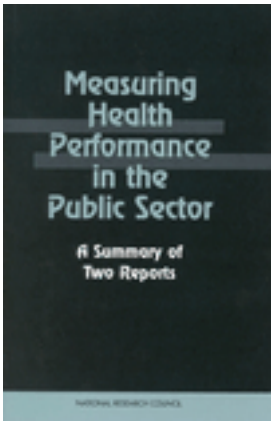

Measuring Health Performance in the Public Sector: A Summary of Two Reports

Panel on Performance Measures and Data for Public Health Performance Partnership Grants, National Research Council

ISBN: 0-309-52006-1, 48 pages, 6 x 9, (1999)

Measuring Health Performance in the Public Sector

A Summary of Two Reports

Panel on Performance Measures and Data
for Public Health Performance Partnership Grants

Committee on National Statistics

Commission on Behavioral and Social Sciences and Education

National Research Council

NATIONAL ACADEMY PRESS
Washington, D.C.

NATIONAL ACADEMY PRESS • 2101 Constitution Avenue, N.W. • Washington, D.C. 20418

NOTICE: The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competences and with regard for appropriate balance.

The National Academy of Sciences is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. Upon the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Bruce M. Alberts is president of the National Academy of Sciences.

The National Academy of Engineering was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. William A. Wulf is president of the National Academy of Engineering.

The Institute of Medicine was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, upon its own initiative, to identify issues of medical care, research, and education. Dr. Kenneth I. Shine is president of the Institute of Medicine.

The National Research Council was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both Academies and the Institute of Medicine. Dr. Bruce M. Alberts and Dr. William A. Wulf are chairman and vice chairman, respectively, of the National Research Council.

The study was supported by Contract No. 282-95-0034 between the National Academy of Sciences and the U.S. Department of Health and Human Services. Support of the work of the Committee on National Statistics is provided by a consortium of federal agencies through a grant from the National Science Foundation (No. SBR-9709489). Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the organizations or agencies that provided support for this project.

International Standard Book Number 0-309-06583-6

Additional copies of this summary are available from National Academy Press, 2101 Constitution Avenue, N.W., Box 285, Washington, D.C. 20055. Call (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area). This report is also available on line at http://www.nap.edu

Printed in the United States of America

PANEL ON PERFORMANCE MEASURES AND DATA FOR PUBLIC HEALTH PERFORMANCE PARTNERSHIP GRANTS

EDWARD B. PERRIN *(Chair)*, Department of Health Services, School of Public Health and Community Medicine, University of Washington
JOHN C. BAILAR, III, Department of Health Studies, University of Chicago
THOMAS J. BARRETT, Mental Health Services, Colorado Department of Human Services
DAVID W. FLEMING, Center for Disease Prevention and Epidemiology, Oregon Health Division
V. JOSEPH HOTZ, Departments of Economics and Policy Studies, University of California, Los Angeles
IRA R. KAUFMAN, University of Medicine and Dentistry of New Jersey, Department of Environmental and Community Medicine, Robert Wood Johnson Medical School
JOHN R. LUMPKIN, Illinois Department of Public Health
WILLIAM A. MORRILL, Mathtech, Inc., Princeton, New Jersey
R. HEATHER PALMER, Center for Quality of Care Research and Education, Harvard School of Public Health
J. SANFORD SCHWARTZ, School of Medicine and the Wharton School, University of Pennsylvania
MARY E. STUART, Maryland Collaboratory for Business and Health, Department of Sociology and Anthropology, University of Maryland, Baltimore County
CYNTHIA P. TURNURE, Minnesota Department of Health
PAUL J. WIESNER, DeKalb County Board of Health, Decatur, Georgia
GAIL R. WILENSKY, Project Hope, Bethesda, Maryland

JANE S. DURCH, *Study Director*
JEFFREY J. KOSHEL, *Study Director* (through December 1997)
SUSAN M. SKILLMAN, *Senior Research Associate*
TELISSIA M. THOMPSON, *Senior Project Assistant*

Contents

Assessment of Performance Measures for Public Health, Substance Abuse, and Mental Health. E.B. Perrin and J.J. Koshel, eds. Panel on Performance Measures and Data for Public Health Performance Partnership Grants, Committee on National Statistics, National Research Council. Washington, D.C.: National Academy Press (1997).

Health Performance Measurement in the Public Sector: Principles and Policies for Implementing an Information Network. E.B. Perrin, J.S. Durch, and S.M. Skillman, eds. Panel on Performance Measures and Data for Public Health Performance Partnership Grants, Committee on National Statistics, National Research Council. Washington, D.C.: National Academy Press (1999).

Copies of both reports are available from the National Academy Press, 2101 Constitution Avenue, N.W., Box 285, Washington, D.C. 20055. Call (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan areas). These reports are also available on line at http://www.nap.edu.

Preface

This document brings together summary materials from two reports prepared by the Panel on Performance Measures and Data for Public Health Performance Partnership Grants of the Committee on National Statistics. The panel was originally created to examine and report on the technical issues involved in establishing performance measures in ten substantive program areas. Such measures were to be required as part of a proposed Performance Partnership Grants (PPG) Program, under which each state was to negotiate with the U.S. Department of Health and Human Services (DHHS) an action plan with performance objectives that would be specific in terms of outcomes, processes, and capacity to be achieved within a 3- to 5-year period.

Although formal legislation mandating PPGs was not adopted, various DHHS programs and a growing number of states and communities are moving to monitor and analyze health outcomes on their own. Moreover, there appears to be a growing consensus in the public sector about the value of performance measurement. Indeed, many people believe that the case for increasing, or even maintaining, public funding for health programs will depend on documented program performance.

The panel's first report, *Assessment of Performance Measures for Public Health, Substance Abuse and Mental Health* (National Academy Press, Washington, D.C., 1997), provides an analytic framework for use by states and the federal government in assessing the appropriateness of outcome, process, and capacity measures for use in federal-state performance agreements. It also examines the technical issues involved in the development of performance measures in specific program areas and reviews the advantages and limitations of potential measures

and data sources that can support them. The report includes examples of potential outcome performance measures in the areas of chronic diseases, sexually transmitted diseases, HIV infection, tuberculosis, immunization, mental health, substance abuse, sexual assault, disabilities, and emergency medical services.

The second report, *Health Performance Measurement in the Public Sector: Principles and Policies for Implementing an Information Network* (National Academy Press, Washington, D.C., 1999) turns to data and information system issues at the federal, state, and local levels, and proposes building on existing health data and information resources to develop a broad national health information network that can support performance measurement, as well as other health information needs. The panel's recommendations address the policy framework for selecting performance measures and using performance measurement, operational principles related to data and data systems that support performance measurement, essential investments in data systems and in training and technical assistance, and research needed to improve performance measures and performance measurement.

With this summary of the two reports, the panel hopes to acquaint a larger audience with a set of scientific, policy, and operational issues that must be addressed if performance measurement is to be used effectively across a variety of health programs, and with the panel's conclusions and recommendations. The materials included in the summary have been selected to provide readers with an overview of the reports' essential points. Readers are encouraged to consult the full reports for a more extensive discussion of these matters.

Those interested in the performance measurement issues addressed by the Panel on Performance Measures and Data for Public Health Performance Partnership Grants should also note the availability of related reports from other National Academy of Sciences studies. *Improving Health in the Community: A Role for Performance Monitoring* (National Academy Press, Washington, D.C., 1997), from the Institute of Medicine, explores the use of performance measurement and the development of performance indicators for community-level health improvement activities. *Managing Managed Care: Quality Improvement in Behavioral Health* (National Academy Press, Washington, D.C., 1997), also from the Institute of Medicine, presents a framework for developing, using, and evaluating performance indicators for managed behavioral health care. *Evaluating Federal Research Programs: Research and the Government Performance and Results Act* (National Academy Press, Washington, D.C., 1999), produced by the Committee on Science, Engineering, and Public Policy, addresses the challenges of applying performance measurement requirements to federal research programs.

Edward B. Perrin, *Chair*
Panel on Performance Measures and Data for
Public Health Performance Partnership Grants

Assessment of Performance Measures for Public Health, Substance Abuse, and Mental Health

Executive Summary

The Panel on Performance Measures and Data for Public Health Performance Partnership Grants was established at the request of the U.S. Department of Health and Human Services (DHHS). Its charge is to examine the state of the art in performance measurement for public health and to recommend measures that could be used to monitor the Performance Partnership Grant agreements to be negotiated between each state and the federal government. The panel was asked to consider performance measures in ten areas, which are clearly a subset of the full range of traditional public health concerns: chronic diseases; sexually transmitted diseases (STDs), human immunodeficiency virus (HIV) infection, and tuberculosis; mental health; immunization; substance abuse; and three areas of prevention of special interest to DHHS—sexual assault, disabilities, and emergency medical services. This report focuses on measures that states and the federal government can use over the next 3 to 5 years to negotiate agreements and monitor performance in these areas. A later report will examine additional measures that might be developed from new research findings on program effectiveness or as improvements are made to state and federal surveys and data systems.

More than 3,200 measures were proposed to the panel through various outreach efforts. The panel used four guidelines for assessing them: (1) the measure should be specific and result oriented; (2) the measure should be meaningful and understandable; (3) data should be adequate to support the measure; (4) the measure should be valid, reliable, and responsive. The measures that scored the highest are those we recommend for use in performance monitoring. They cover health status, social functioning, consumer satisfaction, and risk status.

In assessing the adequacy of data for specific performance measures, the

panel concluded that there are few available data sources that are ideal for performance monitoring. Understanding the limits of available data is important if appropriate inferences are to be drawn. Many federal efforts to collect health-related data, for example, provide national rates, but do not collect data that provide state-level rates. Even when data are available at the state level, if comparisons are to be made among states, attention must be paid to the effect of different data collection methods on the comparability of results. Other issues that need to be considered include whether or not specific populations of interest are included in samples from which data are drawn and whether data are collected sufficiently often, or are made available soon enough, to be useful in the monitoring process.

It is important to note that many of the performance measures presented in this report can, and should, be subdivided to focus on specific high-risk populations in a state. These populations may be defined demographically, such as minorities, children, or elderly persons; by conditions, such as not having health insurance or being homeless; or by geographic area, such as central cities, high-risk neighborhoods, or rural communities. Specific subpopulations of interest vary across states. Rather than create multiple submeasures for each proposed measure, the panel chose, in most cases, to identify broad population measures that can be tailored by each state to focus on its specific population group priorities.

Despite their widespread use and intuitive appeal, health outcome measures are insufficient by themselves for monitoring the efforts of a given program in reducing complex public health problems. Many measures that are recognized as valid for tracking health outcomes are affected by many factors (inputs or processes), so changes in outcomes cannot be attributed only to specific program effectiveness. Attribution of responsibility for outcomes becomes even more difficult when the services in question are supported by multiple funding sources or multiple provider organizations. The panel concludes that performance monitoring must make use of process and capacity measures to complement available measures of outcomes. The panel recommends that each process and capacity measure be accompanied by reference to published clinical guidelines or other professional standards that describe the relationship between the process measure or capacity measure and the desired health outcome.

Given the current and potential uses of performance measurement in public health, substance abuse, and mental health, the panel recommends that a combination of measures of health outcome, process, and capacity be used in the agreements between the federal government and states. Because in some cases actual health status outcomes are impractical to measure or because there are many factors that affect the ultimate health outcome, the panel recommends using "intermediate" outcome measures, such as risk status, for which there is general consensus that the result being measured is related to the health status outcome. The panel uses the following definitions in this report:

Health Outcome: Change (or lack of change) in the health of a defined population related to an intervention, characterized in the following ways:

health status outcome:	change (or lack of) in physical or mental status
social functioning:	change (or lack of) in the ability of an individual to function in society
consumer satisfaction:	response of an individual to services received from health provider or program

Risk Status (intermediate outcome): Change (or lack of) in the risk demonstrated or assumed to be associated with health status.

Process: What is done to, for, with, or by defined individuals or groups as part of the delivery of services, such as performing a test or procedure or offering an educational service.

Capacity: The ability to provide specific services, such as clinical screening and disease surveillance, made possible by the maintenance of the basic infrastructure of the public health system, as well as by specific program resources.

Because of data limitations and differing health and defined population priorities among states, the panel's list of health outcome measures should be considered an important subset, but not an exhaustive listing, of those that will be of interest to state agencies around the country. Few states have adequate data to support every health outcome measure, and virtually all states have major priorities in addition to the ones indicated by these particular measures. Similarly, for process and capacity measures, there are many reasonable strategies that states can pursue to improve health outcomes, and each strategy requires a different set of process and capacity measures. Therefore, the panel offers representative examples of relevant process and capacity measures in each program area.

The potential health outcomes and risk status measures to be used for monitoring purposes are presented in Chapter 3 and described in detail in Appendix C. For each health topic covered, the report includes examples of process and capacity measures that complement the outcome and risk status measures suggested by the panel. Potential measures for chronic disease focus on improvement of health risk status for tobacco use, nutrition, exercise, and clinical screenings. For STDs, HIV infection, and tuberculosis, the potential outcome measures target reporting of incidence and prevalence rates for specific diseases; client satisfaction with

treatment, and reduction of high-risk behavior among specific subpopulations at high risk of contracting or spreading the diseases. The immunization measures include a set for monitoring the incidence of vaccine-preventable disease and a set to be used to track vaccination rates for specific diseases. Most of the potential mental health measures focus on health outcomes for the treated population. Lack of data for measures of mental health outcomes in more general populations severely limits the number of potential measures the panel proposes. In substance abuse, the potential measures cover both treated and general populations for health status outcome, social functioning outcome, and risk status. For the three areas of prevention—sexual assault, disabilities, and emergency medical services—the narrowness of this charge to the panel and the general dearth of supporting data have resulted in a short list of potential measures.

Of course, use of even a large number of health outcome, process, and capacity measures may still result in less than conclusive evidence of agency or program performance in reducing multifaceted health problems. Therefore, the panel recommends that public health performance measures be considered as a central but not the only element of a continuous program of technical assistance. For example, if one measure or a combination of measures suggests that a given state is having unusual difficulty in making progress in meeting its performance objectives, such information should trigger an alert that some additional resources or technical assistance may be needed. The panel believes that this approach is consistent with the National Performance Review initiative at the federal level and with the total quality management activities that are being undertaken by state and local agencies around the country.

A major goal of this report is to provide an analytic framework for states and DHHS to use when assessing the appropriateness of specific outcome, process, and capacity measures for individual performance agreements. Recognizing that data resources and measurement methods need improvement, the panel recommends that DHHS continue to work with states toward several infrastructure goals: developing common definitions and measurement methods; encouraging efficient development of data resources that support multiple public health, mental health, and substance abuse needs; incorporating state data priorities in national infrastructure development efforts; and promoting states' data collection and analytic capabilities.

During the next stage of the study, the panel will examine the adequacy of existing databases to support improved health outcome measures, assess the quality of the empirical evidence of the effectiveness of specific interventions and the health outcomes discussed in this report, and suggest modifications to existing data sources or new databases necessary to support refined or new performance measures. Based on that assessment, the panel will recommend priority areas of research and data collection and infrastructure development for each of the health areas covered in this report, as well as for more general areas of public health concern.

Introduction and Framework

STUDY FRAMEWORK

The panel views its role as a technical one, to identify and assess measures that states can use to evaluate their progress toward important health objectives and to recommend actions to improve the utility of such measures. This report provides an assessment of measures that could be used over the next 3-5 years by states and the federal government to monitor progress in meeting agreed-upon health objectives. The report does not attempt to review all of the program options and policies to be considered in structuring PPG agreements between DHHS and states: such issues as funding levels, matching requirements, hold-harmless funding provisions, allocation of resources decisions, financial incentives, and the like are not covered. The panel's goal is to provide technically sound methods for assessing progress in meeting public health objectives and to provide states and others with practical and useful tools to advance their public health objectives.

Performance Measure: a quantitative indicator that can be used to track progress toward an objective, i.e., to detect change over time and difference in change across programs

Objective: a specific level of measurable attainment between two points in time

The panel's framework for assessing potential performance measures is simple: a public health program operating at the state level, with a certain size and structure (capacity), uses the resources provided by a federal funding program (process) to improve the health of the population it serves. The panel assumes that the effectiveness of a state program in using resources can most appropriately be evaluated by assessing the degree to which desired changes in health outcomes are achieved, together with a judgment of the degree to which those changes can be attributed to a program. When a firm causal link between the resources and processes used and the health outcome sought has not been established, as is often the case, or when the program resources are a small part of all the resources that contribute to the outcome, the panel believes that performance assessment must necessarily depend on a combination of health outcome, process, and program capacity measures. Furthermore, the panel suggests that performance measures be understood and adopted as the product of an evolutionary process, to be revised as additional empirical evidence is obtained and better methods of data collection are implemented.

DEFINITIONS

Public Health

In considering performance measures for public health programs, the panel was mindful of the concept of "core" public health functions developed by the Institute of Medicine (IOM) that is now widely accepted within the public health community. These core functions are assessment, policy development, and assurance (Institute of Medicine, 1988); see box. The IOM report also states that public health programs should include both disease prevention and health promotion, with "health" encompassing physical, mental, and environmental health.

The ten specific areas that the panel was asked by DHHS to examine with regard to performance measures are a subset of the full range of public health concerns. Many critical responsibilities of state and local public health agencies, such as maternal and child health, injury prevention, and environmental health, are not covered in this report, but the guidelines for assessing performance measures presented here can be applied to these other areas.

It is important to note that state public health departments are not always the designated recipients of federal funds. In the areas of substance abuse and mental health, for example, the grantee may well be the state department of human services. In many states, public health responsibilities are distributed among local districts. A PPG agreement in any given state, therefore, will need to clearly identify lines of responsibility and assure that the performance goals are reasonable given the organizational structure and resources available.

Public Health Assessment: "the regular and systematic collection, assembly, analysis and dissemination of information on the health of the community. This information includes statistics on health status, community health needs, and epidemiologic and other studies of health problems."

Public Health Policy Development: "the development of comprehensive public health policies by promoting use of the scientific knowledge base in decision-making about public health and by leading in developing public health policy."

Public Health Assurance: "assures that services necessary to achieve agreed upon goals are provided, either by encouraging actions by other entities (private or public sector), by requiring such actions through regulation, or by providing services directly" (Institute of Medicine, 1988:7-8).

Outcomes, Risk Status, Process, and Capacity

Health outcome, risk status, process, and capacity measures are all needed at different times and in different situations to intelligently monitor both changes in the health status of defined populations and the performance of all public and private agencies in working toward specified health goals; see box for definitions adopted by the panel for this report. In some cases, actual health outcomes are impractical to measure as indicators of program performance because too much time is required between intervention and outcome or because many confounding factors affect the ultimate health outcome. In such cases, the panel recommends using an "intermediate" measure, risk status, for which there is general consensus that the result being measured is related to the health outcome.[1]

Meaningful analysis of performance requires determining whether desired health outcomes are achieved, whether specific agency commitments are carried out, and whether the agency has the capacity to conduct all the necessary processes. Outcomes are fundamental, and any process or capacity measure used to assess performance should be widely accepted as closely related to them. For example, if a state's PPG goal is to reduce its mortality rate from breast cancer, it can reduce the risk of such an adverse health outcome by increasing the number of mammograms it provides to women aged 50 and over. However, there are also

[1]Although many of the "risk status" outcome measures in this report might otherwise be considered "process" measures, classifying such measures as "intermediate" outcomes is more appropriate in view of the short-term nature of the proposed performance agreements.

Health Outcome: Change (or lack of change) in the health of a defined population related to an intervention, characterized in the following ways:

health status outcome:	change (or lack of) in physical or mental status
social functioning:	change (or lack of) in the ability of an individual to function in society
consumer satisfaction:	response of an individual to services received from health provider or program

Risk Status (intermediate outcome): Change (or lack of) in the risk demonstrated or assumed to be associated with health status.

Process: What is done to, for, with, or by defined individuals or groups as part of the delivery of services, such as performing a test or procedure or offering an educational service.

Capacity: The ability to provide specific services, such as clinical screening and disease surveillance, made possible by the maintenance of the basic infrastructure of the public health system, as well as by specific program resources.

a series of process activities (e.g., health education programs, requirements that private insurers include coverage of, say, mammography, surgical and nonsurgical treatment, and postoperative follow-up care) and capacity indicators (e.g., number of trained staff and facilities offering mammography screening) that are believed to be related to the level of mortality from breast cancer and can be monitored over time. A detailed set of such measures could provide some understanding of what particular service mechanisms are present and may affect the trend in the outcomes of interest. The capacity of public agencies is important for any comprehensive and accurate assessment of program performance. Infrastructure activities, such as the maintenance of various public health data and surveillance systems, are as important as monitoring drinking water quality and conducting restaurant inspections in promoting the public health. The panel notes, in fact, that DHHS supported a major study of public health infrastructure, which is expected to provide infrastructure capacity measures for use in the PPG process (Lewin-VHI, Inc., 1997).

ASSESSMENT GUIDELINES

In considering how to assess the appropriateness of individual measures for tracking the performance of state public health agencies under the PPG process,

the panel reviewed materials developed by DHHS, state partners, and other professional groups (see Annotated Bibliography). The panel established guidelines for the assessment of proposed measures:

1. Measures should be aimed at a specific objective and be result oriented. PPG measures must clearly specify a desired public health result, including identifying the population affected and the time frame involved. Process and capacity measures should clearly specify the health outcome, or long-term objective, to which they are thought to be related.

2. Measures should be meaningful and understandable. Performance measures must be seen as important to both the general public and policy makers at all levels of government and they should be stated in nontechnical terms.

3. Data should be adequate to support the measure. Adequate data on the populations of interest must be available for the use of measures and have the following characteristics:

- Data to track any objective must meet reasonable statistical standards for accuracy and completeness;
- Data to track any objective must be available in a timely fashion, at appropriate periodicity, and at reasonable cost; and
- Data applied to a specific measure must be collected using similar methods and with a common definition throughout the population of interest. Comparisons of a measure across states are valid only if the definition and collection methodology are consistent across states.

4. Measures should be valid, reliable, and responsive. Measures should, as much as possible, capture the essence of what they purport to measure (i.e., be unbiased and valid for their intended purpose), be reproducible (i.e., reliable), and be able to detect movement toward a desired objective (i.e., be responsive).

That a measure can be valid for one purpose but not for another is an important factor in performance measurement. For example, a state's infant mortality rate is usually considered a valid measure in assessing the actual change in a state's rate of infant death from one period to another, but changes in that rate may not be a valid measure of the performance of an individual public health agency: the agency may have no control over many factors that can affect infant mortality, such as changing socioeconomic conditions or the demographic characteristics of the population. Performance measures must also be reliable: have a high likelihood of yielding the same results on repeated trials and, therefore, low levels of random error in measurement. Similarly, performance measures should be known to be responsive to change at the level of change that one would like to detect.

In an ideal world, each performance measure would fully satisfy all four guidelines; unfortunately, not many available health outcome measures can do so. For example, many factors not under a state agency's control can affect health outcomes, compromising the validity of measures of program effect. Consequently, the panel recommends that health outcome measures be used in conjunction with process and capacity measures to derive appropriately conservative inferences about the performance of a state agency. This approach will provide public officials and consumers with an opportunity to examine steps taken by agencies to achieve specific health outcomes and to better understand whether changes in the magnitude or direction of particular strategies should be considered. A combination of health outcome, process, and capacity measures should be used to identify what additional research is needed to establish more precisely the relations among program interventions and outcomes.

It is important that agencies that engage in performance monitoring specify the assumed relationship between any process or capacity measure proposed and the particular health outcome to which it is believed to be related and document, with empirical evidence and professional judgment, the assumed relationship. If states elect to implement new, experimental approaches to realize PPG objectives, they must collect the data necessary to document the effectiveness of those interventions.

One of the constraints of the PPG process, as currently formulated, is that the performance objectives must be judged capable of realization within 5 years. Yet many important public health objectives, such as lowered incidence of cancer and HIV infection, cannot be achieved over this short time period. However, it would be unwise to divert resources from those objectives simply because demonstrable results cannot be expected in the 5-year period. The panel recommends that DHHS and the states consider negotiating some items in their performance agreements that allow for longer term goals if relevant risk behaviors and process data can be used to measure progress toward the desired health outcomes.

REFERENCES

Institute of Medicine
1988 *The Future of Public Health*. Committee for the Study of the Future of Public Health, Division of Health Care Services. Washington, D.C.: National Academy Press.

Lewin-VHI
1997 *Strategies for Obtaining Public Health Infrastructure Data at Federal, State, and Local Levels.* Report to the Public Health Service. Washington, D.C.: U.S. Department of Health and Human Services.

Contents

APPENDICES

Health Performance Measurement in the Public Sector

Executive Summary

Publicly funded health programs are being asked to account for their performance, and methods of performance measurement have emerged as essential tools for operationalizing this quest for accountability. A system of performance measurement promises improved documentation of the contributions of public agencies, and can serve as a quality improvement tool by drawing attention to practices shown to promote the achievement of desired outcomes and by identifying areas needing improvement. In fact, informed observers in public health, health policy, health economics, and related subjects believe that we cannot expect public funding to increase or even be maintained at current levels without better documentation of the return on program investments.

In 1995, the U.S. Department of Health and Human Services (DHHS) proposed legislative changes to establish Performance Partnership Grants (PPGs) for a set of federal block grant programs that provide funding to states for public health, substance abuse, and mental health activities.[1] The proposal called for DHHS and each state to negotiate an agreement on program objectives and a set of performance measures to be used to monitor progress toward those objectives over a 3- to 5-year period. PPGs were proposed because it was felt that they would provide a mechanism for increasing state flexibility in the use of federal grant funds while enhancing accountability for progress toward program goals.

[1]The specific program areas covered by the original PPG proposal are chronic diseases; sexually transmitted diseases, human immunodeficiency virus infection, and tuberculosis; immunization; mental health; substance abuse; and three areas of special interest to DHHS—sexual assault, disabilities, and emergency medical services.

Although formal legislative requirements for PPGs have not been established, DHHS and state and local health agencies remain very interested in developing agreements through which these performance measurement and performance partnership concepts can be applied.

The Panel on Performance Measures and Data for Public Health Performance Partnership Grants was assembled in fall 1995 at the request of DHHS to assess the state of the art in performance measurement for the specific block grant programs included in the original PPG proposal, recommend measures that could be used to monitor the proposed PPG agreements to be negotiated between each state and the federal government, and recommend steps to improve performance measures and performance measurement for health-related programs.

The panel's work has resulted in two reports, of which this is the second. In its first report, the panel presented an analytic framework for use by states and DHHS in assessing the appropriateness of specific outcome, process, and capacity measures for individual performance agreements. That report also provided examples of health outcome and risk status measures, and related process and capacity measures, that might be used in conjunction with PPGs in the program areas covered by the original proposal.

In this second report, the panel addresses broader data and information system issues that require attention at the federal, state, and local levels to advance the practice of performance measurement for publicly funded health programs. This report broadens the discussion begun in the first report by looking beyond the federal-state PPG framework and beyond the specific program areas covered by the PPG proposal. Although the discussion focuses on the public-sector perspective, closely related private-sector interests and developments in clinical health care are also considered.

PRINCIPLES OF PERFORMANCE MEASUREMENT

Performance measurement is not new, but its increasingly widespread use in both the public sector (e.g., in federal agencies under the Government Performance and Results Act and in state and local government accountability systems) and the private sector (e.g., in accreditation programs for health care organizations) reflects changing attitudes and expectations regarding accountability and management. An attractive feature of performance measurement is that it presents the opportunity to focus attention on defining and using evidence-based best practices to achieve desired outcomes. To define those best practices and select appropriate performance measures, evidence is needed not only on the causal links between interventions and outcomes, but also on how interventions work. This evidence should guide the organization, operation, and improvement of the services, as well as the selection and use of meaningful process and capacity performance measures. When evidence is not yet conclusive, the selection of performance measures should be guided by professional consensus regarding the

relationship between capacity and process factors and health outcomes. Explicit accountability for those processes and intermediate outcomes that are under programmatic control will encourage the further development of standards of practice in publicly funded health programs.

Performance measurement, as it has been implemented in various settings, involves (1) developing an explicit set of goals and objectives and articulating a strategy for achieving them, (2) developing and implementing strategies for measuring performance, and (3) using performance information to improve management practices or resource allocation. However, the panel cautions against using performance measures as the sole basis for causal inferences regarding program performance because of the diversity of factors beyond program activities that affect most health outcomes.

Successful implementation of performance measurement will require substantial and continuing efforts to overcome challenges involved in the development and use of performance measures and data systems. There must be a firm commitment to ongoing research to develop new and better measures, relate these measures to program actions, and evaluate and improve the performance measurement system. Performance measurement should also provide a framework for initiating systematic efforts, especially at the state and local levels, to identify and collect data for appropriate measures of program capacity, processes, and intermediate outcomes. Performance measurement activities will benefit from collaborations among agency staff and others who can bring to bear the perspectives and expertise of a variety of disciplines (e.g., public health, clinical services, statistics, epidemiology, data processing, data management).

The panel concluded that the following principles should guide current efforts to implement performance measurement for publicly funded health programs:

- Performance measurement activities must proceed from clearly defined program goals. The performance measurement process and the information it produces should be viewed as a tool for monitoring and promoting progress toward those goals, not as an end in itself.
- Because health needs and priorities vary across the country, a performance measurement system should promote the development of identifiable sets of measures from which states and communities can select subsets appropriate for the program priorities and strategies they have adopted. Ideally, all of the measures used should be recognized as valid, reliable, and responsive to change and have agreed-upon definitions.
- Performance measurement activities must recognize and meet information needs that may differ in terms of content and quantity for different functions (e.g., program operation, management, policy making, funding). Ideally, measures for specific functional purposes should be linked, conceptually or in practice, to provide a consistent assessment of performance across these different functions.

- Performance measurement must consider the feasibility of data collection and analysis for proposed measures. If appropriate data cannot be produced, the measures will not be useful. Considerations should include the quality and comparability of the available data and the cost of producing those data.
- The performance monitoring system, including the performance measures and the data supporting them, should be evaluated periodically. Such evaluation will help ensure that the system's goals are being met and decrease the likelihood of manipulation or inadvertent promotion of undesired effects, such as reducing services to groups that may be likely to have poor outcomes.
- Performance measurement should be viewed as a developmental activity that will continue to evolve. Measures should be refined or replaced as understanding of the linkages between health outcomes and program activities ("processes") improves, as better sources of data are developed, and as program priorities change. The panel cautions that because performance measurement is a new and largely unfamiliar policy mechanism, it should be tested in the context of goal setting, progress monitoring, and signaling before being used for resource allocation or regulatory purposes. Research and evaluation studies should assess performance measurement's effectiveness as a tool for improving health outcomes and program management.

PERFORMANCE PARTNERSHIP AGREEMENTS

Examination of performance measurement in the context of the proposal for PPGs led the panel to propose a set of general principles to guide further performance partnership efforts. First, those who are affected by decisions resulting from the application of performance measures (e.g., state and local health agencies) must share fully in the creation and selection of the measures and, where possible, the measurement process. Second, state- and local-level data are essential for achieving federal goals for performance measurement, and ensuring adequate support for data collection mechanisms to produce those data is important to the success of the system. Third, to make efficient and effective use of resources, performance measurement should, to the extent possible, rely on existing data systems that serve other managerial and operational purposes as well. Collaboration across and within the federal, state, and local levels can reduce the inconsistencies and incompatibilities that can arise in independently developed monitoring programs or data systems while preserving sufficient flexibility to accommodate the differences among states and communities in their programs and goals. Finally, performance measurement should focus on monitoring progress toward the overall goals of an activity and not on measuring the impact of a particular source of funding for that activity. The health outcomes that are linked to program goals are influenced by many factors, making inferences concerning the effect of individual funding sources problematic.

A NATIONAL INFORMATION NETWORK FOR HEALTH-RELATED DATA

Further advances in performance measurement for publicly funded health programs will require thoughtful and continuing attention to a varied set of policy, programmatic, and data and information system issues. The current focus on performance-based accountability has helped highlight the limitations of existing health-related data and data sources. Despite their diversity and breadth, the data presently suitable for performance measurement are limited. The need for stronger and more coherent health data systems is a concern at the federal, state, and local levels and in the private sector as well.

DHHS has an important leadership role to play, but all of the participants must share responsibility for ensuring that health data and data systems receive adequate support to operate efficiently and effectively. An investment must be made in the data collection programs and information technology that are at the core of these information systems, as well as in training and technical assistance for the people who produce and use health data.

The panel's conclusion is that over the long term, performance measurement will be easier and more effective with the development of a broadly based national health information network that can promote a coordinated and collaborative approach to meeting diverse needs for a variety of health-related information, including performance data. This does not necessarily require the creation of an entirely new data system or a federally managed system. Instead, the panel envisions building on existing data systems across the local, state, and federal levels to produce the information required for performance measurement.

The development of a truly comprehensive health information network of national scope is a substantial endeavor that will almost certainly require an incremental approach with financial investment from a variety of sources, as well as commitment and persistence. The challenge is to develop a reasonably efficient and effective network that accommodates the many different data sources and information requirements that currently exist. The resulting network should meet real managerial and accountability needs; reflect important interdependencies and relationships across governmental and programmatic lines; and recognize that multiple, specialized data systems may no longer be affordable or consistent with other critical priorities.

As envisioned by the panel, the proposed national health information network should have the following features:

National Collaboration Collaboration among local, state, federal, and private efforts must be supported by adequate resources and must recognize the essential needs and contributions of each participant. The aim is to achieve a network of national scope that is not specifically a federal enterprise.

Linkage but not Consolidation The proposed network does not depend on

the development of a single national health database or information system. Compatible structure and architecture in information systems will promote linkage of comparable data and sharing of information. The confidentiality and security of personal health information must be ensured.

Ability to Meet the Needs of Varied Users The network should support multiple purposes, including monitoring for performance-based accountability of population-based and personal health services, operation of health programs, and delivery and management of clinical care. It should serve the information needs of managers, planners, health care providers, evaluators, policy makers, and the public at the national, state, and local levels, including ensuring that states and communities have the opportunity to produce or obtain timely data of local interest and of sufficient detail to be representative of their populations.

Standardization of Data and Measures Clear and common definitions of data elements, measures, and coding systems and standard approaches to data collection must be established so that information can be aggregated across multiple populations and regions, and comparisons, where appropriate, can be made over time or among populations and geographic areas.

Appropriate Performance Measures The measures adopted should represent multiple perspectives, specifically including that of the consumer (e.g., satisfaction with access to services). They should be applicable to varied types of services (e.g., individual and population-based), to different age groups, and to people of differing ethnic and cultural backgrounds.

Efficient and Effective Use of Resources Coordination and integration of information systems will often prove more efficient than the development and operation of program-specific systems. Data collection should be guided by careful judgments about the intensity of the information required for performance measurement in terms of frequency of data collection, level of detail, and completeness of coverage (e.g., sample or census data). The network should provide access to appropriate information from sources that are not primarily health related (e.g., highway safety, corrections). Staff at all levels must have sufficient training and technical assistance to manage data systems and use information effectively.

Adaptability to Change Performance measurement and a national health information network must be able to change and evolve as information sources grow, knowledge expands, or program priorities and activities change. New measures must be developed and tested to respond to these evolving needs.

The panel concluded that further progress in performance measurement and in the development of a multilevel, user-oriented national health information network requires work in four broad areas: (1) policy actions that promote collaboration by federal, state, and local stakeholders in the performance measurement process and more effective integration of data systems; (2) operational principles that support efficient use of resources and promote use of appropriate perfor-

mance measures and data; (3) essential investment in data systems and in the staff who collect and use performance information; and (4) research to improve the evidence base for performance measures, as well as the use of performance measurement. The panel recommends several specific steps in each of these areas.

POLICY ACTIONS

National Collaboration

To succeed, performance measurement and the national health information network proposed by the panel must be supported by a broad and continuing commitment to a collaborative process that brings together as partners stakeholders from across federal, state, and local governments. The panel advocates such a national collaborative partnership to ensure that performance measurement practices and health data systems are responsive to program priorities and information needs at all levels of government. In addition to *inter*governmental collaboration, the panel advocates greater *intra*governmental collaboration to reduce duplication of effort and to promote data sharing and the development of comparable measures and definitions for data related to health outcomes and program activities. Where appropriate, these public-sector efforts should interact with related activities in the private sector.

The national collaboration recommended by the panel will require a process for initiating and continuing consensus-building discussions. DHHS is a key participant and may be an essential catalyst for this process, but it must act as a partner with state and local stakeholders. To ensure full and fair consideration of multiple points of view, participants may wish to identify an interested party without a direct stake in the outcomes (e.g., a foundation, a university) that can convene local, state, and national stakeholders in a neutral setting. Stakeholder groups may also wish to establish well-defined mechanisms for designating their representatives in these discussions. Participants should include both staff with policy and programmatic responsibilities who use health data and those with technical expertise in data collection and data analysis who produce and manage health data.

A well-designed and effectively operating performance monitoring system promises benefits for all of its participants. Those participants must, however, share responsibility for the design and maintenance of the system and for investment of the resources needed to give the system sufficient capacity to operate effectively. Participants' responsibilities also include working toward compromise solutions in such matters as uniformity in definitions and procedures, the choice of data items and data collection methods, and the timeliness and format of data forwarded to other collaborators.

To establish a collaborative base for performance measurement and a health information network, the panel recommends the following steps:

1. Federal, state, and local governments should commit to a common and national strategic goal of incorporating performance measurement into the practices of publicly funded health programs.

2. Federal, state, and local governments, with input from private partner organizations, should plan and implement all steps of the performance measurement process in full collaboration with one another.

3. DHHS should work in partnership with members of the relevant groups representing policy, program, and technical officials of states and local entities to establish a process for developing policies and procedures that can facilitate the implementation of performance measurement efforts in health-related areas.

4. Federal, state, and local governments should accept explicit responsibilities, determined in collaboration with other stakeholders, in return for their share in the governance of and benefits from broader efforts to improve performance monitoring.

Integration of Data Systems

The categorical nature of much of the federal funding for state and local health-related programs has often encouraged both a fragmented approach to health problems and the development of program-specific data systems and reporting requirements. A strictly programmatic perspective may discourage a more comprehensive approach that can capitalize on the complementary, overlapping, and even synergistic interactions among programs and their information system needs.

Even though programmatic funding streams are likely to remain a prominent feature of federal funding, additional opportunities are needed to improve data systems at the state and local levels by coordinating and integrating a broader array of health data. Some federal agencies are supporting a more integrated approach, and the panel encourages other agencies to facilitate a broader perspective in the planning for information system changes and to improve the likelihood of generating additional funds for the implementation of those changes. Specifically, the panel makes the following recommendations:

5. DHHS should lead efforts to integrate data systems across categorical health program lines.

6. DHHS, in collaboration with state and local partners, should review restrictions on the use of grant funds to determine whether

they represent a significant barrier to progress in the development of integrated health information systems. If so, DHHS should pursue changes in the terms of those grant programs that would permit greater flexibility in the use of the funds.

Technology Policy

Rapidly evolving information and communications technologies will enhance the feasibility of performance measurement and the health information network envisioned by the panel. Many state and local health agencies, however, lack the resources to keep up with the rapid pace of the revolution in information technology. Effective use of these technologies requires the development and implementation of standards to facilitate the transmission, aggregation, and linkage of data from multiple sources without requiring the standardization of equipment or operating systems and software. DHHS should serve as a catalyst for consensus building on information collection and transmission standards, and as a resource for technical assistance in the application of new information technologies for a broad range of health-related data. The panel emphasizes that development and use of information technologies must always address protection of the confidentiality and security of health-related data. Specifically, the panel makes the following recommendation:

7. DHHS should provide leadership in the development and use of data transmission standards and of new information technologies to collect, analyze, and disseminate health-related data.

OPERATIONAL PRINCIPLES

The panel identified several matters related to the availability of data and the further development of performance measures that should be addressed to promote the successful implementation and operation of a performance measurement system for publicly funded health programs.

The development of a performance monitoring system requires consideration of the broad range of factors that influence desired health outcomes, as well as the administrative, analytic, and technical resources needed to collect data and use performance measures. State and local government agencies whose responsibilities are not primarily health related must be part of the process. This includes agencies with programmatic responsibilities in nonhealth areas (e.g., criminal justice, housing, transportation) and those that collect and manage data on basic socioeconomic characteristics of the population and the state (e.g., population estimates, economic development data).

Although few existing data systems have been designed specifically for performance measurement, they nonetheless provide an essential base from which to

build an information network that can meet a broad range of health information needs, including performance data. The panel recommends that, instead of creating an entirely new data system for performance measurement, data needs be met to the extent possible by using existing systems, such as vital records, notifiable disease systems, adult and youth behavioral risk factor surveillance, cancer registries, and records on client services (e.g., prenatal care, substance abuse treatment). Other data systems beyond the purview of health agencies can also provide information valuable for tracking health risks and outcomes.

A performance monitoring system requires not only continuing data collection activities, but also a mechanism for ongoing review and refinement of performance measures. Measures must change to reflect the evolving knowledge base on which they rest, changes in health needs and opportunities for intervention, and changes in the health policy environment. A broad range of stakeholders must participate in the review process to ensure that performance measures are consistent with state and local public health priorities. Policy, programmatic, and technical perspectives must all be considered. The collaboration between the Centers for Disease Control and Prevention and the Council of State and Territorial Epidemiologists for periodic review and revision of the case definitions of specific infectious diseases might serve as a model in this regard.

As the panel observed in its first report, data limitations, differing health problems, and differing program priorities preclude prescribing a single set of performance measures for use by all states and communities. Instead, DHHS should work with states and communities to assemble sets of measures that meet the basic tests of validity, reliability, responsiveness, and data adequacy; users can then select smaller subsets of measures that meet their specific needs. Because states and localities may reasonably pursue many different strategies to target a single health outcome, a large number of process and capacity measures should be available for user choice.

Standard definitions for performance measures and standards for data collection should be adopted to enhance the comparability of performance data over time and across states and localities. Use of common measures and data definitions may encourage cost efficiencies by reducing the need to redesign data collection instruments, electronic processing protocols, and similar infrastructure elements. With sufficient comparability across state data systems, greater reliance might be placed on aggregating state data to produce national measures, rather than requiring separate data collection systems at the federal and state levels. Stakeholders must have a means of achieving consensus on these standards and harmonizing the implementation of their performance measurement activities. The advantages of greater standardization should not, however, obscure the need for continued critical assessment of the appropriateness of the measures and methods being used.

It is essential to ensure that performance measurement rests on data and data analysis of high quality. Moreover, differences in data quality across individual

information systems may reduce the comparability of performance data. Although no data system or data set is ever perfect, and costs to reduce residual errors can be high, quality standards must be adopted. These standards should be based on informed assessments of how the data are to be used and the degree of accuracy and precision required to serve those uses.

The panel makes the following recommendations regarding these issues:

8. As states and communities work to implement performance monitoring systems for health-related programs, they should ensure that all relevant public agencies, including those outside traditional health areas, have the opportunity to participate.

9. When possible, partners should obtain performance measurement information from existing or enhanced federal, state, and local information systems.

10. DHHS, in partnership with state and local stakeholders, should lead the implementation of a process for ongoing development and review of performance measures to be used in conjunction with state and local health programs.

11. DHHS, in partnership with state and local stakeholders, should lead a process for assembling and evaluating sets of performance measures from which users can identify and agree upon those appropriate for specific applications.

12. DHHS should work in partnership with state and local stakeholders to promote the development and adoption of standard definitions for performance measures and standards for associated data collection and data quality in performance measurement systems.

ESSENTIAL INVESTMENT

Performance measurement activities are likely to impose new demands on those whose performance is being assessed (e.g., additional data collection or data system development, new data analysis and reporting). Adequate resources must be made available to meet those demands, as well as to maintain the effective elements of current data systems. Furthermore, efforts to enhance a health information network should not compromise funding for program services. To respond to these concerns, the panel recommends investments both in data systems and in training and technical assistance.

Data Systems

Existing health data systems provide a strong base for performance measurement, but they generally have not been developed for this purpose. Adequate resources are needed to maintain key information systems and to enhance or develop new systems for performance data that cannot currently be produced. Investments in data for state- and local-level performance measures should be a high priority. Innovative ways to use these resources should be explored, as should opportunities to improve the current investment of resources in data collection and analysis activities at the federal, state, and local levels. For example, careful examination of duplication in current data collection and data systems may suggest more efficient ways of meeting information needs, potentially freeing resources to improve or expand data systems. To address these matters, the panel makes the following recommendations:

13. DHHS and state and local users of performance measurement data should each commit resources to reduce gaps in the supporting information systems.

14. DHHS should sponsor a review of the current array of federal, state, and local data collection and analysis activities to begin an assessment of how existing resources might be used most effectively to meet performance measurement and other needs for health data. This review must include participation by appropriate state and local representatives.

Training and Technical Assistance

An investment is also necessary in state and local capacity for data collection and analysis. Staff vary in their knowledge of the relevant disciplines and methodologies (e.g., epidemiology, statistics, social science research) and in their experience with the use of data to plan, evaluate, and revise community programs. Expertise is also required in such areas as hardware, software, systems design and integration, and applications development. State and local health agencies are often understaffed, making it difficult for them to assume additional tasks associated with performance measurement. Relatively low salaries also place most health agencies at a disadvantage in the current highly competitive information technology market. If DHHS were to support a central resource for information and guidance on technology matters, state and local health agencies might be able to make more rapid use of a broader range of expertise than they could assemble on their own. Therefore, the panel recommends the following steps:

15. To ensure the success of performance measurement, all stakeholders, with substantial leadership from DHHS, should contribute ongoing technical assistance, training, and resources to enhance state and local data systems and analytic capacity.

16. DHHS should develop and maintain information technology expertise to assist states and communities as they use new technologies to improve the quality of and capacity for data collection, analysis, and dissemination.

A NATIONAL RESEARCH AGENDA

Research must be an integral part of any ongoing program of performance measurement for health-related programs. Because experience with performance measurement is still limited, studies are needed to improve understanding of what measures and methods of data collection are appropriate. Further research must also be done to establish the evidence base for causal links between program interventions and desired outcomes. This evidence, essential for selecting demonstrably meaningful capacity, process, and risk status measures, is currently limited in many fields. Studies will need to draw on expertise from a variety of disciplines, and they must be informative for a variety of settings at the local, state, and national levels. However, research by itself is not sufficient for informing and improving the performance monitoring process; resources must also be available to ensure that significant findings are communicated to those involved in performance measurement. The panel makes the following specific recommendations:

17. Federal agencies, foundations, and other private-sector groups should develop and fund a research agenda to support performance measurement activities, including the testing of intervention effectiveness, the investigation of the links between program capacity and processes and program outcomes, the development of measures, the refinement of data collection and information system technologies, and the use of performance measurement systems and performance-based decision making.

18. DHHS, foundations and other private organizations, and other partners involved in performance measurement activities should contribute in an appropriate manner to a process of information gathering and dissemination to support the use of evidence-based performance measures.

FINAL OBSERVATIONS

The broad national health information network envisioned by the panel should enhance the capacity of federal, state, and local health programs to meet performance measurement obligations and to use performance data and other information to achieve desired health outcomes. The leadership of DHHS and its agencies is critical in this process, but the department must participate as a partner with stakeholders at the state and local levels, in the public and private sectors, and across a variety of program areas. Several significant challenges lie ahead. Appropriate performance measures must be developed, and the data needed to use those measures must be available. Greater consensus must be achieved regarding standards for measures and data that will promote comparability in performance measurement. Necessary technical and analytic skills must be developed and applied to the creation and use of performance data. Sufficient financial and nonfinancial resources must be obtained to support both near-term efforts to introduce performance measurement activities and longer-term data collection, analysis, and research necessary to sustain those efforts. The need to address these issues is great, and the current commitment to performance measurement presents an opportunity to make significant progress toward meeting this need.

Potential Health Outcome and Risk Status Measures

The health outcome and risk status measures in this appendix are presented to illustrate the types of measures that might be included in performance partnership grants (PPGs) between state agencies and the U.S. Department of Health and Human Services (DHHS). These measures were selected from among the many proposed to the panel by participants at four regional meetings sponsored by DHHS, as well as by professional health associations and private agencies and individuals. The panel chose the measures using the guidelines described in Chapter 1 of this report: a measure should be specific and results oriented; it should be meaningful and understandable; data should be adequate to support the measure; and the measure should be as valid, reliable, and responsive as possible.

These health outcome and risk status measures are not meant to represent a mandated list. Few states are likely to have all of the data necessary to support all of these measures. In addition, state agencies may well have major priorities beyond those represented by the categories of outcome measures listed here (e.g., injury prevention, oral health, hearing and vision, environmental health) and are responsible for administering major programs relevant to public health that are not covered by this report (e.g., Medicaid). In addition, the panel did not attempt to identify all of the measures that might be relevant for specific important subpopulations (i.e., groups defined by demographic or risk categories). Consequently, the health outcome and risk status measures shown below should be considered an important subset, but not an exhaustive listing, of those that will be of interest to state agencies.

A major goal of this report is to provide an analytic framework for use by the

states and DHHS in assessing the appropriateness of specific outcome, process, and capacity measures proposed for PPG agreements in the future. The panel hopes that the field of performance measure evaluation will evolve as new health outcome measures are defined and studied and become available. It is anticipated that many of the measures described in this report can, in time, be modified or replaced by others that meet the selection guidelines cited above.

POTENTIAL MEASURES: OVERVIEW

Chronic Disease

Tobacco

- Percentage of (a) persons aged 18-24 and (b) persons aged 25 and older currently smoking tobacco
- Percentage of persons aged 14-17 (grades 9-12) currently smoking tobacco
- Percentage of women who gave birth in the past year and reported smoking tobacco during pregnancy
- Percentage of employed adults whose workplace has an official policy that bans smoking

Nutrition

- Percentage of persons aged 18 and older who eat five or more servings of fruits and vegetables per day[1]
- Percentage of persons aged 14-17 (grades 9-12) who eat five or more servings of fruits and vegetables per day[2]
- Percentage of persons aged 18 and older who are 20 percent or more above optimal body mass index[3]

Exercise

- Percentage of persons aged 18 and older who do not engage in physical activity or exercise
- Percentage of persons aged 14-17 (grades 9-12) who do not engage in physical activity or exercise

---

[1]The numerical value in this measure is the level that is generally regarded as appropriate by the medical community; it does not represent a level that has been independently determined or endorsed by the panel.

[2]See fn. 1.

[3]See fn. 1.

Screenings and Tests

- Percentage of persons aged 18 and older who had their blood pressure checked within the past 2 years[4]
- Percentage of women aged 45 and older and men aged 35 and older who had their cholesterol checked within the past 5 years[5]
- Percentage of women aged 50 and older who received a mammogram within the past 2 years[6]
- Percentage of adults aged 50 and older who had a fecal occult blood test within the past 12 months or a flexible sigmoidoscopy within the past 5 years[7]
- Percentage of women aged 18 and older who received a Pap smear within the past 3 years[8]
- Percentage of persons with diabetes who had HbA1C checked within the past 12 months[9]
- Percentage of persons with diabetes who had a health professional examine their feet at least once within the past 12 months[10]
- Percentage of persons with diabetes who received a dilated eye exam within the past 12 months[11]

STDs, HIV Infection, and Tuberculosis

- Incidence rates of selected STDs
- Incidence rates of HIV infection
- Prevalence rates of selected STDs
- Prevalence rates of HIV infection
- Consumer satisfaction with STD, HIV, and tuberculosis treatment programs
- Rates of sexual activity among adolescents aged 14-17
- Rates of sexual activity with multiple sex partners among people aged 18 and older
- Rates of condom use during last episode of sexual intercourse among sexually active adolescents aged 14-17
- Rates of condom use during last episode of sexual intercourse by persons aged 18 and older with multiple sex partners

---

[4]See fn. 1.
[5]See fn. 1.
[6]Cancer incidence by diagnosed stage may be a better alternative in cancer registry areas; see fn. 1.
[7]See fns. 1 and 6.
[8]See fns. 1 and 6.
[9]See fn. 1.
[10]See fn. 1.
[11]See fn. 1.

- Rates of condom use during last episode of sexual intercourse among men having sex with men
- Rates of injection drug use among adolescents and adults
- Completion rates of treatment for STDs, HIV infection, and tuberculosis

Mental Health

- Percentage of persons aged 18 and older receiving mental health services who experience reduced psychological distress
- Percentage of persons aged 18 and older receiving mental health services who experience increased level of functioning
- Percentage of persons aged 18 and older receiving mental health services who report increased employment (including volunteer time)
- Percentage of persons aged 18 and older with serious and persistent mental illness receiving mental health services who live in integrated, independent living situations or with family members
- Percentage of children aged 17 and younger with serious emotional disorders receiving mental health services who live in noncustodial living situations
- Percentage of persons aged 18 and older with serious mental illness who are in prisons and jails
- Percentage of children aged 17 and younger with serious emotional disorders who are in juvenile justice facilities
- Percentage of homeless persons aged 18 and older who have a serious mental illness
- Percentage of adolescents aged 14-17 or family members of children and adolescents or both who are satisfied with: (a) access to services, (b) appropriateness of services, and (c) perceptions of gain in personal outcomes
- Percentage of persons (aged 18 and older) or their family members or both who are satisfied with: (a) access to mental health services, (b) appropriateness of services, and (c) perceptions of gain in personal outcomes

Immunization

- Reported incidence rate of representative vaccine-preventable diseases
- Age-appropriate vaccination rates for target age groups (children aged 2 years; children entering school at approximately 5 years of age; and adults aged 65 and older) for each major vaccine group

Substance Abuse

- Death rate of persons aged 15-65 attributed to (a) alcohol, (b) other drug use, and (c) combined agents
- Percentage of emergency room encounters for alcohol or other drug-related causes

- Prevalence rate of substance abuse clients who report experiencing diminished severity of problems after completing treatment as measured by the Addiction Severity Index (ASI) or a similar measure[12]
- Ratio of substance abuse clients involved with the criminal justice system before and after completing treatment
- Prevalence rate of adolescents aged 14-17 engaged in heavy drinking or other drug use[13]
- Prevalence rate of persons aged 18 and older engaged in heavy drinking or other drug use[14]
- Percentage of women who gave birth in the past year and reported using alcohol or other drugs during pregnancy
- Mean age at first use of "gateway" drugs (tobacco, marijuana, alcohol)
- Percentage of adolescents aged 14-17 stating disapproval of marijuana use
- Percentage of adolescents aged 14-17 who report parents or guardians who communicate non-use expectations
- Percentage of drug abuse clients who engage in risk behaviors related to HIV/AIDS after completing treatment plan

Sexual Assault Prevention

- Incidence rate of sexual assault reported by females

Disabilities

- Percentage of newborns with neural tube defects
- Percentage of persons aged 18-65 with disabilities who are in the workforce
- Percentage of children aged 6 or younger with blood lead greater that 10 micrograms per deciliter[15]
- Percentage of women who gave birth in the past year and reported using alcohol, tobacco, or other drugs during pregnancy

Emergency Medical Services

- Percentage of persons who suffer out-of-hospital cardiac arrest who survive

---

[12]Although the estimated incidence rate would be a more appropriate measure for monitoring progress by the state substance abuse agencies, the currently available data source for this measure provides prevalence data.

[13]See fn. 12.

[14]See fn. 12.

[15]See fn. 1.

Contents

APPENDICES