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The Continued Vitality of Vital Statistics

Geographic patterns discerned from vital statistics have contributed to the solutions to public health problems since the time of John Snow and Lemuel Shattuck in the mid-nineteenth century. Mortality data are a unique source of readily-available health status indicators for small geographic areas over a very long period of time with reasonable comparability. As Sam Shapiro noted in another editorial several years ago, "no evidence on problems of quality of the data or on inadequacy of the information to identify significant health deficits and their correlates can override the unique characteristics of mortality statistics."[1] It is against this perspective that Alan Gittelsohn's article[2] in this month's issue of the Journal should be read.

As Gittelsohn points out, the vital statistics system provides documentation of major changes in mortality over the decade. Overall mortality has declined substantially, providing unequivocal evidence that the nation's health has been improving. Unfortunately, changes in other health indicators are subject to a variety of interpretations and do not provide unambiguous evidence about the direction of changes in health status.[3] Heart disease and stroke mortality have declined substantially for all age-race-sex combinations. Although the vital statistics system provides strong evidence that such declines are real, national data are not available to distinguish the extent to which the mortality decline is due to decreases in incidence or case-fatality. This situation has impeded our understanding of how changes in diet, smoking, exercise, hypertension control, and medical care have contributed to the decline.[4]

Gittelsohn discusses several problems with mortality data which need to be considered in more detail. The trend toward nonspecificity is certainly troubling in some cases but in others it may reflect advances in medical knowledge. These changes are codified in the decennial revisions of the International Classification of Diseases (ICD). For example, the sixfold increase in sudden infant death is a response to the recognition that a specific set of clinical findings define "sudden infant death syndrome." While sudden infant death has increased, there has been a concomitant decrease between 1968 and 1978 in the proportion of infant deaths ascribed to asphyxia, unspecified (ICDA 776.9) and immaturity, unqualified (ICDA 777). The Ninth Revision of the ICD includes a specific category for sudden infant death syndrome (ICD 798.0).

Furthermore, the septicemia example is somewhat misleading. Unspecified septicemia (ICDA 038.9) comprised 83 per cent of all septicemia (ICDA 038) in 1968 compared to 85 per cent in 1978, hardly a major trend. The important point here is that the age-adjusted septicemia death rate has doubled over the decade. While it is unfortunate that the mortality data base does not provide more specific information on the type of septicemia responsible for the increase, vital statistics are valuable in identifying this potentially serious health problem. Further analysis of the trends in septicemia death rates by age, sex, race, and geographic area could help to pinpoint the problem and contribute to the design of more effective detailed investigations.

Overall, the increase in the proportion of deaths ascribed to the nonspecific

category of "symptoms and ill-defined conditions" (ICDA 780-796) has not been large: 1.2 per cent in 1968 compared to 1.6 per cent in 1978. Even in the state with the highest proportion of such deaths, only 8.0 per cent were coded to this nonspecific category in 1978, up from 7.5 per cent in 1968.

Gittelsohn's examples of geographic variation in specific causes of death illustrate the value of these tabulations for evaluating data quality. The "epidemic" of other myocardial insufficiency (ICDA 428) in Montgomery County, Maryland should trigger a querying process to correct a possible reporting artifact. Unfortunately, resources to carry out such investigations are limited and may become even more constrained over the next few years. For analytic purposes, the use of broader cause-of-death categories can ameliorate this problem to some extent. For example, subcategories of ischemic heart disease (ICDA 410-413) should not be separated for geographic analysis since any findings could refer more to labeling practices than to disease etiology. Herbert Sauer's extensive studies of geographic patterns in grouped cause-of-death data[5] illustrate the value of such an approach.

The "unusual and unlikely" causes of death noted by Gittelsohn are primarily the result of assignment rules followed by the National Center for Health Statistics (NCHS) in accordance with World Health Organization (WHO) regulations. While Gittelsohn presents cogent arguments for classifying the data differently in certain situations, the United States is required to follow the international rules as a WHO member. The availability of multiple cause of death files will alleviate some of the problems Gittelsohn discusses and provide a further enriched data base for mortality analysis. The 1970 and 1976–78 multiple cause of death files are now available and, subject to resource constraints, NCHS plans to make data files available for the entire Eighth Revision period.[6] These data will also be available annually beginning in 1979 concurrent with release of the underlying cause data.

Since his presentation emphasizes several problems in the analysis of mortality data, the reader might overlook the extremely valuable contribution Gittelsohn has made to processing the 21 million US death records for 1968–1978. With the sacrifice of relatively little information, he has designed a system that is capable of efficiently analyzing mortality statistics by age, sex, color, cause of death, county of residence, and year of death for an entire decade. Furthermore, Gittelsohn is now generalizing his system to cover the Ninth Revision of the ICD so that mortality data beginning in 1979 can be added.

The value of geographic analysis of mortality patterns as clues for epidemiologic investigation has recently received a resurgence of interest. The publication of the Cancer Atlas[7] has generated a great deal of interest and led to several "spinoff" investigations by the National Cancer Institute. While geographic analyses are subject to considerable methodological limitations,[8] they represent a relatively inexpensive method upon which more detailed investigations can be based.

The greatest potential for geographic analysis of mortality lies in the examination of time-space interactions. Gittelsohn's system is particularly valuable for such analyses because of the ease with which differential mortality trends can be examined. The system allows efficient tabulation of trends in cause-specific death rates (age-adjusted or age-specific by sex and race) for geographic areas (counties or aggregates of counties). This type of analysis is especially useful in identifying emerging trends in disease risks. For example, Borhani and Hechter[9] noted a decline in cardiovascular mortality for California about ten years before the national decline became evident. This observation could have been used to set up a surveillance system that would have helped identify the factors responsible for the decline or at least been able to separate trends in incidence and case fatality.

In addition, the mere fact that wide mortality variations exist within the US should lead to consideration of actions that might accelerate the decline in population subgroups or geographic areas with higher death rates. For example, infant mortality rates are twice as high for Black as compared to White infants. Furthermore, among Health Service Areas (HSAs) in 1974–77, the difference in infant mortality rates between the 95th and 5th percentiles was 40 per cent for Whites and 80 per cent for Blacks.[10] Cervical cancer death rates among Black women are three times those of White women and in 1968–72 there was a twofold variation among HSAs for both races.[11] Cardiovascular disease mortality among middle aged adults (45–64) is about 50 per cent higher for Black males and nearly three times as high for Black females compared to their White counterparts. Among HSAs in 1968–72, the difference between the 95th and 5th percentiles was more than 60 per cent for Whites and 100 per cent for Blacks.[12] While some part of these differences may not be amenable to intervention, public health workers should seek to determine the extent to which these differences can be reduced and formulate strategies for their reduction. The preceding references[10–12] were written to assist local health planners in using these mortality data to delineate health problems in their area. Other attempts to use cause-of-death data to identify local health problems and suggest appropriate interventions have been published recently.[13,14]

Many of the Health Promotion and Disease Prevention Objectives for the Nation[15] specifically aim to reduce geographic, racial, and ethnic disparities in mortality. Gittelsohn's system can play a key role in tracking the extent to which these objectives are being met.

In sum, despite their limitations, cause-of-death statistics are a rich source of information for clinical, epidemiologic, and health policy purposes. It is important to maintain and improve the vital statistics system "by a variety of educational programs, self-improvement programs, and quality check procedures."[16] In any case, the death registration system involves a large number of physicians, coroners, and other medical personnel with varied amounts of training. This will inevitably lead to some lack of comparability over time and among geographic areas. But viewed in proper context and used with care, vital statistics represent an invaluable source of data on the nation's health.

Although high quality, comparable vital statistics con-

tinue to be essential for monitoring the nation's health, the resources for producing the data and improving its quality are diminishing. Increased efforts in the public health community should be directed toward educating local, state, and federal officials about the value of a sound vital statistics system.

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Education and Counseling in Hospital Care

In their article, "The Effects of Psychological Intervention on Recovery from Surgery and Heart Attacks: An Analysis of the Literature," published in this issue of the Journal,[1] Mumford, Schlesinger, and Glass have made an important contribution to our understanding regarding the role of interpersonal skills in medical and surgical care. Most residency training programs have been designed so that knowing when and how to perform a procedure or which medicine to prescribe are adequate abilities. Skills in communicating with patients have generally been viewed as necessary, but unimportant or placebo aspects of patient care which are learned through experience. As the "art" of medicine, such techniques cannot be scheduled nor taught, or so the stereotype goes; and they have no particular influence on patient outcomes. This careful review article sheds serious doubt on such notions.

The authors have drawn on a widely distributed literature for their review. Reports came from journals which serve primary care physicians, pediatricians, internists, surgeons, psychiatrists, immunologists, psychosomatic medicine, anesthesiologists, dentists, nurses, psychologists, and medical social scientists. The isolation of these investigators in a variety of fields has probably impeded their influence on medical and surgical practice.

Another valuable contribution by the authors has been to subdivide the general area of interpersonal skills management into: 1) education and 2) one-to-one interactions, such as discussion regarding the patient's questions and concerns—sometimes referred to as counseling or (in mental health jargon) supportive psychotherapy. Lumping all interpersonal skills into one broad category serves only to obfuscate the complex issues involved. It is of interest that the data support the utility of applying both approaches, rather than employing just education or just a psychotherapeutic modality.

What are the implications of these findings for the health field? First, we must be much more concerned about training health professionals in interpersonal skills, such as education, counseling, and relaxation techniques. This is especially true for those fields in which the primary emphasis has been on the acquisition of biomedical information and technical skills. These disciplines include dentists, most physicians and surgeons, and many nurses. This is not to say that these professional groups must become "compleat" psychotherapists; however, they must be able to educate and counsel patients about the medical interventions and technical procedures which they perform. Merely exposing students and trainees to experienced clinicians does not guaran-