to choose the source most appropriate to their specific needs taking into consideration quality, timeliness, costs, and the burden on the respondents.

**European Statistics Code of Practice.** The European Statistics Code of Practice is more concrete and detailed than the Fundamental Principles, while the Fundamental Principles are more explicit about statistics as an indispensable element in the information system of a democratic society. The Code of Practice comprises 15 fundamental principles for the production of official statistics, all following the qualities adopted by several countries. Although the International Monetary Fund (IMF) and the OECD operate with a somewhat different set of quality dimensions, the main elements are the same as those covered by the European Statistics Code of Practice.

**Statistical quality standards.** Statistical quality standards such as those developed by IMF can be used as a measure of the quality of available health statistics.

**Health Metrics Network.** The Health Metrics Network has proposed a framework for health information systems that considers the full range of health information from inputs and processes to outcomes and impact. While this can address completeness of health data, it cannot assure quality of health data or the content.

**National Health Accounts.** The National Health Accounts is a framework for the compilation of information on a country's health expenditures. It consists of a set of statistics that systematically presents national health spending for a given year. Specifically, it provides information on: (a) how much is being spent on health care; (b) who pays for health care; (c) what health-care services are being provided; and (d) how much it costs to administer health financing schemes. It provides insight on the efficiency and the effectiveness of health-care financing and helps determine appropriate interventions to improve the delivery of health care. As a framework, it can provide checks and consistency in the estimates.

**International standard classifications.** These are internationally accepted norms that countries should use whenever possible, for international comparability. The International Classification of Diseases and the International Classification of Functioning, Disability and Health are examples of major classifications used for health statistics. Correspondence tables that link national classifications with international ones are useful.

The choice of sources for core health measures will be influenced by the information required, availability and frequency, feasibility, costs, burden on the respondents, and by balancing the need for time series and historical comparability with major changes that must be identified over time.

## **Censuses**

Censuses can provide a major source for health data. They provide a macroview of the relevant target population, and the information can either be collected through interview or by a self-completed questionnaire, or by a combination of both methods.

The United Nations and some regional commissions develop recommendations for the conduct of the Population and Housing Censuses. Both areas covered by the census, demographic characteristics of the persons and characteristics of the housing units and other living quarters, can be useful for health planning and policymaking. Censuses can include indicators of life expectancy at birth, child and adult mortality and disability, and the number and distribution of health-care workers. Censuses are also not limited to population and housing but can include data collection from municipalities about the municipality's health-care services or from health-care providers.

### *Strengths and weaknesses*

While censuses provide a total picture of the target population, they are expensive to conduct and, as many are self-completed household forms, do not lend themselves to the complex and sometimes sensitive information about health. Censuses directed towards a smaller target population are cost-effective ways of collecting a wide range of information. It is, however, important to take into account the burden on the respondent, because apparently easy questions, for example, about hospital care, might involve going through all hospital records and performing complicated calculations on the part of the respondent. This again might lead to either poor compliance, which affects data quality or cause a much-too-heavy response burden or both.

## **Sample surveys**

Sample surveys are a major source of health statistics. Notably they can produce population prevalence rates (e.g., for symptoms, disability, and risk factors) which cannot be obtained through administrative data based on service usage. Similarly, they can be used to identify potential or unmet demand for health services and can provide population measures of health behaviours and risk factors. Similar to a census, the information can either be collected through an interview or with a self-completed questionnaire, or a combination of both methods. As in the cases of

censuses, sample surveys can be of the population or of health facilities or other entities. The material below primarily focuses on surveys of the household population.

Sample surveys are a source for statistics on health status, the utilization of health-care services, and health behaviours. In most low-income settings, household surveys are the major source of information on child mortality, through detailed birth histories or indirect methods. In some cases, sample surveys are the only available data source, for example, in the case of self-reported health status or user satisfaction, when the respondent expresses an opinion that can never be found in an administrative source. Sample surveys are also often a good tool to use for describing the outcomes of health.

Sometimes these can be an alternative to a census that would be too expensive or impose too heavy a reporting burden on the informants.

Sample surveys in some countries can work as an alternative to non-existent vital registration, although in the long run the resources used for the survey should not endanger the establishment of well-functioning vital registration.

#### *Strengths and weaknesses*

Population surveys have an advantage over system-based administrative data which can only reflect actual services usage. Another advantage of survey data is the direct control that can be exercised over the data content, since it is possible to ask questions on precisely those subjects on which information is sought. This can lead to very good international comparability.

Surveys are the only alternative data source when we are interested in the informant's report of certain health characteristics such as pain, fatigue, or some aspects of functioning or their evaluation of their health status, or any other data that will never be found in an administrative register.

Data from sample surveys in general can be processed and published much more rapidly than register data, when modern techniques such as Computer-Assisted Personal Interviewing (CAPI) and Computer-Assisted Telephone Interviewing (CATI) are used.

Sample surveys are a relatively costly method of collecting data. Non-response may cause biases in the results, and interviewed households/persons are not always able or willing to give accurate answers, particularly regarding disease diagnoses or services received.

**Disease reporting:** Section to be added.

## **Administrative records**

### **Registers**

Some countries have a long tradition in using administrative registers in the production of official statistics. In recent years, an increasing number of countries are considering the possibility of producing statistics based on administrative registers.

A register is a systematic collection of unit-level data organized in such a way that allows updating. Updating is the process of keeping track of any changes in the data describing the units and their attributes. Computerized registers are easier to utilize as statistical sources than are registers based on paper records.

Although the importance and feasibility of registers as a source for statistics will vary from country to country, experiences from several countries show that a strategic register can lead to lower costs and lower respondent burden.

As a rule, registers contain information on a complete group of units in a target population (e.g., persons, hospitals). These units are defined by a precise set of rules (e.g., health personnel working in hospitals), and the attributes are updated in line with changes experienced by the units. At the most basic level, a register might be a list of all units in the target population and nothing more. In practice, most registers also contain some additional characteristics for each unit. Some units that are relevant to health statistics are events related to persons such as demographic events (births, deaths).

A key requirement is that each unit in the register can always be uniquely identified. This is best achieved by using a system of identification codes, but identification is also possible without such a code if sufficient information on the units is available (for persons these might be name, address, date of birth, etc.). The same identification code sets across registers enables linkage, but not all registers use the same identification code sets, so not all registers might be linkable.

Administrative registers are registers primarily used in administrative information systems. Some administrative registers used for statistical purposes are country-wide registers operated by the State or jointly by local authorities, for example, vital registrations on births and deaths. Private registers can also be used, for example, registers operated by private health-care providers.

Statistical registers are created by processing data from administrative registers. Statistical registers can be based on a single administrative register, or on combined data from several administrative sources.

Administrative registers should be as comprehensive and accurate as possible, but even incomplete registers can be used for statistical purposes.

It is important that statistics follow up the same events and units over time. The definitions in the administrative registers should not change over time, to ensure historical comparability. Time dimensions and dates of events should be included in administrative registers and central in statistics.

Many countries have an official administrative registration of causes of death. The coverage and degree of computerization might vary from country to country, but this can usually be a good source for statistical purposes.

Information in administrative registers can be stored in a variety of ways. In many countries, the administrative registers used for statistical purposes are computerized and data are available in electronic format.

### **Why administrative data for statistical purposes**

From the public's point of view, using administrative data for statistical purposes has the following advantages:

- Cost efficiency
- Informants are not burdened with unnecessary inquiries
- Data security can be better if the number of persons handling the data is limited
- Electronic format can improve respect of privacy.

One major factor that facilitates the statistical use of administrative data is the use of a unique identification system both within the same source over time, and across different sources. In the absence of such a unique identification system, it is much more difficult to produce meaningful statistics that are much more than event counts.

### **Legal requirements**

Legislation provides a foundation for the use of administrative data sources for statistical purposes. National legislation should reflect the international guidelines to lessen the response burden on the informant, so that it can be possible to take advantage of existing administrative data sources rather than recollect data for statistical purposes. In some countries, there is an obligation for producers of statistics to use, first and foremost, data already collected for other purposes. The national statistical office is first obliged to evaluate whether the data are available in administrative registers before starting a direct data-collection process.

Some countries have legislation on the processing of personal data to ensure that the establishment and use of computerized registers containing personal information are undertaken while protecting the privacy and legal rights of the individuals.

The establishment of more and more administrative registers in society may of course cause discussions on privacy issues, especially for health information. If the public is sceptical or negative, politicians may be reluctant to establish new registers or upgrade existing ones, or they can limit the statisticians' access to health registers.

It is important that the general public appreciates and understands the benefits of using register sources for statistical purposes and that there is broad public approval of the use of administrative registers for statistical production. It is vital that the national register legislation is up to date and that the work of the register authorities is open and transparent.

### *Strengths and weaknesses*

Administrative registers in principle provide total coverage of the relevant population, while collection and processing costs of the statistics are kept relatively low. It is usually possible to produce more detailed statistics using administrative registers than using sample surveys, for example, statistics for small geographic areas or for detailed classification criteria.

Register data have a large potential because different registers can be linked together by clearly defined unique identifications. Data from administrative registers are usually consistent and of high quality for the administrative purposes

they serve. When register data are used for statistical purposes, problems concerning consistency and data quality may be revealed.

Under-coverage in registers may cause biases in the data, as non-response in sample surveys does.

Statisticians are to a large extent bound by the definitions and administrative practices of the authorities responsible for the registers. Data from administrative sources may be regarded as the authorities' point of view. Furthermore, statisticians are not close to the actual data collection, and might not be knowledgeable enough about the precise data content, processing and quality. The best way to tackle this problem is by having a close cooperation between statisticians and the authorities responsible for the administrative registers.

Administrative registers do not always contain all the variables or observations that are necessary for the relevant statistics. In such cases, additional information may be collected from sample surveys, not only to complete the statistics (as in case of under-coverage), but also to assess the quality of the data and to show different sides of the same issue (e.g., to compare morbidity from hospital records with self-assessed health).

## **Health-care records**

Even if an administrative register of health-care records is not in place, records from health-care providers are often used to generate health statistics. Two types of information can be generated from these records: (a) information generated through the reports of health facilities, such as use of medicines, supplies, patient beds, average length of stay; and (b) information that is generated from individual records such as diagnoses, patient characteristics, procedures provided and survival.

## **Accounting systems**

### **At the national level**

Accounting systems such as those kept by governmental units, hospitals, and insurance companies are also potential sources of data for the health sector. The data generated from these sources include health costs and financing.

Periodically, hospitals, other health institutions, and local and central governments keep records of their costs, revenues, and financing sources using accounting systems. Accounting reports are generated, often to update management on status of hospitals or health system's finances and performances. Accounting reports often include summaries of revenues and expenses, assets and liabilities, and cash flows. In addition, the various institutions or government units come up with a variety of detailed reports and exhibits. The reporting period may be annual, quarterly or monthly.

### *Strengths and weaknesses*

These systems do not use a uniform reporting form, and they may or may not be computerized. Where computer systems are used, the statistics can be produced by using electronic file extracts from the various accounting systems.

Because the accounting systems are constructed in different ways, it is necessary to classify and code the different items in order to allow generation of comparable and consistent aggregate values. It is also necessary to have editing and quality controls to ensure coherence between data from different sectors and institutions. The edited/revised values will give a picture of the overall health costs, which can be broken down into sectors and institutions. Indicators can be constructed that will give information on the activity, priority, productivity and coverage of needs. By standardizing the input information, it is possible to compare regions, institutions and groups of institutions as well as to monitor development over time.

#### **At the international level**

The OECD System of Health Accounts (SHA) provides a framework for reporting cost, revenues and financing that is comparable with other countries. The System also serves as a guideline in the work of systemizing and standardizing the national accounting data sources.

As a framework it produces a set of comprehensive, coherent, consistent, and internationally comparable accounts to meet the needs of public and private sector health analysts and policymakers (OECD, 2000). Thus, it addresses the issue of international comparability on reporting cost, revenue, and financing.

The SHA manual establishes a conceptual basis of statistical reporting rules that are compatible with other economic and social statistics. It proposes an International Classification for Health Accounts (ICHA) — currently in its 1.0 version — which covers three dimensions of health care:

- Health-care financing (ICH-HC)
- Health-care service-provider industries (ICHA-HP)
- Sources of financing health care (ICHA-HF).

## **Section 4. Structure of the Framework**

The Framework presents a way to organize the various dimensions of health that need to be addressed by the statistical system and to show the interrelationships among them. The Framework is organized with the more general measures of health at the top supported by more and more specific measures. The relationships between and among measures are not necessarily causal; rather they resemble a highly complex web. The intent of the Framework is not to specify each relationship but to identify the kinds of measures that are included under the general rubric of health statistics and to broadly outline the nature of the relationships among them. A brief outline of the structure of the Framework, and a description of the types of measures included, follows.

**General measures of health.** These measures are generally considered to be the core health indicators that are needed to monitor the overall health status of a population. Levels and changes in these measures result from a variety of factors that are captured by other measures in the Framework. Many different combinations of more specific measures can result in a single value on a general measure so that equality on these measures can reflect very different health conditions. The

measures generally are not actionable in that they do not provide information on what needs to be changed in order for the health to change. Despite these characteristics, these measures provide a good description of the overall health status of populations or subpopulations. The measures should be sensitive to health improvement policies and programmes that are enacted or to degradation in the health-care system or the economic or social structure. The measures currently available may not meet all these criteria, but the intent is that the criteria be met. General health measures include: life expectancy; infant mortality; and self-rated health.

Another type of general measure is a summary measure. These kinds of measures are highly constructed and often composite in nature. Examples are the various health-adjusted life-expectancy measures which aim to indicate not only length of life but health-related quality of life as well. These measures require information on mortality as well as non-mortality measures of health and a way to combine the two in order to describe the number of “healthy” years a person in a particular population may expect to live based on the prevailing mortality and health status outcomes of that population. The Framework provides a resource for the non-mortality measures of health that can be used in summary measures.

**Measures of the functional status of the population** (referred to as health state by the Budapest Initiative). Functioning can be measured across a range of domains, including sensory, mobility, cognition, psychological, communication, and upper body. Disability measures are also included in this level as they combine functioning with information about the environment to describe the extent to which all citizens can fully participate in society. The Budapest Initiative and the Washington Group are developing measures of functional status.

**Biologic measures including physiologic characteristics, pathologies, and diseases.** Diseases or conditions are defined by a range of pathological characteristics that themselves relate to biologic structure and function. These physiologic characteristics can be complex and measured at the organ (or multi-organ) level or can be more targeted such as genetic abnormalities or predispositions. Measures of disease states are common and there are many examples of disease-specific measures available. Cause-of-death measures would be included here. Also included in this set of measures would be characteristics such as pain or fatigue.

**Risk factors.** This set of measures includes factors that either increase or decrease the risk of developing pathologies and diseases and, therefore, affect functional levels and general measures of health. Specific examples are diet and nutrition, smoking, and physical activity.

**Related factors.** There is a wide range of factors that are related to health. A major set of measures relate to health care, including supply, access, utilization, expenditures, and system characteristics. Characteristics of the public health system and public health interventions constitute another major component, as do factors related to socio-economic status at the individual level and as a structural characteristic. The relationships between these factors and health are complex.

**Relationship among groups of measures.** One way to illustrate how the matrix would be constructed is to consider an example. A general measure of health, life expectancy, provides information on levels of mortality but not on how the years



lived are spent. The latter information would be found in the section of the matrix on functional status. Variation in functional status can be caused by a range of pathologies related to body structure and function, which themselves are related to biologic, genetic and environmental factors. In developed countries, chronic conditions account for much functional limitation; information on the prevalence of these conditions would be provided by the set of measures that deal with biologic measures. In developing countries, infectious diseases are related to functional limitations and death; the Framework would recommend the inclusion of measures of these conditions. Risk factors and preventive efforts specific to the disease entities are included in that sector of the Framework, as are related factors such as environmental effects, including level of sanitation and whether environments are conducive to physical exercise.

## **Section 5. Ongoing work (mapping measures to the Framework)**

To be developed. Section 5 will present ongoing work in health statistics that can be used to “populate” the Framework (i.e., provide measures for the concepts in the Framework), such as the World Health Organization-Family of International Classifications (WHO-FIC), the Washington Group, the Budapest Initiative, disease-specific work groups, the Health Metrics Network (HMN), Eurostat, and others. Section 5 will build on sections 1-4 by linking measures to other ongoing work and current data sources. By doing so, it will be possible to identify where there are data gaps and/or the need for international standards development.

## **References**

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