

Measuring the Health of Communities—How and Why?

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Improving the health of individuals is inextricably linked to improving the health of the communities where they live, work, and play.¹ It is widely recognized that achieving the goal of Healthy People 2020—to increase length and quality of life for all—will not be accomplished by simply providing more health care to Americans.² Broad and sustainable investments are needed to improve the health of entire communities, such as by implementing health promoting policies, supporting early childhood education and job training, and designing neighborhoods that promote healthy living. These efforts to improve the health of communities fundamentally distinguish public health from health care approaches, by “assuring conditions” so that people can be healthy.³

Public health surveillance plays a vital role in community health improvement efforts. Although the Institute of Medicine first defined assessment as one of the core functions of public health in 1988—its vital role in public health dates almost 200 years ago, when William Farr first published the Bills of Mortality. Public health surveillance now goes beyond the simple collection, analysis, and dissemination of data, to include the application of surveillance findings to population health improvement.⁴ Although few question the central role that public health surveillance plays in community health improvement, there is less consensus about the ways to measure the health of communities, and about strategies to apply this information to accelerate the translation of evidence-based programs and policies into practice.

● How to Measure the Health of Communities?

For most of the 20th century, the most widely accepted measurement parameter of the health of countries in the world was the infant mortality rate. But as infant mortality rates declined and life expectancy increased,

other measures became more widely accepted such as mortality measures, including life expectancy (overall and for different life stages), years of potential life lost, as well as information about disease burden and quality of life, including disability-adjusted life years, health-adjusted life years, and quality-adjusted life years.^{5,6}

By the end of the 20th century, a broader discussion of the multiple determinants of population health evolved, most notably after the publication of Evans and Stoddart’s “Why are Some People Healthy and Others Not?”⁷ This model included “upstream” factors such as health behaviors, the physical environment, as well as the social determinants such as income, education, occupation, and social cohesion. The publication of the second Institute of Medicine report on the Future of the Public’s Health in 2003 highlighted the critical importance of the multiple determinants of population health, and the social-ecological framework, in future efforts to improve the health of populations.³

One of the best-known efforts to apply this broad framework to measure and monitor the overall health of the 50 states is “America’s Health Rankings.”⁸ The model used in this report was developed in 1990, and combines data on health outcomes (eg, premature mortality, cancer mortality, heart diseases mortality), risk factors, and other factors into a single summary measure of health. The factors used in the model and weighting criteria were developed with advice from an independent scientific advisory committee, who considered the effect that a measure has on overall health,

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whether other measures in the model address the same attribute, and the reliability of the measure.⁸

In early 2003, a similar model was developed to measure and compare the health of Wisconsin's 72 counties, as part of the annual "Wisconsin County Health Rankings."⁹ This model built upon the America's Health Rankings model, but differed in several ways. First, the County Health Rankings model describes the overall health of communities using 3 distinct categories: health outcomes, health determinants, and programs and policies.^{10,11} In addition, given the focus to measure the health of counties, the data used for the Wisconsin County Health Rankings were limited to those readily available for nearly all counties in the state, from systems such as vital statistics, Medicare, behavioral risk factor surveys, the Census, the department of education, and the Environmental Protection Agency. Also, several years of data (eg, 7 years of behavioral risk factor telephone survey data) were combined for many indicators to provide more reliable estimates for smaller counties.

In 2010, and with support from the Robert Wood Johnson Foundation, this model was adapted to measure the health of nearly every county in all 50 states, in the County Health Rankings.¹² The health of counties in each state is measured using the following summary measures (Figure 1):

- Health outcomes—based on an equal weighting of 1 mortality measure (years of potential life lost before age 75 year) and 4 morbidity measures (percentage of participants reporting fair or poor health, average number of physically and mentally unhealthy days in the past month, and low birthweight)
- Health factors—rankings are based on weighted scores of 4 types of factors:
 - Health behaviors (6 measures)
 - Clinical care (5 measures)
 - Social and economic (7 measures)
 - Physical environment (4 measures)

● Is Perfection the Enemy of the Good?

Despite the widespread interest in these 2 practical approaches for measuring the health of states or counties, many questions remain. What are the best measures to include in such a model? Should the measures of health outcomes be combined with health determinants? How should the factors be weighted when combining different measures? What is the best way to measure the "policy environment" of a community?

Kanarek and colleagues¹³ have begun to examine some of these important questions in an article published in this issue of the journal. The purpose of their

study was to determine which, if any measures could be used to summarize the overall health of an entire county. They conducted a study of more than 500 of the most populous counties (populations of more than 100 000 persons), representing 15 of the 88 peer strata (based on frontier status, population size, poverty, age distribution, and population density) in the Community Health Status Indicator database. Using principal components analysis, they created a factor score that captured a weighted sum of indicators available in the database, ranging from health outcomes to social and economic status.

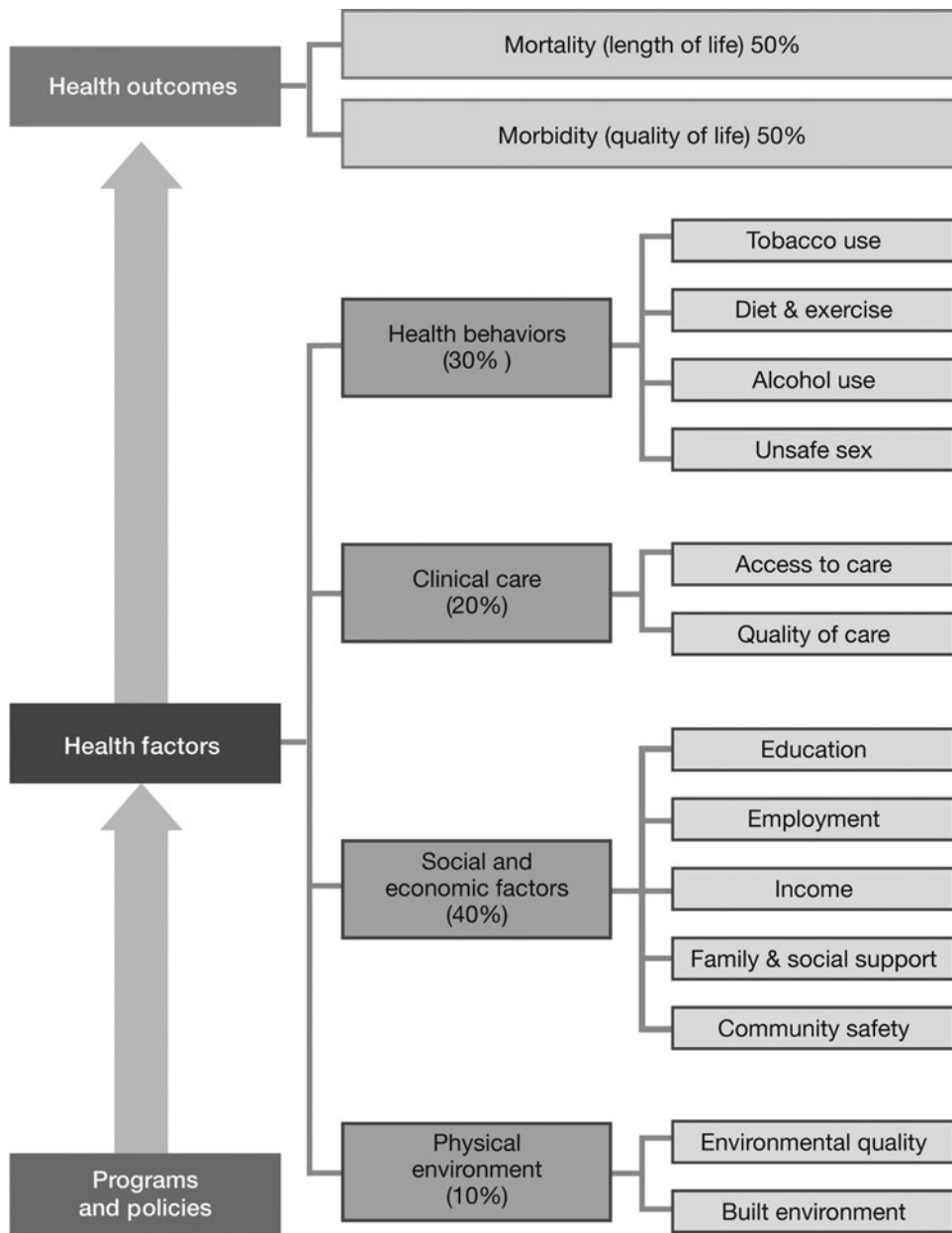
They discovered that no single factor emerged as reflecting the overall health of these counties. However, most of the variables clustered into one of the following categories of health, including several mortality measures (injuries, cancer, and by life stage), adult behaviors, preventive services, environment, food, and health care access. They conclude that it is difficult to summarize the entire health of a county with a single measure or grouping of measures, and that the selection of measures would likely depend on the size and other characteristics of that community. They recommend that categories of health factors, such as behaviors or preventive services, may be used to compare and contrast counties, and that these measures directly relate to program and policy interventions.

● Why Measure the Health of Communities?

Despite the challenges described by Kanarek and others,^{13,14} there are advantages to being able to measure the overall health of a community. First, public health leaders at a state or national level can compare the health of various communities as a tool for targeting resources to areas of greatest need. In addition, communities can use the information to advocate for investments in local programs using local, state, or national funding sources.^{15,16} Finally, measures of health of a community can be tracked over time to monitor progress toward specific short- or long-term health outcome objectives.

In this issue of the journal, Erwin et al¹⁷ report on a study that adds to the understanding of the potential usefulness of a report that summarizes the health of the nation's 50 states. Using a mixed methods approach, they interviewed 66 key informants in 37 states (including the state health officer, senior staff in the state health department, and public health partners) using an online survey that asked about the awareness, use, utility, and value of America's Health Rankings.

They found that more than half (54%) of the respondents reported that America's Health Rankings were moderately, very, or extremely useful to their agency.

FIGURE 1. ● The county health rankings model for measuring the community health.

County Health Rankings model ©2010 UWPHI

Survey respondents indicated that the most common uses of the state health rankings are for problem identification (54%), as a source of data (49%), and are for grant applications (38%). They concluded that although there is a wide spectrum of responses about America's Health Rankings, the majority of respondents were positive about their usefulness. However, although most of the state health officers surveyed were aware of the state health rankings, there was less understanding of the methods used in the rankings at the programmatic

level. The strongest call for change related to making the report more actionable, especially by identifying best practices.

Similar surveys have been conducted among Wisconsin county health officials, asking about the usefulness of the Wisconsin County Health Rankings, since they were first published in 2003. As with the findings of Erwin et al,¹⁷ local health officials have responded positively.¹⁸ Stories often began by saying, "our county has poor health ranking in the latest county health

checkup.” As a result of the media interest, local officials became engaged, along with representatives from health care, education, industry, and commerce. Most reported that having a report that ranks the health of a county helps everyone see where the problems are so that they can identify and implement local solutions.

An unpublished review of media coverage and a program evaluation survey conducted with local health officers after the release of the first annual County Health Rankings in February 2010, found widespread media coverage and, for local health officers, high awareness of the County Health Rankings, widespread use of these rankings to engage nongovernmental partners and moderate levels of discussion with the media. Similar reports are emerging since the release of the second annual County Health Rankings on March 30, 2011. Like the first year, these Rankings garnered significant attention by local, state, and national media, as well as diverse public health practitioners and stakeholders.

● Conclusions

If you cannot improve what you cannot measure, then it is vitally important that we continue to find better ways to measure the health of communities. It is clear that much of what is important for good health is beyond the purview of medical care or even the governmental public health agency's direct responsibility. The measures used in America's Health Rankings and the County Health Rankings include many factors that will require engagement by other community leaders. These efforts are helping public health leaders as they work to increase awareness about public health, convene partners, and promote public health programs and policies. Better data are needed, and more research is needed to identify optimal approaches for measuring the health of communities. Perhaps more importantly, more research is needed on ways to use this information to mobilize action toward community health.

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