Summary and Findings 1

T he United States spends a higher proportion of national income on health care than any of its peers in the international community and yet continually ranks poorly in *some* key indicators of health. Death rates for infants, children, and young and middle-aged adults, for example, are substantially higher than in other industrialized countries. Policymakers have hoped that by looking to countries with better health status measures and lower spending, they might find solutions to U.S. health care problems. However, the determinants of a nation's health status are myriad, many falling outside the usual bounds of the health care system. This Office of Technology Assessment (OTA) analysis of international health statistics concludes that while comparisons are extremely useful for identifying health differences and beginning to elucidate the reasons for them, they are not particularly useful in formulating prescriptions for the U.S. health care system.

INTRODUCTION

The health of a nation's people can be gauged, however imperfectly, through aggregate statistics on factors such as births, deaths, personal behavior, and the use of health care. Seeing how countries stack up and how big the differences are among them is a first step in identifying the factors that enhance or detract from health. The range of values for these ''health indicators'' among countries provides clues about the practical limits of what can be achieved. Eventually, some of the knowledge gained may be put into practice through health policy; however, the link between health indicators and the health care system is not necessarily direct. Because many factors outside the health care system itself-ranging from

unhealthy behavior on the part of individuals to the availability of guns to the wide ranging effects of unequal income distribution-affect the level of health of a population, changes in the health care system alone will not necessarily improve health indicators.

This background paper describes:

- how the health of U.S. residents compares with people in 12 other developed nations,
- why international comparisons are hard to interpret, and
- what new measurements and analytic approaches might improve international comparisons of health.

The comparison countries are Australia, Canada, France, Germany,[1] Italy, Japan, the Netherlands, New Zealand, Norway, Spain, Sweden, and the United Kingdom. Other countries are compared sometimes, as well, and separate comparisons between the United States and Canada have been made in several areas.

This paper is part of a larger project, *International Differences in Health Care Technology and Costs. The* main report, to be published in 1994, looks at variations in expenditures and resources used in some specific areas of health care among developed countries. The House Committee on Ways and Means, Chairman Dan Rostenkowski, asked OTA to do this assessment.

KEY FINDINGS

Do available international statistics allow us to determine whether real differences **in health status exist?**

- Despite some measurement problems, international statistics show real differences in health status between the United States and other developed countries. Measures that can be used with some confidence include age-specific mortality, life expectancy, and broadly defined cause-specific mortality. International compar-

isons of infant mortality can be made when vital registration reporting differences are taken into consideration. In contrast, comparisons based on detailed cause of death (e.g., deaths from tuberculosis, specific types of heart disease, and suicide) are not amenable to making international comparisons. There are virtually no population-based data available with which to make meaningful international comparisons on the prevalence of disease and disability.

How does the United States compare with other developed countries?

- Compared with 12 other developed countries, the United States generally has higher death rates among infants, children, and young to middle-aged adults. Many of these mortality differences are quite large. If, for example, the United States had Canada's more favorable age-specific mortality rates, it would have **9** percent fewer deaths (i.e., 192,200 U.S. deaths would have been avoided in 1989). Most of the ''excess' U.S. deaths relative to Canada are in the 45 to 64 age group.
- The gap between the U.S. and other countries' infant mortality rates may not be as wide as indicated by reported statistics. Some of the gap is explained by differences in how doctors record fetal and infant deaths in different countries. Nevertheless, while there is ample evidence that the U.S. international rank of 24 of 39 countries is overly pessimistic, the true rank of the United States is probably no better than 20, a rank that has deteriorated considerably over time.
- The United States compares quite favorably to other developed countries on some important health risk factors. For example, fewer U.S. than Canadian or European residents smoke, and more U.S. than Canadian or European residents undergo some tests for cancer.

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[1] **All** data throughout this paper are from the former Federal Republic of Germany.

■ Within the United States, infant mortality rates correlate inversely with socioeconomic status. Differentials related to socioeconomic status as large as those found in the United States exist in several other developed countries, even where there is universal access to high-quality medical care.

How should international health status differentials be interpreted?

■ One cannot determine the exact reasons for international differences in health status with available international statistics. Among the factors that might contribute to differences are: socioeconomic, environmental, and cultural factors; personal risk behaviors; and access to health care.

■ Because health status is the result of complex interactions between many social, biological, and health care factors, health status indicators may be considered as useful *social indicators. They are not* by themselves useful measures of the success or failure of a country's health care system.

DETAILED FINDINGS

Purposes and Limitations of International Comparisons of Health

The reasons for comparing the health status of different countries include exploring the causal mechanisms of disease, identifying important public-health problems, and investigating how health care policies affect health. Differences in national systems for reporting data hamper some international comparisons. Although deaths are uniformly reported in developed countries, consensus is lacking about which nonfatal health outcomes are important and about how to measure them and collect the data. The World Health Organization (WHO), the U.S. National Center for Health Statistics (NCHS),[2] and others have

recently launched efforts to improve and standardize public-health surveillance, in part to help monitor progress toward achieving national goals for health by the year 2000.

A model for international comparisons of health is the NCHS International Collaborative Effort (ICE) on Perinatal and Infant Mortality. Great disparities between the fetal- and infant-mortality rates of the United States and those of other developed countries 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 international database, which allows detailed comparisons of fetal and infant mortality. Using a similar model, a second ICE is currently addressing issues related to aging, and a third ICE will address issues related to injury.

Sociodemographic Characteristics of Comparison Countries

The chief sociodemographic difference between the United States and the comparison countries lies in the sizes of their populations. The United States has nearly 250 million residents, twice as many as Japan, nearly 10 times as many as Canada, and 75 times as many as New Zealand.

Another difference lies in what proportions of the residents fall into the various age groups within each country. The United States has a relatively young population and will remain younger than Western Europe and Japan through the year 2025, even though our baby boom cohort will have reached the age of 65 by then.

The United States is racially and ethnically diverse, with about one-fifth of its residents belonging to minority groups. Although comparable data on the ethnic and racial compositions of other countries are limited, available information suggests that foreign migration to Western Eu-

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[2] **The** National Center for Health Statistics is an agency of the Centers for Disease Control and Prevention within the U.S. **Department** of Health and Human Services' Public Health Service.

rope has increased in recent years, contributing to the presence of sizable, disadvantaged, minority populations.

High proportions of residents participate in the labor forces of all the comparison countries, and the principal differences lie in the extent to which women and the elderly are economically active. Women's participation in the labor force is highest in Sweden, lowest in Australia, and intermediate in the United States. The United States, Norway, and Japan have relatively more elderly in the labor force than do the other countries.

Poor health is associated with poverty and with large disparities in income levels, both of which apply to the United States. Poverty rates are higher in the United States than in most comparison countries, and the distribution of income is relatively unequal in the United States, compared with other countries such as Sweden, Norway, and Japan.

Health insurance coverage improves health, and most residents of all 12 comparison countries are covered. By contrast, a large segment of the U.S. population has no health insurance.

Infant Mortality

Of **39** developed countries, the United States ranked 24th in infant mortality in 1990. The U.S. infant-mortality rate (9.2 per 1,000 live births) was 35 percent higher than Canada's rate (6.8 per 1,000 live births) and twice as high as Japan's rate (4.6 per 1,000 live births). The U.S. international standing was much better in 1950 and 1960, but infant mortality has declined much more rapidly in the other counties than in the United States.

Interpreting international differences in infant-mortality rates is difficult, because counties vary in how they report vital events. Available evidence suggests that infant-mortality rates are inflated in the United States, because many events that would be considered fetal deaths in other countries are counted as live births in the United States. U.S. rates would be comparable to those of Japan if infant deaths were combined with fetal deaths that occurred after at least 20 weeks of gestation. Such a comparison might be invalid, however, because evidence suggests that the United States undercounts early fetal deaths. Moreover, despite the fact that the current international rank of the United States is overly pessimistic, its true rank is probably no better than 20th.

Among the factors associated with whether an infant will live or die in its first year are the infant's race, sex, birth order, place of residence, birthweight, gestational age, and whether it is born alone or as part of a set of twins, triplets or other multiples; additional factors include the mother's age, prior experience with pregnancy, state of health, personal habits (e.g., smoking, drinking alcohol, obtaining prenatal care), and socioeconomic status. How these biological and social factors interact to influence infant mortality is unclear, but available data should aid in the assessment of how the factors vary in relation to infant-mortality rates in the United States and abroad.

By applying new analytic methods to an international perinatal- and infant-mortality database, researchers have assessed how infant mortality in the United States has been affected by the prevalence of low birthweights and by the proportion of deaths that occur at specific birthweights. The ICE research suggests that when definitions of low birthweight take population-specific birthweight distributions into account (rather than use an arbitrarily defined value for all populations), the relatively high infant-mortality rate in the United States may reflect birthweight-specific mortality more than birthweight distribution. This implies that efforts to decrease the U.S. infant-mortality rate must target interventions both to lower the prevalence of infants born in the high-risk, low-birthweight end of the distribution curve and to lessen the chances of deaths for infants of all birthweights.

The fetuses and infants of women who become pregnant while under the age of 20 or over the age

of *39 are* more likely to die or have health problems. There are more births by women of these age groups in the United States than in the other developed countries. This fact may explain up to 25 percent of the difference between the infant-mortality rate of the United States and the more favorable rates of countries like Canada and Japan. Nonetheless, the socioeconomic status, lifestyles, and health of women at the extremes of maternal age, rather than age itself, probably account for the differences.

Patterns of use of prenatal care in the United States differ from those in some Western European countries. Pregnant women in the United States tend to seek care later but to average a greater number of prenatal-care visits than do women in France, Denmark, and Belgium.

Significant socioeconomic differentials in infant mortality exist in the United States as well as several other developed countries, even where access to high-quality medical care is universal. Improving access to maternal- and child-health services in the United States would likely decrease the overall infant-mortality rate, but variation among the Nation's subpopulations might well persist.

Mortality Comparisons

In comparisons of death rates, the United States ranks relatively poorly among industrialized countries. Age at death is reliably reported in developed countries, and the age-specific death rate is a useful measurement for international comparisons. Compared with the age-specific death rates of other developed countries, U.S. rates are among the highest through the age of 64 and somewhat lower after the age of 65. These trends generally remain the same when the other countries' death rates are compared with the death rates of only the white residents of the United States. The high rates of death for young age groups mean that U.S. residents are born with relatively lower life expectancies and that many years of potential life are lost. An analysis of

age-specific death rates since 1955 shows that they have been persistently high in the United States and that reductions in mortality have generally not been as great in the United States as in comparison countries. An important exception to this trend is that mortality rates have declined significantly for U.S. men aged 45 to 54. The United States has made the least progress, however, in reducing mortality rates for men aged 25 to 34.

For people below the age of 35, injuries are major causes of death, and the U.S. rates of death from injuries are among the highest for developed countries. The rate of death from homicide and other violence is at least twice as high for the under-35 age group in the United States as in any of the comparison countries. After the age of 35, cancer and heart disease are the major causes of death in all the developed countries. U.S. rates of death from heart disease for both men and women aged 35 to 65 are among the highest, but U.S. rates of death from cancer are not exceptionally high compared with those of other developed countries.

If U.S. age-specific death rates were the same as the Canadian rates, the United States would have 9 percent fewer deaths. In 1989, for example, 192,200 fewer people would have died. The excess death is primarily concentrated in the 45-to-64 group. Higher rates of heart disease in the United States than in Canada account for most of the disparity in the death rates for this age range.

Morbidity, Disability, and Quality-of-Life Indicators

There is no general consensus regarding disability measurements, but they are important for determining g whether gains in life expectancy have come at the expense of quality of life. The WHO International Classification of Impairments, Disabilities and Handicaps (ICIDH) has been accepted by many nations and is used for clinical and health services research, health services

planning, and population health monitoring. The ICIDH framework has been criticized, but many of the problems are likely to be resolved in the planned revision of the classification scheme. In view of differences in how health services are delivered, internationally comparable data on disability will probably come from population-based surveys rather than administrative records. Achieving consensus on a disability classification would be a first step toward the comparability of information about disability on such surveys. At present, both the content and methods of surveys differ so greatly that disability comparisons cannot be made.

Despite international disagreement over what disability means, there is general agreement that public-health efforts should focus on extending the years of life without disability. An indicator that shows great promise in monitoring health is a measurement of healthy-life expectancy, which is the number of years someone at a particular age can, on average, expect to live without experiencing any of various impairments, disabilities, or handicaps. Although the different countries have not yet agreed on how to measure healthy-life expectancy, many of them have included it as an indicator in their health goals, and efforts are underway to measure and monitor it. An international group of researchers (REVES) is working toward standardizing this measurement.

Health-Related Behaviors

Smoking cigarettes and drinking heavily are known to have both immediate and long-term health effects. As many as 20 percent of the deaths in developed countries can be attributed to smoking alone. Available evidence suggests that relatively fewer people smoke in the United States than in Canada and selected Western European countries. In the mid-to late-1980s, for example, the proportion of men smoking was 30 percent in the United States, 36 percent in Canada, and ranged from 40 to 62 percent in Europe. Current smoking-related deaths can be traced to smoking patterns that existed a decade or more ago. In the mid-1960s, males were less likely and females were more likely to smoke in the United States than in Western Europe.

Relatively more Canadian than U.S. residents drink alcohol, but the prevalence of heavy drinking is similar in Canada and the United States. People appear to abstain from alcohol or to drink infrequently at about the same rates in the United States and Europe.

Certain preventive health services (i.e., mammography, Pap tests) tend to be used more in the United States than in Europe, and U.S. women are more likely than Canadian women to participate in cervical-cancer screening and to examine their breasts for lumps every month. U.S. residents are less likely than Canadians, however, to have their blood pressures checked, use seatbelts regularly, and have smoke detectors in their homes. U.S. residents are more likely than Canadians to be overweight and less likely, especially if they are elderly, to engage in regular exercise.

CONCLUSIONS

No simple statistic or set of statistics can fully describe the success of a nation's health care system. A rough picture can be drawn, however, from the state of the population's health, the availability of health services, access to state-of-the-art medical technology, and public satisfaction with the health care system. The United States excels in providing high-technology care but appears to lag behind most other developed countries in the remaining indicators of a good health care system.

This background paper takes a broad look at some health outcomes, as depicted by nationally available public health data, most of which are death statistics. The United States ranks poorly in most categories. U.S. death rates from infancy through the age of 64, for example, are generally higher than those of the 12 other comparison countries.

Determining how much of each disparity is real and how much is artifactual is often difficult, because each country has a unique system for monitoring public health. The gap between infant mortality rates, for instance, may not be as wide as the reported statistics indicate. Some of the differences between U.S. rates and those of other countries can be explained by international variations in how doctors record the deaths of infants and fetuses. Nonetheless, other statistics, which show conclusively that premature deaths are more prevalent in the United States than elsewhere in the developed world, are extremely reliable.

A complex of factors affects health status, and how these relate to the poor relative position of the United States is uncertain. One major differ-ence between the United States and the other developed countries is the extent to which residents are covered by health insurance, which affects the accessibility of services, the types and quality of care, the intensity of that care, and patient health. The broader coverage in the other countries may contribute to the fact that, for example, childhood immunization and other facets of well-child care are more widespread in Europe than in the United States. Whether this plays a significant role in shaping the health of a nation's people cannot be determined at this time. A number of U.S. and international agencies, however, are developing methods that will allow more exact comparisons in the future.