

Purposes and Limitations of International Health Comparisons

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The health of U.S. residents is compared with that of residents of other developed countries to answer both medical and health policy questions (128). Identifying international differences in health status can be the first step in uncovering the causal mechanism of disease. The observation of large differences in U.S. and Japanese rates of cardiovascular disease led to comparisons of dietary behaviors later identified as important heart disease risk factors.¹ International comparisons can also be used to corroborate a trend observed within one country. For example, the decline in cardiovascular disease noted in the United States has also been observed in several other developed countries (183).

International differences in health status can also indicate major public health problems. The observation that infant mortality rates are higher in the United States than in many other developed countries has alarmed policymakers and prompted studies of international differences in maternal and child health care delivery, perinatal risk factors, and vital statistics reporting (217,220,232).

In an effort to gauge how changes in U.S. health policies or practices might affect the health of the population, comparisons are sometimes made between the United States and countries whose sociodemographic characteristics are similar to those of the United States but whose health care financing or delivery mechanisms differ. Such predictions, however, are difficult to base on international comparisons because so many other

¹ A comparison of coronary heart disease, stroke, and suspected risk factors among Japanese and Japanese-Americans in Hawaii and the U.S. mainland led to the identification of dietary habits (fat consumption) as causal factors in the development of cardiovascular disease (12).

factors—including population, social, and environmental characteristics—influence health status. Interpreting international differences in health status is further complicated by evidence that some differences in health indicators reflect disparities in how countries define and measure health outcomes. Nonetheless, although difficult to interpret, measurements of health status are important social indicators, and great differences in the health status of the residents of two or more countries can stimulate further research into the underlying complex of contributing factors.

PROBLEMS IN MAKING INTERNATIONAL HEALTH COMPARISONS

The ability to make international comparisons rests on the availability of accurate national health statistics. The usual sources for data on the health status of the population include (256):

- vital statistics (e.g., certificates of births and deaths);
- population and housing censuses;
- routine health service records (e.g., hospital discharge data);
- epidemiologic surveillance data (e.g., reporting of infectious disease and other health occurrences);
- sample surveys (e.g., household surveys of health characteristics, knowledge, and practices);
- disease registers (e.g., cancer registers); and
- nonhealth sector sources (e.g., employment records of workplace injuries).

The most comparable health status data come from vital statistics systems, such as for births and deaths, because developed countries register virtually all events and generally adhere to certain international standards for recording the events. But despite the degree of uniformity, differences

in data collection can undermine international comparisons. Countries appear to differ, for example, in distinguishing between infant and fetal deaths and recording causes of death (see chapters 3 and 4).

Most residents of developed countries live to at least the age of 70, and death rates at younger ages are relatively low. Measures that assess the consequences of living with chronic illnesses or disability are therefore also important. One country may have a lower death rate than another, but devote inadequate resources to maintaining a good quality of life for people who are chronically ill or disabled. Mortality data are uniformly available for developed countries, but virtually no morbidity or disability data are currently available for making international comparisons although some interesting measurements have been conceptualized (see chapter 5).

International comparisons of morbidity and disability are extremely difficult to make, in part because a consensus regarding measurements of outcomes is lacking, and also because countries have very different systems for monitoring morbidity and disability. The burden of disease and injury can be measured in several ways, each of which poses unique difficulties in an international context. The prevalence of chronic disease can be measured through medical examination surveys, through self-reports on interview, from hospital discharge information, or from disease registers or surveillance systems.

Each of these informational sources may be used to assess health status within countries. In the United States, for example, information on the prevalence and consequences of disease and injury comes from the National Health and Nutrition Examination Survey, in which a sample of U.S. residents is interviewed, examined by a clinician, and provided laboratory tests (229).²

² Few other developed countries have an ongoing periodic health examination survey similar to the U.S. National Health and Nutrition Examination Survey. Canada conducted examination surveys in 1978-79 (provincial surveys have subsequently been conducted), Finland conducted a survey in 1977-80, and the former German Democratic Republic conducted annual examinations of its working population (175,272).

Self-reported health status, disability, utilization of health care, and risk factors for disease are determined through the National Health Interview Survey. Hospital records are examined in the National Hospital Discharge Survey to identify why hospitalizations occur and which surgical and diagnostic procedures are used. The extent to which a condition prompts visits for ambulatory care is evaluated through ambulatory care surveys.³

Most health-related information (other than mortality data) used in international comparisons comes from population-based surveys. Most countries include information on chronic illness, disability, and self-perceived health on these surveys, but the questions asked in the surveys differ to such an extent that comparisons of responses cannot easily be made (44,272). International efforts are underway to standardize morbidity and disability concepts and survey questions (see chapter 5).

Using hospital discharge data for international comparisons has the potential advantage of examining health outcomes closely linked to specific clinical interventions (e.g., hospital surgical outcomes) (154). Such comparisons, however, are not always feasible because some countries don't record surgical procedures as part of their hospital statistics (e.g., France, Italy, Japan, and Spain). Furthermore, hospital-based data may not be comparable because of differences in how data are collected⁴ and how hospitals are defined.⁵ Added difficulties arise because in some countries, including the United States, surgical procedures once performed in hospitals are increasingly being conducted on an outpatient basis and

are thus not fully reflected in hospital statistics. International hospital-based comparisons are also **difficult** to make because of the lack of uniform information with which to adjust outcomes for differences in the health status of hospitalized patients. Such adjustments are important because of apparent differences in the rates at which procedures are used, which could mean that countries use different criteria in selecting patients for some procedures.⁶

HOW SHOULD INTERNATIONAL HEALTH STATUS COMPARISONS BE MADE?

The availability of computerized international health databases has facilitated international comparisons of health status, but such comparisons are limited because of differences in how the individual countries define and collect data that are reported to these databases (1 32,265). Several efforts are underway to thoroughly analyze the comparability of data sources that serve as the basis of international health comparisons.

The Inter-Country Working Group on Comparative Health Statistics (IWG) was established in 1991 through the U.S. National Center for Health Statistics (NCHS) to promote international comparability of health data. The group, which includes representatives from Canada, England and Wales, France, the Netherlands, and the United States, has developed a checklist to provide a standard format for evaluating the characteristics and comparability of health statistics among countries (41). After using the checklist to assess the comparability of national data *on* mortality and hospitalization associated with

³In the United States, ambulatory care data are available through the National Ambulatory Medical Care Survey, and the National Hospital Ambulatory Care Survey which cover visits to physicians' offices, hospital outpatient clinics, and other ambulatory care providers (233).

⁴U.S. hospital discharge data, for example, are obtained from a sample survey, whereas French discharge data are based on a complete count of discharges from public hospitals, only half of which respond in a given year (199).

⁵Discharges from long-term care facilities are included in some countries' hospital discharge surveys (e.g., Canada, England and Wales, France, Sweden) but are excluded in the U.S. National Center for Health Statistics (NCHS) hospital discharge survey (199). Information on nursing home stays in the United States is available through the National Nursing Home Survey (40).

⁶International comparisons of some of the characteristics of hospitalized patients and the conditions that lead to hospitalization can be made using selected countries' hospital discharge data (103).

diabetes, the IWG concluded that trends in different countries would be difficult to compare because of probable differences in data collection, coding, and clinical practices (41).

A model for conducting international comparisons of health status is NCHS's International Collaborative Effort (ICE) on Perinatal and Infant Mortality. Since 1984, representatives of the United States and 10 other industrialized countries have conducted comparative analyses using a database maintained by ICE members (128). ICE has been instrumental in identifying some sources of international differences in infant and fetal mortality (see chapter 3). A second ICE, the International Collaborative Effort on Aging was established in 1988. Existing data will be used to research the following prioritized areas (225,239):

- health promotion and disease prevention;
- measurement of vitality in older persons;
- comparative analysis of hip fracture;
- functional disabilities; and
- measurements of outcomes of nursing home care.

A third ICE is planned to address injury.

The U.S. NCHS also publishes an *International Health Data Reference Guide*, which provides information from 34 nations on the availability of selected national vital, hospital, health personnel resources, and population-based health survey statistics (222).

The World Health Organization (WHO),⁷ the health unit of the United Nations, assumes an important role in standardizing, collecting, and disseminating statistical information about health. For example, WHO publishes and revises the *International Classification of Diseases, Injuries, and Causes of Death*, a classification system used throughout the world to ensure the uniform-

ity of mortality statistics.⁸ WHO has also published the *International Classification of Impairments, Disabilities, and Handicaps*, which has facilitated the collection of disability statistics (see chapter 5). The WHO Regional Office for Europe surveyed the statistical agencies of selected countries and detailed the difficulties of making international morbidity and disability comparisons because of differences in how health indicator data are collected in population-based surveys (see chapter 5) (44).

SUMMARY

The purposes of international comparisons of health status include exploring causal mechanisms of disease, identifying possible important public-health problems, and investigating the health consequences of health care policies. Differences in national systems for reporting health data make some international comparisons difficult. Although deaths are uniformly reported in developed countries, consensus is lacking as to which nonfatal health outcomes are important, and as to how these outcomes should be measured and collected. WHO, the U.S. NCHS, and others have recently launched efforts to improve and standardize public health surveillance, in part to help monitor progress toward achievement of national "year 2000" health goals (212,266,272).

A model for making international comparisons of health is the U.S. NCHS International Collaborative Effort on Perinatal and Infant Mortality. Large apparent differences between the United States and other developed countries with regard to birth outcomes prompted NCHS to organize a consortium of international experts on perinatology, epidemiology, and statistics. Recognizing that available sets of national data were not comparable, the group has assembled an interna-

⁷ As of 1990, WHO had 166 member states in six regions: **Africa**, the Americas, Eastern **Mediterranean**, Europe, Southeast **Asia**, and the Western **Pacific** (262). Developed countries include Australia **Canada**, Europe, **Israel**, **Japan**, New Zealand, the former Union of Soviet Socialist Republics, and the United States (260).

⁸ WHO also publishes the *World Health Statistics Annual*, which summarizes, for individual countries, demographic, and vital statistics and selected health system characteristics (e.g., **health** personnel data) (260).

tional database so that detailed comparisons of fetal and infant mortality can be made. Using a similar model, a second ICE is underway at

NCHS to address issues related to aging, and a third ICE on injury is planned.