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Selecting Process Measures for Quality Improvement in Mental Healthcare

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This **Toolkit** is one of a series of such kits commissioned by the Evaluation Center@HSRI. The Center is supported by a cooperative agreement with the Center for Mental Health Services, Substance Abuse and Mental Health Services Administration. The mission of the Evaluation Center is to provide technical assistance related to the evaluation of adult mental health systems change.

The Center offers seven programs all of which are designed to enhance evaluation capacity. **The Consultation Program**, which provides consultation tailored to the needs of individual projects; **the Topical Evaluations Networks and Web Program**, make use of multiple methods of communication via the internet; **the Toolkit Program**, which provides evaluators with tested methodologies and instruments related to specific topics; **the Materials Program**, an evaluation materials program which supplies evaluators with original papers on selected topics and identifies relevant literature in the field; **the Conferences and Training Program** designed to enhance the evaluation skills of producers and consumers of evaluations; **Multicultural Program** focusing on evaluation issues related to culturally, racially and ethnically diverse populations; and the **Knowledge Assessment and Application Program,** focuses on filling the gap between knowledge development and knowledge application activities.

The Toolkits are designed to provide evaluators with complete descriptions of methodologies and instruments for use in evaluating specific topics. Based on information from a needs assessment study conducted by the Center and on feedback from evaluators in the field, we have identified a number of important topics that evaluators are frequently interested in examining. Expert consultants have been engaged to review the background of these topics and to compile Toolkits that provide evaluators with state-of-the-art evaluation techniques to use in their own work.

The Evaluation Center@HSRI is also interested in supporting "user groups" for its Toolkits. These groups will provide a forum for Toolkit users to share their expertise and experiences with the Toolkits. If you would like to participate in a user group, please complete the form enclosed and return it to the Evaluation Center@HSRI.

We hope that this Toolkit on *Selecting Process Measures for Quality Improvement in Mental Healthcare* will be helpful to those evaluators who are interested in identifying and selecting process measures for use in quality assessment and improvement activities.

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TABLE OF CONTENTS

CHAPTER 1. OVERVIEW

Over the last decade, there has been increased attention by policymakers, payers, clinicians, and consumers on the quality and efficiency of health care in the United States. Research has documented that the quality of health care varies across the U.S. In behavioral health (Dickey, Hermann, & Eisen, 1998; Hermann, 1996) and elsewhere in medicine (Chassin & Galvin, 1998), a substantial proportion of practice has been found to diverge from evidence-based treatment recommendations. In response, a Presidential Commission on Consumer Protection and Quality in the Healthcare Industry and the Institute of Medicine have led a wide range of stakeholders—consumer groups, purchasers, payers, accreditors, and government agencies—in calling for a national agenda for quality assessment and improvement (Institute of Medicine, 1997; National Advisory Mental Health Council's Clinical Treatment and Services Research Workgroup, 1998; President's Advisory Commission on Consumer Protection and Quality in the Health Care Industry, 1998).

The methodology for quality assessment and strategies for quality improvement are at an early stage of development in health care. A wide variety of measures of quality have been developed for mental health and substance abuse. These include measures of conformance to evidence based treatment recommendations (Schizophrenia Patient Outcomes Research Team, 2001), surveys of consumer perspectives on health care (the Evaluation Center@HSRI, 1998; Shaul, Eisen, Clarridge, et al., 2001), and instruments that assess clinical and functional outcomes (Eisen, Wilcox, Schaefer, Culhane, & Leff, 1997).

This toolkit is designed to help healthcare organizations to identify and select measures meeting their needs for use in quality assessment and improvement activities. It builds on the National Inventory of Mental Health Quality Measures, an interactive database found at http://www.cqaimh.org/quality.html and through a link provided by the Evaluation Center@HSRI (www.tecathsri.org). Both the inventory and the toolkit focus on process measures, a type of quality measure that evaluates components of the interaction between the healthcare system and consumers of healthcare. Dozens of organizations have proposed hundreds of process measures to assess the quality of mental health care (Hermann, Leff, et al., 2000). The toolkit will:

- summarize principles underlying quality improvement
- describe characteristics of process measures and how to select measures meeting an

organization's needs

- suggest how quality measures can be used in conjunction with other types of quality measurement

This toolkit is designed to complement other publications released by the Evaluation Center at HSRI. Appendix A lists toolkits on subjects that include other quality assessment methods (e.g., measurement of structures and outcomes of care), and methods for analyzing and interpreting data, presenting and displaying results, and evaluating a quality management system.

1.1 Principles of Quality Improvement

Nearly every healthcare organization has adopted principles and methods of continuous quality improvement (CQI; Institute of Medicine, 2001; National Hospital Quality Improvement Survey, 1999). In mental health and substance abuse care, the clinical literature is replete with reports of quality management programs and initiatives (Carpinello, Felton, Pease, DeMasi, & Donahue, 1998; Coleman & Hunter, 1995; Frazier, Amigone, & Sullivan, 1997; Hermann, Regner, Yang, & Erickson, 2000; McFarland, Harmann, Lhotak, & Wieselthier, 1996; Mozdzierz, Greenblatt, Snodgrass, Sladen & Jameson, 1998; Rago & Reid, 1991; Sluyter, 1996; Sluyter & Barnette, 1995; Mark & Garet, 1997; Suber, Martin, Jones, Reeves, & Duncan, 1996). There are a variety of quality improvement models, but all involve certain fundamental principles (Berwick & Godfrey, 1990).

1) Health care is not an individual act between clinician and consumer, but a collective series of process within a formal or informal system of care.

2) Most problems with quality in health care relate to defects in processes, not individual failings.

3) Measurement of crucial processes and outcomes can play an important role in improving the quality of care. Through statistical analysis, processes can be compared to evidence-based treatment guidelines, and outcomes to norms and benchmarks, to identify opportunities for improvement.

4) Improvement efforts should be focused on the needs of the customer. In healthcare care, this is often — but not always — the consumer. Referrers, payers and other components of the system are customers as well.

5) Quality improvement should draw on the knowledge and efforts of individuals

throughout the healthcare organization.

6) The improvement process is an empirical one: hypotheses about the nature of the problem are developed, interventions are designed, and implemented.

7) Many quality problems have multiple factors, and the improvement process is often an iterative one. Solutions may come through incremental efforts. Thus measurement should be conducted serially: first, to identify problems; second, to evaluate the impact of interventions; third, to maintain gains after initial improvement.

1.2 Types of Quality Measures

Donabedian's framework for quality of care provides a helpful structure for quality assessment and improvement (Figure 1; Donabedian, 1980). One can assess *structural characteristics* of a healthcare organization, such as the number of clinicians, their training and years of experience, and the availability of specialists. *Processes of care* – the focus of quality measures described in this toolkit — refer to the consumer's interaction with the healthcare system, and include both technical and interpersonal components of care. *Outcomes of care* reflect the results of treatment: the change in the consumer's symptoms or functioning, their satisfaction, and the cost effectiveness of treatment. Each of these components can be measured and each relates to the other. Improvement in the appropriateness of care processes can lead to better outcomes and prevent adverse events. Improved efficiency can enhance cost effectiveness. Continuous quality improvement activities seek to make changes in the structural and process components of care with the goal of positively influencing outcomes (the Evaluation Center@HSRI, 2001).

Figure 1. Framework for Assessing Quality of Care		
Domains of Quality		
Structure	**Process**	**Outcome**

Characteristics of:
• Institutions
• Providers
• Communities
• Consumers
• Illness
• Financing
	Technical Processes:
	• Prevention
	• Detection
	• Access
	• Assessment
	• Treatment
	   o Selection
	   o Intensity
	   o Duration
	   o Dosage
	• Coordination
	• Continuity
	• Safety
	
	Interpersonal Processes
	
	Cost/Efficiency
		• Symptoms
		• Functioning
		• Quality of life
		• Satisfaction
		• Cost-Effectiveness

CHAPTER 2. PROCESS MEASURES IN QUALITY IMPROVEMENT

2.1 Domains of Process

Process domains – such as access or safety – reflect our values. We want every member of society to have access to healthcare. We want the healthcare environment to be safe and error-free. Organizations may wish to undertake a process of identifying their values and concerns about health care, and then deriving measures of quality in these domains. The Mental Health Statistics Improvement Project initiative to develop a consumer-oriented quality report card illustrates this approach (the Evaluation Center@HSRI, 1998). Through a multi-step process, a task force of consumers, policymakers, and researchers identified consumer concerns and values, developed indicators of quality care in each area, and then measures for each indicator.

Other organizations may wish to select from already available measures. The selection process involves consideration of many (sometimes conflicting) priorities. One framework for measure selection emphasizes the need to strike a balance between selecting measures that broadly represent diverse characteristics of the healthcare system and choosing measures that are valid, feasible, and provide direction for quality improvement (Hermann & Palmer, 2002).

The National Inventory of Mental Health Quality Measures provides information about system characteristics assessed by process measures and the properties of measures that contribute to their validity, feasibility, and actionability. Measures are categorized in seven categories of care processes: prevention, access, assessment, treatment, continuity, coordination, and safety. These are described in further detail below. These domains stem from commonly held values—such as the desire for a safe, error-free healthcare environment—that have been translated into discrete measures of care.

2.1.1 Prevention Measures

Prevention measures examine the performance of preventative mental health care. Screening for substance abuse among primary care consumers is one example of secondary prevention in which effectiveness is supported by research evidence.

Example: The percentage of health plan members, responding to a survey, who

report being asked about alcohol use by a clinician in the prior year (Washington Circle Group, 1999).

2.1.2 Access Measures

Access measures examine the availability of services, the ease or difficulty of obtaining them, and barriers that may be encountered. These barriers may include delays, linguistic or cultural issues, geographic proximity and other factors.

Example: The mean of the duration between request for services by consumers with SPMI and first face-to-face visit. (MHSIP Task Force, 1996; Washington Circle Group, 1999).

2.1.3 Assessment Measures

Assessment measures address components of clinical evaluations, either on initial visits or routine clinical encounters. These indicators focus on key features of the clinical history and exam, including diagnostic, side effect, safety, medical and comorbidity issues.

Example: The percentage of consumers hospitalized for principal diagnosis of major depression that has a documented assessment for psychosis on admission. (RAND Medicare Prospective Payment System Study; Wells, et al., 1993).

2.1.4 Treatment Measures

Treatment measures examine the conformance of clinical practices to evidence based guidelines, where available, and if not, to clinical consensus or normative practices. These measures include treatment for both psychiatric conditions and substance abuse, and include biological and psychosocial interventions. Some measures examine simply whether or not a treatment was provided, while others examine the content of treatment in more detail—for example, for measures of pharmacological treatment, the appropriateness of the intensity, dose, and duration of a treatment.

Example: The proportion of adults hospitalized for an acute episode of s7chizophrenia that were prescribed an antipsychotic medication on discharge.

(Schizophrenia PORT; Lehman & Steinwachs, 1998).

2.1.5 Continuity Measures

Continuity measures evaluate the capacity of caregivers to maintain the consumer's treatment during transitions between levels of care, a period during which individuals with severe mental illness are at risk for disruptions in care.

Example: The proportion of consumers hospitalized for a major affective disorder who have an ambulatory mental health visit within 7 days of discharge. (National Committee for Quality Assurance, HEDIS 3.0; National Committee for Quality Assurance, 2001).

2.1.6 Coordination Measures

Coordination measures assess the capacity of members of a consumer's treatment team to interact with others inside and outside of the team to ensure that the diverse clinical needs are addressed. These measures might address communication between prescribing clinicians and therapists, or the capacity of mental health clinicians to facilitate the consumer's receipt of primary care.

Example: The proportion of consumers hospitalized for primary psychiatric diagnosis for whom there is documentation of contact between treating clinician and consumer's outpatient PCC*. (Massachusetts Behavioral Health Partnership; Department of Medical Assistance, 1999).

2.1.7 Safety Measures

Safety measures address issues of consumer and staff safety, including injuries, medication errors, avoidable adverse events, and the use of seclusion and restraint.

Example: The proportion of consumers discharged from an inpatient psychiatric hospital during a 30-day period who were placed in restraints at least one time during their hospitalization.

2.2 Potential Users of Quality Measures

Quality measures are used at multiple levels of the healthcare system and serve needs of varied stakeholder groups. One useful distinction is between *internal quality improvement* (i.e., taking place within healthcare delivery systems) and *external quality improvement* (i.e., driven by agencies and organizations external to delivery systems). In internal quality improvement activities, the results from quality measurement are used directly to manage or modify processes of care. In external quality improvement activities, the results are used for comparative purposes, reporting, and feedback, activities intended to influence behavior of stakeholders in the healthcare system. Stakeholders are at different stages of development in terms of their use of quality measurement data. A number of current and potential uses are described below.

2.2.1 Employer Purchasers

Employer purchasers of healthcare, working individually and through coalitions, are collecting and disseminating data on quality of care for multiple purposes. First, they may use this data to make decisions regarding which health plans and delivery systems with which to contract. Second, they may feed the data back to the health plans to encourage improved performance. Third, they may provide data to employees for use in their choices among plans and providers.

2.2.2 Private Insurers and Public Payers

Private insurers and public payers of healthcare are also collecting and comparing performance of delivery systems, facilities and providers, and disseminating results back to the point of service, as well as—in some cases—to the public. Often these reports compare the performance of individual facilities to the performance of the group as a whole.

2.2.3 Managed Behavioral Healthcare Organizations

Managed behavioral healthcare organizations use data from quality measurement in making contracting decisions and for external quality improvement activities such as comparing the performance of similar organizations and institutions. Some MBHOs may take a more active role in setting improvement goals for providers and facilities.

2.2.4 Government Agencies

Government agencies, in addition to their role as payers, have a primary role in the oversight of mental health care. Many federal, state and county agencies use quality measurement data as one part of their quality assurance and improvement program. In addition to providing comparative feedback, they may set standards and goals reflecting their expectations of care.

2.2.5 Accreditors

Accreditors of health plans and facilities are also leaders in external quality improvement, developing core sets of quality measures allowing for standardized comparisons of performance across organizations and institutions. Expectations for accreditation may include both participating in the benchmarking program as well as actively addressing care delivery issues in low-performing areas.

2.2.6 Consumers and Families

Consumers and families are potentially primary consumers of quality of care information, for use in making choices among health plans and providers. In addition, consumers and family members have participated in initiatives led by other stakeholders that developed or selected measures for use.

2.2.7 Clinicians and Managers

Clinicians and managers may use quality of care data to compare their performance to others' and identify potential areas for improvement. Best-performing individuals and institutions may be sources of information on how systems are configured to produce more favorable results.

2.2.8 Mental Health Services Researchers and Evaluators

Mental health services researchers and evaluators rely on quality measures to identify variations in care, to determine care processes that are associated with better outcomes, to examine the impact of financial and organizational change on healthcare, and to test interventions intended to improve quality. Some of these studies may be exploratory while others are designed to test specific theories. Researchers and evaluators may have more stringent

requirements for selecting measures, such as evidence of reliability and validity.

2.3 How Are Process Measures Constructed?

Simple process measures, of the type collected in the inventory, are usually rates or proportions, but may also be counts, ratios, means or medians. For quality measures in the form of proportions, the *denominator* typically defines a population of interest based on their demographic (e.g., adults over 18 years) and clinical characteristics (e.g., with a primary diagnosis of schizophrenia and experiencing an acute psychotic exacerbation). Because of the way in which care is organized and data are collected, the denominator population often specifies a particular beneficiary population (e.g., a state's Medicaid enrollees or members of a specific health plan). The *numerator* typically defines a subset of the denominator population that receives what research evidence or clinical consensus determines to be high quality or appropriate care.

For example, randomized controlled studies have shown that adults with schizophrenia who are experiencing an acute psychotic exacerbation have better outcomes if treated with an antipsychotic medication within a specific dosage range. Thus, the proportion of individuals from the denominator receiving the care specified in the numerator would comprise a process measure of quality care.

Numerator	Number of individuals from the denominator who are receiving an antipsychotic medication at a dose between 300 and 1,000 CPZ equivalents	
	_____	X 100 **= %**
Denominator	Number of Medicaid beneficiaries in a state, 18 years and over, with a primary diagnosis of schizophrenia and experiencing an acute psychotic exacerbation	

Measure Source: Schizophrenia Port (Lehman & Steinwachs, 1998)

Although the measure above includes many details, further operationalization would be needed to implement the measure reliably across state Medicaid programs. Questions to be addressed include, what is the threshold constituting an "acute exacerbation"? How many dosages or days of medication must be within the dosage range for an individual to be included in the numerator? How long a period is under examination?

A more basic question is what are the data sources to be used for the measure? In part, this is an issue of reliability. If different quality investigators collect information on dosage in different ways (for instance, surveying consumers, analyzing pharmacy claims, and abstracting medical records), they are likely to get different results, related to data quality rather than the care consumers actually receive.

For a quality investigator contemplating the use of a measure, data sources have a further significance. They represent the effort or collection burden of measuring a given process of care. Potential data sources, along with some strengths and limitations, are described below. Measures may require more than one source of data.

2.3.1 Administrative Data

Administrative data are those that are collected in computer databases as part of the process of delivering and obtaining reimbursement for care. This category includes so-called called "claims data" because they may come from claims submitted by providers to insurers for reimbursement. In systems of care that are prepaid, reimbursement is not based on each service provided. Nonetheless, "encounter data" may still be recorded for record-keeping purposes. Hospitals collect data at the time of registration and at admission and discharge. Although, by definition, administrative data are pre-existing and do not require additional labor for their collection for quality measure, considerable effort is often required to clean, link, and analyze data (Garnick, Hendricks, & Comstock, 1994; Merwin, 2001).

2.3.2 Pharmacy Data

Pharmacy data are a subtype of administrative claims, resulting from the purchase or reimbursement of medications. Pharmacy data from individuals other than inpatients must typically be obtained from payers or plans. Outpatients who receive care from individual clinicians or facilities often do not have a centralized source for prescribed medications. Pharmacy claims may not include dosage information, which then must be reconstructed from data on counts dispersed, strength, and frequency of refills.

2.3.3 Medical Records

Medical records often contain more clinically detailed data than administrative databases; for example not only describing an inpatient's diagnosis and length of stay, but also including

descriptions of their clinical presentation and the care they received while hospitalized. Drawbacks include the labor-intensive nature of record abstraction, missing data, and indecipherable handwriting.

2.3.4 Risk Management

Risk management records are of greater interest as the quality assessment movement has broadened to include issues of safety and medical errors. Collection, aggregation, and feedback of data on adverse events are increasingly part of routine care delivery.

2.3.5 Laboratory Data

Laboratory data can provide information in regard to the performance of appropriate tests and the quality of clinical decision-making based on the results. Healthcare information systems often process laboratory data differently from utilization data; linkage among different data systems to produce measures drawing from multiple sources can be challenging.

2.3.6 Scheduling and Intake Data

Scheduling and intake data are useful sources of information about access to care. Healthcare purchasers want their employees or beneficiaries to receive care promptly. Administrative claims can provide information about when a consumer attended an appointment, but intake logs are often needed to determine when an appointment was requested. Given that individuals with severe mental illness can have high no-show rates, records of when appointments were scheduled can be more informative than paid claims that document a visit only when it was attended. These types of data are often collected by hand and represent higher burden sources of data.

2.3.7 Utilization Management Data

Utilization management data can be sources of information about requests for care, denials and appeals. This information is often computerized and thus potentially available for quality assessment purposes.

2.3.8 Consumer Data

Consumer data such as surveys and consumer-reported levels of symptoms and

functioning are among the most useful sources of information. They are also among the most resource-intensive to collect.

2.3.9 Clinician Data

Clinician data may include surveys of clinician perspectives on care as well as clinician assessments of consumers' condition and severity of illness. The collection burden of these data includes the opportunity cost of the clinician's time.

2.4 How Are Process Measures Derived?

The foundation of a measure in clinical research and the rigor with which the measure was developed can inform the decision of whether or not to adopt it. Many process measures do not come from a strong foundation in research evidence. Their value is based on varying degrees of clinical consensus or opinion regarding their importance and validity. While measures may lack an empirical foundation, the rigor of the development process can suggest different levels of "face validity" (i.e., on the face of it, does the measure reflect an important aspect of quality care?). One question is what was the breadth of stakeholder representation within the group that selected the measure? If a measure were to be used for varied purposes within a healthcare system, one would look for broad representation that includes consumers, families, clinicians, payers, regulators and others. One would also look for signs of a formal selection process allowing each group member to have comparable degrees of influence on the group's decisions. The process should be based on principles that reflect a balance among desirable measure characteristics, such as the meaningfulness, feasibility, and utility of the measure for its stated purpose.

Ideally, process measures should be derived from clinical practice guidelines, which are "systematically developed statements to assist practitioner and consumer decisions about appropriate health care for specific clinical circumstances" based on current research evidence and clinical consensus regarding treatment (Institute of Medicine, 1990). Process measures can be used to assess the degree of adherence of current practice to the practice recommended in the guideline. Often, the goal of quality improvement activities is to narrow the gap between actual and recommended practice.

Potential measure users should be aware that all practice guidelines are not created equal. The guidelines themselves may vary in terms of their empirical foundation and rigor of

development. The Agency for Health Care Policy and Research has proposed criteria for the selection of a practice guideline for development of quality measures (Agency for Health Care Policy and Research, 1995):

- the guideline is developed by using available scientific evidence and an explicit, rigorous methodology
- the user understands the process by which it was developed
- the user is confident that the underlying scientific evidence of each guideline statement provides linkages between interventions and health outcomes

Few guidelines meet each of these criteria, but they provide a useful standard by which to evaluate existing guidelines. Similarly, Palmer and Banks (1995) outlined ideal procedures for developing quality measures from clinical practice guidelines:

1) Form a multidisciplinary expert panel that includes
   - relevant clinical specialties and stakeholders
   - methodological expertise
   - geographical representation
   - practice setting representation
2) Clarify measure purpose
3) Identify relevant clinical practice guideline
4) Assess scientific foundation
5) Identify appropriate populations
6) Draft measure criteria
7) Define case sample and period
8) Identify data source
9) Specify numerator and denominator
10) Draft data collection procedures
11) Evaluate case mix adjustment requirements
12) Pilot test and revise
13) Assess measure properties such as reliability and validity
14) Implement
15) Derive norms for regions and settings
16) Establish benchmarks or standards

2.5 Current Status of Process Measures in Mental Health

Process measures are in wide use in quality assessment programs throughout the mental health care system (Hermann, Leff, et al., 2000). Rather than consolidating around a small number of uniformly specified measures, current measure users employ a wide variety of individually selected measures and varied specifications to access common topics. Quality measures have been developed or proposed from organizations representing each stakeholder perspective, including accreditors (e.g., National Committee on Quality Assurance and the Joint Commission on Accreditation of Healthcare Organizations), federal, state, and local agencies (e.g., state and county departments of mental health and substance abuse, the Department of Veterans Affairs, the Substance Abuse and Mental Services Health Administration, the National Association of State Mental Health Program Directors), mental health clinician organizations (e.g., the American Psychiatric Association and the National Association of Social Workers), delivery system managers (e.g., the American College of Mental Health Administration), managed care organizations (e.g., the American Managed Behavioral Healthcare Association), payers, purchaser and consumer groups (e.g., FACCT, National Alliance for the Mentally Ill), and researchers. Appendix B provides a directory of developers and users of quality measures.

Some of these initiatives to develop or propose measures reflected the perspective of individual stakeholders, while others (for example, the Santa Fe Initiative of the American College of Mental Health Administration) incorporated perspectives of multiple stakeholders. A published review of the status of process measures found broad representation of many stakeholder groups, but less participation by consumers and employer purchasers (Hermann, Leff, et al., 2000). Process measures were available for each of the domains of process described in Section 2.1. In the treatment domain, both biological and psychosocial measures were well represented. There were fewer measures for substance abuse than mental health, although the Washington Circle Group, listed in Appendix B, has provided important leadership recently (Washington Circle Group, 1999). Approximately half of the mental health treatment measures were disorder-specific and most of these focus on depression and schizophrenia. The scientific foundation of available measures was varied, and few had been tested for validity or reliability. Common comorbidities of mental disorders—such as dual diagnoses and medical conditions— were not well represented. A number of measures assess treatment of children, but few were focused on care for elderly consumers.

The multiplicity of process measures is indicative of the field's early stage of development and the diversity of stakeholder interests. Research will contribute to the identification of a smaller number of promising measures. For example, can measures be grouped in terms of underlying constructs that could be represented more parsimoniously (Leff & Woocher, 1998)?

CHAPTER 3. PRINCIPLES FOR SELECTING QUALITY MEASURES

Measure selection is a crucial step in continuous quality improvement. A common saying is "that which is measured, moves". Unfortunately, it is not always that simple. Improvement often takes a great deal of focus, effort, and follow-up. But the opposite of the maxim *is* true. Flawed processes that do not receive sustained attention, by measurement or other means, are unlikely to improve.

Measure selection is also something of a misnomer, or at least a secondary step in the quality improvement process. The first step is to identify the health system's *assessment and improvement priorities*, then to determine how best to measure them.

3.1 Identifying Priorities for Quality Improvement

An initial issue to address is *whose* priorities are to be represented in the quality improvement process. Different stakeholders in a healthcare system will have different priorities, or at least different emphases among common priorities. Small clinics may have one set of priorities, large delivery systems another, and payers a third. Even within any one of these organizations, there is a constellation of stakeholders. For example, in a delivery system, there are consumers, clinicians, and managers within the system, and regulators, payers, and managed care organizations that externally influence it. Ideally, each group with a stake in the system can be represented in the priority-setting process. Increasingly, healthcare organizations have quality management and advisory committees that can provide input from a broad range of stakeholder perspectives.

Priorities should include characteristics of quality described in Section 2.1, including ready access to care, safe and appropriate treatment, and the achievement of the best outcomes attainable. Opportunities for improvement can come from many sources. Some flaws in healthcare delivery are well known to members of the organization. A climate of frankness should be cultivated, so that staff can mention problems without fear of blame. Other problems can be identified in the course of reviewing adverse events and bad outcomes. Comparative measurement activities—such as HEDIS, Maryland Indicators, and state report card initiatives—provide an opportunity to compare an organization's performance to similar organizations, and identify areas of lesser performance (e.g., a higher than average rate of restraint use). Other

assessments should be based on local considerations. Priorities should reflect the nature of local populations and their treatment needs. What conditions are prevalent locally? What sub-populations may be under-served? What services could be better provided?

3.2 Considerations in Selecting Measures

Once an institution's priority areas are identified, measures can be developed or selected to drive and monitor improvement efforts. In general, drawing on measures that have already been developed and tested has advantages. Selecting from existing measures avoids duplicating a resource intensive process. Operational specifications may have already been developed and testing of reliability and validity may have already begun. Results may be available from other organizations that can be used for comparative purposes. However, electing measures for quality improvement involves a number of considerations.

3.2.1 How Meaningful is the Measure?

- Relevance to user's mission: does the measure address a population, clinical area, and perspective relevant to the user?

- Clinical importance: do one or more stakeholders believe the measure addresses a clinically important process? Is the process one for which there are concerns about quality?

- Scientific foundation: is there research evidence a relationship between the conformance to the measure and clinical outcome?

- Validity: does the measure assess what it purports to assess?

- Consumer preferences: does the measure take into account individual or group (e.g., racial, ethnic, or cultural) preferences, beliefs, and/or practices related to quality of care?

- Risk adjustment: can differences in patient populations unrelated to clinical practices be adjusted for to permit fair comparisons of quality among plans, facilities, or clinicians?

- Comprehensible: can results of the measure be easily understood by the intended audience?

- Auditable: is the measure susceptible to gaming or manipulation?

3.2.2 How Feasible is the Measure?

- Fully operationalized?

- Data available and affordable to collect?

- Data accuracy and completeness acceptable?

- Is the method of data collection reliable?

- Can consumer confidentiality be adequately protected?

3.2.3 How Actionable is the Measure?

- Interpretability: are their norms, benchmarks or standards available to interpret the results?

- Is the process under control of the measure user?

- Are there strategies available that can lead to improvement in the process?

- Cost-effectiveness: does potential benefit of improvement exceed the cost of measurement and intervention?

3.2.4 What is the Right Balance Between a Measure's Meaningfulness and Feasibility?

As in clinical care, limited resources are available for data collection and improvement activities. Measure selection involves decisions about how to allocate these resources for maximal benefit. Potential users will encounter trade-offs between measure priorities, for example, between meaningfulness and feasibility. Ideally, measures will focus on clinical processes strongly backed by research evidence *(high meaningfulness)*. But such measures often require data sources rich in clinical detail—such as medical records—and these are costly to abstract *(low feasibility)*. Selection involves finding an acceptable balance and setting achievable goals.

3.2.5 What is the Purpose of Measurement?

Internal quality improvement activities draw on different types of measures—often more detailed, focused, and based on local priorities. External quality improvement activities, such as accreditation, tend to employ "higher-level" measures that are based on national or regional priorities and assess fundamental processes of care. Because use of these measures is often a requirement for participating organizations, accreditors typically attempt to select measures with low data-collection burdens. In selecting performance measures, it is important to consider

whose behavior you intend to influence and what information is likely to motivate and direct their practices.

3.2.6 What is the Potential Payoff of Measurement?

Initiatives that can lead to large gains in quality, and improvement in the health status of consumers, may warrant use of more resource-intensive data sources, such as medical record reviews or consumer surveys.

3.3 Formal Methods of Setting Quality Improvement Priorities

Large healthcare organizations with diverse stakeholders may choose to employ a formal priority-setting process for quality improvement priorities and measure selection. Two illustrative methods are described below.

3.3.1 Setting Institutional Priorities Using an Expert Panel

The Sepulveda Veterans Affairs Medical Center employed a structured process to set institutional priorities for quality improvement (Rubenstein, et al., 1995). As the authors reported, the California VA medical center "like many other health care organizations…found it difficult to focus QI resources on accomplishing the kinds of large-scale, sometimes painful changes in how care is delivered that may be required if an organization is to meet its goals in a changing healthcare environment" (Rubenstein, et al., 1995). The overall goal of the Sepulveda initiative was to identify areas for system-wide quality improvement, but also to ensure that the directions taken reflected institution-wide priorities and were linked to the institution's strategic planning process. Over a 22-week period, the organization's Quality Council carried out an eight-step consensus development process among council members and top managers.

Step 1: Achieved agreement within quality council and medical center management on participation.

Step 2: Developed and achieved management agreement on parameters for rating goals and objectives.

Step 3: Developed quality review criteria from strategic plan.

Step 4: Developed and disseminated materials to educate participants about quality review criteria and to allow them to rate the relative value of each criterion.

Step 5:   Analyze Round 1 ratings.

Step 6:   Present ratings in moderated consensus panel meeting.

Step 7:   Quality council develops final ranking of highest priority quality review criteria.

Step 8:   Top-ranked criteria are implemented as measures in formal CQI process.

3.3.2 Selecting Core Measures Using a Delphi Consensus Development Approach

Another priority-setting effort focused on selecting a small number of mental health process measures to be included in a core measure set for quality and improvement activities in mental health systems. The selection process sought to balance three considerations. First, which were the most meaningful measures from the perspective of diverse stakeholders? Second, which measures would be feasible to implement, given the burden of data collection, the availability of risk adjustment, and other considerations? Third, which measures would be representative of the diversity that exists across the many dimensions of health systems, including clinical conditions, vulnerable populations, types of treatment, levels of care, and the like. Aspects of the process employed may be useful to large health care organizations needing to select a limited number of measures for use.

Step 1:   From more than 300 collected measures, 116 process measures were preliminarily selected based on their uniqueness, face association to quality of care, and extent of operationalization for routine use. For each of these measures an inventory was developed describing the measure's clinical context, strength of research evidence supporting the underlying process, measure specifications, and other information about the measure.

Step 2:   A 12 member stakeholder panel consisting of representatives from a wide range of stakeholder groups—accreditors, federal and state government agencies, consumers, family members of mentally ill individuals, employer-purchasers, MBHOs, clinicians of several mental health disciplines, and researchers—met for two days to review, rate, and discuss measures. A more detailed description of the panel composition is included in Appendix C.

Step 3:   Panelists reviewed measures in seven domains of process quality: prevention,

access, assessment, treatment, continuity, coordination, and safety. Based on their own perspective and background material provided, panelists individually rated each measure on 3 parameters of meaningfulness, 3 parameters of feasibility, and one overall scale. The rating form is included in Appendix C.

Step 4: Results were analyzed and provided to the panel, allowing them to share perspectives and discuss areas of disagreement. After the discussion, each panelist again individually rated each measure.

Step 5: Based on panel ratings and distributional characteristics of the mental health system (populations, clinical conditions, settings, etc.) 29 measures were identified as relatively meaningful, feasible, and broadly representative.

CHAPTER 4. NATIONAL INVENTORY OF MENTAL HEALTH QUALITY MEASURES

The National Inventory of Mental Health Quality Measures provides a searchable database of process measures developed for quality assessment and improvement in mental health or substance abuse care. The inventory was developed by the Center for Quality Assessment and Improvement in Mental Health (CQAIMH) with funding from the Agency for Healthcare Quality and Research, the Substance Abuse and Mental Health Services Administration, and the Evaluation Center@HSRI. The inventory can be accessed at http://www.cqaimh.org/quality.html and through a link provided at the Evaluation Center@HSRI website (www.tecathsri.org).

4.1 Background

Between November 1999 and November 2000, CQAIMH staff contacted organizations nationwide including accreditors (e.g., National Committee on Quality Assurance and the Joint Commission on Accreditation of Healthcare Organizations), federal, state, and local agencies (e.g., all 50 state departments of mental health, the Department of Veterans Affairs, the Substance Abuse and Mental Services Health Administration, the National Association of State Mental Health Program Directors), mental health provider organizations (e.g., the American Psychiatric Association, the National Association of Social Workers, and the National Association of Psychiatric Health Systems), delivery system managers (e.g., the American College of Mental Health Administration), managed care organizations (e.g., the American Managed Behavioral Healthcare Association and individual companies), payers, purchaser and consumer groups (e.g., FACCT), health systems, and quality of care researchers. Contact modalities included letters, phone calls, and website reviews. Reviews of quality-of-care research were also conducted using MEDLINE, PsycLit, and CRISP.

4.2 Inclusion Criteria

To be included in the inventory, a process measure had to meet a minimum threshold of development, which was defined as having 1) a specified numerator and denominator; 2) a designated data source; and 3) a face relationship to quality. Measures that only described illness prevalence or service utilization (e.g., length of hospital stay) without a directional association to

quality were excluded. In focusing on discrete measures, we excluded multi-item instruments that assess quality of care. A total of 348 organizations were contacted, and initially 567 measures were identified. 317 measures met the criteria for inclusion. Measures were categorized under seven domains of quality: prevention, access, assessment, treatment, continuity, coordination, and safety.

4.3 Attributes of Measures

Each measure was evaluated under a conceptual framework developed initially for quality measurement for general medical care (Lawthers & Palmer, 1997) and then adapted for application to mental health care (Hermann & Palmer, 2002). Measure developers were contacted for supporting documentation. A literature review was conducted to obtain background information on the subject and clinical context of each measure and to evaluate the scientific evidence relating to the measure. Measure properties were inventoried using identifiers drawn from CONQUEST as well as additional attributes developed by the research team:

- Numerator
- Denominator
- Rationale
- Domain of quality
- Data source
- Population
- Setting
- Stakeholder participation in development
- Sampling
- Risk adjustment
- Validity
- Reliability
- Scientific basis
- Conformance results
- Norms
- Standards

CHAPTER 5. SEARCHING THE INVENTORY OF QUALITY MEASURES

The inventory is available via the Internet in a user-friendly, searchable format (http://www.cqaimh.org/quality.html). Based on your organization's clinical priorities and assessment needs, measures can be identified along with information about their use. This section guides potential measure users through the process of identifying quality measures.

Screen 1: Introduction to the Inventory

Once you access the inventory's overview page, several options are offered:

Instructions

View a guide to the selection and use of process measures for quality improvement, published by the Evaluation Center@HSRI.

Search for Measures

Search the inventory for quality measures meeting your organization's needs.

Report Measures

Contribute measures or measurement data to the inventory.

Glossary

Look up definitions of terms used in the inventory and guide.

Sign In

Join CQAIMH's mailing list for updates to the inventory and other quality initiatives.

Contact Us

Email CQAIMH with feedback or questions.

5.1 Specifying Search Parameters

After clicking "Search for Measures" on the introductory screen, you will be taken to Screen 2, below. The search engine allows the user to specify the type of measures needed based on the organization's clinical priorities and assessment needs. The search will return a list of measures meeting these specifications. Begin by setting at least two parameters. Once you have made your selection, click on the 'Search' button. If a search returns too many measures, set an additional parameter.

Screen 2: Search for Measures

Diagnosis

Are the quality improvement priorities of the organization specific to one or more categories of disorders? Many measures are specific to clinical diagnostic categories, including those below. Many other measures are not disorder-specific and can be used across diagnostic categories.

- Depression
- Personality Disorders
- Schizophrenia/Psychoses
- Substance Abuse/Dependence
- Post-traumatic Stress Disorder
- Other Diagnoses
- Across Diagnoses

Population

Are the quality improvement priorities specific to one or more vulnerable populations?

- Adults
- Child/Adolescent
- Elderly
- Low Income
- Race/Ethnicity/Culture
- Pregnant Women
- Dual Diagnosis

Data Source

As discussed in Section 2.3, data sources required by measures determine the effort and resources needed for data collection. What types of data are available in your organization? Are there resources available for medical record abstraction or consumer surveys?

- Administrative Data
- Medical Records
- Pharmacy Data
- Laboratory Data
- Provider Data
- Clinician Survey
- Consumer Survey

Evidence Level

How important is a measure's basis in research evidence to your measure selection process? Specifying higher levels of evidence will result in fewer measures, but those provided include a summary of the research literature and references.

- A-Level - Good research-based evidence
- B-Level - Fair research-based evidence with supporting clinical consensus or opinion
- C-Level - Little research evidence, primarily based on clinical consensus or opinion

Treatment

Quality measures focusing on treatment are further categorized as examining biological, psychosocial, or other treatment subtypes.

- Medication
- Psychotherapy
- Case Management (e.g. ACT, ICM)
- Substance Abuse Counseling
- Other Psychosocial Treatment
- Other Somatic Treatment

Domain of Quality

While the largest number of available quality measures focus on the treatment delivered, a number of other process domains are also subject to quality assessment and improvement.

- Prevention/Detection
- Access
- Assessment
- Treatment
- Continuity
- Coordination
- Safety & Errors

Clinical Setting

Traditional quality assurance activities focused on inpatient care. More and more, contemporary quality improvement examines treatment across the continuum of levels of care.

- Inpatient
- Outpatient
- Rehabilitation
- Psychiatric or Substance Abuse Unit
- Nursing
- Residential Care
- Home and Community
- Hospice
- ER

5.2 Selecting Among Available Measures

A search request will yield a list of measures meeting the specified criteria. If a search returns too many measures, return to the search page and specify one or more additional parameters. If no measures meeting the criteria are available, try fewer or different parameters. Scroll through the list of measures using the 'next page' and 'previous page' links at the bottom of the screen.

Screen 3: Measures Matching Search Parameters

5.3 Accessing Measure Information

Each measure listed on Screen 3, above, is linked to information about the measure. Click on the measure title to access a measure report. This information is printable by scrolling to print under the 'File' window of your browser or by right clicking with the cursor on the page.

The measure report includes a brief summary of the measure, the clinical rationale and references, the numerator and denominator (if permitted by copyright), and the properties described in Section 5.1. In addition, active links to measure developers and users are listed,

along with standards (if any exist) set by these organizations for performance on the measure.

Screen 4: Individual Measure Reports

5.4 Contributing Data to the Inventory

You can contribute information from your organization's quality improvement activities to the inventory, allowing other organizations to learn from your experience. On Screen 1, click on 'Report Measures and Results'. Information submitted will be verified and added to the inventory. Types of information include:

- New measures

- Alternate specifications of existing measures

- Measure results from your organization

- Standards for measures set by your organization

- Interventions used to improve performance on measures

- Research evidence/references in support of measures

Screen 5: Measure and Results Report Screen

CQAIMH - center for quality assessment and improvement in mental health - Microsoft Internet Explorer provided by Cambridg...

File   Edit   View   Favorites   Tools   Help   Address   Links

Ψ CQAIMH

center for quality assessment and improvement in mental health

Home	Overview Instructions Search for Measures **Report Measures** Sign In Glossary Toolkit
Quality Measures	
Consumer Guide	Use the following form to report measures and/or results for inclusion in the National Inventory of Quality Measures. You need not fill in each field, but please provide as much information as possible.
Quality Improvement	Name:
Research	Organization:
Education & Training	Address:
Faculty & Staff	City:
Contact Us	State: Choose a State
	Country: Choose a Country
	Zip Code: ___ - ___
	Phone:
	Email:
	Measure Name:

Done   Internet

Start   CQAIMH - center for ...   11:12 AM

CHAPTER 6. QUALITY MANAGEMENT INFRASTRUCTURE

Process measures are one instrument or tool within a coordinated program of quality management. Instituting continuous quality improvement in a health care organization is a gradual process, requiring leadership, strategic planning, and organizational development. Careful analysis and presentation of measurement data play an important role in the interface between quality measurement and management of organizational change. Comparing measurement results with national benchmarks or neighboring institutions may require statistical adjustment ("risk" or "case mix" adjustment) for selected consumer characteristics that contribute to differences in results but are not related to quality of care. Clear, graphical presentation of measurement results and progress over time can facilitate improvement efforts. Kamis-Gould and Hadley (1996) describe methods of analysis as well as common types of presentation, such as run charts, Pareto charts, and control charts. Methods for displaying quality data can also be found in the Toolkit on Performance Measurement Using the MHSIP Consumer Oriented Report Card (the Evaluation Center@HSRI, 1998). Both of these documents are listed in Appendix A.

6.1 Key Staff Roles

Key staff roles include QM coordination and data analysis. A QM coordinator's responsibilities may include day-to-day management of data collection, reporting, and feedback, reviewing medical records, preparing data for presentation, and facilitating improvement activities among clinicians and staff. A data analyst's responsibilities include statistical analysis of clinical and financial data and database design. Qualifications ideally include programming in SQL and SAS, and experience with database development software such as Microsoft Access (or for larger organizations, Oracle).

6.2 Developmental Stages of Quality Management

Figure 2, below, depicts developmental stages of quality management in healthcare organizations along three domains: data collection and analysis issues, quality measurement issues, and organizational development issues (Hermann, Regner, et al., 2000).

6.3 Other Uses of Quality Measurement Data

In addition to facilitating assessment and improvement initiatives, quality measurement data can serve other purposes (Kamis-Gould & Hadley, 1996). Data describing variations in care may provide the basis for policy initiatives or lead to hypotheses for research. Performance data can be used in administrative and financial decisions, such as in the allocation of resources, oversight of contracts, and as the basis for bonuses (or sanctions) for meeting (or failing to meet) agreed-upon goals. Data on quality may also be used in marketing the delivery system to the public at large, to potential enrollees, and to organizational purchasers.

Figure 2: Developmental stages of quality management in health care organizations (Hermann, Regner, Yang, & Erickson, 2000).			
Generation	**Data Issues**	**Quality Measures**	**Organizational Development**
First	Administrative data Data access Data integrity Presentation	Structural measures Process measures • Utilization • Occurrences Case reviews of major occurrences	Training of staff & managers Organizational development • leadership • management and committee structure • routine data review • routine occurrence review
Second	Consumer-level data • medical records • consumer surveys • pharmacy claims Targeted reporting	Adding: Process measures • treatment content Outcome measures	Establishing a routine QM process • identify problems • prioritize among them • initiate improvement • follow-up on progress
Third	Meeting internal & external needs Flexible focus	Integration: Process & outcome Technical & interpersonal Clinical & cost	Achieving QI goals • ongoing activity • measurable improvement in high priority areas • meeting internal goals and external expectations Establishing a learning organization

CHAPTER 7. INTEGRATING PROCESS MEASURES WITH OTHER TYPES OF QUALITY ASSESSMENT

After years of debate over the superiority of process versus outcome measures, or technical versus interpersonal quality, a consensus is gradually emerging that no one type of quality assessment will be adequate. For the foreseeable future, quality improvement activities will need to draw on a number of different methods. While the quality measure inventory and this toolkit focus on process measures, process measurement can be integrated into other types of assessment efforts in ways that will lead to a fuller understanding of the quality of care and opportunities for improvement.

7.1 Outcome Measurement

As described in the introduction, outcome measurement focuses on the results of the interaction between consumers and the healthcare system. Commonly measured outcomes include changes in consumer symptoms, functioning, or quality of life resulting from treatment. Outcomes of care in clinical settings are sometimes referred to as the *effectiveness* of care – the impact of treatment under real world conditions. This is distinct from efficacy, the effect of treatment in selected populations under controlled laboratory-like conditions.

Process and outcome approaches to quality assessment have complementary features. Outcome measures assess what is most clinically relevant: is the consumer getting better? Outcome measures can efficiently assess the impact of all interventions (e.g., medication, therapy, case management) provided to the consumer. Yet outcome measures alone are insufficient for CQI. While they may suggest a relative deficit in care, they do not provide clues as to the causes of the deficit. Process measures, which assess the component parts of the treatment provided, can be used to identify sub-optimal practice and provide direction for improvement activities.

Outcome measurement systems can be condition-specific or more broadly focused. Smith et al. have developed outcome assessment modules for depression, schizophrenia, and substance abuse (Smith, Ross, & Rost, 1996a; Smith, Ross, & Rost, 1996b; Smith, Nordquist, Fischer, Mosley, Ledbetter, 1997). These instruments can be used to assess symptom and functional levels before and after treatment; they also collect information about consumer

characteristics that can be used for case mix adjustment. Eisen et al. (1997) have developed the BASIS-32, a 32-item "Behavior and Symptom Identification Scale" that measures consumer health status in five domains: psychosis, daily living/role functioning skills, relation to self/others, impulsive/addictive behavior, and depression. Each of these systems, and others like them, have been used in programs of continuous quality improvement, often in conjunction with process measures. Reports of outcomes from consumers can extend well beyond reports of symptom or functioning levels; instruments that assess consumer perspectives more broadly are described below (section 7.3)

7.2 Fidelity Measurement

Many of the process measures included in the inventory and described in this toolkit can be thought of as "high-level" measures. They provide data on the proportion of individuals within a population receiving indicated treatment. However, in focusing at the level of the population, they relatively little detail about the care provided to any one individual. For example, a measure such as 'the number of individuals with unstable schizophrenia who are enrolled in a program for Assertive Community Treatment' provides a useful snapshot of whether a specific cohort of consumers is accessing an evidence-based treatment modality. However, the measure says little about the characteristics, adequacy, or effectiveness of these programs.

Drake and colleagues have developed fidelity measures for a number of evidence-based program models (Becker, Smith Tanzman, Drake, & Tremblay, 2001; McHugo, Drake, Teague, & Xie, 1999; Smith, et al., 1997; Teague, Drake, & Ackerson, 1995). Fidelity scales compare characteristics of a real-world treatment program to key features of the program model from which it was derived. In some cases, the fidelity of programs has been assessed and found to be associated with consumer outcome. For ACT, key program features include a community locus, small client-to-clinician ratios, and a multidisciplinary team approach.

Where "high-level" population-based process measures may be most useful to accreditors, government agencies, and other groups responsible for the care of populations, fidelity measurement can be used by program managers and staff to "drill down" to evaluate and improve the effectiveness of individual programs.

7.3 Consumer Perceptions of Care

Most single-item process measures examine technical aspects of quality of care, i.e., the type, intensity, and/or duration of treatment. Surveys of consumers of mental health services can provide complementary insights into the quality of care. Consumer surveys can assess overall satisfaction with services as well as provide crucial information regarding the content of care and the manner in which it is delivered. Two surveys have attained national recognition and use: the Mental Health Statistics Improvement Program (MHSIP) Consumer-Oriented Mental Health Survey and the Consumer Assessment of Behavioral Health Survey (CABHS). The MHSIP survey provides information about processes and outcomes of care from the consumer perspective (the Evaluation Center@HSRI, 1998; Teague, Ganju, & Hornik, 1997). The CABHS survey assesses services delivered by health plans (Eisen, et al., 1999; Shaul, Eisen, Stringfellow et al., 2001). Both are multi-item instruments. CABHS provides scores in a number of domains including access, continuity, provision of information, interaction, and rights/confidentiality (Consumer Assessment of Behavioral Health Services, 2001). In recent iterations of development, the CABHS and MHSIP surveys have been consolidated into a single instrument, the Experience of Care and Health Outcomes survey (ECHO) (Shaul et al., 2001). ECHO incorporates domains from both of its predecessors and is designed for use by a wide range of stakeholders.

7.4 Cost and Utilization

While measures of cost and utilization are not revealing of the quality of care, any quality management program in this era should incorporate measures of resource utilization. Concepts such as equity, resource allocation, and cost effectiveness all rely on the integration of cost and quality management. The balanced scorecard model, developed by Kaplan and Norton at the Harvard Business School, advocates that healthcare organizations select a small number of performance measures in each of four domains: clinical processes, consumer outcomes, consumer satisfaction, and cost/utilization (Kaplan & Norton, 1992). This approach enables managers and individuals throughout the organization to focus on priority improvement goals in each of these crucial areas, and not focus exclusively on cost in the absence of clinical care, or vice versa. It also allows for the monitoring of dynamic relationships among domains in this period of rapid change. For example, do cost reductions in the form of decreased inpatient

lengths of stay lead to worsened clinical outcomes? Does improvement in discharge planning procedures lead to enhanced consumer satisfaction? A heterogeneous approach to quality assessment allows for a wide scope of vision and may herald an integrated perspective in quality management systems to come.

REFERENCES

Agency for Health Care Policy and Research. (1995). *Using clinical practice guidelines to evaluate quality of care, Volume 1: Issues*. (AHCPR Publication No. 95-0045). Rockville, MD: U.S. Department of Health and Human Services.

Becker, D., Smith, J., Tanzman, B., Drake, R., & Tremblay, T. (2001). Fidelity of supported employment programs and employment outcomes. *Psychiatric Services, 52,* 834-836.

Berwick, D., Godfrey, A., & Roessner, J. (1990). *Curing health care*. San Francisco, CA: Jossey-Bass Publishers.

Carpinello, S., Felton, C., Pease, E., DeMasi, M., & Donahue, S. (1998). Designing a system for managing the performance of mental health managed care: An example from New York State's prepaid mental health plan. *Journal of Behavioral Health Services Research, 25*(3), 269-78.

Chassin, M., & Galvin, R. (1998). The urgent need to improve health care quality: Institute of Medicine national roundtable on health care quality. *Journal of the American Medical Association, 280*(11), 1000-1005.

Coleman, R., & Hunter, D. (1995). Contemporary quality management in mental health. *American Journal of Medical Quality, 10*(3), 120-6.

Consumer Assessment of Behavioral Health Services (CABHS) - Mental Health Statistics Improvement Program (MHSIP) consumer survey evaluation project final report. (2001). Boston, MA: Harvard Medical School, McLean Hospital and the Center for Survey Research, UMass Boston, the Evaluation Center@HSRI.

Department of Medical Assistance (1999). *Massachusetts Behavioral Health Partnership performance standards, fiscal year 1999*. Boston, MA: Massachusetts Department of Medical Assistance.

Dickey, B., Hermann, R., & Eisen, S. (1998). Assessing the quality of psychiatric care: Research methods and application in clinical practice. *Harvard Review of Psychiatry, 6,* 88-96.

Donabedian, A. (1980). *Explorations in quality assessment and monitoring: The definition of quality and approaches to its assessment, Vol. I.* Ann Arbor, MI: Health Administration Press.

Edmunds, M. Frank, R., Hogan, M., McCarty, D., Robinson-Beale, R., & Weisner, C., (Eds.). (1997). *Managing managed care: Quality improvement in behavioral health.* Washington, DC: National Academy Press.

Eisen, S., Shaul, J., Clarridge, B., Nelson, D., Spink, J., & Cleary, P. (1999). Development of a consumer survey for behavioral health services. *Psychiatric Services, 50*(6), 793-798.

Eisen, S., Wilcox, M., Schaefer, E., Culhane, M., & Leff, H. (1997). Use of BASIS-32 for outcome assessment of recipients of outpatient mental health services. *Report to Health Services Research Institute.*

Field, M.J., & Lohr, K.N. (1990). *Clinical practice guidelines: Directions for a new program*. Washington, DC: Institute of Medicine.

Frazier R, Amigone D, & Sullivan J (1997). Using continuous quality improvement strategies to reduce repeated admissions for inpatient psychiatric treatment. *Journal of Healthcare Quality, 19*(3), 6-10. quiz 20.

Garnick, D., Hendricks, A., & Comstock, C. (1994). Measuring quality of care: Fundamental information from administrative data sets. *International Journal for Quality in Health Care, 6*(2), 163-177.

Hermann, R. (1996). Variation in psychiatric practices: Implications for health care policy and financing. *Harvard Review of Psychiatry, 4,* 98-101.

Hermann, R., Leff, H., Palmer, R., Yang, D., Teller, T., Provost, S., Jakubiak, C., & Chan, J. (2000). Quality measures for mental health care: Results from a national inventory. *Medical Care Research and Review, 57*(Suppl. 2), 135-153.

Hermann, R., & Palmer, R. (in press). Common ground: A framework for selecting core quality measures. *Psychiatric Services*.

Hermann, R., Regner, J., Yang, D., & Erickson, P. (2000). Developing a quality management system for behavioral healthcare: The Cambridge Health Alliance experience. *Harvard Review of Psychiatry, 8*(5), 251-260.

Institute of Medicine, Committee on Quality Health Care in America. (2001). *Crossing the Quality Chasm: A New Health System for the 21st Century, vol 335.* Washington, DC: National Academy Press.

Kamis-Gould, E., & Hadley, T. (1996). *A model of indicators and a report card for assessment of mental health plans' and systems performance* (PN-19). Cambridge, MA: the Evaluation Center@HSRI.

Kaplan, R., & Norton, D. (1992, January-February). The balanced scorecard - measures that drive performance. *Harvard Business Review,* 71-79.

Lawthers, A., & Palmer, R. (1997). In search of a few good performance measures: CONQUEST and the typology of clinical performance measures. In J. Seltzer & D. Nash, (Eds.), *Models for measuring quality in managed care: Analysis and impact* (pp. 121-150). New York, NY: Faulkner and Gray.

Leff, H., & Woocher, L. (1998, Summer). Performance measurement systems: A conceptual approach. *Outlook*. A joint publication of the Evaluation Center@HSRI and the National Association of State Mental Health Program Directors Research Institute. Cambridge, MA: the Evaluation Center@HSRI.

Lehman, A., & Steinwachs, D. (1998). Patterns of usual care for schizophrenia: Initial results from the schizophrenia patient outcomes research team (PORT) client survey. *Schizophrenia Bulletin, 24*(1), 11-20.

Mark, H., & Garet, D. (1997). Interpreting profiling data in behavioral health care for a continuous quality improvement cycle. *Joint Commission Journal on Quality Improvement, 23*(10), 521.

McFarland, D., Harmann, L., Lhotak, C., & Wieselthier, V. (1996). The quest for TQM in a community mental health center: Using the Baldrige criteria as a framework. *Joint Commission Journal on Quality Improvement, 22*(1), 37-47.

McHugo, G., Drake, R., Teague, G., & Xie, H. (1999). Fidelity to assertive community treatment and client outcomes in the New Hampshire dual disorders study. *Psychiatric Services, 50*, 818-824.

Merwin, B. (2001). *Medicaid data quality: Challenges and proposed solutions*. Manuscript in preparation.

MHSIP Task Force (1996). *The final report of the Mental Health Statistics Improvement Program (MHSIP) task force on a consumer-oriented mental health report card*. Washington, DC: Center for Mental Health Services. More information available at www.mhsip.org.

Mozdzierz, G., Greenblatt, R., Snodgrass, R., Sladen, B., & Jameson, D. (1998). Reorganization and quality management of psychiatric and substance abuse patients. *Journal of Healthcare Quality, 20*(6), 21-23, 32.

National Advisory Mental Health Council's Clinical Treatment and Services Research Workgroup. (1999). *Bridging Science and Service, Recommendation 11*. (NIH Publication No. 99-4353). Bethesda, MD: National Institutes of Health.

National Committee for Quality Assurance (2001). Health Plan Employer Data and Information Set (HEDIS). Washington, DC: National Committee for Quality Assurance. More information at www.ncqa.org.

National Hospital Quality Improvement Survey. (1999) *Knowledge leadership series, issue 3*. Chicago, IL: Arthur Andersen and the American Hospital Association.

Palmer, R., & Banks, N. (1995). Designing and testing medical review criteria and performance measures. In Agency for Health Care Policy and Research, *Using clinical practice guidelines to evaluate quality of care, Volume 2: Methods* (pp. 31-71) (AHCPR Publication No. 95-0045). Rockville, MD: U.S. Department of Health and Human Services, US Public Health Service, Agency for Health Care Policy and Research.

President's Advisory Commission on Consumer Protection and Quality in the Health Care Industry. (1998). *Quality First: Better Health Care for All Americans.* Retrieved from *http://www.hcqualitycommission.gov/final/*

Rago, W., & Reid, W. (1991). Total quality management strategies in mental health systems. *Journal of Mental Health Administration, 18*(3), 253-63.

Rubenstein, L., Fink, A., Yano, E., Simon B., Chernof, B., & Robins, A. (1995). Increasing the impact of quality improvement on health: An expert panel method for setting institutional priorities. *Journal on Quality Improvement, 21*(8), 420-432.

Schizophrenia Patient Outcomes Research Team (2001, August). *Measuring conformance to treatment guidelines: The example of the Schizophrenia PORT* (PN-46). Cambridge, MA: the Evaluation Center@HSRI.

Shaul, J., Eisen, S., Clarridge, B., Stringfellow, V., Fowler, F., & Cleary, P. (2001, May 8). *Experience of Care and Health Outcomes (ECHO) survey field test report: Survey evaluation*. Retrieved from http://www.hcp.med.harvard.edu/echo/home.html.

Shaul, J., Eisen, S., Stringfellow, V., Clarridge, B.R., Hermann, R.C., Nelson, D., Amderson, E., Kubrin, A.I., Leff, H.S., & Cleary, P.D. (2001). Use of consumer ratings for quality improvement in behavioral health insurance plans. *Joint Commission Journal on Quality Improvement, 27*(4), 216-29.

Sluyter, G., & Barnette, J. (1995). Application of total quality management to mental health: A benchmark case study. *Journal of Mental Health Administration, 22*(3), 278-85.

Sluyter, G.V. (1996). Application of TQM to mental health: Lessons from ten mental health centers. *Joint Commission Journal on Quality Improvement, 22*(1), 67-75.

Smith, G., Nordquist, C., Fischer, E., Mosley, C., & Ledbetter, N. (1997). *Implementing outcomes management systems in mental health setting* (PN-28). Cambridge, MA: the Evaluation Center@HSRI.

Smith Jr., G., Ross, R., & Rost, K. (1996a). Depression Outcomes Module (DOM). In L.I. Sederer & B. Dickey, (Eds.), *Outcomes Assessment in Clinical Practice* (pp. 82-84). Baltimore, MD: Williams and Wilkins.

Smith Jr., G., Ross, R., & Rost, K. (1996b). Substance Abuse Outcomes Module (SAOM). In L.I. Sederer & B. Dickey, (Eds.), *Outcomes Assessment in Clinical Practice (*pp. 85-88). Baltimore, MD: Williams and Wilkins.

Suber, M., Martin, M., Jones, F., Reeves, K., & Duncan, D. (1996). The quality information management program database in South Carolina. *Joint Commission Journal on Quality Improvement, 22*, 629-39.

Teague, G., Drake, R., & Ackerson, T. (1995). Evaluating use of continuous treatment teams for persons with mental illness and substance abuse. *Psychiatric Services, 46,* 689-695.

Teague, G., Ganju, V., & Hornik, J. (1997). The MHSIP mental health report card: A consumer-oriented approach to monitoring the quality of mental health plans. *Evaluation Review, 21,* 330-41.

the Evaluation Center@HSRI (1998). *Performance measurement using the MHSIP consumer oriented report card* (PN-35) Cambridge, MA: the Evaluation Center@HSRI. More information available at http://www.mhsip.org/toolkit/index.html

the Evaluation Center@HSRI (2001). *Keys to quality: Conducting a performance improvement project for behavioral health in managed care based on the principles of QISMC*. Rockville, MD: Substance Abuse and Mental Health Services Administration (SAMHSA), Office of Managed Care.

Washington Circle Group (1999*). Improving performance measurement by managed care plans for substance abuse: Year 1 report of the Washington Circle Group*. Rockville, MD: Washington Circle Group. More information available at http://www.samhsa.gov/mc/content/Quality%20Improvement%20and%20Performance%20Measures/perfmeas.html

Wells, K., Rogers, W., Davis, L., Kahn, K., Norquist, G., Keeler, E., Kosecoffi, J., & Brooks, R. (1993). Quality of care for hospitalized depressed elderly patients before and after the implementation of Medicare prospective payment system. *American Journal of Psychiatry, 150*, 1799-1805.

APPENDIX A: RELATED PUBLICATIONS FROM THE EVALUATION CENTER@HSRI

The following is a selection of publications from the Evaluation Center at HSRI. For a complete listing, please visit www.tecathsri.org/toolkits.asp

Blasinsky, M., Cohen, B., Goldman, H., Hambrecht, K., Johnse, M., Landow, W., Orwin, R., & Sonnefeld, J. (1998, March). *Integrating Process and Outcome Evaluation.* (PN-32). Cambridge, M.A.: the Evaluation Center@HSRI.,

Bond, G., Williams, J., Evans, L., Salyers, M., Kim, H-W., Sharpe, H., & Leff, H.S. (2000, November). *Psychiatric Rehabilitation Fidelity Toolkit.* (PN-44). Cambridge, M.A.: the Evaluation Center@HSRI.

Eisen, S., Wilcox, M., Schaefer, E., Culhane, M., & Leff, H.S. (1997, March). *Use of BASIS-32 for Outcome Assessment of Recipients of Outpatient Mental Health Services.* (PN-25). Cambridge, M.A.: the Evaluation Center@HSRI.

Kamis-Gould, E., & Hadley, T.R. (1996). *Toolkit: A Model of Indicators and a Report Card for Assessment of Mental Health Plans' and Systems' Performance.* (PN-19). Cambridge, M.A.: the Evaluation Center@HSRI.

Mueser, K.T., Drake, R.C., Clark, R.E., McHugo, G.J., Mercer-McFadden, C., & Ackerson, T.H. (1995). *Toolkit on Evaluating Substance Abuse in Persons with Severe Mental Illness.* (PN-6). Cambridge, M.A.: the Evaluation Center@HSRI.

National Association of County Behavioral Health Directors (NACBHD). (1997). *County Behavioral Health Performance Measures.* (PN-24). Cambridge, M.A.: the Evaluation Center@HSRI.

Phillips, D., Leff, H.S., Kaniasty, E., Carter, M., Pare, M., Conley, T., & Sharma, M. (1999, September) *Culture, Race and Ethnicity in Performance Measurement: A Compendium of Resources, Version 1.* (PN-38). Cambridge, M.A.: the Evaluation Center@HSRI.

Smith, G.R., Nordquist, C., Fischer, E.P., Mosley, C., & Ledbetter, N.S. (1997, August). *Implementing Outcomes Management Systems in Mental Health Settings.* Cambridge, M.A.: the Evaluation Center@HSRI.

the Evaluation Center@HSRI. (1995). *Stakeholder Perspectives on Mental Health Performance Indicators. Working papers prepared for the Mental Health Statistical Improvement Program (MHSIP) Phase II Task Force.* (PN-11).Cambridge, M.A.: the Evaluation Center@HSRI.

the Evaluation Center@HSRI. (1996). *Evaluating Models of Medicaid Managed Mental Health: Program and Evaluation Materials from States.* (PN-1). Cambridge, M.A.: the Evaluation Center@HSRI.

the Evaluation Center@HSRI. (1998, November). *Performance Measurement Using the MHSIP Consumer Oriented Report Card.* (PN-35). Cambridge, M.A.: the Evaluation Center@HSRI.

The Research Committee of the International Association of Psychosocial Rehabilitation Services (IAPSRS). (1995). *Toolkit for Measuring Psychosocial Rehabilitation Outcomes*. (PN-4). Cambridge, M.A.: the Evaluation Center@HSRI.

The Schizophrenia Patient Outcomes Research Team, University of Maryland School of Medicine, and John Hopkins School of Hygiene and Public Health (Anthony Lehman and Donald Steinwachs, Principal Investigators). (2001, August). *Measuring Conformance to Treatment Guidelines: The Example of the Schizophrenia PORT*. (PN-46). Cambridge, M.A.: the Evaluation Center@HSRI.

APPENDIX B: DIRECTORY OF MEASURE DEVELOPERS

GOVERNMENT AGENCIES
Agency for Healthcare Research and Quality (AHRQ)
http://www.ahrq.gov

Arkansas Department of Mental Health*
http://www.accessarkansas.org/dhs/dmhs
*Organization acknowledged the University of Arkansas for Medical Sciences- Center for Outcomes Research Effectiveness (CORE) for their measures.

Bluegrass Regional Mental Health-Mental Retardation Board, Inc.
Children's Review Program Performance Measurement System ORYX Initiative
http://www.bluegrass.org

Chesterfield County Community Services Board
Outcome Management Program
http://www.co.chesterfield.va.us/administration/communityservicesboard/csbhome.asp

Connecticut Department of Mental Health and Addiction Services
http://www.dmhas.state.ct.us

Delaware Health and Social Services- Division of Substance Abuse and Mental Health (DSAMH)
Decision Support System Project
http://www.state.de.us/dhss/dsamh/dmhhome.htm

Department of Veterans Affairs (VA) / Rosenheck et al. / Leslie DL, Rosenheck RA
http://www.va.gov
Rosenheck, R. & Cicchetti, D. (1995). *A Mental Health Performance Monitoring System for the Department of Veterans Affairs*. West Haven, CT: Northeast Program Evaluation Center.

Rosenheck, R., Fontana, A., & Stolar, M. (1999). Assessing quality of care: Administrative indicators and clinical outcomes in Posttraumatic Stress disorder. *Medical Care, 37*(2), 180-188.

Leslie, D.L., & Rosenheck, RA. Comparing quality of mental health care for public-sector and privately insured populations. *Psychiatric Services 51*(5): 650-5.

Department of Veterans Affairs (VA)- Palo Alto Health Care System
Indicators of Facility and Veterans Integrated Service Networks (VISN) Performance
Fong, W.X., & Piette, J.D. VA care for Substance Abuse Patients: Indicators of Facility and VISN Performance (Fiscal Years 1997 and 1998). December 1999.

Florida Council for Community Mental Health (FCCMH)
http://www.fccmh.org

Illinois Bureau of Managed Care- Office of Mental Health
http://www.state.il.us/agency/dhs/welcomeMH_frame.html

Iowa Department of Human Services- Division of Mental Health and Developmental Disabilities
Iowa Performance Plan Indicators/Mental Access Plan
http://www.dhs.state.ia.us/mhdd

Kentucky Department for Mental Health and Mental Retardation Services (DMHMRS)
http://dmhmrs.chr.state.ky.us

Maine Department of Mental Health, Mental Retardation and Substance Abuse Services (DMHMRSAS)
Office of Quality Assurance
http://www.state.me.us/dmhmrsa

Massachusetts Department of Mental Health
http://www.state.ma.us/dmh/_MainLine/MissionStatement.HTM

Massachusetts Division of Medical Assistance
http://www.state.ma.us/dma

Mental Health Statistics Improvement Program (MHSIP)
http://www.mhsip.org

Minnesota Department of Human Services
State Planning & Monitoring Mental Health Performance Indicators
http://www.dhs.state.mn.us/default.htm

National Association of State Mental Health Program Directors (NASMHPD)
http://www.nasmhpd.org

Nevada Division of Mental Health & Developmental Services
http://mhds.state.nv.us/

New Jersey Division of Mental Health Services
http://www.state.nj.us/humanservices/dmhs/

New York State Office of Alcoholism & Substance Abuse Services (OASAS)
http://www.oasas.state.ny.us

New York State Office of Mental Health
http://www.omh.state.ny.us

Ohio Department of Mental Health
http://www.mh.state.oh.us

Oklahoma Department of Mental Health & Substance Abuse Services
http://www.odmhsas.org

Oregon Department of Human Services- Office of Mental Health Services
Report Card for Alcohol & Drug Treatment
http://omhs.mhd.hr.state.or.us

Rhode Island Department of Mental Health, Retardation & Hospitals
http://www.mhrh.state.ri.us/

Tennessee Department of Mental Health & Developmental Disabilities
TennCare Partners Program Performance Measures
http://www.state.tn.us/mental

Texas Commission on Alcohol & Drug Abuse (TCADA)
http://www.tcada.state.tx.us

Utah Department of Human Services- Division of Mental Health / Popkin et al.
Popkin, M.K., Callies, A.L., Lurie, N., et al. (1997). An instrument to evaluate the process of psychiatric care in ambulatory settings. *Psychiatric Services, 48*(4), 524-527.

Veterans Health Administration / United States Department of Defense (VHA/DOD)
VHA/DOD Performance Measures for the Management of Major Depressive Disorder in Adults, Version 2.0. Veterans Health Administration / Department of Defense, March 2000.

Virginia Mental Health, Mental Retardation & Substance Abuse Services
Performance and Outcome Indicators (POMS)
http://www.dmhmrsas.state.va.us/
Virginia Performance and Outcome Measurement System (POMS). Specification of performance and outcome indicators. Phase 1. Version 1.0.

Wisconsin Department of Health & Family Services
http://www.dhfs.state.wi.us/mentalhealth/index.htm

RESEARCHERS
Baker, J.G. (1998). A performance indicator spreadsheet for physicians in community mental health centers. *Psychiatric Services, 49*(10): 1293-8.

Bass, R.D., & Windle, C. (1972). Continuity of Care: An Approach to Measurement: *AJP 129*(2): 196-201.

Brown, J.B., Shye, D., McFarland, B.H., Nichols, G.A., Mullooly, J.P., & Johnson, R.E. (2000). Controlled Trials of CQI and Academic Detailing to Implement a Clinical Practice Guideline for Depression. *Journal on Quality Improvement, 26*(1): 39-54.

Katon, W., Rutter, C.M., Lin, E., Simon, G., Von Korff, M., Bush, T., Walker, E., & Ludman E. (2000). Are there detectable differences in quality of care or outcome of depression across primary care providers? *Medical Care 38*(6): 552-561.

Katon, W., Von Korff, M., Lin, E., Bush, T., & Ormel, J. (1992). Adequacy and duration of antidepressant treatment in primary care. *Medical Care 30*(1): 67-76.

Marcus, S.C. Olfon, M., Pincus, H.A., Zarin, D.A., & Kupfer, D.J. (1999). Therapeutic drug monitoring of mood stabilizers in Medicaid patients with bipolar disorder." *American Journal of Psychiatry, 156*(7):1014-1018.

Rost, K., Williams, C., Wherry, J., & Smith, G.R. (1995). The process and outcomes of care for major depression in rural family practice settings. *The Journal of Rural Health, 11*: 114-21.

Schizophrenia Patient Outcomes Research Team (PORT)
PORT measures
Lehman, A.F., Steinwachs, D.M., Dixon, L.B., Goldman, H.H., Osher, F., Postrado, L., Scott, J.E., Thompson, J.W., Fahey, M., Fischer, P., Kasper, J.A., Lyles, A., Skinner, E.A., Buchanan, R., Carpenter, W.T., Levine, J., McGlynn, E.A., Rosenheck, R., & Zito, J. (1998). Translating research into practice: The Schizophrenia Patient Outcomes Research Team (PORT) treatment recommendations. *Schizophrenia Bulletin, 24*(1):1-10.

University of Arkansas for Medical Sciences-Center for Outcome Research Effectiveness (CORE)
http://www.uams.edu/core/home.htm

University of California Los Angeles- Research and Development (RAND) Organization / Wells et al.
Wells, K.B., Rogers, W.H., Davis, L.M., Kahn, K., Norquist, G., Keeler, E., Kosecoff, J., & Brook, R.H. (1993). Quality of care for hospitalized depressed elderly patients before and after implementation of the Medicaid prospective payment system. *American Journal of Psychiatry, 150*(12): 1799-1804.

Wells, K.B., Sturm, R., Sherbourne, C.D., & Meredith, L.S. (1996). *Caring for Depression*. Harvard University Press; Cambridge, Massachusetts.

Wells, K.B., Goldberg, G., Brook, R., & Leake, B. (1988). Management of Patients on Psychotropic Drugs in Primary Care Clinics. *Medical Care, 26*(7):645-656.

Wells, K.B., Norquist, G., Benjamin, B., Rogers, W., Kahn, K., & Brook, R. (1994). Quality of antidepressant medications prescribed at discharge to depressed elderly patients in general medical hospitals before and after prospective payment system. *General Hospital Psychiatry, 16*:4-15.

University of Iowa- Institute for Quality Healthcare (IQH)
http://www.uihealthcare.com/DeptsClinicalServices/IQH/IQH.html

University of Wisconsin / Zimmerman et al.
Zimmerman, D.R., Sarita, K.L., Arling, G., Clark, B.R., Collins, T., Ross, R., & Sainfort, F. (1995). Development and testing of nursing home quality indicators. *Health Care Financing Review, 16*(4):107-127.

Young, A.S., Sullivan, G., Burnam, M.A., & Brook, R.H. (1998). Measuring the quality of outpatient treatment for schizophrenia. *Archives of General Psychiatry, 55*:611-617.

CLINICIAN ORGANIZATIONS
American Academy of Child & Adolescent Psychiatry (AACAP)
http://www.aacap.org/publications/pubcat/bpoutcom.htm

American College of Mental Health Administration (ACMHA)
http://www.acmha.org

American Psychiatric Association (APA) Children's Task Force
http://www.psych.org

American Psychiatric Association (APA)- Office of Research
http://www.psych.org

American Psychiatric Association (APA) Task Force
http://www.psych.org/pract_of_psych/tf_staff.cfm

National Association of Social Workers (NASW)
http://www.nasw.org

COMMERCIAL
American Managed Behavioral Healthcare Association (AMBHA)
PERMS measures
http://www.ambha.org

Child and Adolescent Residential Psychiatric Programs (CHARPP)
CHIMP measures
http://www.charpp.org

Comprehensive Behavioral Care
http://www.compcare.com

Massachusetts Behavioral Health Partnership (MBHP)
http://www.masspartnership.com

Value Behavioral Health
http://www.valueoptions.com

ACCREDITORS
Commission on Accreditation of Rehabilitation Facilities (CARF)
Performance Measures for Rehabilitation Programs
http://www.carf.org

Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
ORYX measures
http://www.jcaho.org

The National Committee for Quality Assurance (NCQA)
HEDIS measures
http://www.ncqa.org

HEALTH SYSTEMS / FACILITIES
Maryland Hospital Association
Maryland Hospital Association Quality Indicator Project
http://www.qiproject.org/

M-CARE
Health care company developed by the University of Michigan offering HMO, Point of Service, Medicare and Medicaid plans
http://www.mcare.org

National Association of Psychiatric Health Systems (NAPHS)
http://www.naphs.org

Washington Circle Group
http://www.samhsa.gov/mc/content/Quality%20Improvement%20and%20Performance%20Measures/perfmeas.html

EMPLOYER PURCHASERS
Foundation for Accountability (FACCT)
http://www.facct.org

CHARACTERISTICS OF STAKEHOLDER PANEL												
Stakeholder Perspective	**Panelists**											
Accrediting Organization				X	X							
Public Sector Payer / Purchaser												
Federal							X					
State	X		X					X			X	X
Private Sector Employer / Purchaser										X		
Clinicians												
Nurse								X				
Psychiatrist	X	X									X	
Psychologist					X		X			X		
Social Worker										X		X
Case manager						X						
Managed Care Organization										X		
Delivery System Manager											X	
Researcher			X	X	X			X				
Consumers/Families		X				X				X		X
Geographic Region												
Northeast	X	X		X			X				X	
South								X				
North Central			X		X				X			X
West						X				X		
Race/Ethnicity/Gender												
Black												X
Hispanic						X						
Women			X	X	X			X	X			X
Areas of Specialized Experience												
Children					X			X		X		
Elderly		X										
Serious & Persistent Mental Illness (SPMI)	X	X	X			X	X	X		X	X	X
Substance Abuse						X	X		X	X	X	
Primary Care									X			
Advocacy		X				X	X					X

PANEL RATING FORM

Please rate your answer to each statement on the following scale:

1	2	3	4	5	6	7	8	9
Strongly				**Uncertain**				**Strongly**

	Meaningfulness			*Feasibility*			
	Important	**Gap**	**Outcome**	**Specified**	**Burden**	**Comparison**	**Overall**
	This measure addresses an area of clinical care important to members of my stakeholder group (e.g., "consumers" or "accreditors").	This measure addresses an area where there is often a gap between actual and ideal practice.	Improved performance on this measure is likely to be associated with better mental health outcomes.	The measure's components (numerator, denominator) are clearly specified.	Data collection for this measure represents a low burden to health care organizations.	In order to make fair comparisons between providers, this measure needs to further adjust for differences among patients that are unrelated to quality of care.	Overall, this measure should be included in a core measure set for mental health care in delivery systems.
COORDN01 -- Use of Primary Care by Individuals with Mental Illness	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
COORDN02 – Communication Between Mental Health & Primary Care Clinicians	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
COORDN03 – Referral to Post-Detoxification Services	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
COORDN04 – Substance Abuse Referral for Individuals with Schizophrenia	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
COORDN05 – Inpatient Enrollment in Case Mgmt	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9

APPENDIX D: GLOSSARY

Accreditors - Organizations that provide official authorization or approval of a healthcare organization by certifying conformance to a specified standard.

Administrative data - Data collected in computer databases in the course of healthcare delivery and payment, including beneficiary or enrollee information, service utilization, or pharmacy use.

Benchmark - A standard of performance that serves as point of reference by which other organizations or individuals may be measured. Benchmarks describe the results of the best-performing organizations within an industry.

Conformance - Acting in accordance with certain specified standards.

Denominator - Provides explicit specification for the general or base population from which a specific characteristic is being examined.

Domain of quality - The technical aspect of the process of care to which a measure or other tool applies. This includes:

> **Prevention -** Screening or other clinical methods to prevent the occurrence or worsening of a health condition.
> **Access -** Availability of services, ease or difficulty of obtaining them, barriers (linguistic or cultural issues, geographic proximity, delays, etc.) that may be encountered.
> **Assessment -** Patient evaluations, including diagnostic, side effect, safety, medical and comorbidity issues.
> **Treatment -** The appropriate selection, dose, duration and intensity of a health care intervention.
> **Continuity -** Capacity of caregivers to maintain the patient's treatment during transitions between levels of care.
> **Coordination -** Capacity of members of the patient's treatment team to interact with others inside and outside of the team to ensure that the diverse needs of the patient are addressed.
> **Safety -** Issues of patient safety, including injuries, medication errors, avoidable adverse events, and the use of seclusion or restraint.

Encounter - A meeting between clinician and patient.

Evidence level - A rating to indicate the nature and quality of the scientific evidence a quality measure is based on.

Fidelity - The degree to which an intervention conforms to a recommended set of critical ingredients or components.

Guidelines - An outline of expected policy or conduct, often expressed in the form of a declarative statement, algorithm or decision tree.

Instrument - A tool for measuring the present value of the quantity under question.

Intake data - Data collected during the initial registration and assessment of a patient.

Inventory - An itemized list of characteristics.

Laboratory data - Provides information on the performance of clinical laboratory tests and their results.

Medical records - Records kept by healthcare organizations on the patient's medical history and experiences.

Norms - A widespread practice, procedure, or custom serving to guide appropriate behavior. May be used as a synonym for mean or average.

Numerator - Signifies the number of parts of the denominator being examined.

Outcome - The results of a clinical intervention, such as changes in patient symptoms, functioning, or quality of life.

Pharmacy data - A subtype of administrative or claims data, resulting from the disbursement, purchase or reimbursement for medications.

Process - The interactions between patients and the healthcare system.

Quality assessment - The evaluation of the inherent properties of any system and their level of excellence.

Quality improvement - The improvement of the quality of service provided by remedying deficiencies in the structure and/or processes of a system.

Quality management - The systematic assessment, improvement, and maintenance of quality within an organization.

Rationale - Summarizes the clinical or administrative processes measured, why or how it is meaningful, and the research evidence supporting association of the process to quality of care.

Reliability - The extent to which a measurement procedure yields the same results on repeated trials.

Risk Adjustment - The statistical adjustment of data in quality assessment to control for factors outside the influence of the healthcare system; used in comparing quality among different groups of providers or systems.

Risk management - The systematic effort to prevent harm to patients and the subsequent threat of financial loss by proactively identifying, evaluating and reporting adverse events or clinical concerns.

Sampling - A method to make inferences about a whole population using a representative part or single item.

Satisfaction - The level to which the customer or consumer is pleased with the quality of their interactions with the health care system.

Stakeholders - Groups or individuals representing the interests of a demographic population, professional association, or institutional affiliation, including:
- accrediting organizations
- public sector payers or purchasers
- private sector employers or purchasers
- clinicians
- managed care organizations
- health care delivery systems
- researchers
- consumers and their families

Standards - Thresholds established for conformance to quality measures by individuals or groups.

Utilization management - Clinical and administrative mechanisms to regulate utilization, cost, appropriateness, and access to care.

Validity - Degree to which an instrument has been shown to accurately represent what it is designed to represent.