U.S. Department of Health and Human Services
Assistant Secretary for Planning and Evaluation
Office of Disability, Aging and Long-Term Care Policy

Developing Quality Measures for Medicaid Beneficiaries with Schizophrenia:

Final Report

January 2012

Office of the Assistant Secretary for Planning and Evaluation

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This report was prepared under contract #HHSP23320095642WC between HHS's ASPE/DALTCP and Mathematica Policy Research. For additional information about this subject, you can visit the DALTCP home page at http://aspe.hhs.gov/office_specific/daltcp.cfm or contact the ASPE Project Officer, Kirsten Beronio, at HHS/ASPE/DALTCP, Room 424E, H.H. Humphrey Building, 200 Independence Avenue, S.W., Washington, D.C. 20201. Her e-mail address is: Kirsten.Beronio@hhs.gov.

DEVELOPING QUALITY MEASURES FOR MEDICAID BENEFICIARIES WITH SCHIZOPHRENIA: Final Report

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ACRONYMS

ACT	assertive community treatment
APA	American Psychiatric Association
ASPE	Office of the Assistant Secretary for Planning and Evaluation
BHO	behavioral healthcare organization
BMI	body mass index
CMS	Centers for Medicare and Medicaid Services
DHHS	New Hampshire Department of Health and Human Services
ED	emergency department
EHR	electronic health record
FFS	fee-for-service
FUH	follow-up after hospitalization
HCPCS	Healthcare Common Procedure Coding System
HbA1c	Hemoglobin A1c
HMO	health maintenance organization
ICSI	Institute for Clinical Systems Improvement
IQR	interquartile range
LAI	long-acting injectable
MAX	Medicaid Analytic eXtract
MBHO	managed behavioral healthcare organization
MMDLN	Medicaid Medical Directors Learning Network
NACBHDD	National Association of County Behavioral Health and Developmental Disability Directors
NAMI	National Alliance on Mental Illness
NCQA	National Committee for Quality Assurance
NICE	National Institute for Health and Clinical Excellence
NQF	National Quality Forum
PCP	primary care provider
PDC	proportion of days covered
PORT	Patient Outcomes Research Team

RCT	randomized controlled trial
SMI	serious mental illness
SPMI	serious and persistent mental illness
TAG	Technical Advisory Group
WFBH	Wake Forest Baptist Health

EXECUTIVE SUMMARY

In August 2010, the U.S. Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation (ASPE) contracted with Mathematica Policy Research and its subcontractor--the National Committee for Quality Assurance--to develop evidence-based quality measures to assess the quality of care provided to Medicaid enrollees diagnosed with schizophrenia. The goal of the project was to create a set of claims-based ambulatory care measures that meet National Quality Forum (NQF) criteria for importance, scientific acceptability, usability, and feasibility and would thus be suitable for submission to the NQF for endorsement consideration.

The project began with a review of existing literature and other evidence describing evidence-based practices for people with schizophrenia. Assisted by expert consultants, this effort emphasized the findings of the Schizophrenia Patient Outcomes Research Team and allowed the team to create concepts for new measures that assess the quality of medication management, underuse of evidence-based psychosocial treatments, and access to primary care and preventive health services. Once the measure concepts were vetted by a Technical Advisory Group (TAG), we developed draft specifications and sought comment from measure stakeholders, including representatives from managed behavioral healthcare organizations (MBHOs), Medicaid medical directors, and state mental health directors to assess their perspectives on the importance, scientific acceptability, usability, and feasibility of the proposed measures. After these key stakeholders gave their input, measure specifications were posted for public comment, and they were pilot-tested using Medicaid Analytic eXtract (MAX) data from 2007 and 2008 to further assess their feasibility, reliability, and validity. Throughout the project, the project team received valuable advice and guidance from ASPE, members of the TAG, and our project consultants.

The project team sought to develop measures in three domains, pharmacology, psychosocial care, and physical health, as well as cross-cutting measures that span several of these domains. Based on the review of the literature and feedback from the TAG and ASPE, we developed detailed specifications for an initial set of 17 measure concepts before settling on a final set of ten to be submitted to NQF for endorsement.

Focus groups with state Medicaid and mental health leaders, as well as with MBHO staff, yielded remarkably consistent results. Key points included: (1) claims data are unreliable for identifying some behavioral health services, particularly evidence-based psychosocial treatments; (2) variation in financing of services for people with serious mental illness (SMI) limits the ability to consistently measure the quality of care across Medicaid programs; and (3) some candidate measures address problems that are not unique to patients with schizophrenia--measures could be broadened to include patients with bipolar disorder, schizophrenia, and severe forms of depression. The

feedback from public comment was positive, with 87 percent of the comments either supporting the measures or supporting them with modifications.

Overall, 9.7 percent of Medicaid recipients in our 22-state 2007 MAX dataset had schizophrenia and 12.8 percent had SMI (bipolar disorder and/or schizophrenia). The objective of pilot-testing was to determine the scientific acceptability of each measure to the extent practicable through the use of Medicaid claims data. Five of the ten proposed measures demonstrated significant variability in state-level performance, indicating general utility of the measures. Seven of the ten proposed measures demonstrated evidence of either construct or convergent validity. Construct validity was assessed by examining the association between measure performance and outcomes (schizophrenia-related (1) hospitalization, and (2) emergency department [ED] visits). We reported the percentage of people who were either hospitalized or visited the ED for schizophrenia, comparing the worst and best-performing quartiles of state performance for each measure. Seven measures demonstrated evidence of construct validity, indicated by the association between (higher) measure performance and (lower) rates of adverse events. Convergent validity was determined through enrollee-level measure correlations. Three of the ten measures demonstrated evidence of convergent validity. Nine of the ten measures demonstrated evidence of reliability, assessed between measures calculated during calendar year 2007 and 2008, either through test-retest correlations or relative performance stability over this time period.

Although some of these results are encouraging, important limitations of our findings warrant consideration. First, use of Medicaid claims data as a source to implement and test schizophrenia quality measures limited the number of evidence-based practices that could be implemented as measures. This limitation prevented our ability to develop psychosocial measures. In addition, several topics could not be developed because the evidence base, tools, and methods for tracking these measures are immature. We also found that variation in the financing of services for people with SMI limited our ability to generalize measurement of the care provided by Medicaid programs. For example, the provision of services through state mental health systems, the coverage of mental health services through Medicare for dual-eligible beneficiaries, the prohibition of same-day billing of medical and behavioral health services, and interstate variation in Medicaid and disability standards all underscore the limitations of claims data to measure quality for enrollees with schizophrenia. Finally, the distinction between enrollees with schizophrenia and other SMI conditions is, in many cases, artificial. The project team, ASPE, and measure stakeholders all expressed the belief that conceptually, many issues related to schizophrenia also apply broadly to people with any SMI. Further work is needed to consider whether measures similar to the ones developed and tested under this contract would be relevant for people with bipolar disorder and other SMI.

I. OVERVIEW OF THE PROJECT

Despite enormous expenditures and remarkable breakthroughs in medical treatment, the United States behavioral health care system does not consistently deliver safe and effective treatment to those with serious and persistent mental illness (SPMI), many of whom go untreated or inadequately treated. Now, as the nation stands at the doorstep of fundamental reforms that offer insurance benefits for those without them, remove inequitable treatment limits and financial barriers to mental health treatments, and promote integrated primary and behavioral health care, we have an enormous opportunity to close the gap between the availability of effective treatments and providing them in a manner that promotes recovery. By enhancing transparency, new quality measures that promote feedback to providers and enable value-based purchasing represent an essential tool to achieve the full promise of these reforms.

In August 2010, the U.S. Department of Health and Human Services Office of the Assistant Secretary for Planning and Evaluation (ASPE) contracted with Mathematica Policy Research and its subcontractor--the National Committee for Quality Assurance (NCQA)--to develop evidence-based quality measures to assess the quality of care provided to Medicaid enrollees diagnosed with schizophrenia. The goal of the project was to create a set of claims-based ambulatory care measures that meet National Quality Forum (NQF) criteria for importance, scientific acceptability, usability, and feasibility and would thus be suitable for submission to the NQF for endorsement consideration.

The project began with a review of existing literature and other evidence describing evidence-based practices for people with schizophrenia. Assisted by expert consultants, this effort emphasized the findings of the Schizophrenia Patient Outcomes Research Team (PORT) and allowed the team to create concepts for new measures that assess the quality of medication management, underuse of evidence-based psychosocial treatments, and access to primary care and preventive health services. Once the measure concepts were vetted by a Technical Advisory Group (TAG), we developed draft specifications and sought comment from measure stakeholders, including representatives from managed behavioral healthcare organizations (MBHOs), Medicaid medical directors, and state mental health directors to assess their perspectives on the importance, scientific acceptability, usability, and feasibility of the proposed measures. After these key stakeholders gave their input, measure specifications were posted for public comment, and they were pilot-tested using Medicaid Analytic eXtract (MAX) data from 2007 and 2008 to further assess their feasibility, reliability, and validity. Throughout the project, the project team received valuable advice and guidance from ASPE, members of the TAG, and our project consultants.

This report presents a chronology of the process, key findings, and lessons learned during our project to develop claims-based measures of services provided to

Medicaid enrollees with schizophrenia that meet key NQF criteria. Chapter II reviews that process and describes how several findings in our data collection changed the course of measure development. Chapter III summarizes key findings from our field and pilot-testing efforts, and Chapter IV discusses lessons learned that we hope will improve the process of measure development and the quality of the resulting measures. The appendices contain all key documents produced throughout the project, including material presented at each TAG meeting, pilot-testing results, and the candidate measure summary information.

II. THE DEVELOPMENT OF SCHIZOPHRENIA QUALITY MEASURES: A CHRONOLOGY

In developing new quality measures to assess the quality and appropriateness of care for Medicaid enrollees with schizophrenia, Mathematica and NCQA carried out the following tasks under guidance from ASPE:

1. Identified appropriate measure topics and concepts through an environmental scan and a review of the literature.

2. Defined and developed measure specifications.

3. Convened meetings of the project TAG.

4. Field-tested measures with key stakeholders.

5. Posted the measures for public comment.

6. Pilot-tested measures and evaluated the reliability and validity of measures using Medicaid claims data.

1. Environmental Scan: Identify Appropriate Measure Topics and Concepts

The process for identifying the measure concepts included a review of the clinical literature prepared by ASPE, an environmental scan of treatment measure guidelines and existing measures by NCQA, and consultation with experts. We focused on measure concepts in three treatment domains specified by ASPE: pharmacotherapy, psychosocial treatment, and physical health. Drs. Julie Kreyenbuhl and Lisa Dixon, leaders of the Schizophrenia PORT at the University of Maryland School of Medicine, served as content experts and consultants to the project. Their role was to identify potential errors of interpretation, emphasis, inclusion, or omission prior to developing a report that summarized the scientific literature, clinical guidelines, and existing measures that are focused on the population of interest.

The environmental scan identified systematic reviews (e.g., the Schizophrenia PORT reviews), measure specifications, and treatment guidelines and standards developed by professional societies and measurement organizations that relate to care for people with schizophrenia (Buchanan et al. 2010; Dixon et al. 2010). ASPE also conducted a supplemental review of the clinical literature restricted to human adult clinical trials, and in the case of pharmacologic agents, those that have advanced

beyond preliminary safety and efficacy testing (Sherry 2010). Because the PORT recommendations include only studies published through March 2008, the ASPE literature review identified more recent studies. In addition, we consulted with a multistakeholder TAG. To identify existing measures assessing care for people with schizophrenia, we searched measure databases from the NQF, the National Quality Measures Clearinghouse, the National Registry of Evidence-Based Programs and Practices through the Substance Abuse and Mental Health Services Administration, and the Center for Quality Assessment and Improvement in Mental Health. Measures were organized by the measure steward, name, description, numerator, denominator, data source, and measurement domain (that is, physical health, pharmacotherapy, and psychosocial interventions). The final measure concepts are presented in Chapter III.

2. Define and Develop Initial Measure Specifications

Based on the review of the literature and feedback from the TAG and ASPE, we developed detailed specifications for an initial set of 17 measure concepts before settling on a final set of ten to be submitted to NQF for endorsement. Initial measure specifications included codes likely to be found on claims and that define populations eligible to be in the denominator, codes that adequately defined the nature of the processes or outcomes to be assessed (the numerator), and the appropriate time frames for assessment. We used the input of the TAG and our understanding of the MAX data to guide drafting measure specifications. Appendix A lists the original 17 measure concepts.

3. Convene Meetings of the Project Technical Advisory Group

To guide the measure development process and provide the perspectives of all stakeholders, we convened three meetings of a multistakeholder TAG. This group included 16 members representing expertise in clinical care, research, state and federal policy, consumers, managed behavioral health care, and quality measurement. The TAG met three times by teleconference through the course of the project. During the first teleconference, we asked TAG members to review proposed measure concepts, identify potential gaps in these concepts, assess measure development priorities, and recommend measures to be specified and tested. Measure specifications and the testing plan for the selected concepts were then reviewed during the second TAG meeting. The third meeting consisted of reviewing the preliminary results of the field and pilot-testing. In addition, the TAG evaluated and provided further feedback on the specifications and recommended measures for NQF submission. Appendix B lists the TAG members and includes material presented at each TAG meeting.

4. Field-Test Measure Specifications with Key Stakeholders

To inform our understanding of feasibility and usability, we conducted focus groups with: (1) State Medicaid Medical Directors; (2) representatives from MBHOs; and (3) State Mental Health Commissioners and Medical Directors (or their designees). The goal was to obtain feedback on attributes that are reviewed by NQF during the endorsement process, including the importance, usability, and feasibility of the measures. We asked focus group participants about their understanding of the measure specifications; the feasibility of implementing quality data for the measures through a claims-based system, including anticipated operational challenges in collecting and reporting the data; the relevance and importance of the measures to their program or organization; their interest in collecting information and receiving feedback on the measures; and any suggestions for refining the measures.

Focus group testing with the State Medicaid Medical Directors occurred in conjunction with the Medicaid Medical Directors Learning Network meeting in Washington, DC, and 28 states were represented. Representatives of MBHOs were recruited from industry lists; individuals representing commercial and Medicaid plans in six states (Florida, Oklahoma, Pennsylvania, Illinois, Missouri, and Iowa) participated. We later added a focus group of state mental health commissioners and medical directors in response to suggestions from ASPE; officials from five states (California, Michigan, Missouri, Georgia, and Florida) participated. A memo summarizing our conversations with the focus groups is in Appendix C.

5. Post Measure Specifications for Public Comment

For this task, NCQA developed and managed a dedicated web page to receive public comments. Candidate measures (excluding the HIV screening and psychosocial treatment measures) were posted September 15, 2011, through October 15, 2011, and included draft technical specifications, instructions, and supporting information for the public-comment period. We collated the public comments and reviewed them to identify themes and areas of concern. We then prepared a document summarizing the comments and action taken (Appendix D). Twenty-two organizations, including academic institutions, health plans, pharmaceutical companies, universities, and other health care associations, submitted a total of 67 comments.

6. Pilot-Test Measures to Assess Usability, Validity, and Reliability

To assess the usability and scientific acceptability of the measures, we examined the distribution, content and convergent validity, and test-retest reliability of the candidate measures using MAX data from 2007 and 2008. Use of MAX data permits real-world assessment of measure usability for state Medicaid officials. At the same time, operationalization of quality measures in Medicaid claims data provides an opportunity to retrospectively assess measure validity by correlating measure

performance with outcomes such as schizophrenia-related hospitalization and emergency department (ED) use. The MAX data are standardized eligibility and claims files for each state that include person-level on every beneficiary enrolled in Medicaid during the calendar year. The MAX files are created from claims data that each state submits to the Centers for Medicare and Medicaid Services (CMS).

Defining the Population

Diagnosis of schizophrenia was inferred by either a single primary inpatient diagnosis or two outpatient primary diagnoses of schizophrenia.[1,2] In response to comments from Medicaid medical directors, we modified and tested some measures to include persons with *serious mental illness* (SMI) defined by a single primary inpatient diagnosis or two outpatient primary diagnoses of either schizophrenia or bipolar disorder.

In addition, we required that enrollees have 10 months of Medicaid eligibility, non-dual status, and qualification for Medicaid on the basis of a disability, which resulted in 1,019,123 Medicaid recipients who met our inclusion criteria.[3]

Overall, 9.7 percent of Medicaid recipients in our dataset had schizophrenia and 12.8 percent had SMI (bipolar disorder and/or schizophrenia) in 2007. Both of these populations were demographically diverse (Appendix Table E.2). About one in five enrollees with schizophrenia were diagnosed with diabetes (17 percent).

Pilot-Test Methodology: Usability, Validity, and Reliability

Pilot-testing the measures using MAX data took several forms. First, we evaluated measure importance (gaps in quality) and scientific acceptability (meaningful differences in performance) by assessing the distributional properties of each measure. This was accomplished by tabulating the minimum, maximum, median, mean, and interquartile range (IQR) for each measure at the state level. The IQR is demarcated by the values at the 25th and 75th percentiles of a distribution. Generally speaking, measures with a broader IQR are preferable to measures with a narrowly distributed IQR or those with an IQR at the very low or very high end of the distribution. For example, a measure with a narrow IQR may not be sufficiently sensitive to detect differences in quality. Measures with an IQR of at least 10 percentage points were considered to have the strongest evidence of usability for quality measurement purposes.

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[1] An ICD-9 code of 295.xx was used to flag schizophrenia.

[2] Outpatient diagnoses were observed on different days.

[3] We used MAX data from the following states in 2007: Alabama, Alaska, California, Connecticut, Georgia, Idaho, Illinois, Indiana, Iowa, Louisiana, Maryland, Missouri, Mississippi, New Hampshire, North Carolina, North Dakota, Nevada, Oklahoma, South Dakota, Washington DC, West Virginia, and Wyoming. These states were noted to have complete enrollment, fee-for-service (FFS) claims and encounter records. Although the sample was primarily enrolled in FFS plans, some states with complete encounter data were included in our analytic sample.

Validity and reliability are important characteristics of measure scientific acceptability. Construct validity was evaluated by examining enrollee outcomes with results displayed by quartile of state-level performance for each measure. We compared rates of schizophrenia-related hospitalization and ED utilization, for beneficiaries in the highest and lowest performing quartile for each quality measure. The difference between the outcomes among enrollees in the best and worst quartiles of state performance for each measure was tested using a one-way analysis of variance; an F-test significance level of $p<0.01$ was used to determine statistically different outcomes. For a given measure, construct validity was inferred when rates for adverse events among enrollees in high performing states were significantly better (i.e., lower) than the rates of adverse events among enrollees in low performing states.

Convergent validity was examined through between-measure correlation coefficients. For example, we hypothesized that adherence to antipsychotics, as measured by a high rate of antipsychotic medication possession ratio, would be negatively associated with measures of mental health ED use and positively correlated with the measures of 30-day outpatient follow-up after a mental health related discharge. We identify measures with a Pearson correlation of at least 0.15 with two or more measures.

We assessed measure reliability using state-level test-retest correlations with data from 2007 and 2008 MAX data.[4] We identify measures with a year-to-year correlation of ≥0.30. We also examined the stability of relative performance quartiles between 2007 and 2008, with the expectation that at the state level, performance measures should not exhibit any discernible pattern of performance instability over time. In other words, measure stability would be demonstrated if a state was in the top quartile of performance for a given measure in 2007, the same state should demonstrate similar relative performance in 2008. Results from the pilot and field-testing efforts are summarized in the next section.

[4] 2008 data were available for a subset (N=16) of the 2007 states: Alabama, Alaska, Connecticut, Georgia, Idaho, Indiana, Iowa, Louisiana, Maryland, Mississippi, New Hampshire, North Carolina, Oklahoma, South Dakota, West Virginia, and Wyoming.

III. SUMMARY OF KEY FINDINGS

The purpose of this measure development project was to identify, specify, and test at least three measures that address pharmacological treatment, psychosocial treatment, and physical health needs for patients with schizophrenia that can be calculated solely from Medicaid claims data. Ten measures met our rigorous criteria for measure development, including evidence review, consultation with the TAG, focus groups with key stakeholders, public comment, and pilot-testing using the MAX data.

Tables III.1-III.4 list the measure concepts that we considered based on the environmental scan and initial input from the TAG; these concepts addressed the domains requested by ASPE (pharmacology, psychosocial treatment, and physical health) as well as a set of cross-cutting issues identified through the scan. We did not further pursue some of these topics because we did not believe that they could be assessed in claims; these measure concepts were not presented to the TAG (see Appendix B).

Based on TAG recommendations, 13 measures were specified. Two (use of any psychosocial treatment and HIV screening) were dropped before testing in the MAX files. The psychosocial treatment measure was dropped because procedure codes used in claims data are ambiguous and thus do not provide sufficient detail to reflect the actual service provided, and because these codes are not used consistently in different states and programs. The HIV screening measure was dropped because of the lack of strong evidence suggesting a gap in care for people with schizophrenia. Based on the input received from the public comment period, we dropped the measure of general ED utilization due to provider attribution concerns, which resulted in ten measures that were later pilot-tested in the MAX data.

1. Measure Concepts Considered, Specified, and Tested, and Submitted for Endorsement

The project team sought to develop measures in three domains, pharmacology, psychosocial care, and physical health, as well as cross-cutting measures that span several of these domains. Tables III.1-III.4 list the proposed measure concepts, the measures that were specified and tested in focus groups, the measures that were tested in the MAX data, and the measures submitted for NQF endorsement. The final ten measures submitted to NQF for endorsement consideration are listed in the last column. Appendix F consists of the proposed measures' numerator, denominator, and exclusions.

TABLE III.1. Pharmacological Concepts Considered, Specified, Tested, and Submitted			
Proposed Measure Concepts	**Measures Specified & Tested in Focus Groups**	**Measures Tested in MAX Files**	**Measures Submitted for NQF Endorsement**
1. Use of antipsychotic medications for treatment of schizophrenia. 2. Antipsychotic medication possession ratio. 3. Use of clozapine in treatment-resistant patients. 4. Polypharmacy treatment.	1. Use of antipsychotic medications for treatment of schizophrenia. 2. Antipsychotic medication possession ratio.	1. Use of antipsychotic medications. 2. Antipsychotic medication possession ratio.	1. Use of antipsychotic medications. 2. Antipsychotic medication possession ratio.

Use of clozapine in treatment-resistant patients was dropped due to difficulty with identifying treatment-resistant patients from claims data and concerns about small denominator size. The polypharmacy treatment measure concept was dropped because there is insufficient evidence to define a polypharmacy threshold (e.g., two versus three antipsychotics) and lack of evidence regarding the impact of polypharmacy on quality of care. The TAG also was uncertain whether to broaden the concept to encompass other psychiatric medications (e.g., antidepressants).

TABLE III.2. Psychosocial Concepts Considered, Specified, Tested, and Submitted			
Proposed Measure Concepts	**Measures Specified & Tested in Focus Groups**	**Measures Tested in MAX Files**	**Measures Submitted for NQF Endorsement**
1. Use of Assertive Community Treatment (ACT) post-hospitalization. 2. Use of case management. 3. Use of family therapy. 4. Use of supported employment. 5. Use of cognitive behavioral therapy. 6. Use of social education. 7. Use of any psychosocial treatment. 8. Availability of psychosocial treatment. 9. Presence or duration of waiting list for psychosocial treatment.	1. Use of any psychosocial treatment.	(None)	(None)

Use of ACT post-hospitalization, case management, family therapy, supported employment, cognitive behavioral therapy, and social education were dropped as a result of the inconsistent availability of these services across state Medicaid programs

and, where those services are available, unreliable coding and uncertain fidelity to the evidence-based models. Use of any psychosocial treatment was specified and tested in focus groups, but was dropped because of the fidelity and reliability concerns. Availability of and the presence or duration of a waitlist for psychosocial treatment are structural measures not suited to claims data measurement.

TABLE III.3. Physical Health Concepts Considered, Specified, Tested, and Submitted

Proposed Measure Concepts	Measures Specified & Tested in Focus Groups	Measures Tested in MAX Files	Measures Submitted for NQF Endorsement
1. Monitoring of metabolic conditions among patients taking antipsychotic medications. 2. Weight assessment and counseling among patients who are taking antipsychotics. 3. Appropriate health maintenance and prevention. 4. Appropriate infectious disease screenings. 5. Screening and counseling of substance use disorders. 6. Tobacco counseling.	1. Cervical cancer screening for women. 2. HIV screening. 3. Diabetes screening (schizophrenia or bipolar disorder). 4. Cardiovascular health screening (schizophrenia or bipolar disorder). 5. Diabetes monitoring. 6. Cardiovascular health monitoring.	1. Cervical cancer screening for women. 2. Diabetes screening (schizophrenia or bipolar disorder). 3. Cardiovascular health screening (schizophrenia or bipolar disorder). 4. Diabetes monitoring. 5. Cardiovascular health monitoring.	1. Cervical cancer screening for women. 2. Cardiovascular health screening (schizophrenia or bipolar disorder). 3. Diabetes screening (schizophrenia or bipolar disorder). 4. Diabetes monitoring. 5. Cardiovascular health monitoring.

Weight assessment and counseling among patients on antipsychotics was deemed identifiable only from chart data, which were out of scope for this project. Concerns about reliable documentation of tobacco and substance use screening and counseling in claims data resulted in removing these concepts from further consideration. HIV screening was dropped because of the lack of strong evidence suggesting a gap in care for people with schizophrenia.

TABLE III.4. Cross-Cutting Concepts Considered, Specified, Tested, and Submitted

Proposed Measure Concepts	Measures Specified & Tested in Focus Groups	Measures Tested in MAX Files	Measures Submitted for NQF Endorsement
1. Use of combination antipsychotic medication and psychosocial treatment. 2. Outpatient follow-up visit after hospitalization. 3. ED use. 4. Continuous Medicaid enrollment.	1. 7-day follow-up visit after mental health hospital discharge. 2. 30-day follow-up after mental health hospital discharge. 3. Any mental health ED use. 4. Any ED use.	1. 7-day follow-up visit after mental health hospital discharge. 2. 30-day follow-up after mental health hospital discharge. 3. Any mental health ED use.	1. 7-day and 30-day follow-up visit after mental health hospital discharge. 2. Any mental health ED use.

The use of combination antipsychotic medication and psychosocial treatment measure concept was dropped due to the inability to capture psychosocial treatments reliably through claims data.

2. Field-Testing

The focus groups with state Medicaid and mental health leaders, as well as with MBHO staff, yielded remarkably consistent results. Key points included:

- Claims data are unreliable for identifying some behavioral health services, particularly evidence-based psychosocial treatments.

- Variation in financing of services for people with SMI limits the ability to consistently measure the quality of care across Medicaid programs. For example, while some states reimburse for a bundled set of services collectively known as assertive community treatment (ACT), other states reimburse individual services that resemble services included in the ACT model. In other states, some of these services are provided outside of the Medicaid program, such as through the state mental health authority.

- Some candidate measures address problems that are not unique to patients with schizophrenia; measures could be broadened to include patients with bipolar disorder, schizophrenia, and severe forms of depression (SPMI).

While focus group participants generally viewed the proposed measure concepts as important and relevant topics, they noted some gaps. In particular, Medicaid officials raised concerns about the lack of candidate measures addressing perceived problems of overuse of care for people with schizophrenia (for example, polypharmacy or hospital readmissions).

The panels offered specific advice on technical specifications and testing. In particular, they recommended that the measures apply to patients not included in MAX files, specifically TANF enrollees and people with dual Medicare beneficiaries, who receive treatment through Medicaid programs.

3. Public Comment

The feedback from public comment was positive, with 87 percent of the comments either supporting the measures or supporting them with modifications (Appendix D). The majority of the comments touched on issues that had been discussed by the project team and the TAG during the measure development process, such as expanding the denominator in the physical health screening measures to include anyone with SMI, including measures evaluating psychosocial care, and lowering the age of eligibility for the measures.

Some comments raised concerns about the accountability for measures; for example, several commenters expressed concern that offering cervical cancer screening was out of scope for psychiatrists and psychologists. The project team believes this is a misunderstanding on the part of providers. The state, not the provider, is the unit of accountability for these measures. Further, given the push toward integrated care, states may be held accountable for the coordination of care between medical and mental health settings. This may include encouraging mental health professionals, including psychiatrists, to inquire about these services and potentially refer for such services. This is no different from the expectation that psychiatrists address the metabolic condition of patients in their care. Therefore, we propose retaining screening measures.

We received technical comments concerning coding of medication lists, including HbA1c tests as part of the diabetes screening measure, and methods to determine use of injectable antipsychotic medications. The project team carefully considered these concerns when finalizing measure specifications.

The measure that received the least support from public comment was Emergency Department Utilization for People with Schizophrenia. Feedback centered on the measure being non-action-oriented because it included non-mental health admissions. Comments also focused on the measure possibly encouraging overuse of emergency servces. Based on this feedback, the broad measure of Emergency Department Utilization was not submitted for NQF endorsement.

4. Pilot-Testing

The objective of pilot-testing was to determine the scientific acceptability of the measures based on NQF criteria. Table III.5, summarizes the evidence found for each measure through our pilot-testing activities using our 22-state MAX dataset (2007) and our 16-state MAX dataset (2008). Cells containing an ‘X’ indicate that a measure met predetermined criteria, summarized in Chapter II, which we used to assess differences in performance across states, validity, or reliability. An empty cell indicates that a measure did not meet the criterion in the corresponding column; however, as we discuss in the paragraphs that follow, this does not indicate a measure is without merit or should not be considered useful. In general, as we described below in further detail, caution is warranted in interpreting our pilot-testing findings, as testing results using Medicaid claims should not be used as the sole criteria for judging the merit of the measures.

TABLE III.5. Summary of Pilot-Testing Results: Evidence of Measure Usability, Validity, and Reliability					
Measure	**Detection of Meaningful Differences**	**Validity**		**Reliability**	
	IQR Dispersion[a]	**Construct Validity[b]**	**Convergent Validity[c]**	**Test-Retest Correlation[d]**	**Performance Stability[e]**
Use of Antipsychotic Medication		X			
Antipsychotic Possession Ratio (≥80%)				X	
Diabetes Screening (SMI)[f]	X	X	X	X	X
Diabetes Monitoring	X	X	X	X	X
Cardiovascular Health Screening (SMI)[f]		X		X	
Cardiovascular Health Monitoring	X	X		X	X
Cervical Cancer Screening				X	X
ED Utilization for Mental Health Conditions		N/A		X	
Follow-up after Mental Health Hospital Discharge (7-day)	X	X			X
Follow-up after Mental Health Hospital Discharge (30-day)	X	X	X		X

a. Dispersion indicated by an IQR of at least 10 percentage points (Appendix Table E.13).
b. Construct validity indicated by significant performance differences between top and bottom quartile of measure performance for either schizophrenia-related hospitalization or ED utilization (Appendix Table E.14).
c. Convergent validity indicated by Pearson r≥0.15 in hypothesized direction with at least 2 other measures (Appendix Table E.15).
d. Reliability indicated by state-level test-retest correlation (2007-2008) Pearson r≥0.30 (Appendix Table E.16).
e. Stability indicated by no more than 1 performance quartile change for any state between 2007 and 2008. For some measures, states had denominators <100 in 2008; these measure/state combinations were excluded from this analysis.
f. Measure calculated among enrollees with schizophrenia or bipolar disorder.

1. **Five of the ten proposed measures demonstrated significant variability in state-level performance.** A key indicator of a quality measure's utility is its ability to capture a wide range of performance. Appendix Table E.13 lists each measure and its distribution across the 22-state dataset. Table III.5 identifies the four measures with an IQR of at least 10 percentage points and those where the lower and upper bounds of the IQR did not encompass the tails of performance (either low or high), indicating measures with the greatest utility for quality measurement purposes.

   The measure "Use of Antipsychotic Medication" had the most restricted performance range (an IQR of 3 percentage points). For example, a state

performing at the lower end of the IQR (that is, the 25th percentile), reported 92 percent of recipients received an antipsychotic, while a state at the top end of the IQR (the 75th percentile) reported 95 percent of recipients received an antipsychotic. Therefore, we believe that this measure has limited value from a quality improvement perspective, since the performance range is restricted and is already near the top, thus limiting the potential for improvement. However, because antipsychotic use is a fundamental issue for this population and the measure was widely endorsed by our consultants (the TAG and stakeholder groups), "use of antipsychotic medication" has considerable utility as a monitoring measure.

2. **Seven of the ten proposed measures demonstrated evidence of validity.** We assessed validity using two approaches. To assess construct validity we examined the association between measure performance and outcomes (schizophrenia-related hospitalization and ED visits). We compared the percentage of people who hospitalized or visited the ED for schizophrenia, comparing the worst and best-performing quartiles of state performance for each measure. For example, we found enrollees in states with the highest rates of antipsychotic use had significantly lower rates of hospitalization for schizophrenia compared with enrollees in states with the lowest rates of antipsychotic use (Appendix Table E.14). Seven measures demonstrated evidence of construct validity.

   Convergent validity was determined through examination of recipient-level measure correlations (Appendix Table E.15). We considered measures with a correlation coefficient of 0.15 or greater with at least two other measures to demonstrate evidence of convergent validity. Three of the ten measures met this criterion.

   Although some of these results are encouraging, some important limitations of these measures warrant consideration. Our measures of schizophrenia-related hospitalization and schizophrenia-related ED visits assess adverse outcomes at one extreme of care and thus do not reflect the full spectrum of care. Further, measures that assess preventive care processes were not anticipated to have a significant effect on schizophrenia-related hospitalization or ED use, therefore this relationship warrants further investigation to understand this finding.

3. **Nine of the ten measures demonstrated evidence of reliability.** Reliability was assessed through correlation of state-level 2007 and 2008 performance. Seven of the ten measures demonstrated 2007-2008 correlation of 0.30 or higher at the state level (Appendix Table E.16). In addition, we compared each state's performance quartile in 2007 with its performance quartile in 2008 to understand the stability of each measure. We defined *stability* as no more than a one-quartile performance difference between 2007 and 2008; six measures met this criterion (Table III.5). Only "Use of Antipsychotic Medications" failed to show a strong state-level year-to-year correlation (r=0.25) and showed a large performance

difference (a three-quartile change) between 2007 and 2008, although this difference was observed in a single, small state.

In summary, we began with a list of 23 measure concepts to assess the care provided to Medicaid enrollees with schizophrenia, and arrived at a final list of ten measures for submission to NQF. These measures fall into three domains, pharmacological, physical health measures and cross-cutting measures. Current evidence and limitations of claims data prevented us from developing robust measures of psychosocial treatments. Appendix F details the numerator, denominator and exclusions for each of the ten proposed measures.

IV. LESSONS LEARNED

While we successfully developed and tested ten quality measures, development of several additional measures was not feasible given the constraints of Medicaid claims data and Medicaid payment policies. The following discussion of our experience and lessons learned is designed to be instructive for future efforts in the development of quality measures for people with SPMI.

1. Use of Medicaid claims data as a source to implement and test schizophrenia quality measures presented several noteworthy limitations. Because of the limitations of the claims data, several evidence-based practices could not be implemented as measures. These limitations were particularly conspicuous when attempting to operationalize evidence-based guidelines for psychosocial treatments such as those recommended in the Schizophrenia PORT. In analyses using MAX data, we found psychosocial treatments are either inconsistently coded in claims data or not available at all. For example, claims for smoking cessation programs were not observed in the MAX data; therefore, this measure was not developed because it could not be assessed in claims data. Consequently, no psychosocial measures emerged from our measure development process, despite the strength of evidence for these practices. Specific evidence-based recommendations that could not be accurately identified in the claims data, and thus were not field or pilot-tested, included:

   - Supported employment;
   - Family psychoeducation;
   - Assertive community-based treatment;
   - Cognitive behavioral therapy;
   - Social skills training.

   Claims-only assessment presents other challenges for measure development. Because mental health problems are difficult to diagnose, claims often contain incorrect information that present challenges to accurate case finding. We attempted to minimize this problem by requiring either an inpatient claim with a primary diagnosis of schizophrenia or two outpatient claims on different days with a primary diagnosis of schizophrenia, adapting definitions used by others (Busch, Frank & Lehman 2004). However, we acknowledge that claims are not an ideal source to identify this population and may provide an undercount of the target population as diagnosis fields are not required for payment of services. Although current guidelines specify follow-up with a mental health provider following hospitalization, performance on our candidate measure is assessed by follow-up with any provider because mental health providers cannot be identified in Medicaid claims.

Finally, use of MAX data to test the measures limits the external validity of our results. Our MAX analytic study population was purposely limited to Medicaid recipients with claims data so that we could reliably identify patients with schizophrenia and the services they received. As a result, our study population included primarily disabled, non-dual-eligible enrollees in FFS plans. However, this group represents only a minority of the universe of people with SMI who receive mental health treatment through Medicaid programs. In particular, because drugs treatments are reimbursed by Medicare Part D for dually-eligible enrollees we are unable to include them, thus eliminating about 40 percent of all disabled Medicaid recipients from performance assessment.

2. Several topics were of interest to ASPE, the development team, and stakeholders, but the evidence base, tools, and methods for tracking these measures are immature. For example, evaluating receipt of evidence-based psychosocial services may require measures that address the structures of care (e.g., availability of trained providers, supervision). State officials in particular were interested in measures addressing potential overuse of pharmacological treatments, which is challenging to document in the absence of tools for risk adjustment and symptom measurement. In addition, the evidence to support overuse measures is inconsistent. Patient-reported outcomes were also of interest to stakeholders, but they cannot be ascertained using claims data.

   There was considerable interest in focus groups and TAG on addressing the physical health needs of people with schizophrenia; however, there was not always evidence to provide a rationale for a particular focus on such people for a given test. Some highly important preventive services, in particular tobacco cessation counseling and assistance, are not feasible in claims data. While there was evidence of low rates of cervical cancer screening among women with schizophrenia, there was no such evidence of a gap in care for HIV screening. Continuity of Medicaid enrollment was proposed to assess whether people with schizophrenia have consistent access to services; however, some lapses in coverage may be related to desirable outcomes (such as employment), and it would not be possible to determine the reason for loss of coverage. As the evidence base grows and use of electronic medical records and other electronic data repositories (for example, registries) also grows, so too will the ability to implement evidence-based measures.

3. Quality measurement for Medicaid recipients with schizophrenia presents implementation issues. During the development process, and in particular during the field-testing process, we became aware of several issues related to measure implementation. Key implementation issues included measure attribution, variations in care financing, and the need for long look-back periods for several measures. For example, although the TAG and several stakeholders endorsed the inclusion of a general measure tracking ED use, some providers voiced concerns about attribution for this measure. Specifically, during the field-testing process, mental health providers felt they should not be held accountable for ED

visits for accidents or other non-mental health reasons. Consequently, we dropped the measure of general ED use from our pilot-testing. However, attribution of care processes and outcomes will likely prove controversial, though implementation of the proposed measures at the state (rather than the provider level) will help to minimize concerns over attribution.

We found that variation in the financing of services for people with SMI limited our ability to measure the care provided by Medicaid programs. For example, the provision of services through state mental health systems, the coverage of mental health services through Medicare for dual-eligible beneficiaries, the prohibition of same-day billing of medical and behavioral health services, and interstate variation in Medicaid and disability standards all underscore the limitations of claims data to measure quality for enrollees with schizophrenia.

Finally, we found that reliance on Medicaid claims to produce rates of health screening can require a large volume of data to address issues of "look-back" for selected conditions. For example, some health conditions have a screening recommendation of every five years. Therefore, to compute a health screening measure for these conditions, information systems require the capacity to look back over a five-year claims history, which for some states could be a daunting task.

4. The distinction between enrollees with schizophrenia and other SMI conditions is, in many cases, artificial. The project team, ASPE, and measure stakeholders all expressed the belief that conceptually, many issues related to schizophrenia also apply broadly to people with any SMI. It was outside the scope of this project to conduct the full evidence review and testing necessary for this work. Further work is needed to consider whether measures similar to the ones developed and tested under this contract would be relevant for people with bipolar disorder and other SMI.

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APPENDIX A. MEASURE CONCEPTS FOR PATIENTS WITH SCHIZOPHRENIA

Overview

The process for identifying the measure concepts included a review of the clinical literature by ASPE, an environmental scan of treatment measure guidelines and existing measures by NCQA, and consultations with Drs. Julie Kreyenbuhl and Lisa Dixon of the Schizophrenia PORT group at the University of Maryland Medical School.

The measure concepts outlined below cover each of the three treatment domains (pharmacotherapy, psychosocial treatment, physical health).The measures that will be tested and ultimately submitted for NQF endorsement evaluate the ambulatory care population and utilize Medicaid claims/encounter data. The measures are to be reported by Medicaid plans (health maintenance organization [HMO] or FFS).

TABLE A.1. Measure Concept: Use of Antipsychotic Medications for Treatment of Schizophrenia	
Measure Intent/Focus	To determine whether patients have access to pharmacotherapy.
Eligible Population	Patients with schizophrenia.
Numerator	Patients with schizophrenia who were prescribed any antipsychotic medication.
Evidence Supporting the Measure	Antipsychotic medications represent the cornerstone of pharmacological treatment for patients with schizophrenia. These agents have been shown to improve psychopathology, reduce, relapse, and improve functioning (DSM-IV-TR). A systematic review by Dixon, Lehman & Levine (1995) found that antipsychotic medications that were developed and widely available prior to 1990 (first-generation antipsychotics) are efficacious in controlling the positive symptoms of schizophrenia and reduced its morbidity and mortality. Subsequent efficacy and effectiveness studies, such as the CATIE and CUTlASS studies, have focused on the comparative effectiveness of first and second-generation antipsychotics (Lieberman et al. 2005; Jones et al. 2006). Although there is evidence on use of antipsychotic medications for all mental health conditions, we found no epidemiological evidence on rates of antipsychotic use for adult patients with schizophrenia. There is some limited indication of usage in the elderly gleaned from individual studies using MEPS data (Jano et al. 2008) and for adults in Florida Medicaid (Busch et al. 2009): "Rates of antipsychotic prescribing increased and also were higher in maintenance phase (acute 53%-63%; maintenance 65%-74%)" after transition to managed care.
Type of Evidence Supporting the Measure	☐ RCT/Experimental designs ☒ Observational studies ☒ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☒ Guideline
Guideline	American Psychiatric Association treatment guideline (2004). National Collaborating Centre for Mental Health of the National Institute for Health and Clinical Excellence (NICE; UK) (2009).
Measure Consolidations/ Limitations	Currently, there is an NQF-endorsed measure that measures antipsychotic medication use and adherence. If we decide to move forward with this measure, NQF expects that we will work with the organization to harmonize our measures. If collaboration does not happen, we will need to explain to NQF the process we went through to try to harmonize the measures.

References	American Psychiatric Association (2004). Practice Guideline for the Treatment of Patients with Schizophrenia. 2nd ed. Arlington, VA: American Psychiatric Association. Page 114. Ascher-Svanum, H. et al. (2010). “The cost of relapse and the predictors of relapse in the treatment of schizophrenia”. *BMC Psychiatry*, 10: 2. Busch, A.B., Lehman, A.F., Goldman, H. & Frank, R.G. (2009). “Changes over time and disparities in schizophrenia treatment quality.” *Medical Care, 47*(2), 199-207. Dixon, L.B., Lehman, A.F. & Levine, J. (1995). ”Conventional antipsychotic medications for schizophrenia.” *Schizophrenia Bulletin*, 21(4): 567-577. Olfson, M., Hansell, S. & Boyer, C.A. (1997). “Medication noncompliance.” *New Dir Ment Health Serv*, (73): 39-49. Masand, P.S., Roca, M., Turner, M.S. & Kane, J.M. (2009). “Partial adherence to antipsychotic medication impacts the course of illness in patients with schizophrenia: A review.” *Prim Care Companion J Clin Psychiatry*, 11(4): 147-154. National Collaborating Centre for Mental Health (2009). Schizophrenia: Core Interventions in the Treatment and Management of Schizophrenia in Adults in Primary and Secondary Care. London (UK): National Institute for Health and Clinical Excellence (NICE). Page 41. Weiden, P.J. & Olfson, M. (1995). “Cost of relapse in schizophrenia.” *Schizophrenia Bulletin*, 21(3): 419-429.

TABLE A.2. Measure Concept: Continuity of Antipsychotic Medication	
Measure Intent/Focus	To determine whether patients have continuous access to antipsychotic medications during the year.
Eligible Population	Option 1 (Medication possession ratio) Number of days in measurement year with an active schizophrenia diagnosis.[a] Option 2 (Gap rate) Number of patients with an antipsychotic prescription.
Numerator	Option 1 (Medication possession ratio) Number of days filled. Option 2 (Gap rate) Number of patients with a gap in prescription fills.
Evidence Supporting the Measure	Non-adherence to treatment with antipsychotics is common, and medication non-adherence is a significant cause of relapse (Olfson, Hansell & Boyer 1997; Ascher-Svanum et al. 2010). Moreover, the relapse rate rises from 3.5% per month to 11.0% per month when antipsychotic medication is experimentally withdrawn (Weiden & Oflson 1995). There is some experimental evidence that failure to receive antipsychotics will result in greater relapse (Weiden & Oflson 1995), but we could find no experimental evidence to document subsequent harms. Understanding adherence patterns is important, as non-adherence to medication regimens increases treatment costs and the likelihood for patients to relapse. Costs for patients with prior relapse are about 3 times the costs for patients without prior relapse and include costs for outpatient services and medication. Patients with prior relapse were younger and had onset of illness at earlier ages, poorer medication adherence, more severe symptoms, a higher prevalence of substance use disorder, and worse functional status. (Ascher-Svanum et al. 2010) Similar patterns have been found in Medicaid data. Only 41% of Medicaid beneficiaries with schizophrenia were adherent to treatment with their antipsychotic medications; and, rates of medical hospitalization were lower for those who were adherent (7%) than for those who were non-adherent (13%) (Gilmer et al. 2004).Those who were adherent had significantly lower hospital costs (Gilmer et al. 2004). In a Maine Medicaid study, prescription discontinuities resulted in hospital costs that exceeded the cost savings associated with reduced prescription filling (Soumerai et al. 2008). For the gap in prescription fills concept, there is no evidence for a particular standard. One example using Florida Medicaid data used 30 days (Busch et al. 2009).
Type of Evidence Supporting the Measure	☐ RCT/Experimental designs ☒ Observational studies ☐ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☐ Guideline
Guideline	None

Measure Consolidations/ Limitations	When using administrative data, measurement is restricted to what can be observed, which for pharmacy utilization is the filling and payment of prescriptions. Thus, filling of prescriptions is a proxy for the concept of medication adherence. Currently there is an NQF-endorsed measure of medication use and adherence. If we decide to move forward with this measure, NQF expects that we will work with the organization to harmonize our measures. If collaboration does not happen, we will need to explain to NQF the process we went through to try to harmonize the measures.
References	Ascher-Svanum, H., et al. (2010). "The cost of relapse and the predictors of relapse in the treatment of schizophrenia". *BMC Psychiatry*, 10: 2. Busch, A.B., Lehman, A.F., Goldman, H. & Frank, R.G. (2009). "Changes over time and disparities in schizophrenia treatment quality." *Medical Care, 47*(2), 199-207. Dixon, L.B., Lehman, A.F. & Levine, J. (1995). "Conventional antipsychotic medications for schizophrenia." *Schizophrenia Bulletin*, 21(4): 567-577. Gilmer, T.P. et al. (2004). "Adherence to treatment with antipsychotic medication and health care costs among Medicaid beneficiaries with schizophrenia." *Am J Psychiatry*, 161(4): 692-699. Law, M.R., Soumerai, S.B., Ross-Degnan, D. & Adams, A.S. (2008). "A longitudinal study of medication nonadherence and hospitalization risk in schizophrenia." *J Clin Psychiatry*, 69(1): 47-53. Olfson, M., Hansell, S. & Boyer, C.A. (1997). "Medication noncompliance." *New Dir Ment Health Serv*, (73): 39-49. Masand, P.S., Roca, M., Turner, M.S. & Kane, J.M. (2009). "Partial adherence to antipsychotic medication impacts the course of illness in patients with schizophrenia: A review." *Prim Care Companion J Clin Psychiatry*, 11(4): 147-154. Soumerai, S.B. et al. (2008). "Use of atypical antipsychotic drugs for schizophrenia in Maine Medicaid following a policy change." *Health Aff (Millwood)*, 27(3): w185-195. Weiden, P.J. & Olfson, M. (1995). "Cost of relapse in schizophrenia." *Schizophrenia Bulletin*, 21(3): 419-429.
a. For somebody enrolled for the entire year with indication of schizophrenia that applies for the whole year, this would be 365. For somebody enrolled for part of the year, this would be the number of days enrolled and has indication of schizophrenia.	

TABLE A.3. Measure Concept: Use of Clozapine in Treatment Resistant Patients	
Measure Intent/Focus	To assess the extent to which patients are prescribed clozapine following failure of prior antipsychotic treatment.
Eligible Population	Treatment-resistant patients with schizophrenia.
Numerator	Treatment-resistant patients with schizophrenia who were prescribed clozapine.
Evidence Supporting the Measure	Treatment resistance may result in increased dosage of medications to achieve response or patient non-adherence and subsequent relapse. Excess dosing, particularly of second-generation antipsychotics may contribute to secondary health problems like metabolic syndrome (see physical health concepts below), while non-adherence and relapse result in worse patient outcomes and higher costs (see continuity concept above). Since the 2003 PORT guidelines, 12 new studies have provided evidence consistent with previous findings that clozapine is effective in people who have not responded to treatment with first-generation antipsychotics (Lehman & Steinwachs 1998; Lehman et al. 2004; Buchanan et al. 2010). The CATIE and CUTlASS trials also found that clozapine is more effective than other second-generation antipsychotics in improving symptoms in people who have failed to respond to a first-generation antipsychotic or second-generation antipsychotic (McEvoy et al. 2006; Lewis et al. 2006). The recommendations for use of clozapine are supported by a systematic review (Buchanan et al. 2010) and 2 sets of clinical guidelines. The APA treatment guidelines rated the clinical evidence as Level I (strong clinical evidence) for clozapine's effectiveness over other medications after no/partial/sub-optimal response to two trials of antipsychotic medication and Level II (moderate clinical confidence) for using a 4-6 week trial as evidence of treatment resistance.
Type of Evidence Supporting the Measure	☒ RCT/Experimental designs ☐ Observational studies ☒ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☒ Guideline
Guideline	American Psychiatric Association treatment guideline (2004). National Collaborating Centre for Mental Health of the National Institute for Health and Clinical Excellence (NICE; UK) (2009).
Measure Consolidations/ Limitations	How is treatment resistance or failure to respond to other antipsychotic medications determined in claims data? Kane (1996) specified a set of criteria for treatment resistance that would be challenging to specify: – available medications and other treatments are not useful in alleviating the target symptoms of schizophrenia (not only the positive and negative symptoms, but also disorganized or violent/aggressive behavior, thought disorder and suicidal ideation); – occurrence of adverse side effects of medication; – non-adherence to current treatment; – presence of comorbid conditions such as substance misuse; failure of maintenance and relapse despite seemingly adequate doses of antipsychotics.

References	American Psychiatric Association (2004). Practice Guideline for the Treatment of Patients with Schizophrenia. 2nd ed. Arlington, VA: American Psychiatric Association. Page 114. Buchanan, R.W. et al. (2010). "The 2009 schizophrenia PORT psychopharmacological treatment recommendations and summary statements." *Schizophrenia Bulletin*, 36(1): 71-93. Kane, J.M. (1996). "Treatment-resistant schizophrenic patients." *J Clin Psychiatry*, 57 Suppl 9: 35-40. National Collaborating Centre for Mental Health (2009). Schizophrenia: Core Interventions in the Treatment and Management of Schizophrenia in Adults in Primary and Secondary Care. London (UK): National Institute for Health and Clinical Excellence (NICE). Page 41.

TABLE A.4. Measure Concept: Polypharmacy Treatment	
Measure Concept	Polypharmacy treatment.
Measure Intent/Focus	To determine simultaneous use of multiple antipsychotic medications, which may be harmful to patients.
Eligible Population	Patients with schizophrenia.
Numerator	Patients with schizophrenia who receive 3 or more antipsychotic medications (in a unit of time).
Evidence Supporting the Measure	If a patient is on an effective single antipsychotic medication, then multiple antipsychotic medications likely are not necessary and may expose the patient to side effects of the medication (e.g., weight gain). Some limited overlap in the course of 2 drugs may be expected to manage side effects of 1 of the antipsychotics (e.g., tardive dyskinesia, extrapyramidal side effects). However, expert opinion (Dixon & Kreyenbuhl, personal communication) suggests prescribing 3 or more such medications may indicate inappropriate quality of care. Kreyenbuhl et al. (2007) noted the problems of polypharmacy include drug interactions, adherence problems, costs, and potential for mortality impacts. Several RCTs show no difference between patients receiving polypharmacy--usually tested as clozapine as an adjunct to one other antipsychotic medication, usually risperidone--and patients who receive monotherapy (Honer et al. 2006; Anil Yagcioglu et al. 2005; Shiloh et al. 1997). At least 1 RCT found positive benefits of polypharmacy (Josiassen et al. 2005). A case control study by Centorrino and colleagues (2005) found negative effects of polypharmacy, but such effects likely reflect selection bias (assignment of polypharmacy based on perceived difficulty of case). We could find no predefined cut point for polypharmacy beyond 2 medications. Increasingly, people who have responded inadequately to antipsychotic monotherapy are being treated with multiple antipsychotics, but there is a limited amount of research focused on the effects of antipsychotic polypharmacy (Horovitz-Lennon et al. 2009). At this point, the data is inconclusive about the magnitude of polypharmacy as it relates to the quality of treatment provided to patients with schizophrenia: polypharmacy may indicate treatment resistance, or it may signal variation in treatment practices. RAND's VHA Mental Health Program Evaluation concluded that there was evidence to measure practice variation, but not quality of care.
Type of Evidence Supporting the Measure	☒ RCT/Experimental designs ☐ Observational studies ☐ Systematic literature reviews ☐ Meta-analyses ☒ Expert opinion ☐ Guideline
Guideline	None.
Measure Consolidations/ Limitations	The Joint Commission has a related measure for patients discharged from inpatient hospitalization, but it is not specific to patients with schizophrenia. This measure may require harmonization. If the evidence is limited to clozapine, then perhaps the concept should be restricted to polypharmacy with clozapine; however, it may be difficult to distinguish clozapine-related polypharmacy from using clozapine to address treatment resistance after failure of other antipsychotic medications.

References	Anil Yagcioglu, A.E. et al. (2005). “A double-blind controlled study of adjunctive treatment with risperidone in schizophrenic patients partially responsive to clozapine: Efficacy and safety.” *J Clin Psychiatry*, 66(1): 63-72. Centorrino, F. et al. (2004). “Multiple versus single antipsychotic agents for hospitalized psychiatric patients: Case-control study of risks versus benefits.” *Am J Psychiatry*, 161(4): 700-706. Honer, W.G. et al. (2006). “Clozapine alone versus clozapine and risperidone with refractory schizophrenia.” *N Engl J Med*, 354(5): 472-482. Horovistz-Lennon, M. et al. (2009). Veterans Health Administration Mental Health Program Evaluation Technical Manual. RAND Working Paper, 34. Josiassen, R.C. et al. (2005). “Clozapine augmented with risperidone in the treatment of schizophrenia: A randomized, double-blind, placebo-controlled trial.” *Am J Psychiatry*, 162(1): 130-136. Kreyenbuhl, J.A., Valenstein, M., McCarthy, J.F., Ganoczy, D. & Blow, F.C. (2007). “Long-term antipsychotic polypharmacy in the VA health system: Patient characteristics and treatment patterns.” *Psychiatr Serv*, 58(4): 489-495. Shiloh, R. et al. (1997). “Sulpiride augmentation in people with schizophrenia partially responsive to clozapine. A double-blind, placebo-controlled study.” *Br J Psychiatry*, 171: 569-573.

TABLE A.5. Measure Concept: Outpatient Follow-up After Mental Health Hospitalization	
Measure Intent/Focus	To ensure a stable transition to subsequent community treatment and to monitor medication adherence in order reduce risk of readmission.
Eligible Population	Patients with schizophrenia discharged from the hospital.
Numerator	Patients with schizophrenia discharged from the hospital who receive a follow-up visit within a specified time interval.
Evidence Supporting the Measure	There is evidence related to the importance of community support for patients with schizophrenia, particularly regarding adherence (see above on adherence and below on psychosocial treatment), but we found no evidence related to outpatient follow-up visit after hospitalization. NCQA has a measure of 7-day and 30-day follow-up after mental health hospitalization; however, this applies to all mental health disorders. There is little evidence to support either threshold or the clinical consequences of failure to receive follow-up within 7-day or 30-days for mental health disorders generally (HEDIS 2011). None were found for schizophrenia. The concept is supported by APA treatment guidelines, which rate the evidence as Level II (moderate clinical confidence).
Type of Evidence Supporting the Measure	☐ RCT/Experimental designs ☐ Observational studies ☐ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☒ Guideline
Guideline	American Psychiatric Association treatment guideline (2004).
Measure Consolidations/ Limitations	This measure may have to be harmonized with the NCQA measure. NQF may not consider the existing follow-up measure to be sufficient, particularly absent evidence for this specific population.
References	American Psychiatric Association (2004). Practice Guideline for the Treatment of Patients with Schizophrenia. 2nd ed. Arlington, VA: American Psychiatric Association. Page 114. National Committee for Quality Assurance (2010). HEDIS 2011: Healthcare Effectiveness Data and Information Set, Follow-Up after Hospitalization for Mental Illness. Page 186-187.

TABLE A.6. Measure Concept: Use of Assertive Community Treatment (ACT) Post-Hospitalization	
Measure Intent/Focus	To assess the number of patients who receive ACT post-hospitalization.
Eligible Population	Patients with schizophrenia who were discharged from an inpatient setting in the measurement year.
Numerator	Patients with schizophrenia who were recently discharged from an inpatient setting who receive ACT.
Evidence Supporting the Measure	Patients with schizophrenia who are at high risk for discontinuation of treatment or for repeated crises require an array of clinical, rehabilitation, and social services to address their needs. Coordination, integration and continuity of services among providers over time can be substantially enhanced through ACT. RCTs examining ACT have consistently found that it reduces rates of hospitalization, the number of days hospitalized, and homelessness compared to standard care (Bustillo et al. 2001; Coldwell & Bender 2007; Nelson, Aubry & Lafrance 2007; Bond et al. 1988; Burns & Santos 1995), and results in the use of fewer emergency and more outpatient services (Lehman et al. 1997; Lehman et al. 1999; Scott & Dixon 1995b; Morse et al. 1992). Dixon and colleagues' (2010) review of RCTs of ACT support these findings. Some studies have also found that ACT is associated with decreased symptoms (Stein & Test 1980; Morse et al. 1997), increased medication adherence (Stein & Test 1980), more days in stable community housing (Nelson, Aubry & Lafrance 2007), Programs with greater fidelity to the ACT model and targeted to individuals at high risk of hospitalization are generally more successful (Burns et al. 2007; Latimer 1999). ACT has also been used as a model for integrated treatment of individuals with both SMI and substance use disorders. While one study found that this intervention decreased substance use (Drake et al. 1998), two others found no effect on substance use specifically (Morse et al. 2006; Essock et al. 2006), but did find reduced hospitalizations and more days in stable housing relative to standard care.
Type of Evidence Supporting the Measure	☒ RCT/Experimental designs ☐ Observational studies ☒ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☐ Guideline
Guideline	None.
Measure Consolidations/ Limitations	Is ACT identified consistently in claims data? Are there multiple state-specific codes for community treatment?
References	Bond, G.R. (1988). "Assertive case management in three CMHCs: A controlled study." *Hosp Community Psychiatry*, 39: 411-418. Burns, T. et al. (2007). "Use of intensive case management to reduce time in hospital in people with severe mental illness: Systematic review and meta-regression." *BMJ*, 335: 336. Bustillo, J. et al. (2001). "The psychosocial treatment of schizophrenia: An update." *Am J Psychiatry*, 158: 163-175.

References (*continued*)	Chandler, D. et al. (1997). "A capitated model for a cross-section of severely mentally ill clients: Employment outcomes." *Community Ment Health J*, 33: 501-516. Chandler, D. (1999). "Cost-effectiveness of a capitated assertive community treatment program." *Psychiatr Rehabil J*, 22: 327-336. Coldwell, C.M. & Bender, W.S. (2007). "The effectiveness of assertive community treatment for homeless populations with severe mental illness: A meta-analysis." *Am J Psychiatry*, 164: 393-399. Dixon, L.B. et al. (2010). "The 2009 Schizophrenia PORT psychosocial treatment recommendations and summary statements." *Schizophrenia Bulletin*, 36(1): 48-70. Drake, R.E. et al. (1998). "Assertive community treatment for patients with co-occurring severe mental illness and substance use disorder: A clinical trial." *Am J Orthopsychiatry*, 68: 201-215. Essock, S.M. et al. (2006). "Comparison of ACT and standard case management for delivering integrated treatment for co-occurring disorders." *Psychiatr Serv*, 57: 185-196. Fiander, M. et al. (2003). "Assertive community treatment across the Atlantic: Comparison of model fidelity in the UK and USA." *Br J Psychiatry*, 182: 248-254. King, R. (2006). "Intensive case management: A critical re-appraisal of the scientific evidence for effectiveness." *Adm Policy Ment Health*, 33: 529-535. Latimer, E.A. (1999). "Economic impacts of assertive community treatment: A review of the literature." *Can J Psychiatry*, 44: 443-454. Lehman, A.F. et al. (1997). "A randomized trial of assertive community treatment for homeless persons with severe mental illness." *Archives of General Psychiatry*, 54: 1038-1043. Lehman, A.F. et al. (1999). "Cost-effectiveness of assertive community treatment for homeless persons with severe mental illness." *Br J Psychiatry*, 174: 346-352. Morse, G.A. et al. (1992). "Experimental comparison of the effects of three treatment programs for homeless mentally ill people." *Hosp Community Psychiatry*, 43: 1005-1010. Morse, G.A. et al. (1997). "An experimental comparison of three types of case management for homeless mentally ill persons." *Psychiatr Serv*, 48: 497-503. Morse, G.A. et al. (2006). "Treating homeless clients with severe mental illness and substance use disorders: Costs and outcomes." *Community Ment Health J*, 42: 377-404. Nelson, G., Aubry, T. & Lafrance, A. (2007). "A review of the literature on the effectiveness of housing and support, assertive community treatment, and intensive case management interventions for persons with mental illness who have been homeless." *Am J Orthopsychiatry*, 77: 350-361. Scott, J.E. & Dixon, L.B. (1995b). "Assertive community treatment and case management for schizophrenia." *Schizophrenia Bulletin*, 21: 657-668.

References (*continued*)	Stein, L.I. & Test, M.A. (1980). "Alternative to mental hospital treatment. I. Conceptual model, treatment program, and clinical evaluation." *Archives of General Psychiatry*, 37: 392-397. Ziguras, S.J. & Stuart, G.W. (2000). "A meta-analysis of the effectiveness of mental health case management over 20 years." *Psychiatr Serv*, 51(11): 1410-1421.

TABLE A.7. Measure Concept: Use of Case Management	
Measure Intent/Focus	To assess whether patients in treatment for schizophrenia receive case management services.
Eligible Population	Patients with schizophrenia who were discharged from an inpatient setting in the measurement year.
Numerator	Patients with schizophrenia who were recently discharged from an inpatient setting who received case management during the measurement year.
Evidence Supporting the Measure	A meta-analysis of mental health case management concluded that clinical case management is generally effective in improving outcomes from mental health services, as measured by clients' level of social functioning, symptoms, client and family satisfaction, and family burden of care (Ziguras & Stuart 2000). However, this review did not separately analyze effectiveness for patients with schizophrenia. A primary finding was that case management resulted in more hospitalizations, but for shorter lengths of stay, with net fewer hospital days per year. The authors also note that ACT is superior to clinical case management in reducing hospitalization, even if ACT and case management have similar effects on symptoms, satisfaction, and social functioning (Ziguras & Stuart 2000).
Type of Evidence Supporting the Measure	☐ RCT/Experimental designs ☐ Observational studies ☐ Systematic literature reviews ☒ Meta-analyses ☐ Expert opinion ☐ Guideline
Guideline	None.
Measure Consolidations/ Limitations	Should this be for all patients with schizophrenia or just those who recently discharged from a hospital stay?
References	Ziguras, S.J. & Stuart, G.W. (2000). "A meta-analysis of the effectiveness of mental health case management over 20 years." *Psychiatr Serv*, 51(11): 1410-1421.

TABLE A.8. Measure Concept: Use of Family Therapy	
Measure Concept	Use of family therapy.
Measure Intent/Focus	To assess whether people with schizophrenia receive treatment that includes their family members.
Eligible Population	Patients with schizophrenia.
Numerator	Patients with schizophrenia who have a minimum number of visits for family therapy during the measurement year.
Evidence Supporting the Measure	Family interventions for individuals with schizophrenia may reduce the likelihood of relapse for the individual or reduce family members' stress. A meta-analysis conducted by Pilling et al. (2002) highlights the benefits of family interventions over other treatments such as basic pharmacology in reducing relapses, readmissions to hospital, and symptoms. Among patients with a recent illness exacerbation, family psychoeducation interventions that are 6-9 months or longer significantly reduce rates of relapse and re-hospitalization, improve treatment adherence, lower stress and improve vocational outcomes among patients (Pfammatter, Junghan & Brenner 2006; Xiong et al. 1994; Mari & Streiner 1994; Pilling et al. 2002; Pitschel-Walz et al. 2001; Falloon et al. 1985; Mueser et al. 2001). Evidence of the effectiveness of a 6-9 month intervention for patients who have not had a recent illness exacerbation is weaker (Dyck et al. 2000; Magliano et al. 2006; Hazel et al. 2004; Dyck et al. 2002), but was still sufficient to support a recommendation of 6-9 months of family psychoeducation for stable patients (Dixon et al. 2010). Family psychoeducation interventions shorter than 6 months, but a minimum of 4 sessions, have been found to improve family and patient outcomes among both stable patients and patients who have had a recent relapse (Posner et al. 1992; Spiegel & Wissler 1987; Merinder et al. 1999; Pitschel-Walz et al. 2006). While not all shorter interventions have been found to be effective, most evidence supports the benefits of this treatment, particularly for family members (Vaughan et al. 1992). In a RCT, Barrowclough and colleagues (2001) found that using cognitive behavioral therapy and motivational interviewing in family treatment of patients with co-occurring schizophrenia and substance use disorders showed significantly greater improvement in patients' general functioning and the number of days they were abstinent from substances (Barrowclough et al. 2001).
Type of Evidence Supporting the Measure	☐ RCT/Experimental designs ☒ Observational studies ☒ Systematic literature reviews ☒ Meta-analyses ☐ Expert opinion ☐ Guideline
Guideline	None.
Measure Consolidations/ Limitations	Currently, it is not possible to identify patients who do not have family members, who refuse to consent to family participation, and whose families refuse participation in treatment using claims data. This may be possible in the future through G-codes. The evidence suggests that a minimum of 4 family therapy visits is necessary to be effective; however, receiving even 1 family therapy visit may be too high for some programs to reach.

References	Barrowclough, C. et al. (2001). "Randomized controlled trial of motivational interviewing, cognitive behavior therapy, and family intervention for patients with comorbid schizophrenia and substance use disorders." *Am J Psychiatry*, 158: 1706-1713. Dixon, L.B. et al. (2010). "The 2009 Schizophrenia PORT psychosocial treatment recommendations and summary statements." *Schizophrenia Bulletin*, 36(1): 48-70. Dyck, D.G. et al. (2000). "Management of negative symptoms among patients with schizophrenia attending multiple-family groups." *Psychiatr Serv*, 51: 513-519. Dyck, D.G. et al. (2002). "Service use among patients with schizophrenia in psychoeducational multiple-family group treatment." *Psychiatr Serv*, 53: 749-754. Falloon, I.R. et al. (1985). "Family management in the prevention of morbidity of schizophrenia. Clinical outcome of a two-year longitudinal study." *Archives of General Psychiatry*, 42: 887-896. Hazel, N.A. et al. (2004). "Impact of multiple-family groups for outpatients with schizophrenia on caregivers' distress and resources." *Psychiatr Serv*, 55: 35-41. Magliano, L. et al. (2006). "Patient functioning and family burden in a controlled, real-world trial of family psychoeducation for schizophrenia." *Psychiatr Serv*, 57: 1784-1791. Mari, J.J. & Streiner, D.L. (1994). "An overview of family interventions and relapse on schizophrenia: Meta-analysis of research findings." *Psychol Med*, 24: 565-578. Mueser, K.T. et al. (2001). "Family treatment and medication dosage reduction in schizophrenia: Effects on patient social functioning, family attitudes, and burden." *J Consult Clin Psychol*, 69: 3-12. Pfammatter, M., Junghan, U.M. & Brenner H.D. (2006). "Efficacy of psychological therapy in schizophrenia: Conclusions from meta-analyses." *Schizophrenia Bulletin*, 32(Suppl 1): S64-S80. Pilling, S. et al. (2002). "Psychological treatments in schizophrenia: I. Meta-analysis of family intervention and cognitive behaviour therapy." *Psychol Med*, 32: 763-782. Posner, C.M. et al. (1992). "Family psychoeducational support groups in schizophrenia." *Am J Orthopsychiatry*, 62: 206-218. Pitschel-Walz, G. et al. (2006). "Psychoeducation and compliance in the treatment of schizophrenia: Results of the Munich Psychosis Information Project Study." *J Clin Psychiatry*, 67: 443-452. Sellwood, W. et al. (2001). "Needs-based cognitive-behavioural family intervention for carers of patients suffering from schizophrenia: 12-month follow-up." *Acta Psychiatr Scand*, 104: 346-355.

References (*continued*)	Vaughan, K. et al. (1992). "The Sydney intervention trial: A controlled trial of relatives' counseling to reduce schizophrenic relapse." *Soc Psychiatry Psychiatr Epidemiol*, 27: 16-21. Xiong, W. et al. (1994). "Family-based intervention for schizophrenic patients in China. A randomised controlled trial." *Br J Psychiatry*, 165: 239-247.

TABLE A.9. Measure Concept: Use of Supported Employment	
Measure Concept	Use of supported employment.
Measure Intent/Focus	To assess whether people with schizophrenia received or were offered supported employment.
Eligible Population	People with schizophrenia.
Numerator	People with schizophrenia who received or were offered supported employment during the measurement year.
Evidence Supporting the Measure	Employment is an important goal for some patients with schizophrenia, indicating improved social and economic functioning. The most empirically validated approach to vocational rehabilitation is supported employment combined with skills training. A number of RCTs have consistently found that supported employment is effective in helping people with schizophrenia to obtain competitive employment, work more hours and earn higher wages, and does not lead to negative clinical outcomes (Chandler et al. 1997; Drake et al. 1994, 1996; Bond et al. 1995; Drake et al. 1999; Lehman et al. 2002; Cook et al. 2005). It is therefore recommended for any person with schizophrenia who wishes to work. Greater fidelity to the supported employment model yields better employment outcomes (Becker et al. 2001, 2006; Catty et al. 2008), as does increased integration of mental health and vocational services (Cook et al. 2005). The individual effectiveness of other elements of the supported employment model is not known (Dixon et al. 2010). Overall, supported employment has been shown to improve the employment outcomes of persons with severe mental illness, although many clients who receive this service still fail to achieve their vocational goals (McGurk & Mueser 2004). A limitation of the evidence is that it has not been demonstrated that supported employment positively influences long-term job retention and economic independence (Lehman et al. 2002; Gold et al. 2006; Cook et al. 2005).
Type of Evidence Supporting the Measure	☒ RCT/Experimental designs ☐ Observational studies ☒ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☐ Guideline
Guideline	None.
Measure Consolidations/ Limitations	It may be difficult to distinguish supported employment from traditional vocational rehabilitation in service codes in administrative data. Would this measure be acceptable if it were applied to all patients with schizophrenia? Claims data will not identify employment as a goal and may not identify offers of supported employment. Perhaps this may be possible in the future through G-codes.

References	Chandler, D. et al. (1997). “A capitated model for a cross-section of severely mentally ill clients: Employment outcomes.” *Community Ment Health J*, 33: 501-516. Cook, J.A. et al. (2005). “Integration of psychiatric and vocational services: A multisite randomized, controlled trial of supported employment.” *Am J Psychiatry*, 162: 1948-1956. Dixon, L.B. et al. (2010). “The 2009 Schizophrenia PORT psychosocial treatment recommendations and summary statements.” *Schizophrenia Bulletin*, 36(1): 48-70. Drake, R.E. et al. (1994). “Rehabilitative day treatment vs. supported employment: I. Vocational outcomes.” *Community Ment Health J*, 30: 519-532. Drake, R.E. et al. (1999). “A randomized clinical trial of supported employment for inner-city patients with severe mental disorders.” *Archives of General Psychiatry*, 56: 627-633. Gold, P.B. et al. (2006). “Randomized trial of supported employment integrated with assertive community treatment for rural adults with severe mental illness.” *Schizophrenia Bulletin*, 32: 378-395. Lehman, A.F. et al. (2002). “Improving employment outcomes for persons with severe mental illnesses.” *Archives of General Psychiatry*, 59: 165-172. McGurk S.R., & Mueser K.T. (2004). “Cognitive functioning, symptoms, and work in supported employment: A review and heuristic model. *Schizophrenia Research*, 70(2-3): 147-173. Review. PubMed PMID: 15329293.

TABLE A.10. Measure Concept: Use of Any Psychosocial Treatment	
Measure Concept	Use of any psychosocial treatment.
Measure Intent/Focus	To assess whether patients with schizophrenia receive specialty mental health treatments, including ACT, individual, group or family therapy intervention.[a]
Eligible Population	Patients with schizophrenia.
Numerator	Patients with schizophrenia who received psychosocial treatment during the measurement year.
Evidence Supporting the Measure	Management of symptoms of schizophrenia cannot usually be addressed solely through pharmacotherapy. Psychosocial treatments focuses on addressing the impact of schizophrenia on an individual in the forms of isolation from families and friends; damage to social and working relationships; depression and demoralization; and an increased risk of self-harm, aggression, and substance abuse. Persistent symptoms that remain after the early recovery phase are an additional problem and add to the already disrupted developmental trajectory, particularly for young people who are experiencing their first episode of psychosis (Addington et al. 2010). Psychosocial interventions have a very important place in the treatment of schizophrenia. In fact, most schizophrenia treatment guidelines now have specific recommendations about including psychosocial and psychological interventions (Addington et al. 2010; APA 2004). APA rates the evidence as Level I (recommended with substantial clinical confidence) and II (moderate clinical confidence) for both acute phase and stabilization phase patients. Supporting evidence is based on the effectiveness of ACT and family therapy in particular (see concepts above). However, we found no evidence that a combined measure is indicative of improved outcomes. Busch and colleagues have used such a measure though to rate quality of care for patients with schizophrenia in a state Medicaid program, and performance was low (Busch et al. 2004).
Type of Evidence Supporting the Measure	☒ RCT/Experimental designs ☒ Observational studies ☒ Systematic literature reviews ☒ Meta-analyses ☐ Expert opinion ☒ Guideline
Guideline	American Psychiatric Association treatment guideline (2004).
Measure Consolidations/ Limitations	This measure may prove similar to the measure concept below for combined medication and psychosocial treatment: if we use medications to identify the patients with schizophrenia, then the denominators will be the same.
References	American Psychiatric Association (2004). Practice Guideline for the Treatment of Patients with Schizophrenia. 2nd ed. Arlington, VA: American Psychiatric Association. Page 114. Addington, J., Piskulic, D. & Marshell, C. (2010). "Psychosocial treatments for Schizophrenia." *Current Directions in Psychological Science*, 19: 260. Busch, A.B., Frank, R.G. & Lehman, A.F. (2004). "The effect of a managed behavioral health carve-out on quality of care for Medicaid patients diagnosed as having schizophrenia." *Archives of General Psychiatry*, 61(5): 442-448.
a. The measure would assess whether a patient with schizophrenia received any of each of these kinds of services; it would not necessarily report separate rates for each type of services.	

TABLE A.11. Measure Concept: use of Combination Antipsychotic Medication and Psychosocial	
Measure Intent/Focus	To assess whether people with schizophrenia receive antipsychotic medications and psychosocial treatment.
Eligible Population	Patients with schizophrenia.
Numerator	Patients with schizophrenia receiving both medication and psychosocial treatment during the measurement year.
Evidence Supporting the Measure	A number of pharmacological and psychosocial interventions are effective in reducing symptoms and improving the quality of life for people with schizophrenia. According to the APA, treatment programs need to combine medications with a range of psychosocial services to reduce the need for crisis-oriented hospitalizations and ED visits and to effect better recovery. The combination of medication treatment and psychosocial treatment can improve not only the symptoms of the illness but also the overall impact of the illness on an individual (Addington et al. 2010). Despite these findings, there are a number of studies that show that people with schizophrenia often do not receive these recommended treatments and thus receive poor quality care overall (Lehman, Steinwachs & PORT Co-Investigators 1998; Dickey et al. 2003; Young et al. 1998; Busch, Frank & Lehman 2004; Leslie & Rosenheck 2001). The components of this concept (psychosocial treatment and pharmacotherapy) are supported by clinical guidelines. The APA rated the evidence at Level I (substantial clinical confidence) for the combination of medications with psychosocial services; NICE guidelines recommend the use of pharmacological therapy in conjunction with psychosocial therapy but did not include a rating of the evidence.
Type of Evidence Supporting the Measure	☒ RCT/Experimental designs ☒ Observational studies ☒ Systematic literature reviews ☒ Meta-analyses ☐ Expert opinion ☒ Guideline
Guideline	American Psychiatric Association treatment guideline (2004). National Collaborating Centre for Mental Health of the National Institute for Health and Clinical Excellence (NICE; UK) (2009).
Measure Consolidations/ Limitations	This measure may prove similar to the concept above for any psychosocial treatment: if we use medications to identify patients with schizophrenia, then the denominators will be the same.

References	American Psychiatric Association (2004). Practice Guideline for the Treatment of Patients with Schizophrenia. 2nd ed. Arlington, VA: American Psychiatric Association. Page 114. Addington, J., Piskulic, D. & Marshell, C. (2010). "Psychosocial treatments for Schizophrenia." *Current Directions in Psychological Science*, 19: 260. Busch, A.B., Frank, R.G. & Lehman, A.F. (2004). "The effect of a managed behavioral health carve-out on quality of care for Medicaid patients diagnosed as having schizophrenia." *Archives of General Psychiatry*, 61(5): 442-448. Dickey, B. et al. (2003). "Guideline recommendations for treatment of schizophrenia." *Archives of General Psychiatry*, 60: 340-348. Lehman, A.F. et al. (2004). "The Schizophrenia Patient Outcomes Research Team (PORT): Updated treatment recommendations 2003." *Schizophrenia Bulletin*, 39: 193-217. Leslie, D.L. & Rosenheck, R.A. (2001). "Use of pharmacy data to access quality of pharmacotherapy for schizophrenia in a national health care system: Individual and facility predictors." *Medical Care*, 39: 923-933. Young, A.S. et al. (1998). "Measuring the quality of outpatient treatment for schizophrenia." *Archives of General Psychiatry*, 55(7): 611-617.

TABLE A.12. Measure Concept: Monitoring of Metabolic Conditions Among Patients Taking Antipsychotic Medications	
Measure Intent/Focus	To determine appropriate monitoring for complications and side effects of using antipsychotic medications, which are associated with risk of weight gain and associated disorders, including diabetes and cardiovascular disease.
Eligible Population	Patients with schizophrenia who have a prescription for an antipsychotic medication.
Numerator	Patients with schizophrenia who have a prescription for an antipsychotic medication who receive a screening for blood sugar, lipids, and/or blood pressure.
Evidence Supporting the Measure	Monitoring complications of antipsychotic medications is important because the use of these medications in people with schizophrenia results in higher incidences of metabolic diseases, such as diabetes, and cardiovascular concerns, such as hyperlipidemia. Diabetes mellitus occurs in schizophrenia patients at higher rates than in the general population (Nielsen, Skadhede & Correll 2010; Dixon et al. 2000). Metabolic syndrome risk is 42.6% for males and 48.5% for females, compared to rates in the general population of 24% for males and 23% for females (Cohn et al. 2004). These effects occur for both first-generation and some second-generation antipsychotic medications. Patients with schizophrenia are likely to have higher levels and receive less treatment for elevated blood cholesterol. Patients with schizophrenia and elevated blood cholesterol levels are prescribed statins at approximately 25% of the rate in the general population. Furthermore, some but not all atypical antipsychotic drugs increase total and low-density lipoprotein cholesterol as well as triglycerides and decrease high-density lipoprotein cholesterol, all of which increase risks of CHD (Henneksen et al. 2005). Among patients with co-occurring schizophrenia and metabolic disorders, rates of non-treatment for diabetes, hyperlipidemia and hypertension ranged from 30.2% for diabetes, to 62.4% for hypertension and 88.0% for dyslipidemia (CATIE trial: Nasrallah et al. 2006). Atypical antipsychotic medications elevate the risk of metabolic conditions relative to typical antipsychotic medications (Nasrallah 2008). In a study of VA patients with schizophrenia benefit from primary care, primary care offered a survival benefit among patients with diabetes (Copeland et al. 2009). This measure concept is supported by systematic literature reviews including the Consensus Development Conference (2004). The Mount Sinai Conference (Marder et al. 2004) rated the quality of evidence for an association between specific antipsychotics and risk for diabetes as Level 2 (cohort studies, outcomes research, etc.). For hyperlipdemia, the Mount Sinai Conference rated the "[q]uality of evidence for an association between specific antipsychotics and risk for hyperlidemia: level 2 [cohort studies, outcomes research, etc.]." NICE and the APA (Level II, moderate clinical confidence) likewise recommend such monitoring.

Type of Evidence Supporting the Measure	☐ RCT/Experimental designs ☒ Observational studies ☒ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☒ Guideline
Guideline	Consensus Development Conference on Antipsychotic Drugs and Obesity and Diabetes (2004). American Psychiatric Association treatment guideline (2004). National Collaborating Centre for Mental Health of the National Institute for Health and Clinical Excellence (NICE; UK) (2009).
Measure Consolidations/ Limitations	Should hypertension be a component in the metabolic screening measure concept? Also should this measure create one overall rate or should there be separate rates in addition to the overall rate? Appropriate screening frequency will need to be taken into account for each condition.
References	Cohn, T., Prud'homme, D., Streiner, D., Kameh, H. & Remington, G. (2004). "Characterizing coronary heart disease risk in chronic schizophrenia: High prevalence of the metabolic syndrome." *Can J Psychiatry*, 49(11): 753-760. Consensus Development Conference on Antipsychotic Drugs and Obesity and Diabetes (2004). *Diabetes Care*, 27: 596. Henderson, D.C. (2002). "Atypical antipsychotic-induced diabetes mellitus: How strong is the evidence?" *CNS Drugs*, 16(2): 77-89. Marder, S.R. et al. (2004). "Physical health monitoring of patients with schizophrenia." *Am J Psychiatry*, 161(8): 1334-1349. Nasrallah, H.A. (2008). "Atypical antipsychotic-induced metabolic side effects: Insights from receptor-binding profiles." *Mol Psychiatry*, 13(1): 27-35. Nasrallah, H.A. et al. (2006). "Low rates of treatment for hypertension, dyslipidemia and diabetes in schizophrenia: Data from the CATIE schizophrenia trial sample at baseline." *Schizophr Res*, 86(1-3): 15-22. Nielsen, J., Skadhede, S. & Correll, C.U. (2010). "Antipsychotics associated with the development of type 2 diabetes in antipsychotic-naive schizophrenia patients." *Neuropsychopharmacology*, 35(9): 1997-2004.

TABLE A.13. Measure Concept: Weight Assessment and Counseling Among Patients with Schizophrenia who are Taking Antipsychotics	
Measure Intent/Focus	To address weight gain as a side effect of antipsychotic medications.
Eligible Population	Patients with schizophrenia who have a prescription for an antipsychotic medication.
Numerator	Patients with schizophrenia who have a prescription for an antipsychotic medication, and who have evidence of weight assessment or counseling.
Evidence Supporting the Measure	Patients with schizophrenia have higher rates of obesity (Body Mass Index [BMI]>27) than the general population (42% v. 27%, respectively) (Allison et al. 1999), and multiple studies document effect of antipsychotics on weight gain (Allison et al. 1999; Wirshing et al. 1999; Allison et al. 2001; Volavka et al. 2002; Azorin et al. 2001; Bustillo et al. 1996). The Mount Sinai Conference (Marder et al. 2004) rated the quality of evidence of antipsychotics effect on weight at Level 1 (clear evidence from multiple RCTs). Modest weight loss has been associated with health benefits in the general population, including improved cardiovascular health among individuals who are overweight or obese according to the National Institutes of Health Clinical Guidelines (Dixon et al. 2010). The Schizophrenia PORT 2009 review included 7 randomized controlled investigations targeting weight loss among individuals with schizophrenia spectrum disorders. All 7 studies found support for greater weight loss (specifically 1-9 lbs; mean weight loss of 5.8 lbs across all 7 studies) among individuals who received the psychosocial intervention relative to those in the control condition (Dixon et al. 2010). The Schizophrenia PORT 2009 found further support for behavioral or psychoeducation-based interventions to promote modest weight loss among individuals with schizophrenia who are overweight or have recently experienced antipsychotic-related weight gain (Dixon et al. 2010).
Type of Evidence Supporting the Measure	☒ RCT/Experimental designs ☐ Observational studies ☒ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☒ Guideline
Guideline	National Collaborating Centre for Mental Health of the National Institute for Health and Clinical Excellence (NICE; UK) (2009).
Measure Consolidations/ Limitations	Should the eligible population include all antipsychotics or just second-generation/atypical medications? Should we have separate rates for the different medication types (i.e., first-generation, second-generation and atypical)? It is possible that claims data may not identify overweight patients or nutrition counseling? In the future G-codes may be used to identify nutrition counseling. Appropriate screening frequency will need to be taken into account for each medication, specifically how long should a patient with schizophrenia be on a medication before getting screened?

References	Allison, D.B. & Casey, D.E. (2001). “Antipsychotic-induced weight gain: A review of the literature.” *J Clin Psychiatry*, 62(Suppl 7) : 22-31. Allison, D.B. et al. (1999). “The distribution of body mass index among individuals with and without schizophrenia.” *J Clin Psychiatry*, 60(4) : 215-220. Azorin, J.M. et al. (2001). “A double-blind comparative study of clozapine and risperidone in the management of severe chronic schizophrenia.” *Am J Psychiatry*, 158(8): 1305-1313. Bustillo, J.R., Buchanan, R.W., Irish, D. & Breier, A. (1996). “Differential effect of clozapine on weight: A controlled study.” *Am J Psychiatry*, 153(6): 817-819. Dixon, L.B. et al. (2010). “The 2009 Schizophrenia PORT psychosocial treatment recommendations and summary statements.” *Schizophrenia Bulletin*, 36(1): 48-70. Marder, S.R. et al. (2004). “Physical health monitoring of patients with schizophrenia.” *Am J Psychiatry*, 161(8): 1334-1349. Volavka, J. et al. (2002). “Clozapine, olanzapine, risperidone, and haloperidol in the treatment of patients with chronic schizophrenia and schizoaffective disorder.” *Am J Psychiatry*, 159(2): 255-262. Wirshing, D.A. et al. (1999). “Novel antipsychotics: comparison of weight gain liabilities.” *J Clin Psychiatry*, 60(6): 358-363.

TABLE A.14. Measure Concept: Appropriate Health Maintenance and Prevention	
Measure Intent/Focus	To address physical health problems of patients with schizophrenia.
Eligible Population	Patients with schizophrenia.
Numerator	Patients with schizophrenia who receive a blood pressure screening, flu shot, mammogram, pap smear, and colorectal cancer screening.
Evidence Supporting the Measure	The conditions investigated here are based on an initial list from discussion with our experts. <u>Blood Pressure/Cardiovascular</u> Hypertension and cardiovascular conditions are common among patients with schizophrenia with consequences that include increased rates of morbidity and mortality (Hennekens et al. 2005). In the United States hypertension affects approximately 15% of the general population and perhaps 19% of patients with schizophrenia, in large measure because of obesity. Patients with schizophrenia tend to be more obese than the general population, exacerbated by the excessive weight gain that accompanies treatment with certain atypical antipsychotic drugs. In addition, among patients with schizophrenia, their high rates of non-compliance with antipsychotic medications imply similar poor compliance with drugs of proven benefit for the treatment of hypertension, hence making it difficult for their health care providers to achieve the Joint National Commission VII guidelines for treatment of hypertension (Hennekens et al. 2005). <u>Flu</u> We found no evidence specific to this population. <u>Women's Health</u> General guidelines for women's health support screenings for various types of cancers, but recent studies have focused on the health needs of women with schizophrenia. Although most studies are plagued by methodological problems (Bushe et al. 2009), there is some observational evidence that women with schizophrenia are at particular risk for neglect of these needs (Linademer et al. 2006). Women with schizophrenia were less likely [than a community sample] to have received mammograms [68% v. 98%] or pelvic examinations and Pap tests [71% v. 96%] (Lindamer et al. 2003). Despite high rates of insurance (88%) and having a primary care provider (PCP) (91%), rates of pelvic exam (45.7%), Pap test (43.5%), and mammogram (41.3%) on the appropriate time interval were low; 1/3 received none of the screenings (Lindamer et al. 2006). Six of 13 studies report an increased or marginally increased incidence of breast cancer. These tend to be studies with more than 100 incident cases of breast cancer, greater than 100,000 person years follow-up and older populations (Bushe et al. 2009). <u>Colorectal Cancer Screening</u> The U.S. Preventive Services Task Force and Institute for Clinical Systems Improvement (ICSI) guidelines recommend colorectal cancer screening, but we found no evidence specific to this population.

Type of Evidence Supporting the Measure	☐ RCT/Experimental designs ☒ Observational studies ☒ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☒ Guideline
Guideline	None.
Measure Consolidations/ Limitations	This measure should either be stratified by gender or there should be separate measures by gender. Should hypertension be a component in the metabolic screening measure concept? Also should this measure create one overall rate or should there be separate rates in addition to the overall rate? Appropriate screening frequency will need to be taken into account for each condition. Even though flu shots, if provided, may occur outside the claims data system (e.g., CVS/Walgreens), NCQA has found that influenza vaccination can be captured using claims data.
References	Bushe, C.J., Bradley, A.J., Wildgust, H.J. & Hodgson, R.E. (2009). "Schizophrenia and breast cancer incidence: A systematic review of clinical studies." *Schizophr Res*, 114(1-3): 6-16. Consensus Development Conference on Antipsychotic Drugs and Obesity and Diabetes (2004). *Diabetes Care*, 27: 596. Hennekens, C.H., Hennekens, A.R., Hollar, D. & Casey, D.E. (2005). "Schizophrenia and increased risks of cardiovascular disease." *Am Heart J*, 150(6): 1115-1121. Institute for Clinical Systems Improvement (2008). Colorectal Cancer Screening. Bloomington, MN: Institute for Clinical Systems Improvement. Lindamer, L.A. et al. (2003). "A comparison of gynecological variables and service use among older women with and without schizophrenia." *Psychiatr Serv*, 54(6): 902-904. Lindamer, L.A., Wear, E. & Sadler, G.R. (2006). "Mammography stages of change in middle-aged women with schizophrenia: An exploratory analysis." *BMC Psychiatry*, 6: 49. Tilbrook, D., Polsky, J. & Lofters, A. (2010). "Are women with psychosis receiving adequate cervical cancer screening?" *Can Fam Physician*, 56(4): 358-363. U.S. Preventive Services Task Force (2008). Screening for Colorectal Cancer, Topic Page. Rockville, MD: Agency for Healthcare Research and Quality. http://www.ahrq.gov/clinic/uspstf/uspscolo.htm.

TABLE A.15. Measure Concept: Appropriate Infectious Disease Screenings	
Measure Intent/Focus	To address the elevated risk of infection due to risky behavior (e.g., hepatitis C, HIV).
Eligible Population	Patients with schizophrenia.
Numerator	Patients with schizophrenia who receive a HIV, HBV, HCV, or other STD screening.
Evidence Supporting the Measure	Patients with schizophrenia are prone to engaging in high risk behaviors including drug use that make them susceptible to various infections common to the population of individuals with substance use disorders, including HIV, HBV, HCV, and STDs. One key study found prevalence of HIV of approximately 8 times that of the overall estimate for the United States; the prevalence of HBV almost 5 times the United States prevalence estimate; and the prevalence of HCV approximately 11 times the estimated United States adult population prevalence. Study participants were heterogeneous in terms of types of SMI, but 65% had schizophrenia or schizoaffective disorders (Rosenberg et al. 2001). Similar patterns were found in a private insurance plan in Iowa (patients with schizophrenia v. without) for hepatitis C (Carney et al. 2006).
Type of Evidence Supporting the Measure	☐ RCT/Experimental designs ☒ Observational studies ☐ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☐ Guideline
Guideline	None.
Measure Consolidations/ Limitations	Appropriate screening frequency will need to be taken into account for each condition. Should this be a measure with one overall rate or should there be separate rates in addition to the overall rate?
References	Carney, C.P., Jones, L. & Woolson, R.F. (2006). "Medical comorbidity in women and men with schizophrenia: A population-based controlled study." *J Gen Intern Med*, 21(11): 1133-1137. Rosenberg, S.D. et al. (2001). "Prevalence of HIV, hepatitis B, and hepatitis C in people with severe mental illness." *Am J Public Health*, 91(1): 31-37.

TABLE A.16. Measure Concept: Screening and Counseling of Substance Use Disorders	
Measure Intent/Focus	To address the elevated risk of substance use disorders in patients with schizophrenia.
Eligible Population	Patients with schizophrenia who have a co-occurring substance use disorder.
Numerator	Patients with schizophrenia who have a co-occurring substance use disorder who receive a screening or counseling service for substance use disorder in the measurement year.
Evidence Supporting the Measure	Smoking, alcohol and substance use disorders are prevalent among people with schizophrenia. Individuals with these co-occurring disorders require pharmacologic and psychosocial interventions to treat their addictions (Regier et al. 1990). Patients with schizophrenia have a higher risk of abuse/dependence problems: Odds ratios from a private insurance plan in Iowa (patients with schizophrenia v. without): OR=12.57 (10.16-15.55) for alcohol abuse/dependence, OR=35.42 (28.35-44.27) for illicit substance abuse/dependence (Carney, Jones & Woolson 2006). The concept is supported by a systematic review that includes several RCTs demonstrating the effectiveness of substance use treatment for people with SMI, including schizophrenia. The strength of the evidence is limited though as "many studies relevant to the treatment of SUDs in schizophrenia do not have samples with 50% or more persons with schizophrenia or schizoaffective diagnoses. Most studies of SUDs in individuals with schizophrenia are conducted in real-world clinic settings, where there is little or no separation of individuals by diagnosis in terms of providing treatment…6 RCTs were available that included more than 50% of individuals with schizophrenia" (Dixon et al. 2010).
Type of Evidence Supporting the Measure	☒ RCT/Experimental designs ☐ Observational studies ☒ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☐ Guideline
Guideline	None.
Measure Consolidations/ Limitations	We will only be able to identify substance use disorders that are treated through diagnoses on claims, so we cannot assess those who may have undiagnosed or untreated substance use disorders.
References	Carney, C.P., Jones, L. & Woolson, R.F. (2006). "Medical comorbidity in women and men with schizophrenia: A population-based controlled study." *J Gen Intern Med*, 21(11): 1133-1137. Dixon, L.B. et al. (2010). "The 2009 Schizophrenia PORT psychosocial treatment recommendations and summary statements." *Schizophrenia Bulletin*, 36(1): 48-70. Regier, D.A. et al. (1990). "Comorbidity of mental disorders with alcohol and other drug abuse. Results from the Epidemiologic Catchment Area (ECA) Study." *JAMA*, 264(19): 2511-2518.

TABLE A.17. Measure Concept: Tobacco Counseling	
Measure Intent/Focus	To address the elevated smoking risks among patients with schizophrenia.
Eligible Population	Patients with schizophrenia who are smokers.
Numerator	Patients with schizophrenia who are smokers who receive counseling about smoking in the measurement year.
Evidence Supporting the Measure	Smoking causes a variety of health problems including cardiovascular disease and lung and other cancers. “In the general US population, cigarette smoking is the leading avoidable cause of all premature death, as well as mortality from cancer” (Henneksen et al. 2005). Smoking, alcohol and substance use disorders are prevalent among people with schizophrenia (Regier et al. 1990). While one-quarter of the United States population smokes cigarettes, three-quarters of patients with schizophrenia smoke and tend to smoke more per day than those who do not have schizophrenia (Henneksen et al. 2005). Patients with schizophrenia in a private insurance plan were found to have nearly 3 times the odds of nicotine abuse/dependence as the population of enrollees. (Carney, Jones & Woolson 2006). A prospective study of the French population found that patients with schizophrenia had a nearly 4-fold higher rate of mortality than the general population (Tran et al. 2009). For men, lung cancer was the most common cause of cancer mortality, with an SMR of 2.2 (95% CI, 1.6-3.3). We found no studies regarding use of other tobacco products by this population or treatment for such problems. The Schizophrenia PORT 2009, based on its comprehensive review, recommends pharmacological and smoking cessation education interventions for this population.
Type of Evidence Supporting the Measure	☐ RCT/Experimental designs ☒ Observational studies ☒ Systematic literature reviews ☐ Meta-analyses ☐ Expert opinion ☐ Guideline
Guideline	None.
Measure Consolidations/ Limitations	It is possible that it may be difficult to identify smokers using claims data. NCQA uses survey measures to capture its smoking cessation measure. Perhaps this can be coded in the future through G-codes. Smoking/tobacco use can be captured as part of the substance use disorder concept above.

References	Buchanan, R.W., Kreyenbuhl, J., Kelly, D.L., Noel, J.M., Boggs, D.L., Fischer, B.A. et al. (2010). "The 2009 schizophrenia PORT psychopharmacological treatment recommendations and summary statements." *Schizophrenia Bulletin*, 36(1): 71-93. Carney, C.P., Jones, L. & Woolson, R.F. (2006). "Medical comorbidity in women and men with schizophrenia: A population-based controlled study." *J Gen Intern Med*, 21(11): 1133-1137. Hennekens, C.H., Hennekens, A.R., Hollar, D. & Casey, D.E. (2005). "Schizophrenia and increased risks of cardiovascular disease." *Am Heart J*, 150(6): 1115-1121. Regier, D.A. et al. (1990). "Comorbidity of mental disorders with alcohol and other drug abuse. Results from the Epidemiologic Catchment Area (ECA) Study." *JAMA*, 264(19): 2511-2518. Tran, E. et al. (2009). "Cancer mortality in patients with schizophrenia: An 11-year prospective cohort study." *Cancer*, 115(15): 3555-3562.

TABLE A.18. Measure Concepts That Were Considered but Not Pursued Based on Expert Consultant Review	
Measure Concept	**Feasibility Concept**
Continuous Medicaid Enrollment	
Intent To assess whether people with schizophrenia have consistent access to services.	Some lapses in coverage may be related to desirable outcomes, such as employment. We would not be able to distinguish desirable from undesirable outcomes.
Availability of Psychosocial Treatment	
Intent To assess whether the service system offers evidence-based psychosocial interventions.	Structural measures cannot not be identified easily from claims.
Use of Cognitive Behavioral Therapy	
Intent To assess whether people with schizophrenia receive cognitive behavioral therapy.	This concept is not captured administratively. It represents the content/therapeutic approach of one or more interventions, but is only captured in the medical record.
Presence or Duration of Waiting List for Psychosocial Treatment	
Intent Psychosocial treatments are effective and delays in treatment raise the risk of episodic relapses, discontinuities in treatment.	This is a structural access and availability measure which is beyond the scope of this project. This concept is not captured administratively.
Use of Social Education	
Intent To assess whether people with schizophrenia receive social education.	This concept is not captured administratively. It represents the content/therapeutic approach of one or more interventions, but is only captured in the medical record.
NOTE: In collaboration with ASPE and the expert consultants, the measure concepts listed in Table A.18 were rejected outright as infeasible.	

APPENDIX B. TAG MEMBERSHIP AND SLIDE DECKS

Name	Affiliation	Area of Expertise
Alisa Busch, MD, MS	Harvard Medical School McLean Hospital	Clinical/psychiatry
Enola Proctor, PhD, MSW	Washington University	Clinical/social work
David Shern, PhD	Mental Health America	Consumer
Dan For, MD, MPH	Johns Hopkins University	Measurement
Wilma Thownshend, MSW	SAMHSA	Consumer
Lorrie Rickman-Jones, PhD	Illinois Department of Human Services	State mental health policy
Eric Hamilton	ValueOptions	Managed behavioral health
Alexander Young, MD, MSHS	University of California, Los Angeles	Measurement
Peter Delaney, PhD, LCSWC	SAMHSA	Federal mental health policy
Ben Druss, MD	Emory University	Clinical/psychiatry
Maureen Corcoran	VORYS Health Care Advisors	State and federal mental health policy
Mike Fitzpatrick	NAMI	Consumer
Bob Heinssen, PhD	NIMH	Federal mental health policy
Anita Yuskauskas, PhD[a]	CMS	Federal mental health policy/ Medicaid
Peggy Clark, MSW, MPA[b]	CMS	Federal mental health policy/ Medicaid
Phil Wang, MD, DrPH[b]	NIMH	Federal mental health policy

a. Participated in final two TAG meetings.
b. Participated in first TAG meeting.

Schizophrenia Measure Development Project

December 8, 2010

NCQA
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Improving health care.

TAG 1 AGENDA

- Introductions
- Conflict of Interest
- Measure Development Process
- Measure Concepts
- Wrap-Up
- Next Steps

PROJECT OVERVIEW

- ASPE contract to develop quality measures for patients with schizophrenia
  - Mathematica
  - NCQA
- Deliver at least 3 measures for NQF endorsement with balance across 3 treatment domains:
  - Pharmacotherapy
  - Psychosocial treatment
  - Physical health

PROJECT OVERVIEW

- The measures must meet the following criteria:
  - Applicable to the Medicaid FFS system
  - Available from administrative data
  - Relevant to ambulatory care setting
  - Translate to state/county/regional data collection and comparison
  - Promote quality improvement and evidence-based treatment

GOAL OF TODAY'S MEETING

- We need your recommendations for about 6 measures to develop for field testing
  - Prioritize measure concepts according to evidence-base & potential impact of measurement
  - We will develop detailed specifications for the strongest candidate measures

MEASURE DEVELOPMENT PROCESS (1)

- Conduct environmental scan
- Identify initial measure concepts
- Prioritize concepts
- Develop measure specifications
- Test measures
- Review testing results
- Revise specifications

MEASURE DEVELOPMENT PROCESS (2)

- Public comment
- Review public comment
- Revise specifications
- Submit material for endorsement to NQF

ROLE OF TECHNICAL ADVISORY GROUP

- Prioritize measure concepts/measures
  - Evidence-base
  - Potential impact of measurement
- Advise Testing plans and results
- Review Public comment
- Review Final specifications & NQF materials
- Consensus process

NQF ENDORSEMENT CRITERIA

Importance	• focus on priority areas, where the evidence is highest that measurement can have a positive impact on healthcare quality
Scientific Soundness	• produce consistent (reliable) and credible (valid) results about the quality of care.
Usability	• intended users can understand the results of the measure, find them useful for QI & decisionmaking
Feasibility	• collect with readily available data, retrievable without undue burden

MEASURE CONCEPTS

Pharmacotherapy
- Use of antipsychotics Continuity of antipsychotics
- Clozapine for treatment resistant patients
- Polypharmacy of antipsychotics

Psychosocial
- Use of Assertive Community Treatment
- Use of case management
- Use of family therapy
- Use of supported employment
- ~~Use of any psychosocial~~
- ~~Use of cognitive behavioral therapy~~
- ~~Use of social education~~

Physical Health
- Preventive screenings
- Infectious disease screening
- Substance abuse screening
- Tobacco counseling

Cross-cutting
- Metabolic screening for patients using antipsychotics?
- Weight counseling for patients using antipsychotics
- Use of antipsychotics and psychosocial
- Outpatient follow-up after inpatient

System/Access
- ~~Medicaid enrollment~~
- ~~Availability of psychosocial~~
- ~~Waiting list for psychosocial~~

Not feasible using claims data

PHARMACOTHERAPY CONCEPTS

Concept	Denominator	Numerator	Issues
1. Any use of antipsychotics	All diagnosed	Any antipsychotic use	Overlap with continuity? Criteria to identify schizophrenia from diagnoses?
2. Continuity of antipsychotic use	1.) All diagnosed and using antipsychotic 2.) Total days	1.) Gap of >30 days 2.) Days supply (possession ratio)	Overlap with any use?
3. Use of clozapine in treatment resistant patients	All diagnosed and treatment resistant	Use of clozapine	How to identify treatment resistance?
4. Polypharmacy (antipsychotics only)	All diagnosed with any antipsychotic use	3 or more antipsychotics at one time	How many antipsychotics, in what time interval? Polypharmacy with other psychotropics?

PSYCHOSOCIAL CONCEPTS

Concept	Denominator	Numerator	Issues
1. Use of assertive community treatment (ACT)	All diagnosed and discharged from inpatient in year	Any use of ACT	Is ACT consistently identified in claims?
2. Use of case management	All diagnosed	Any use of case management	Enough evidence? Distinguishable from ACT in claims?
3. Use of family therapy	All diagnosed with family	Any use of family therapy	Who has family? Is family identified in claims?
4. Use of supported employment	All diagnosed with employment as a goal	Any use of supported employment	Ability to identify employment as a goal? Distinguishable from voc rehab in claims?
5. Use of any psychosocial treatment	All diagnosed	Any use of any psychosocial treatment	Limited by ability to id other psychosocial treatment

PHYSICAL HEALTH CONCEPTS

Concept	Denominator	Numerator	Issues
1. Health maintenance and prevention	All diagnosed	Any of each preventive screen/service	Evidence for screenings for general population but not specific to schizophrenia Periodicity
2. Infectious disease screening	All diagnosed	Any infectious disease screening (HIV, hepatitis, STD)	Periodicity
3. Screen/counsel for substance use disorders	All diagnosed	Any screen/counsel for substance use disorders	Periodicity
4. Tobacco counseling	All diagnosed and smoke	Any tobacco counseling	Ability to identify smokers in claims

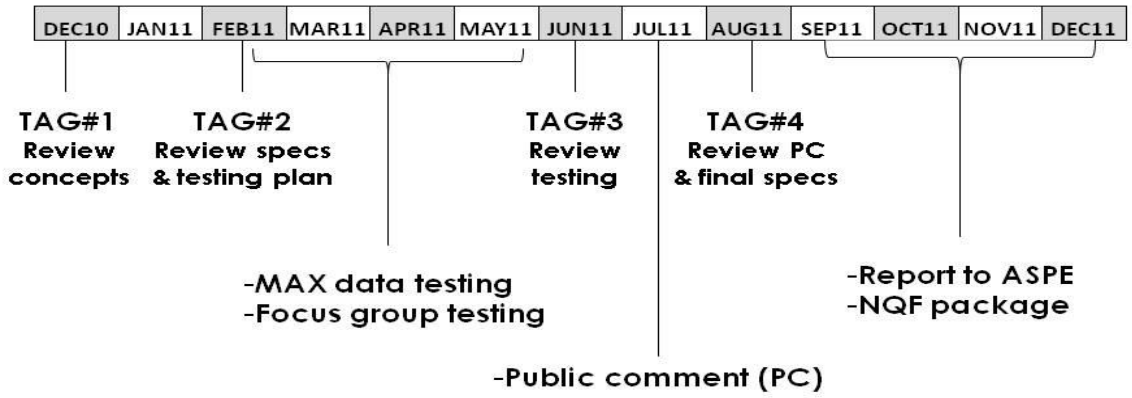
CROSS-CUTTING CONCEPTS

Concept	Denominator	Numerator	Issues
1. Metabolic monitoring among patients with antipsychotic meds	All diagnosed and on antipsychotic	1.) Receipt of any/each metabolic screen 2.) Receipt of all metabolic screen	Identifying glucose, lipid screenings in claims Defining "on an antipsychotic": one prescription?
2. Weight assessment/ counseling	All diagnosed and on antipsychotic	Any who receive weight assessment or counseling	Identifying weight assessment/counseling
3. Combined antipsychotic and psychosocial treatment	All diagnosed	Any who receive antipsychotic and psychosocial	Is one prescription enough? Is one psychosocial svc enough?
4. Outpatient follow-up after hospitalization	All diagnosed and discharged from inpatient	Any who receive outpatient follow-up visit in 7- or 30-days	Low evidence What kind of follow-up counts?

WRAP UP

- Confirm final list of recommended concepts
- Next TAG meeting for mid-February 2011

PROJECT TIMELINE



Schizophrenia Measure Development Project
Technical Advisory Group Meeting 2

March 28, 2011

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Agenda

- **Roll Call and Conflict of Interest**
  - Present and no changes
  - Present and announce any changes
- **Discussion of Measure Testing Issues**
  - Review measure specifications (numerator rules), including testing questions
  - Review of denominator definition and measurement issues
  - Review of measure testing plans

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MEASURE SPECIFICATION

Psychosocial Specifications

Concept	Specification Questions
1. Use of any psychosocial treatment	-Should the definition of psychosocial treatment be expanded to include all forms of 'talk' therapies? Note: Parameters for psychosocial treatment taken from Schizophrenia PORT recommendations
-Use of assertive community treatment (ACT)	Note: Subset of Concept 1
-Use of family therapy	Note: Subset of Concept 1
-Use of supported employment	Note: Subset of Concept 1

Cross-Cutting Specifications

Concept	Specification Questions
1. Metabolic monitoring among patients with antipsychotic meds: Cardiovascular Health and Diabetes Screening for People with Schizophrenia	-Is one prescription sufficient for definition of "on an antipsychotic"? -Should a measure be created that captures the metabolic monitoring for patients who already have CVD or diabetes diagnoses? -Should this be combined into a single measure (e.g., screening or monitoring of metabolic conditions)?
2. Outpatient follow-up after hospitalization	-What kind of follow-up counts? Difficulty testing provider types and place of services with MAX data at present.
3. Number of ER visits	Note: Specification includes ALL ambulatory ED visits for individuals diagnosed with schizophrenia (not only mental health specific visits)

Pharmacotherapy Specifications

Concept	Specification Questions
1. Any use of antipsychotics	-Should the year start at the time of the index prescription or at the beginning of the measurement year (or other set point in the year)?
2. Continuity of antipsychotic use	

Physical Health Specifications

Concept	Specification Questions
1. Health maintenance and prevention: Cervical Cancer Screening for People with Schizophrenia	Note: there is evidence for screening general population but not specific to schizophrenia
2. Infectious disease screening: HIV Screening for People with Schizophrenia	

DENOMINATOR: DEFINITION AND MEASUREMENT ISSUES

Denominator Definition and Measurement Issues

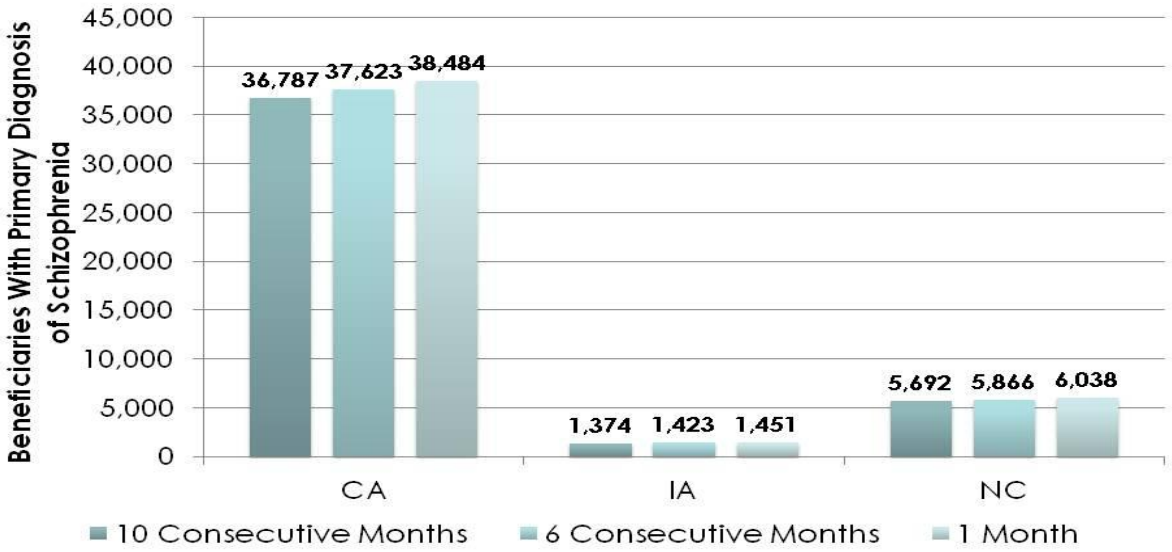
- Review denominator selection goals and approach
- Review denominator analytic questions
- State sample size issues: implications for reporting
- Next steps
- Measure testing plans

Denominator Selection Goals and Approach

(1) Maximize observable claims activity over one-year period

- Approach:
  - 10 consecutive months of eligibility
  - Fee-For-Service*
  - Non-dually eligible
  - Basis of eligibility→disabled
  - No private insurance
  - Age 25 – 64
- Analytic question: Does loosening the eligibility duration increase the size of the target population?

Does loosening eligibility duration increase the size of the target population?

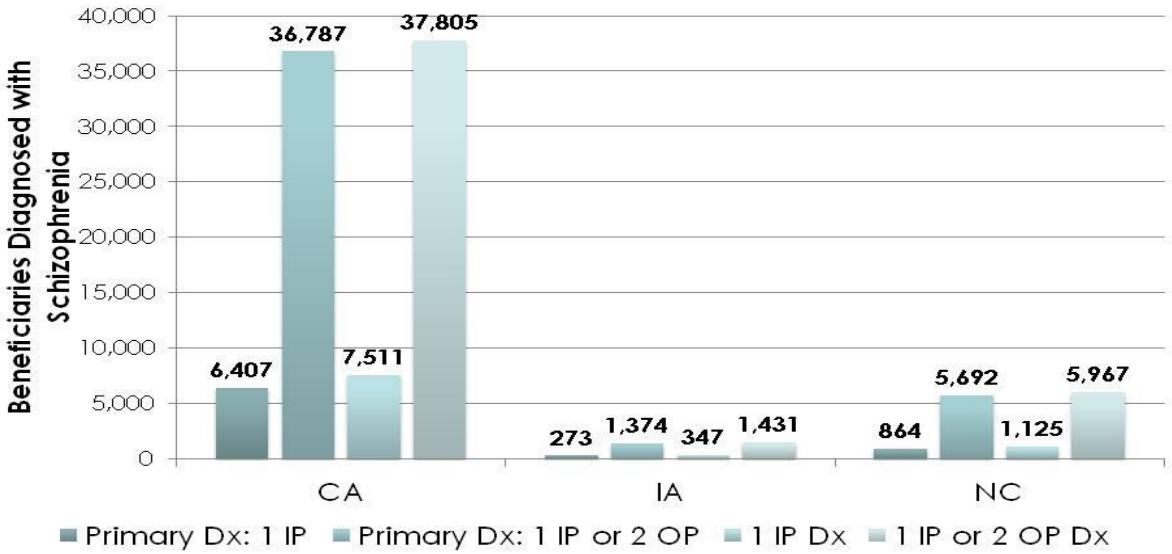


Denominator Selection Goals and Approach

(2) Maximize external validity of MAX test data to community dwelling population living with schizophrenia

- Selection approach
  - Two separate claims with schizophrenia as primary diagnosis OR
  - One inpatient claim with schizophrenia as primary diagnosis
- Analytic questions:
  - Can the size of the target population be significantly increased using less stringent coding criteria?
  - Is this method sufficiently specific for identifying schizophrenia (e.g., what % of patients have both dx of schizo and bipolar?)

Can the size of the target population be significantly increased using less stringent coding criteria?



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Population with Schizophrenia Varies By State

State	N	Percentage *
AL	4,051	7.8
AK	267	10.2
CA	36,787	10.7
CT	2,686	13.8
DC	1,704	13.8
ID	784	10.5
IL	12,808	12.6
IN	3,284	8.5
IA	1,374	9.7
LA	4,382	7.6
MD	4,366	10.8
MO	4,751	8.8

State	N	Percentage *
NH	368	8.1
NC	5,692	8.7
ND	216	10.8
NV	743	8.9
OK	2,616	9.8
SD	278	7.9
VT	32	0.9
WV	1,938	4.7
WY	141	6.8
TOTAL	**89,268**	**9.9**

***Percentage of disabled, non-duals in Medicaid FFS with 10 months of eligibility**

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Next Steps for MAX 2007 Data

- Code and run alternative denominators
  - Beneficiaries with schizophrenia who receive antipsychotic medication
  - Discharges from acute inpatient settings
- Code numerator conditions
- Measure testing plans in MAX data

Measure Testing

- Validity
  - Is poor QM performance (across the set of measures) associated with high rates of acute care utilization or cost?
    - Method: Correlations between summary QM performance and hospitalization/ER use
  - Are measures topped out or not picking up variation?
    - Method: Report measure distribution properties [min, max, 10th and 90th percentile, mean, median]
      - Demographic and geographic stratifications

Measure Testing (2)

- **Validity (continued)**
  - Do measures show convergent validity?
    - Method: Correlations of similar measures for a given state or group of states
- **Reliability**
  - Do scores vary over time?
    - Method: Test-retest correlations for each QM by state using 2006 – 2008 MAX data

Wrap-Up

- **Field testing**
- **Focus groups update**
- **Next TAG meeting**

Schizophrenia Measure Development Project
Technical Advisory Group Meeting 3

October 3, 2011

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1

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Agenda

- **Roll Call and Conflict of Interest**
  - Present and no changes
  - Present and announce any changes
- **Discussion of Testing Results**
  - Review testing methodology
  - Review focus group results
  - Review MAX testing results

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Schizophrenia Measure Set

- **Measures Tested:**
  - Use and Continuity of Antipsychotic Medications
  - Cardiovascular Health and Diabetes Screening
  - Cervical Cancer Screening for Women With Schizophrenia
  - Cardiovascular Health and Diabetes Monitoring
  - Emergency Department Utilization
  - Follow-Up After SMI Hospitalization
- **Measures Dropped:**
  - HIV Testing
  - Use of Psychosocial Services

Methodology

- **Focus Groups**
  - Requested feedback on usability and feasibility of the measures
  - Requested any recommended changes to measure specifications
  - Other measures that currently assess care?
  - A total of 3 discussions were held:
    - Managed behavioral health organizations
    - Medicaid Medical Directors Learning Network
    - State mental health commissioners and medical directors

Methodology

- **Public comment**
  - September 15 to October 14, 2011
  - Posted measure specs to NCQA website
  - Blast email notification to over 200 stakeholders
  - Requested feedback on whether or not to include bipolar disorder to denominator for CV and diabetes screening and monitoring
  - Results will be incorporated into report

Focus Group Results

- **Agreement on the appropriateness of the measurement goals and concepts**
- **Denominator selection**
  - Reliability of schizophrenia identification
  - Applies to other SMIs (e.g., bipolar)
- **Reliably identifying all services is challenging because of variation in service financing & provision**
  - Mental health system provided services
  - Pharmacy data and PBMs

Focus Group Results

- **Dual-eligibles are very important but hard to capture without Medicare data**
  - May capture a unique subset of cases in their service use trajectory
- **Dropped measures:**
  - Psychosocial services are too hard to find and define consistently
  - HIV testing lacked face validity: having schizophrenia is not sufficient to justify testing
- **Lack of a tobacco cessation measure**

Focus Group Results

- **Use and continuity**
  - Filled v. used issue
  - Minimum 60 days filled
  - Access to pharmacy data (PBMs)
- **Cardiovascular and Diabetes Screening & Cardiovascular and Diabetes Monitoring**
  - Applies to other SMIs
  - Identifying health-related services in Medicaid systems only

Focus Group Results

- **ED utilization**
  - Utility of "all ED visits" v. "MH ED visits only"
- **Follow-up after hospitalization**
  - Interest in including primary care follow-up, not just specialty MH follow-up
- **Cervical cancer screening**
  - Identifying health-related services in Medicaid systems only

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Summary of 2007 MAX Testing Data

- 22 states: AL, AK, CA, CT, DC, GA, ID, IL, IN, IA, LA, MD, MO, MS, NH, NC, ND, NV, OK, SD, WV, WY
- Mostly* FFS, disabled, non-dually eligible beneficiaries with 10 months of eligibility (N=1,019,123)
- Study population
  - (1) Schizophrenia (9.7%; N=98,417)
  - (2) SMI: Schizophrenia or bipolar disorder (12.8%; N=130,529)

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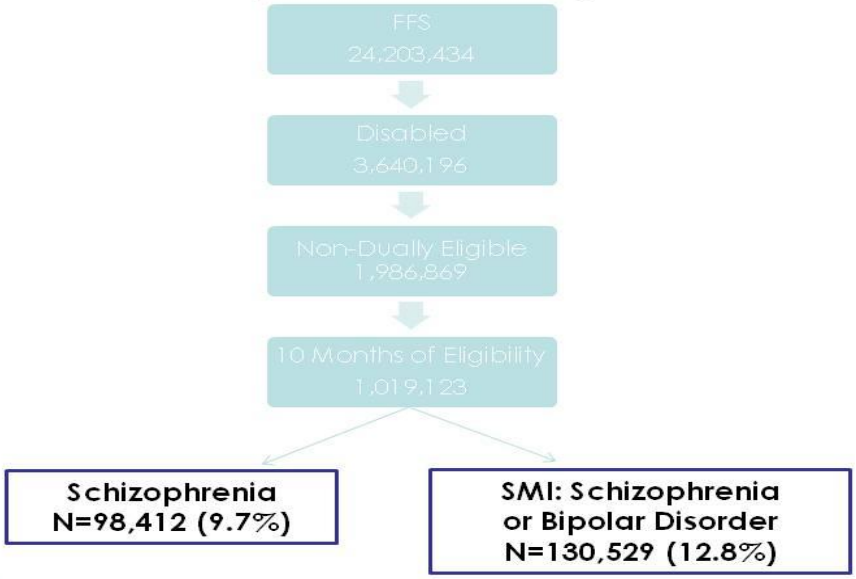
Derivation of Analytic Study Sample (N=22 States)



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Rates of Schizophrenia and SMI Across Demographic Characteristics

Characteristics	Schizophrenia	SMI
TOTAL	**9.7%**	**12.8%**
Male	11.7%	13.9%
Female	8.2%	12.1%
Age		
25-30	10.9%	14.6%
31-40	11.6%	16.2%
41-50	11.8%	15.7%
51-60	7.9%	10.1%
61-64	5.0%	6.2%
Race		
Caucasian	8.7%	13.3%
African-American	11.5%	13.3%
Hispanic	8.4%	10.6%

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Characteristics of Sample Beneficiaries

Characteristics	Schizophrenia (N=98,412)	SMI (N=130,529)
Female	49.2%	54.8%
Age		
25-30	10.6%	10.8%
31-40	20.1%	21.2%
41-50	35.8%	36.0%
51-60	28.3%	27.2%
61-64	5.2%	4.9%
Race		
Caucasian	41.8%	48.1%
African-American	38.7%	33.8%
Hispanic	7.1%	6.8%
Other	5.6%	4.8%
Unknown	6.8%	6.4%

Validity and Reliability Testing

- **Face Validity/Measure utility**
  - Examine distribution of state average for each measure
    - Identify/revise measures that appear 'topped out' or that do not identify outcomes
- **Concurrent Validity**
  - Mean utilization rates (Schizophrenia related hospitalizations, ER visits) and total Medicaid costs
  - Correlation between measures
- **Test-Retest Reliability**
  - Correlation of measures over time

Schizophrenia QMs: State Level Distributions (N=22)

Measure	Mean	Min	25th P-tile	75th P-tile	Max
Use of Any AP	91.0%	82.1%	90.4%	93.0%	95.1%
AP Continuity (≥80%)	65.7%	48.3%	62.6%	70.9%	84.6%
Diabetes Screening	12.4%	2.2%	8.3%	17.1%	28.8%
Diabetes Screening *(SMI)*	12.1%	2.3%	8.4%	17.9%	28.2%
Cardiovascular Screening	43.5%	7.3%	40.9%	51.7%	65.1%
Cardiovascular Screening *(SMI)*	43.4%	6.9%	42.1%	50.6%	63.3%
Cervical CA Screening	24.4%	7.9%	21.7%	27.8%	34.8%

Schizophrenia QMs: State Level Distributions (N=22) *continued*

Measure	Mean	Min	25th Ptile	75th Ptile	Max
Diabetes Monitoring	57.3%	9.1%	55.6%	67.7%	81.6%
Cardiovascular Monitoring	54.5%	11.7%	44.4%	67.3%	85.7%
Any ED Use	52.3%	38.4%	48.7%	57.4%	60.5%
Any SMI ED Use	31.0%	22.3%	26.8%	34.4%	36.8%
Percentage of SMI Discharges with 7-day Outpatient Follow-up	36.0%	8.3%	27.8%	42.3%	66.1%
Percentage of SMI Discharges with 30-day Outpatient Follow-up	69.7%	25.6%	61.4%	78.7%	88.5%

Concurrent Validity: Schizophrenia Hospitalization

Measure	Worst Quartile (N=6)	Best Quartile (N=6)
Use of Any AP	**20.0%**	**16.7%**
AP Cont. Ratio≥ 80%	14.0%	15.5%
DM Screening	24.3%	18.1%
Cardiovascular Screening	**24.2%**	**17.4%**
DM Monitoring	**23.7%**	**14.3%**
Cardiovascular Monitoring	**24.2%**	**17.1%**
Cervical CA Screening	17.9%	18.4%
SMI ED Utilization	**24.2%**	**17.6%**
ED Utilization	24.7%	18.0%
7-day Follow-Up	**19.4%**	**16.3%**
30-day Follow-Up	**19.3%**	**16.0%**

Population mean=18.4%

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Concurrent Validity: Schizophrenia-related ED Use

Measure	Worst Quartile (N=6)	Best Quartile (N=6)
Use of Any AP	22.5%	21.1%
AP Cont. Ratio≥ 80%	23.4%	23.3%
DM Screening	26.6%	24.5%
Cardiovascular Screening	**26.6%**	**16.2%**
DM Monitoring	26.7%	24.2%
Cardiovascular Monitoring	**26.6%**	**16.1%**
Cervical CA Screening	15.8%	21.2%
SMI ED Utilization	**27.0%**	**14.9%**
7-day Follow-Up	18.0%	23.0%
30-day Follow-Up	18.6%	19.1%

Population mean=20.3%

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Concurrent Validity: Total Medicaid Cost (in $1,000s)

Measure	Worst Quartile (N=6)	Best Quartile (N=6)
Use of Any AP	24.4	30.7
AP Cont. Ratio≥ 80%	19.4	33.8
DM Screening	31.1	32.9
Cardiovascular Screening	**31.2**	**25.7**
DM Monitoring	32.0	28.9
Cardiovascular Monitoring	**31.2**	**25.8**
Cervical CA Screening	26.3	27.7
SMI ED Utilization	**35.1**	**24.9**
ED Utilization	33.0	26.3
7-day Follow-Up	**27.0**	**25.5**
30-day Follow-Up	27.5	26.1

Population mean=26.7

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Correlations Among Measures

- **ED measures: r= 0.63**
- **Follow-up measures: r= 0.56**
- **Screening measures (Diabetes, Cardiovascular): r=0.23**
- **AP Continuity Ratio was *negatively* associated with any ED use and any SMI ED use (r= -0.18, -0.16), and *positively* associated with Cardiovascular Screening (r=0.12) and 30-day Follow-Up after Hospitalization (r=0.12)**

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Summary of Validity Evidence

- **Most measures exhibited evidence of validity**
- **Strong evidence**
  - **ED measures (SMI)**
  - **Screening and monitoring measures (cardiovascular screening)**
  - **30-day Follow-Up after Hospitalization**

Wrap-Up

- **Suggestions for modifications to specifications**
- **Next steps**
  - Editing specifications
  - Preparing NQF package
  - Report to ASPE

APPENDIX C. MEMO SUMMARIZING FOCUS GROUP INPUT

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MEMORANDUM

TO: Lisa Patton, Ph.D., Office of the Assistant Secretary for Planning and Evaluation
Hakan Aykan, Ph.D., Office of the Assistant Secretary for Planning and Evaluation

FROM: Thomas W. Croghan, M.D., Mathematica Policy Research, Inc.
Sarah Hudson Scholle, Dr.P.H., National Committee for Quality Assurance

DATE: 6/13/2011

SUBJECT: Testing of Measures for Medicaid Beneficiaries with Schizophrenia

SITUATION

We are required to produce a final set of three measures that address pharmacological treatment, psychosocial treatment, and physical health needs for patients with schizophrenia and that can be calculated solely from data drawn from Medicaid claims. We have identified eight candidate measures that were identified through an environmental scan, detailed review of the major recommendations from the Schizophrenia PORT study, and discussions with the Technical Advisory Group (TAG). We reviewed with the TAG the evidence base for candidate measure concepts in the context of NQF's endorsement criteria (importance, scientific acceptability, usability, feasibility).

As part of testing to support submission of these measures to the National Quality Forum (NQF) for endorsement, we discussed the candidate measures with the Medicaid Medical Directors Learning Network (MMDLN) to obtain input on the usability and feasibility of the candidate measures. In the remainder of this memorandum, we outline our analysis of their extensive feedback and options for modifying the measures and testing process.

BACKGROUND

The MMDLN identified several challenges to using the measures identified and dimensions of care that the candidate measures do not address:

- Claims data are unreliable for identifying some behavorial health services, particularly evidence-based psychosocial treatments such as those recommended in the Schizophrenia PORT.

- Variation in the financing of services for people with serious mental illness limits the ability to generalize about the quality of care provided by Medicaid programs. This includes:

  - Provision of services through state mental health systems;
  - Coverage of services through Medicare for dual-eligibles;
  - Prohibitions on same-day billing of medical and behavioral health services;
  - Inter-state variation in Medicaid and disability standards.

- The testing process using the Medicaid Analyic Extract (MAX) data can reliably identify patients with schizophrenia from the pool of disabled non-dual Medicare beneficiaries. However, this is only one portion of the universe of potential patients (e.g., TANF enrollees; dual Medicare beneficiaries) who receive treatment through Medicaid programs.

- The candidate measures do not capture perceived problems of overuse that they believe have a signficiant impact on quality and costs of care. The medical directors mentioned polypharmacy, inpatient utilization, and failure to utilize generic drugs as topics of interest.

- The candidate measures address problems that are not unique to patients with schizophrenia; they suggested broadening the target population to include patients with bipolar disorder, schizophrenia, and severe forms of depression (severe and persistent mental illness, or SPMI).

ANALYSIS

We have reviewed the feedback from the MMDLN and prepared for ASPE's consideration options for changes to the measures, changes to the specifications, and changes to the testing process.

Options for Changing the Set of Candidate Measures

1. Create measures of overuse: We could develop new measures related to polypharmacy, use of inpatient care, and use of generic drugs. Utilization measures could be used to establish benchmarks for cross-state comparisons.

   Advantages: This would demonstrate responsiveness to key Medicaid officials who would be responsible for making quality improvements based on the measures.

   Disadvantages: The TAG concluded that the evidence for these measures is weak or inconsistent. These measures are thus more appropriate for utilization management initiatives than for quality improvement. Inpatient utilization measures might also require risk adjustment, which ASPE determined to be out-of-scope and makes cross-state comparisons less feasible.

2. Drop the evidence-based psychosocial measure: Another option is to drop the psychosocial measure given the challenges in identifying the evidence-based services from the Schizophrenia PORT in claims data--a problem noted in our claims data testing and TAG discussions as well as the MMDLN focus group.

   Advantages: The measure has such low feasibility that it is impossible to assess the reliability and validity of the measure in claims data testing, making NQF endorsement unlikely. Dropping this measure would free resources to more extensively test the other measures.

   Disadvantages: This measure had the strongest evidence base and would have been important for achieving ASPE's goal of balance between pharmacological, psychosocial and physical health treatment.

3. Drop the HIV screening measure: There is not an endorsed HIV measure; regular screening is recommended only for those at increased for the disease.

   Advantages: Dropping the measure would be consistent with evidence that patients with schizophrenia are not at greater risk of HIV.

   Disadvantages: None.

Options for Changing Measure Specifications

1. Expand the denominator for the diabetes and cardiovascular screening and monitoring measures to include people with SPMI: The monitoring measures apply to patients who have a diagnosis of diabetes or cardiovascular disease, so the measures would apply equally well to people with SPMI. The screening measures apply to patients who use antipsychotic medications and so likely should apply to people with SPMI.

Advantages: Reporting the measures for patients with serious mental illness, or stratified by these conditions, would permit ASPE to have a broader impact on behavioral health quality monitoring.

Disadvantages: We need to review recent recommendations from AHRQ about antipsychotic medication usage to evaluate the appropriateness of the screening measure for the other conditions. There may be challenges with stratified reporting due to diagnostic instability (e.g., misdiagnosis of schizophrenia as bipolar disorder and vice versa).

2. Reframe the cervical cancer screening and Emergency Department (ED) utilization measures as stratifications of existing measures: ED utilization and cervical cancer measures are already NQF-endorsed. It is unclear whether NQF would consider stratified measures to be new or an adaptation of existing measures.

   Advantages: stratification would allow state Medicaid programs to adapt measures they are already reporting to the mental health population.

   Disadvantages: No obvious disadvantages.

3. Broaden measures populations: A third option is to include patients with other severe and persistent mental illnesses.

   Advantages: Limiting measurement of important concepts such as screening for physical health conditions and side effects to those with schizophremia is an artificial distinction without clinical justification. Doing so would limit the usefulness of the measures for state Medicaid programs.

   Disadvantages: Our project has limited funding; expanding the populations for measures is potentially beyond its current scope.

Options for Changing the Testing Process

1. Conduct additional focus groups with state mental health program directors and consumers: Given the interaction between Medicaid and state mental health departments, it may be useful to obtain the perspective from those programs, and consumers.

   Advantages: Discussions with these groups may provide a more balanced picture of the usability and feasibility of the measures.

   Disadvantages: The current budget permits only one new focus group with mental health program directors; public comment may substitute for the consumer focus group.

2. Test the measures with states in their Medicaid data systems: We could identify states that are willing to calculate the measures from their claims data.

   Advantages: State Medicaid data provides a more robust test of the measures by adding non-disabled and possibly Medicare dual-eligibles. We would learn more about the feasibility from the states. Testing directly with states would substitute for testing using the MAX files; testing with MAX data has been delayed because of delays in obtaining a license to use the MediSpan grouper.

   Disadvantages: State capacity to calculate the measures likely varies; we may learn only that some states are better equipped to perform such measurement activities. States are unlikely to complete the testing in the timeframe of the current contract. It is unclear that any state would have access to the Medicare claims for dual beneficiaries.

RECOMMENDATIONS

Based on our discussion with the MMDLN, we are concerned that the measures as specified will not be endorsed by the NQF. We recommend the following changes to the set of measures under consideration, the specifications of the measures, and the testing process in order to achieve ASPE's objectives for measurement and accountability for seriously mentally ill:

1. Drop the evidence-based psychosocial services measure and the HIV measure: Claims data as currently collected by Medicaid programs are not adequate for capturing the evidence-based psychosocial services reliably. The evidence for elevated HIV risk in this population is weaker than initially thought based on the environmental scan.

2. Expand the population for the diabetes and cardiovascular screening and monitoring measures and report an overall "serious mental illness" rate: The pool of affected individuals extends beyond people with schizophrenia, providing greater impact for the measures.

3. Add a focus group discussion with state mental health program directors: A focus group with state mental health program directors will provide additional insight into the interaction between the Medicaid and state mental health program systems and permit a more balanced assessment of the measures' usability by states and policymakers in a public reporting system.

APPENDIX D. SUMMARY OF PUBLIC COMMENT

TABLE D.1. Public Comment Summary				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
Schizophrenia Measure Set -- Overall				
Accountable Behavioral Health Alliance	Support with modification.	In Central Oregon our Oregon Health Plan/SPMI population dies at the average age of 45. Preliminary reasoning includes poor overall physical health, lack of medical care follow-up and side effects from the long-term use of antipsychotic medications. Standards must be set with this high risk population to ensure that both physical and mental health are actively tracked to receive adequate services to improve overall health and life expectancy. I also fear how indigent individuals are fairing. More attention should be focused on the holistic view of this at risk population subgroup with better follow-up and improved access.	Consider approaching these measures in a more holistic way due to the fact that the SMI population in general a high risk group.	NCQA will share this thought with Mathematica.
University of California, Irvine	Support.	Long-Acting Depot preparations are going to revolutionize outcomes and decrease recidivism. The reason they are not being used today in great numbers is the very poor reimbursement. One small study showed that if every schizophrenic in this country was on a long-acting injectable (LAI), within 6 months half of our psychiatry hospitals would no longer be needed. The cost savings would be close to $11 Billion dollars per year. So the way to get greater use is to increase the reimbursement for the practitioner who administers the injection. I see this as the biggest cost saving and patient improvement program in the history of our treatment of schizophrenia. Please contact me for this concept.	Consider focusing on a long-term solution, which would be focusing on LAIs.	The measure is intended to include injectables as part of the definition of antipsychotic medication. Will verify that list includes them.
Seven Counties Services	Support with modification.	Good set of measures. I am sure that it will get shorter, but I want to include 2 additional measures: one for smoking assessment and one for exercise assessment. The smoking assessment is critical. Along with bad antipsychotic management it is one of the 2 major killers for people with schizophrenia. Let's start assessing and offering evidence-based interventions.	Consider adding measures for smoking assessment and exercise assessment.	Smoking assessment and exercise assessment are not readily available in claims and therefore cannot be included.
National Association of County Behavioral Health and Developmental Disability Directors (NACBHDD)	Support with modification.	Why are you beginning at age 25 when adult Medicaid begins at age 22 and early onset schizophrenia can begin as early as 17? Issue is that you need be create a clear line between adolescence and adulthood.	Concerned that the age specifications in the measures are not representative of Medicaid or early onset schizophrenia.	TAG recommended 25 to ensure stability of diagnosis.
New Hampshire Department of Health and Human Services (DHHS)	Support with modification.	The list of antipsychotics needs to be updated.	Concerned that the list of antipsychotics are not updated.	NCQA and Mathematica will review the list of antipsychotics.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
Kaiser Health Plan	Support with modification.	Kaiser Permanente is supportive of a creation of a measure set for people with schizophrenia focusing on the pharmacological and physical health needs of this population. The group recognizes that people with schizophrenia often receive sub-optimal care in the areas which these candidate measures seek to address. We are glad to have been a part of this discussion and look forward to working to improve the quality of care that our members with schizophrenia receive. There is a concern however, that given that most of the Kaiser Permanente members who are Medicaid recipients, have split coverage. In most regions, the behavioral health coverage is carved out and provided at the community mental health clinic level while their physical health coverage is provided with the Kaiser Permanente system. This might make coordinating this care difficult and data collection nearly impossible. Comments on Inclusion Criteria: There is consensus that the diagnoses proposed are adequate for identification of people with schizophrenia and that the number of visits in differing venues was reasonable. There was a concern raised however, about how diagnoses made in an ED would count. Diagnoses made in the ED are often erroneous and depending on how these are included, may increase the denominator. If ED diagnoses would require 2 visits on separate dates with the diagnoses, this could address the issue.	1. Concerned that plans will be burdened by split coverage, where behavioral health coverage is carved out and physical health coverage is provided by the plan. 2. Concerned that diagnoses made in the ED setting are erroneous and we should consider requiring 2 visits on separate dates with the same diagnosis.	1. These are intended for state Medicaid use, so states may have capacity to integrate across settings. 2. ED visits are treated like other outpatient settings and so require a second OP visit with schizophrenia diagnosis to qualify.
Gulf Coast Health Center	Support with modification.	Over 30 years of respected research supports the use of a biopsychosocial model for effective and efficient treatment of schizophrenia, as well as schizoaffective and bipolar disorders including psychosis. You limit measures of treatment quality/ effectiveness to medical encounters, specifically readmission to an inpatient facility. The designation "health care" should replace the term medical, to more accurately measure treatment which really works. Additionally, by your standard, “treatment” is successful if the person is not readmitted for inpatient services. So all the psychotic persons wandering our streets, sleeping on our park benches and clogging up our county jails received successful treatment, by your limited measure(s). Diseases like diabetes, primary hypertension, alcohol and other drug dependence, schizophrenia, bipolar disorder--and several other disorders--need to be treated as chronic conditions by a varied mix of care providers, not limited to medical practitioners. And quality measures of successful treatment must include quality of life components, the bare basics being clothing, housing, and employment. Your current measure of "success" has caused a mushroom-like proliferation of intensive outpatient and partial hospitalization programs, with 20% of the price tag for this "treatment" (for persons without both Medicare AND Medicaid coverage) falling directly on the shoulders of the patients you are purportedly treating in a successful manner. Your quality measure for schizophrenia treatment is woefully inadequate.	Concern that the proposed measures do not go nearly far enough.	The concerns raised do not account for the difficulty of collecting data for performance measures. NCQA will share these thoughts with Mathematica.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
University of Pittsburgh	Support with modification.	It is quite clear that these measures fit a model of care that predates the emerging recovery approach. I have no particular issues with them except there inadequacy to care quality care--all these things could be done without a recovery framework. I understand that you considered other measures but found the data sources too weak to support their use. Obviously we need to develop and Implement other measures--and soon. Candidate measures I would suggest is if there is any evidence that the person receiving services was supported in the opportunity to outline their own goals for care or had any role in shared decision making about the care and its goals. I hope your report suggests this. In the mean time--I would suggest that you consider as a measure how often individuals are admitted involuntarily, put into seclusion/ restraints or given forced medications. This data is collected, so should be available. Clearly all efforts to decrease coercion in the context of care are elements of improved care. The campaign to radically reduce seclusion and restraint proves the merit of collecting this data as a quality indicator.	Consider including a measure about individuals being admitted involuntarily, put into seclusion/ restraints or given forced medications.	NCQA will share this thought with Mathematica.
University of Pittsburgh	Support with modification.	One final measurable recovery oriented quality measure would be if they were ever encountered by a peer support specialist during their care, and if so, to what extent. This should show in billing data and in electronic health records (EHRs). Also data that could be available is to track how many persons with schizophrenia get on disability if they have no source of income, how long it takes and how many ever come off. Harder to get but an incredibly important element of care. Thanks. I would be very happy to discuss Any of these ideas if that would be useful.	1. Consider adding a measure that looks at people with schizophrenia that encountered a peer support specialist during treatment. This would show in billing data and EHRs. 2. Consider adding a measure that looks at how long it takes people on disability to get off it.	1. Peer support is unlikely to be captured in claims data and will be inconsistent across state if collected. 2. Will consider for future projects.
National Council for Community Behavioral Healthcare	Support.	We applaud NCQAs work on these measures. The measures are practical, timely and necessary.	Support.	Support.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
American Psychological Association	Support with modification.	I am writing on behalf of the American Psychological Association the largest organization of psychologists worldwide with over 154,000 members. The Association supports NCQA's efforts to measure important aspects of both physical and mental health care for Medicaid beneficiaries with schizophrenia. The proposed measures can be used to further the important goals of improving access to care and quality of care for this vulnerable population. However, we disagree with the decision not to include measures of psychosocial care and recommend that you develop a measure(s) for this important aspect of schizophrenia treatment. There is substantial evidence of the benefits of psychosocial care. For example, a 2011 study by Grant et al. found that low-functioning patients with schizophrenia who were treated with cognitive therapy showed statistically significant and clinically meaningful improvements in functioning and reductions in symptom severity (http://archpsyc.ama-assn.org/cgi/content/full/archgenpsychiatry.2011.129). An excellent source of relevant data in this area is the Schizophrenia PORT project. PORT recently released a comprehensive summary of current evidence-based psychosocial interventions for patients with schizophrenia along with specific treatment recommendations (http://schizophreniabulletin.oxfordjournals.org/content/36/1/48.full.pdf+html). In addition, the "Resolution on APA Endorsement of the Concept of Recovery for People with Serious Mental Illness" provides citations to several important studies that demonstrate the value of psychological interventions (http://www.apa.org/practice/leadership/smi/recovery-resolution.pdf). The Association resolution highlights the need to make potentially beneficial services accessible. In addition, the "Resolution on APA Endorsement of the Concept of Recovery for People with Serious Mental Illness" provides citations to several important studies that demonstrate the value of psychological interventions (http://www.apa.org/practice/leadership/smi/recovery-resolution.pdf). The Association resolution highlights the need to make potentially beneficial services accessible, particularly for minorities and people of lower socioeconomic status such as Medicaid beneficiaries.	Concerned that psychosocial measures are not included.	These measures were in the original list of potential measures, but plans do not currently have the ability to gather all the data using claims. NCQA will share these thoughts with Mathematica.
OptumHealth Behavioral Solutions	Support with modification.	Thank you for focusing on this very important diagnostic category for our Medicaid population. As we mention in our comments, our most significant concern is that the reliability of the results may be compromised based on potentially low denominators. We hope that the development of these datasets will encourage states to review common datasets and have standard, consistent expectations. Overall, these metrics are a very good start. We encourage NCQA to find ways to look at treatment outcome measures in future metrics. There may be ways to look at "treat to remission" and relapse prevention measures using normed instruments. OptumHealth Behavioral Solutions would value the opportunity to work with you to develop future measures.	Consider looking at outcomes in future measure development.	Will consider for future projects.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
American Psychiatric Association (APA)	Support with modification	The CPT code 90862 (Pharmacological Management) is often used for clinical encounters with psychiatrists, and should be added to the specifications of these measures (e.g., in establishing the diagnosis) as appropriate. The specifications of these measures should clearly indicate that these are system-level measures. Should these measures be expanded for institution or clinician level analysis in the future, additional specification would be required. Some measures, such as the measure on follow-up after hospitalization (FUH), involves many factors and may not be appropriate for measurement and accountability at the clinician level of analysis. We understand the rationale for excluding psychosocial interventions from this measure set, and encourage that additional interventions be considered for inclusion as the tools for performance measurement advance.	Consider adding the CPT code 90862 (Pharmacological Management) in the measure specifications.	NCQA and Mathematica will evaluate this code and its applicability to the measure set.
National Alliance on Mental Illness (NAMI)	Support.	NAMI would like to express strong support for the Quality Measures for Medicaid Beneficiaries with Schizophrenia developed by the NCQA. As the nation's largest organization representing people living with SMI and their families, NAMI applauds NCQA for this important effort to move forward with this groundbreaking effort to more effectively assess treatment and outcomes in the Medicaid program. NAMI is especially supportive of the breadth of these proposed measures and the inclusion of key indicators for psychiatric treatment such as treatment adherence, ED utilization and post-acute care follow-up services. However, even more important are the diverse measures for medical comorbidities experienced by Medicaid beneficiaries living with schizophrenia including cardiovascular, diabetes and cervical cancer screening and monitoring. Implementation of the measures will be critical for the field of publicly funded mental health services. For decades, data, outcome measures and accountability in publicly funded mental health services has lagged far behind other major health care disciplines. In many states, existing data have been non-existent for available services, service needs and positive outcomes. Further, what data has existed is rarely standardized across states or public sector health plans, making comparisons and the identification of useful avenues for improvement extremely difficult. This is especially the case with the Medicaid program where accountability is spread across CMS (a federal agency whose role is limited to retroactively matching state spending), state Medicaid programs and state mental health agencies that oversee local providers. For years, federal officials, state mental health agencies and community providers have haggled over leadership definitions, and strategies for addressing the data collection and outcome measure	Support.	Support.
Cardiovascular Health and Diabetes Monitoring				
BJC HealthCare	Support with modification.	Specify that Hemoglobin A1c (HbA1c) be used, not glucose. The American Diabetes Association now recommends HbA1c for screening and for monitoring. It is more reliable and readily testable as it can be done any time of the day with any amount of food or drink consumed. HbA1c is the standard for monitoring diabetes. It is much easier to have a system to test for it for both screening and monitoring rather than fasting glucose for screening and HbA1c for monitoring.	Consider only using HbA1c testing for screening and monitoring to stay consistent with the American Diabetes Association's recommendation.	Review guidelines and evidence for cardiovascular and diabetes screening and monitoring.
Kaiser Health Plan	Support.	Support.	Support.	Support.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
OptumHealth Behavioral Solutions	Support with modification.	1. Denominators for this measure will be extremely small, due to small plan size and the low prevalence of the diagnosis along with, making the results difficult to interpret. There will be even fewer enrollees in this metric as they will need to be both diagnosed with schizophrenia and with either cardiovascular disease or diabetes. In order to maximize the denominator, we recommend decreasing the eligible age to 21 years old. Also, this population switches plans often, so a continuous enrollment requirement of one year with only a 45 day gap will eliminate many members. We suggest allowing up to 2 non-consecutive one-month gaps. 2. Table B. Is this table necessary--we recommend that you remove it? If it remains, it needs to be modified. It includes codes for ophthalmological services, but does not include Healthcare Common Procedure Coding System (HCPCS) codes which are often used for this population and mandated by states (e.g., T1015 for medication management). We also recommend inclusion of telehealth codes (e.g., Q3014).	1. Concern about small numbers for the denominator and recommend decreasing the eligible age to 21 years old. 2. Concern that continuous enrollment of year with only 1 gap will eliminate many members, and recommend 2 non-consecutive 1-month gaps. 3. Consider removing or revisiting Table B (Codes to Identify Visit Type).	1. Review the MAX data to look at potential small numbers problems. 2. Review the MAX data to look at continuous enrollment. 3. Discuss the table's usefulness in the measure.
APA	Support.	We suggest including physical findings such as weight and BMI as monitoring requirements when this type of data can be more easily captured for performance measurement purposes (e.g., broader use of EHRs).	Consider adding weight and BMI monitoring to the physical health measures for schizophrenia when there is broader use of EHRs.	Will consider for future projects.
NAMI	Support.	3. Measure Relevance: As noted above, NAMI strongly support this proposed measure for cardiovascular health and diabetes monitoring. Measure usefulness for improving quality of care for Medicaid recipients with schizophrenia. Feasibility of data collection.	Support.	Support.
Cardiovascular Health and Diabetes Screening				
BJC HealthCare	Support with modification.	Specify that HbA1c be used, not glucose. Glucose is a much less reliable screen due to the need for it to be fasting. The American Diabetes Association now recommends HbA1c for screening. It is more reliable and readily testable as it can be done any time of the day with any amount of food or drink consumed. HbA1c is the standard for monitoring diabetes. It is much easier to have a system to test for it for both screening and monitoring rather than fasting glucose for screening and HbA1c for monitoring.	Consider only using HbA1c testing for screening and monitoring to stay consistent with the American Diabetes Association's recommendation.	Review guidelines and evidence for cardiovascular and diabetes screening and monitoring.
Kaiser Health Plan	Support with modification.	Relevance: We are concerned that both screening recommendations are too frequent. Would like to suggest that the frequency of screenings be reconciled against recommendations from the American Diabetes Association. American Usefulness: We agree that the measure would be useful in improving quality of care. Collection: This data could be collected.	Concern that screenings are too frequent and will not allow actionability.	Measures are specified for people with schizophrenia, therefore a high frequency of screenings should not be an issue.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
Bristol-Myers Squibb Company	Support with modification.	It is important that a lab test is done before or at the time of a new prescription to ensure appropriate decision making. We would suggest an additional measure such as the percentage of members with schizophrenia and who were prescribed any antipsychotic medication during the measurement year who received a diabetes/cardiovascular health screening prior to or at the time of their initial prescription.	Consider adding a rate that looks at the percentage of people that received a diabetes and cardiovascular screening prior to or at the time of their initial antipsychotic prescription.	Will consider for future projects.
OptumHealth Behavioral Solutions	Support with modification.	1. Denominators for this measure will be small, due to small plan size and the low prevalence of the diagnosis, making the results difficult to interpret. In order to maximize the denominator, we recommend decreasing the eligible age to 21 years old. Also, this population switches plans often, so a continuous enrollment requirement of 1 year with only a 45 day gap will eliminate many members. We suggest allowing up to two non-consecutive 1-month gaps. 2. Many of these members receive injectables, but the specs are silent on how to handle this.	1. Concern about small numbers for the denominator and recommend decreasing the eligible age to 21 years old. 2. Concern that continuous enrollment of year with only 1 gap will eliminate many members, and recommend 2 non-consecutive 1-month gaps. 3. Concern that the measure does not specify how to handle people that receive injectables.	1. Review the MAX data to look at potential small numbers problems. 2. Review the MAX data to look at continuous enrollment. 3. Discuss the inclusion of specifications for injectables.
APA	Support.	We suggest including physical findings such as weight and BMI as screening requirements when this type of data can be more easily captured for performance measurement purposes (e.g., broader use of EHRs).	Consider adding weight and BMI monitoring to the physical health measures for schizophrenia when there is broader use of EHRs.	Will consider for future projects.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
NAMI	Support.	2. Measure Relevance: NAMI is strongly supportive of both cardiovascular and diabetes screening and monitoring measures. There is a large and growing body of research demonstrating the tragedy of medical comorbidities and early mortality experienced by people living with schizophrenia. In 2006, the National Association of State Mental Health Program Directors released a series of reports documenting lower life expectancy and premature mortality for individuals with SMI served in the public sector mental health system. These reports examined medical histories and post-mortem records and found alarming rates of medical comorbidities that were directly related to premature death among these individuals: heart disease, pulmonary disorders, diabetes, etc. that were significantly higher than the general population not diagnosed with SMI. In the aggregate, these reports found life expectancy is 25 years lower than the general population. To put this in graphic terms, an American living with schizophrenia has a life expectancy that barely approaches that of an adult in Bangladesh. To be clear, this amounts to a crisis and national disgrace that BOTH the public health AND public mental health systems must come to grips with. The causes of these higher rates of medical comorbidities among non-elderly adults with SMI are varied and complicated. Significantly higher rates of tobacco consumption are documented in this population. Likewise, incidence of co-occurring substance abuse are not uncommon among adults with SMI. There is emerging evidence that poor diet and sedentary lifestyle are also major contributors among those individuals living on disability benefits (Supplemental Security Income and Social Security Disability Insurance) that for many amount to a sub-poverty monthly income. For many individuals living with mental illness the side effects associated with the psychotropic.	Support.	Support.
Cervical Cancer Screening for Women with Schizophrenia				
Wake Forest University School of Medicine	Support with modification.	This metric should not be a review criterion for the performance of a treating psychiatrist for a person with schizophrenia. it does not fit with the boundaries of the psychiatrists competence.	Concern that the measure asks psychiatrists to perform a cervical cancer screening, because the screening does not fall within the boundaries of a psychiatrist's expertise.	Clarify that the measure does not ask a psychiatrist to perform cervical cancer screening. The measure asks the entity being measured to identify patients with a schizophrenia diagnosis that had a cervical cancer screening.
Wake Forest Baptist Health (WFBH)	Do NOT Support.	I believe this is the responsibility of the PCP.	Concern that the measure asks psychiatrists to perform a cervical cancer screening, because the screening does not fall within the boundaries of a psychiatrist's expertise.	Clarify that the measure does not ask a psychiatrist to perform cervical cancer screening, but asks the entity being measured to identify patients with a schizophrenia diagnosis that had a cervical cancer screening.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
WFBH	Do NOT Support.	Do NOT Support.	Do NOT Support.	Do NOT Support.
Wake Health	Support with modification.	How can a psychiatrist manage cervical cancer screening?	Concern that the measure asks psychiatrists to perform a cervical cancer screening, because the screening does not fall within the boundaries of a psychiatrist's expertise.	Clarify that the measure does not ask a psychiatrist to perform cervical cancer screening. The measure asks the entity being measured to identify patients with a schizophrenia diagnosis that had a cervical cancer screening.
University of Nevada School of Medicine	Do NOT Support.	A treating psychiatrist cannot control whether a female patient goes to a gynecologist to have Cervical Cancer Screening and cannot do exam himself. He can only refer, so this should not be a quality measure.	Concern that the measure asks psychiatrists to perform a cervical cancer screening, because the screening does not fall within the boundaries of a psychiatrist's expertise.	Clarify that the measure does not ask a psychiatrist to perform cervical cancer screening. The measure asks the entity being measured to identify patients with a schizophrenia diagnosis that had a cervical cancer screening.
Kaiser Health Plan	Do NOT Support.	Relevance: We feel this may be redundant to existing measures. Although an appreciation that this issue is often overlooked in women with schizophrenia, We have some concerns about the alignment of this with evidence. Usefulness: We have concerns about how this measure would interface with the existing HEDIS measures for cervical cancer screening. Would these patients be in both denominators? Collection: This data could be collected via claims.	1. Concern about how the measure aligns with the existing HEDIS cervical cancer screening measure. The proposed measure just focuses on the members with schizophrenia, who are likely already in the HEDIS measure. 2. Concern that the proposed measure does not align with current evidence.	1. This measure is not designed for HEDIS. It is a separate measure for which states will collect data. 2. NCQA and Mathematica will review and discuss the evidence base for the proposed measure.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
OptumHealth Behavioral Solutions	Support with modification.	1. Denominators for this measure will be extremely small, due to small plan size and the low prevalence of the diagnosis, along with the focus on females, making the results difficult to interpret. In order to maximize the denominator, we recommend decreasing the eligible age to 21 years old. Also, this population switches plans often, so a continuous enrollment requirement of 1 year with only a 45 day gap will eliminate many members. We suggest allowing up to 2 non-consecutive 1-month gaps. 2. Table B. Is this table necessary--we recommend that you remove it? If it remains, it needs to be modified. It includes codes for ophthalmological services, but does not include HCPCS codes which are often used for this population and mandated by states (e.g., T1015 for medication management). We also recommend inclusion of telehealth codes (e.g., Q3014). 3. Please clarify the age range. It says 22-65 in the description but 25-65 in the eligible population section. 4. Remove the inclusion of women who had a Pap test during the 2 years prior to the measurement year. It will be unusual in some markets to have 2 years of claims prior to the measurement period and the goal is to encourage annual Pap tests.	1. Concern about small numbers for the denominator and recommend decreasing the eligible age to 21 years old. 2. Concern that continuous enrollment of year with only 1 gap will eliminate many members, and recommend 2 non-consecutive 1-month gaps. 3. Consider removing or revisiting Table B (Codes to Identify Visit Type). 4. Clarify age range. 5. Consider changing the numerator to women who had a Pap test in the measurement year only, because some markets will not have 2 years of claims, and the goal is to encourage annual Pap tests.	1. Review the MAX data to look at potential small numbers problems. 2. Review the MAX data to look at continuous enrollment. 3. Discuss the table's usefulness in the measure. 4. Does the age range specifications make sense? They are consistent with the current HEDIS measure logic. 5. The 2 years look-back period is optional. Review evidence to see if guidelines recommend annual Pap tests.
APA	Support.	We support this measure, but suggest that the measure include justification and a description of the gap in care within the specifications. There are many general medical screenings that could have been included in this measure set (e.g., colonoscopy), so the rationale as to why this screening was singled out would be useful.	Consider including the measure justification and a description of how this measure addressed the gap in care within the specifications.	The specifications are not designed to include the measure rationale. NCQA and Mathematica will consider publishing the measure workups with the specifications.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
NAMI	Support.	6. Measure Relevance: NAMI applauds inclusion of this measure. As with the measures for cardiovascular disease and diabetes mentioned above, the current state of basic health and wellness screening such as that for cervical cancer for women living with schizophrenia is abysmal. Measure usefulness for improving quality of care for Medicaid recipients with schizophrenia. In NAMI's view, NCQA should move forward on this measure. It will be important given its relevance to any reasonable assessment, and could serve as an accurate and reliable proxy, for assessing how a Medicaid health plan is doing in meeting the basic health care needs of female enrollees with schizophrenia. Feasibility of data collection NAMI would offer caution to NCQA in moving forward on this measure with respect to women living with schizophrenia that have a history of sexual trauma, or for those that experience symptoms of paranoia as part of schizophrenia. It will be incumbent on Medicaid health plans complying with these measures to sensitive to the unique needs of these patients with respect to a procedure such as cervical cancer screening. NAMI recommends that these plans undertake careful beneficiary education about the procedure, its risks and its effectiveness as an evidence prevention and early intervention service.	Concern that cervical cancer screening is a mental health risk for women with a history of sexual trauma or who have paranoia symptoms. If the measure did not exclude members with this history, then it will be incumbent on Medicaid plans to provide better education about the screening prior to the procedure.	Discuss with Mathematica how to account for members with a history of sexual trauma and members with paranoia symptoms.
Emergency Department Utilization				
Kaiser Health Plan	Do NOT Support.	Relevance: We have a concern regarding the inclusion criteria; would this include any ED visit or only those for an acute exacerbation of their schizophrenia symptoms? Usefulness: We do not feel that this measure would not be as useful as the other candidate measures. Collection: The data could be collected.	1. Concern that the measure will not be actionable. 2. Will any ED visit count, or only an ED visit for a schizophrenia symptom?	1. Will discuss issue with Mathematica. 2. Any ED visit counts for a person diagnosed with schizophrenia.
OptumHealth Behavioral Solutions	Do NOT Support.	The ED visits used to identify inclusion in the numerator are not tied to a specific problem or diagnostic code. This measure, therefore, does not reflect the effectiveness of care. Medicaid enrollees with a diagnosis of schizophrenia are at increased risk of living in poverty, having comorbid medical illnesses and not having adequate support or supervision. Assigning a rate to ED utilization may encourage health plans to address an issue that is not an established medical or treatment issue. The unintended consequences of this focus may be squandered resources and even potential restrictions on access to emergency services.	Concern that this measure does not have enough focus and will encourage health plans to provide unnecessary treatment that will only increase resource use.	For this measure, a lower rate represents better performance. NCQA will clarify that in the specification. NCQA and Mathematica will discuss the level of focus needed in the measure.
APA	Do NOT Support.	We do not feel we can support this measure without justification and a description of the gap in care included within its specifications. ED admissions unrelated to the diagnosis of schizophrenia should not be counted in the numerator.	Concern that this measure does not have enough focus.	Will review ED measure definition.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
NAMI	Support.	5. Measure Relevance: This measure is extremely important for assessing treatment of schizophrenia. In most communities, hospital EDs have become the frontline for interfacing with untreated mental illness and the principal intervention for acute psychosis. Inclusion of this measure is integral to any assessment of acute care. EDs are the main portal to an inpatient psychiatric bed. Measure usefulness for improving quality of care for Medicaid recipients with schizophrenia. This measure will be extremely important in assisting health plans in assessing the performance of community-based providers in serving plan enrollees with schizophrenia. It is also important that measure not be diluted by removal diagnostic codes unrelated to acute psychosis. In many cases, individuals with schizophrenia present in hospital EDs with a broad range of medical conditions that are directly related to an acute psychiatric episode (i.e., injury sustained as part of a suicide attempt or injury related to co-occurring substance abuse). Feasibility of data collection In NAMI's view, utilization of EDs should be relatively easy for Medicaid health plans to collect and aggregate.	Support.	Support.
Follow-Up After Hospitalization for Schizophrenia				
BJC HealthCare	Support with modification.	Specify 7 "calendar" days and 30 "calendar days". Organizations easily move these standards to their business days. The data collected and standard sought should be "a week after discharge" and "a month after discharge" (i.e., calendar days).	Clarify that the days are calendar days and not business days.	HEDIS measure specifications do not specify calendar days versus business days. All HEDIS measures use calendar days.
NACBHDD	Support with modification.	Separate acute inpatient care for a mental health reason from other acute inpatient episodes. Otherwise, findings will be ambiguous.	Consider separating the measure by the type of acute inpatient event.	The measure only looks at acute inpatient episodes for members that had a schizophrenia diagnosis upon discharge.
Kaiser Health Plan	Support with modification.	Kaiser Permanente has several comments. Relevance of measure: We agree that this measure is quite relevant. Much of our care is provided via telephone visits, which currently do not count toward meeting this measure. Could telephone visits be included in this measure? Usefulness: We agree that the measure would be useful in improving quality of care. However, we have concerns on how this proposed measure would interface with the existing HEDIS measures for follow-up after psychiatric hospitalization. Would these patients be in both denominators? Collection: This data would be difficult to collect for members who have carved out behavioral health coverage.	1. Consider adding telephone visits to the measure numerator. 2. Concern about how the measure aligns with the existing HEDIS follow-up measure. The proposed measure just focuses on the members with schizophrenia, who are likely already in the HEDIS measure.	1. NCQA will discuss with Mathematica. 2. This measure is not designed for HEDIS. It is a separate measure for which states will collect data.
American Psychological Association	Support.	We support the inclusion of a measure of follow-up care by a mental health practitioner after hospitalizations for schizophrenia, as it will help to avoid unnecessary hospital readmissions and promote continuity of care.	Support.	Support.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
OptumHealth Behavioral Solutions	Support with modification.	1. Outpatient follow-up visits should allow for services that are clinically recommended for this population. These include telehealth appointments (Q3014), and clinic based appointments, which are mandated by some states (e.g., T1015 (medication management); T1017, T1017 HK, T1017 HA (case management); and H0032 and H0032 TS (treatment plan and treatment plan review)). In addition, consideration should be given to follow-up visits with PCPs and peer support groups/services, both of which are non-standard services that can be useful in engaging patients in treatment. 2. This measure is not consistent with the standard FUH measure around how readmissions are handled. This measure requires a readmission with a schizophrenia diagnosis. It is possible, especially early in the patient's treatment, that a member could be readmitted for another mental illness diagnosis. 3. Denominators for this measure will be small, due to small plan size and the low prevalence of the diagnosis, making the results difficult to interpret. In order to maximize the denominator, we recommend decreasing the eligible age to 21 years old. Also, this population switches plans often, so a continuous enrollment requirement of one year with only a 45 day gap will eliminate many members. We suggest allowing up to 2 non-consecutive 1-month gaps.	1. Consider adding telephone visits to the measure numerator. 2. Consider allowing follow-up with PCPs and peer support groups. 3. Concern that measure looks at follow-up for only people diagnosed with schizophrenia. For people in the early stages of treatment, it is possible that the follow-up will be listed under another mental health diagnosis. 4. Concern about small numbers for the denominator and recommend decreasing the eligible age to 21 years old. 5. Concern that continuous enrollment of year with only 1 gap will eliminate many members, and recommend 2 non-consecutive 1-month gaps.	1. NCQA will discuss with Mathematica. 2. NCQA will discuss with Mathematica. 3. The measure does not specify a schizophrenia diagnosis for the follow-up. It only specified a schizophrenia diagnosis for the denominator (discharge from an acute inpatient setting). 4. Review the MAX data to look at potential small numbers problems. 5. Review the MAX data to look at continuous enrollment.
APA	Support with modification.	The definition of "mental health practitioner" was referenced but not made available for review in the public comment materials.	Clarify the definition for mental health practitioner.	Include definitions in final specifications.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
NAMI	Support.	4. Measure Relevance: NAMI strongly supports inclusion of this measure. Meaningful and timely follow-up care after inpatient care has long been difficult in the treatment of schizophrenia. Despite requirements placed on inpatient settings through accreditation bodies such as Joint Commission on Accreditation of Healthcare Organizations and Commission on Accreditation of Rehabilitation Facilities with respect to discharge planning, follow-up care often lacks coordination and accountability. Too often, there is little an inpatient provider can do to hold a community-based provider or individual clinician accountable for rendering care or treatment included in a discharge plan. This measure is a tremendous step forward in allowing a Medicaid health plan to hold a range of providers accountable for follow-up care. Measure usefulness for improving quality of care for Medicaid recipients with schizophrenia. This measure will be extremely useful is assessing post-inpatient follow-up care for the BOTH psychiatric and medical treatment. Feasibility of data collection. This measure is extremely useful for assessing post-acute care. NAMI would note that the 7-day and 30-day intervals for follow-up care after an inpatient stay are standard measures that hospitals and data systems routinely use now. Thus, it should relatively easy and efficient for Medicaid health plans to acquire such data from providers. Collection of this data will also allow for comparisons and greater accountability in assessing how follow-up care schizophrenia looks when weighed against follow-up care for other medical conditions. NAMI would also note that this draft measure contains no allowance for a gap in Medicaid health plan enrollment, as there are for the other measures. NAMI recommends that NCQA retain this provision. Finally, NAMI would also urge NCQA to retain to the breadth of this measure as encompassing both inpatient psychiatric care, as well as inpatient medical care for plan enrollees with schizophrenia.	Support.	Support.
Use and Continuity of Antipsychotic Medications				
New Hampshire DHHS	Support with modification.	Please modify age--I do not understand why people under 25 years were omitted. Young people with schizophrenia are an extremely high need population and antipsychotic treatment is extremely important for their care.	Consider modifying the age limits to include younger people.	TAG recommended 25 to ensure stability of diagnosis.
Kaiser Health Plan	Support with modification.	Kaiser Permanente agrees this measure is relevant and useful in improving the quality of care for this population. We have a concern that information about prescriptions filled in owned and contracted pharmacies could not be collected.	Concern that some prescription data will not be captured.	NCQA will share this thought with Mathematica.
National Council for Community Behavioral Healthcare	Support with modification.	Would suggest that you include all antipsychotic medications to the list regardless of delivery mechanism, inclusive of long-acting injection medications.	Consider being more comprehensive with the antipsychotic medication list by including long action and injectable medications.	The measure is intended to include injectables as part of the definition of antipsychotic medication. Will verify that list includes them.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
Johnson & Johnson Health Care Systems	Support with modification.	The candidate measure "Use & Continuity of Antipsychotic medications" utilizes the "proportion of days covered" (PDC) calculation to derive the measure, which we understand would exclude LAI medications. The resulting measurement would not incorporate an important treatment choice that physicians often choose for patients that have difficulty staying on their medication. We believe this would compromise the actual measure objective, namely improved adherence. It is important to note that the utilization of LAIs, which can provide medication "on board" for patients up to one month, has increased over the last few years. That trend is expected to continue as newer LAIs enter the marketplace. Johnson & Johnson Health Care Systems, Inc.	Consider including LAI medications in the measures. This would require changes to the specifications for Use and Continuity of Antipsychotic medications.	The measure is intended to include injectables as part of the definition of antipsychotic medication. Will verify that list includes them.
Mercer University College of Pharmacy and Health Sciences	Support with modification.	Please consider the inclusion of long-acting injections such as Haldol Decanoate, Invega Sustenna, Prolixin Decanoate and Risperidal Consta. These agents play a vital role on patient adherence. Our society has an unusual position regarding these agents, however, we must realize that patient adherence is a major issue in this population and this type of formulation provides an added option for patient treatment.	Consider including LAI medications in the measures. This would require changes to the specifications for Use and Continuity of Antipsychotic medications.	The measure is intended to include injectables as part of the definition of antipsychotic medication. Will verify that list includes them.
Valley Mental Heath	Support with modification.	LAIs are integral in treating this illness and a big part of future medication development. You are missing the boat by not incorporating LAI medicines in your measures	Consider including LAI medications in the measures. This would require changes to the specifications for Use and Continuity of Antipsychotic medications.	The measure is intended to include injectables as part of the definition of antipsychotic medication. Will verify that list includes them.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
OptumHealth Behavioral Solutions	Support with modification.	1. Denominators for this measure will be small, due to small plan size and the low prevalence of the diagnosis, making the results difficult to interpret. In order to maximize the denominator, we recommend decreasing the eligible age to 21 years old. Also, this population switches plans often, so a continuous enrollment requirement of 1 year with only a 45 day gap will eliminate many members. We suggest allowing up to 2 non-consecutive 1-month gaps. 2. Table B. Is this table necessary--we recommend that you remove it? If it remains, it needs to be modified. It includes codes for ophthalmological services, but does not include HCPCS codes which are often used for this population and mandated by states (e.g., T1015 for medication management). We also recommend inclusion of telehealth codes (e.g., Q3014). 3. Many of these members receive injectables, but the specifications are silent on how to handle this. 4. PDC calculation is missing in step 6. 5. September only has 30 days, so index prescribing period needs to be revised.	1. Concern about small numbers for the denominator and recommend decreasing the eligible age to 21 years old. 2. Concern that continuous enrollment of year with only 1 gap will eliminate many members, and recommend 2 non-consecutive 1-month gaps. 3. Consider removing or revisiting Table B (Codes to Identify Visit Type). 4. Consider including LAI medications in the measures. This would require changes to the specifications for Use and Continuity of Antipsychotic medications. 5. Consider revised prescribing days for September for PDC calculation	1. Review the MAX data to look at potential small numbers problems. 2. Review the MAX data to look at continuous enrollment. 3. Discuss the table's usefulness in the measure. 4. NCQA will share this thought with Mathematica. 5. NCQA will look at this issue.
Mercy Behavioral Health	Support with modification.	I was concerned that Injectable. Therapy was not considered as a cornerstone to the Continuity piece. This is the most effective way to ensure continuity both in the community and during the transition from hospital to community. I definitely believe that to make recommendations without including all options is misinforming. I am a large user and proponent of long-acting therapies for keeping people healthy and safe in the community.	Consider including LAI medications in the measures. This would require changes to the specifications for Use and Continuity of Antipsychotic medications.	The measure is intended to include injectables as part of the definition of antipsychotic medication. Will verify that list includes them.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
Cerebral Palsy of New Jersey	Support with modification.	As a behavioral health executive with 35 years of experience managing inner city, comprehensive community mental health centers, I think it is excellent to see "use and continuity of antipsychotic medication" identified as a quality measure. Medication non-adherence puts patients at extreme risk for adverse outcomes and adds millions of dollars to the cost of health care in regards to rapid readmissions. I believe, however, it is crucial that long-acting injections be added to the measure. LAIs offer a superior way of monitoring adherence, offer a superior method of delivering the medication and offer a much less stressful adherence plan for consumers who are easily overwhelmed by trying to adhere to multiple doses of daily oral antipsychotics. I strongly urge the NCQA to include long-acting in this measure.	Consider including LAI medications in the measures. This would require changes to the specifications for Use and Continuity of Antipsychotic medications.	The measure is intended to include injectables as part of the definition of antipsychotic medication. Will verify that list includes them.
APA	Support with modification.	The following medications appear to be absent from the table: iloperidone; lurasidone; and asenapine. The following medications are included in the table but are no longer available in the United States: trifluoperazine; mesoridazine; and molindone. When electronic prescribing is more prevalent in the future, we suggest consider differentiating between prescriptions that were not written versus prescriptions which were written but not filled by the patient. Quality improvement approaches will differ depending on which is the cause of lack of medication use or continuity.	Consider adding iloperidone; lurasidone; and asenapine to the medication measure. The following medications are included in the table but are no longer available in the United States: trifluoperazine; mesoridazine; and molindone.	NCQA and Mathematica will review the list of antipsychotics.
NAMI	Support.	1. Measure Relevance: NAMI strong supports the relevance of this measure. Treatment adherence has always been a major challenge in schizophrenia. The currently available medications to treat schizophrenia each vary significantly in terms of how they address the complex symptoms of the disorder--from the positive symptoms such as delusional thinking, paranoia and auditory hallucinations, to the negative symptoms such as social withdrawal, flat mood and isolation. In addition, each of the currently available compounds has unique side effect profiles that can vary significantly among individual patients. In some instances, the more effective a medication is controlling symptoms and improving functioning, the more likely individual patients are to stop taking their medication. Finally, one of the very symptoms of schizophrenia is a condition known as “anosognosia” or lack of insight into delusional thinking or paranoia. This condition inevitably results in lack of treatment adherence in many consumers. It is critical that this assessment of treatment adherence be included in these proposed measures. Measure usefulness for improving quality of care for Medicaid recipients with schizophrenia. In NAMI’s view, both the proposed “use” measure and the “continuity” measure are integral to helping meet the goal of improving quality. Feasibility of data collection NAMI strongly supports the proposed 6-step process set forth in the measure for identifying the numerator compliance. NAMI would urge NCQA not to retreat from the 80% minimum standard for the intake period included in the measure. At the same time, NAMI would urge NCQA to expand the list of compounds included in Table C of the draft measures. It is critical that this list be as inclusive as possible. First, the list should be expanded to include alternative delivery technologies available for existing compounds such as long-acting	Support.	Support.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
Inclusion of Bipolar Disorder in the Denominator				
BJC HealthCare	Do NOT Support.	No. People with Bipolar Disorder are treated with a number of medications in addition to the antipsychotics. Those other medications can contribute to weight gain, and thus affect risk factors for heart disease, weight and diabetes. Therefore including bipolar in the denominator confounds the data unless all those medications which have weight gain as a side effect are included (i.e., several of the anti-depressants and mood stabilizers; e.g., trazadone, lithium, etc.)	Concern that including bipolar disorder will confound the data due to medication differences.	NCQA will pass share this thought with Mathematica.
NACBHDD	Support with modification.	Run 2 separate analyses for schizophrenia and bipolar. Otherwise results will be ambiguous.	Concern that the results of the data will be ambiguous.	NCQA will share this thought with Mathematica.
University of Nevada School of Medicine	Do NOT Support.	Bipolar disorder does not always require treatment with an antipsychotic (e.g., when patient is on Depakote or Lithium and the bipolar disorder is in remission). Sometimes it is contraindicated. Thus bipolar disorder should not be included in the numerator or denominator.	Concern that including bipolar disorder will confound the data due to medication differences.	NCQA will share this thought with Mathematica.
Kaiser Health Plan	Support with modification.	Please consider making this based upon the use of medications known to increase risk of diabetes and dyslipidemia, rather than limit this to those with a specific diagnosis and medication.	Consider changing the measure focus away from a specific diagnosis to a focus on medications known to increase the risk of diabetes and dyslipidemia.	The measures are intended to focus on people with schizophrenia.
National Council for Community Behavioral Healthcare	Support.	Support.	Support.	Support.
American Psychological Association	Support.	We support the proposed expansion of measure denominators to include Medicaid beneficiaries with bipolar disorder in order to increase screening and monitoring of cardiovascular health and diabetes.	Support.	Support.
Bristol-Myers Squibb Company	Support.	I would like to indicate support for the expansion of the denominator beyond schizophrenia to include patients with bipolar disorder for the following reasons: Patients with bipolar disorder typically suffer from a high burden of comorbid medical problems, including metabolic issues. Bipolar patients are often overweight and likely to meet criteria for “metabolic syndrome”, placing them at increased risk of developing cardiovascular disease, stroke and Type 2 diabetes. Moreover, several medications used to treat bipolar disorder pose hazards for increasing body weight and worsening metabolic parameters. Given that obesity and illness of the endocrine/metabolic system have been correlated with poorer outcomes, the appropriate monitoring of metabolic health remains critical for this patient group.	Consider adding bipolar disorder to the measure denominators, because patients with this diagnosis suffer from comorbid medical problems.	NCQA will share this thought with Mathematica.
OptumHealth Behavioral Solutions	Support.	Support.	Support.	Support.

TABLE D.1 (*continued*)				
Organization Name	**Feedback Type**	**Comments**	**Comments Modified**	**Disposition**
APA	Support.	We support the expansion of the cardiovascular screening and monitoring measures to the diagnosis of bipolar disorder, and suggest that these measures be considered for expansion to all patients treated with atypical antipsychotic medications, regardless of diagnosis, given the increased risk of cardiovascular illness.	Consider expanding the cardiovascular measures to anyone treated with atypical antipsychotic medications, regardless of diagnosis.	Discuss recommendation with Mathematica.
NAMI	Support.	NAMI strongly endorses extension of these measures to bipolar disorder in the denominator. As with schizophrenia, bipolar disorder is a complex mental disorder with multiple phases and a diverse pathology of symptoms--mania, extreme mood swings, depression, anxiety, mixed state and, in some instances, psychotic features. Treatment for bipolar disorder is often complex and can involve prescribing of multiple compounds. As with schizophrenia, treatment adherence is often challenging for many individuals living with bipolar disorder. In fact, a number of the existing atypical antipsychotic compounds listed in the draft adherence measure are approved by the Food and Drug Administration for treatment of bipolar disorder (e.g., mood stabilizing agents). Likewise, persons with bipolar disorder experience many of the complex medical comorbidities (including cardiovascular disease, diabetes and cervical cancer) of individuals living with schizophrenia. In addition, they have nearly identical needs with respect to follow-up care after a hospital admission. Finally, they also utilize EDs for a diverse array of needs that often associated with failure to access treatment. For these reasons, NAMI urges that NCQA extend all 6 measures for schizophrenia to bipolar disorder.	Support.	NCQA will share these thoughts with Mathematica.

APPENDIX E. PILOT-TESTING RESULTS

TABLE E.1. Enrollee Information and Selected SMI Conditions by State												
State	Total FFS	FFS Disabled	FFS Disabled & Non-Dually Eligible	Meet All Inclusion Criteria[a]	Schizophrenia[b]		Bipolar Disorder[c]		Schizophrenia or Bipolar Disorder[d]		Schizophrenia and Bipolar Disorder[e]	
	N	N	N	N	N	Percent	N	Percent	N	Percent	N	Percent
AL	903,809	210,887	111,630	52,351	4,071	7.8	1,201	2.3	5,067	9.7	205	0.4
AK	126,203	15,747	8,510	2,670	270	10.1	114	4.3	379	14.2	5	0.2
CA	10,654,123	1,128,827	628,773	348,599	36,571	10.5	12,404	3.6	45,920	13.2	3,055	0.9
CT	465,746	68,349	30,397	19,875	2,699	13.6	1,215	6.1	3,629	18.3	285	1.4
DC	77,172	34,998	23,741	12,700	1,716	13.5	703	5.5	2,239	17.6	180	1.4
GA	1,104,108	282,632	151,295	66,548	6,177	9.3	1,870	2.8	7,617	11.4	430	0.6
ID	229,423	36,382	20,555	7,613	781	10.3	648	8.5	1,329	17.5	100	1.3
IL	2,380,314	344,733	171,810	103,202	12,781	12.4	5,580	5.4	15,956	15.5	2,405	2.3
IN	970,830	148,624	72,925	38,034	3,198	8.4	1,793	4.7	4,778	12.6	213	0.6
IA	479,755	71,302	33,342	14,413	1,376	9.5	675	4.7	1,907	13.2	144	1.0
LA	1,155,231	197,309	124,592	58,473	4,314	7.4	1,180	2.0	5,258	9.0	236	0.4
MD	835,727	138,739	84,577	41,442	4,340	10.5	2,718	6.6	6,495	15.7	563	1.4
MO	721,719	187,957	99,510	55,677	4,775	8.6	3,910	7.0	8,021	14.4	664	1.2
MS	745,543	171,082	93,910	41,175	3,377	8.2	803	2.0	4,039	9.8	141	0.3
NH	144,366	22,315	8,848	4,682	374	8.0	228	4.9	581	12.4	21	0.4
NC	1,655,892	283,473	153,256	66,404	5,670	8.5	2,777	4.2	7,932	11.9	515	0.8
ND	73,449	10,883	4,594	2,041	219	10.7	59	2.9	268	13.1	10	0.5
NV	197,548	39,964	23,054	8,567	749	8.7	348	4.1	1,039	12.1	58	0.7
OK	783,335	103,287	55,442	27,102	2,600	9.6	1,330	4.9	3,720	13.7	210	0.8
SD	131,924	19,026	8,709	3,591	279	7.8	73	2.0	346	9.6	6	0.2
WV	289,435	113,811	72,220	41,844	1,933	4.6	2,090	5.0	3,806	9.1	217	0.5
WY	77,782	9,869	5,179	2,120	142	6.7	72	3.4	203	9.6	11	0.5
Total	**24,203,434**	**3,640,196**	**1,986,869**	**1,019,123**	**98,412**	**9.7**	**41,791**	**4.1**	**130,529**	**12.8**	**9,674**	**0.9**

SOURCE: Mathematica analysis of 2007 MAX data.

a. FFS, non-dual disabled enrollees with 10 months of eligibility.
b. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia.
c. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is bipolar disorder.
d. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia or bipolar disorder.
e. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia and 1 inpatient or 2 outpatient claims where the primary diagnosis is bipolar disorder.

TABLE E.2. Enrollee Demographics					
Characteristic	**Meet All Inclusion Criter[a]**	**Schizophrenia[b]**		**Schizophrenia or Bipolar Disorder[c]**	
	N	**N**	**Percent**	**N**	**Percent**
Gender					
Male	425,462	49,949	11.7	58,946	13.9
Female	593,632	48,462	8.2	71,581	12.1
Age					
25 - 30	96,156	10,454	10.9	14,054	14.6
31 - 40	170,421	19,770	11.6	27,620	16.2
41 - 50	298,627	35,211	11.8	46,957	15.7
51 - 60	351,638	27,890	7.9	35,567	10.1
61 - 64	102,281	5,087	5.0	6,331	6.2
Unknown					
Race/Ethnicity					
African American	332,190	38,067	11.5	44,169	13.3
Caucasian	473,576	41,105	8.7	62,834	13.3
Hispanic	83,492	7,001	8.4	8,825	10.6
Other	61,492	5,513	9.0	6,329	10.3
Unknown	68,373	6,726	9.8	8,372	12.2
Comorbid Diagnoses					
Cardiovascular disease[d]	84,624	4,700	5.6	6,405	7.6
Diabetes[e]	178,962	17,027	9.5	21,845	12.2
Managed Care Status					
Enrolled in HMO	126,495	11,273	8.9	16,080	12.7
Enrolled in BHO	14,352	1,372	9.6	1,900	13.2
Enrolled in other MC	78,159	6,605	8.5	8,710	11.1
Total	**1,019,123**	**98,412**	**9.7**	**130,529**	**12.8**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. FFS, non-dual, disabled enrollees with 10 months of eligibility.
b. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia.
c. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia or bipolar disorder.
d. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
e. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.3a. Use of Antipsychotic Medication by Enrollee Characteristic			
Characteristic	**Schizophrenia[a]**	**Use of Antipsychotic Medication**	
	N	**N**	**Percent**
Gender			
Male	48,642	45,704	94.0
Female	47,787	44,458	93.0
Age			
25 - 30	10,170	9,639	94.8
31 - 40	19,312	18,212	94.3
41 - 50	34,513	32,345	93.7
51 - 60	27,410	25,326	92.4
61 - 64	5,025	4,641	92.4
Unknown	0	0	0.0
Race/Ethnicity			
African American	37,041	34,324	92.7
Caucasian	40,491	38,003	93.9
Hispanic	6,898	6,541	94.8
Other	5,412	5,137	94.9
Unknown	6,588	6,158	93.5
Comorbid Diagnoses			
Cardiovascular disease[b]	4,683	4,246	90.7
Diabetes[c]	16,968	15,942	94.0
Managed Care Status			
Enrolled in HMO	11,018	10,125	91.9
Enrolled in BHO	1,358	1,287	94.8
Enrolled in other MC	6,529	6,108	93.6
Total	**96,430**	**90,163**	**93.5**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia.
b. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
c. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.3b. Use of Antipsychotic Medication by State			
State	Schizophrenia[a]	Use of Antipsychotic Medication	
	N	N	Percent
AL	3,997	3,788	94.8
AK	261	242	92.7
CA	35,895	33,664	93.8
CT	2,672	2,566	96.0
DC	1,588	1,426	89.8
GA	5,997	5,618	93.7
ID	772	714	92.5
IL	12,527	11,570	92.4
IN	3,146	2,985	94.9
IA	1,359	1,288	94.8
LA	4,217	4,004	94.9
MD	4,232	3,973	93.9
MO	4,693	4,442	94.7
MS	3,310	2,959	89.4
NH	368	353	95.9
NC	5,561	5,172	93.0
ND	215	198	92.1
NV	737	702	95.3
OK	2,580	2,359	91.4
SD	249	229	92.0
WV	1,915	1,784	93.2
WY	139	127	91.4
Total	**96,430**	**90,163**	**93.5**

SOURCE: 2007 MAX data.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia.

TABLE E.4a. Antipsychotic Medication Possession Ratio by Enrollee Characteristic (All States)	
Characteristic	**Antipsychotic Possession Ratio ≥80%**
	Percent
Gender	
Male	64.9
Female	63.7
Age	
25 - 30	59.0
31 - 40	60.8
41 - 50	62.8
51 - 60	69.0
61 - 64	74.2
Unknown	0.0
Race/Ethnicity	
African American	53.0
Caucasian	72.6
Hispanic	64.8
Other	71.1
Unknown	69.3
Comorbid Diagnoses	
Cardiovascular disease[a]	62.7
Diabetes[b]	71.0
Managed Care Status	
Enrolled in HMO	62.1
Enrolled in BHO	74.7
Enrolled in other MC	60.5
Total	**64.3**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.
Antipsychotic Possession Ratio = # Days supplied/# Days in treatment period.

a. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
b. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.4b. Antipsychotic Medication Possession Ratio by State	
State	**Antipsychotic Medication Possession Ratio ≥80%**
	Percent
AL	59.3
AK	66.5
CA	67.5
CT	72.1
DC	48.3
GA	55.3
ID	78.6
IL	64.2
IN	68.5
IA	74.7
LA	54.7
MD	62.8
MO	66.5
MS	48.9
NH	80.0
NC	64.6
ND	84.6
NV	62.6
OK	62.8
SD	70.9
WV	65.5
WY	65.9
Total	**64.3**
SOURCE: 2007 MAX data. Antipsychotic Possession Ratio = # Days supplied/# Days in treatment period.	

TABLE E.5a. Diabetes Screening Among Enrollees with Schizophrenia or Bipolar Disorder[a] by Enrollee Characteristics (All States)			
Characteristic	**Denominator**	**Diabetes Screen**	
	N	**N**	**Percent**
Gender			
Male	40,443	4,118	10.2
Female	43,749	4,760	10.9
Age			
25 - 30	10,087	1,096	10.9
31 - 40	18,686	2,083	11.1
41 - 50	30,206	3,104	10.3
51 - 60	21,492	2,199	10.2
61 - 64	3,721	396	10.6
Unknown	0	0	0.0
Race/Ethnicity			
African American	27,027	2,469	9.1
Caucasian	41,324	4,574	11.1
Hispanic	5,758	728	12.6
Other	4,463	477	10.7
Unknown	5,620	630	11.2
Comorbid Diagnoses			
Cardiovascular disease[b]	3,079	384	12.5
Diabetes[c]	N/A	N/A	N/A
Managed Care Status			
Enrolled in HMO	10,393	1,191	11.5
Enrolled in BHO	1,250	255	20.4
Enrolled in other MC	5,539	695	12.5
Total	**84,192**	**8,878**	**10.5**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia or bipolar disorder.
b. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
c. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.5b. Diabetes Screening Among Enrollees with Schizophrenia or Bipolar Disorder[a] by State			
State	Denominator	Diabetes Screen	
	N	N	Percent
AL	3,253	420	12.9
AK	245	21	8.6
CA	31,796	3,758	11.8
CT	2,442	689	28.2
DC	1,284	52	4.0
GA	4,683	148	3.2
ID	824	69	8.4
IL	9,515	562	5.9
IN	3,031	543	17.9
IA	1,251	255	20.4
LA	3,499	382	10.9
MD	4,094	93	2.3
MO	5,030	427	8.5
MS	2,392	232	9.7
NH	377	83	22.0
NC	4,735	452	9.5
ND	171	35	20.5
NV	756	67	8.9
OK	2,318	278	12.0
SD	217	53	24.4
WV	2,148	253	11.8
WY	131	6	4.6
Total	**84,192**	**8,878**	**10.5**

SOURCE: 2007 MAX data.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia or bipolar disorder.

TABLE E.6a. Cardiovascular Health Screening Among Enrollees with Schizophrenia or Bipolar Disorder[a] by Enrollee Characteristics			
Characteristic	**Denominator**	**Cardiovascular Screen**	
	N	**N**	**Percent**
Gender			
Male	45,195	19,384	42.9
Female	52,338	23,423	44.8
Age			
25 - 30	10,773	3,870	35.9
31 - 40	20,926	8,507	40.7
41 - 50	35,219	15,599	44.3
51 - 60	26,032	12,553	48.2
61 - 64	4,584	2,279	49.7
Unknown	0	0	0.0
Race/Ethnicity			
African American	32,001	11,752	36.7
Caucasian	46,781	21,525	46.0
Hispanic	7,043	3,657	51.9
Other	5,256	2,732	52.0
Unknown	6,453	3,142	48.7
Comorbid Diagnoses			
Cardiovascular disease[b]	N/A	N/A	N/A
Diabetes[c]	16,421	10,173	62.0
Managed Care Status			
Enrolled in HMO	11,715	3,829	32.7
Enrolled in BHO	1,501	654	43.6
Enrolled in other MC	6,520	2,937	45.0
Total	**97,534**	**42,808**	**43.9**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia or bipolar disorder.
b. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
c. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.6b. Cardiovascular Health Screening Among Enrollees with Schizophrenia or Bipolar Disorder[a] by State			
State	**Denominator**	**Cardiovascular Screen**	
	N	**N**	**Percent**
AL	3,911	1,840	47.0
AK	281	104	37.0
CA	35,706	19,593	54.9
CT	2,985	1,262	42.3
DC	1,488	716	48.1
GA	5,568	547	9.8
ID	994	502	50.5
IL	11,363	2,959	26.0
IN	3,557	1,775	49.9
IA	1,502	654	43.5
LA	3,958	2,002	50.6
MD	4,659	323	6.9
MO	5,770	2,613	45.3
MS	2,880	1,222	42.4
NH	450	285	63.3
NC	5,898	3,313	56.2
ND	210	131	62.4
NV	826	375	45.4
OK	2,651	1,115	42.1
SD	252	118	46.8
WV	2,476	1,311	52.9
WY	149	48	32.2
Total	**97,534**	**42,808**	**43.9**

SOURCE: 2007 MAX data.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia or bipolar disorder.

TABLE E.7a. Diabetes Monitoring Among Enrollees with Schizophrenia[a] by Enrollee Characteristics (All States)			
Characteristic	**Denominator**	**Diabetes Test**	
	N	**N**	**Percent**
Gender			
Male	6,919	3,557	51.4
Female	10,107	5,330	52.7
Age			
25 - 30	676	347	51.3
31 - 40	2,298	1,226	53.4
41 - 50	6,135	3,195	52.1
51 - 60	6,509	3,398	52.2
61 - 64	1,409	722	51.2
Unknown	0	0	0.0
Race/Ethnicity			
African American	7,125	3,203	45.0
Caucasian	6,492	3,659	56.4
Hispanic	1,403	801	57.1
Other	904	592	65.5
Unknown	1,103	633	57.4
Comorbid Diagnoses			
Cardiovascular disease[b]	1,755	882	50.3
Diabetes[c]	17,027	8,888	52.2
Managed Care Status			
Enrolled in HMO	1,486	638	42.9
Enrolled in BHO	263	174	66.2
Enrolled in other MC	1,231	732	59.5
Total	**17,027**	**8,888**	**52.2**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia.
b. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
c. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.7b. Diabetes Monitoring Among Enrollees with Schizophrenia[a] by State			
State	**Denominator**	**Diabetes Test**	
	N	**N**	**Percent**
AL	812	474	58.4
AK	43	11	25.6
CA	5,075	3,376	66.5
CT	566	305	53.9
DC	281	175	62.3
GA	1,118	186	16.6
ID	153	103	67.3
IL	2,958	604	20.4
IN	607	407	67.1
IA	263	174	66.2
LA	651	441	67.7
MD	669	61	9.1
MO	810	460	56.8
MS	640	396	61.9
NH	76	62	81.6
NC	1,294	955	73.8
ND	39	31	79.5
NV	92	68	73.9
OK	432	262	60.6
SD	45	25	55.6
WV	384	301	78.4
WY	19	11	57.9
Total	**17,027**	**8,888**	**52.2**

SOURCE: 2007 MAX data.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia and 1 inpatient or 2 outpatient claims with a primary diagnosis of diabetes.

TABLE E.8a. Cardiovascular Health Monitoring Among Enrollees with Schizophrenia[a] by Enrollee Characteristics (All States)			
Characteristic	**Denominator**	**Cardiovascular Test**	
	N	**N**	**Percent**
Gender			
Male	2,218	1,250	56.4
Female	2,482	1,378	55.5
Age			
25 - 30	81	45	55.6
31 - 40	333	189	56.8
41 - 50	1,529	852	55.7
51 - 60	2,185	1,234	56.5
61 - 64	572	308	53.8
Unknown	0	0	0.0
Race/Ethnicity			
African American	2,027	999	49.3
Caucasian	2,028	1,223	60.3
Hispanic	232	160	69.0
Other	136	91	66.9
Unknown	277	155	56.0
Comorbid Diagnoses			
Cardiovascular disease[b]	4,700	2,628	55.9
Diabetes[c]	1,755	1,074	61.2
Managed Care Status			
Enrolled in HMO	317	121	38.2
Enrolled in BHO	49	29	59.2
Enrolled in other MC	307	180	58.6
Total	**4,700**	**2,628**	**55.9**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia and 1 inpatient or 2 outpatient claims where the primary diagnosis is cardiovascular disease.
b. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
c. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.8b. Cardiovascular Health Monitoring Among Enrollees with Schizophrenia[a] by States			
State	Denominator	Cardiovascular Test	
	N	N	Percent
AL	178	99	55.6
AK	12	4	33.3
CA	1,436	1,059	73.7
CT	105	60	57.1
DC	76	36	47.4
GA	260	44	16.9
ID	19	14	73.7
IL	1,147	462	40.3
IN	156	105	67.3
IA	49	29	59.2
LA	222	146	65.8
MD	179	21	11.7
MO	233	136	58.4
MS	107	66	61.7
NH	9	4	44.4
NC	229	158	69.0
ND	5	3	60.0
NV	24	16	66.7
OK	130	82	63.1
SD	7	6	85.7
WV	112	77	68.8
WY	5	1	20.0
Total	**4,700**	**2,628**	**55.9**

SOURCE: 2007 MAX data.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia and 1 inpatient or 2 outpatient claims where the primary diagnosis is cardiovascular disease.

TABLE E.9a. Cervical Cancer Screening Among Enrollees with Schizophrenia[a] by Enrollee Characteristics (All States)			
Characteristic	**Denominator**	**Cervical Cancer Screen**	
	N	**N**	**Percent**
Gender			
Male	0	0	0.0
Female	47,800	10,913	22.8
Age			
25 - 30	3,347	1,061	31.7
31 - 40	8,549	2,348	27.5
41 - 50	17,433	4,194	24.1
51 - 60	15,313	2,856	18.7
61 - 64	3,158	454	14.4
Unknown	0	0	0.0
Race/Ethnicity			
African American	18,419	4,182	22.7
Caucasian	20,105	4,723	23.5
Hispanic	3,143	727	23.1
Other	2,753	552	20.1
Unknown	3,380	729	21.6
Comorbid Diagnoses			
Cardiovascular disease[b]	2,437	479	19.7
Diabetes[c]	9,953	2,429	24.4
Managed Care Status			
Enrolled in HMO	5,753	1,051	18.3
Enrolled in BHO	757	249	32.9
Enrolled in other MC	3,619	799	22.1
Total	**47,800**	**10,913**	**22.8**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. Female enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia.
b. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
c. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.9b. Cervical Cancer Screening Among Enrollees with Schizophrenia[a] by States			
State	Denominator	Cervical Cancer Screen	
	N	N	Percent
AL	2,271	507	22.3
AK	132	28	21.2
CA	16,773	3,623	21.6
CT	1,388	329	23.7
DC	848	210	24.8
GA	3,411	797	23.4
ID	419	120	28.6
IL	5,519	1,223	22.2
IN	1,604	409	25.5
IA	759	250	32.9
LA	2,269	536	23.6
MD	1,987	157	7.9
MO	2,247	666	29.6
MS	1,821	423	23.2
NH	208	60	28.8
NC	3,018	839	27.8
ND	115	40	34.8
NV	387	83	21.4
OK	1,381	299	21.7
SD	131	32	24.4
WV	1,028	264	25.7
WY	84	18	21.4
Total	**47,800**	**10,913**	**22.8**

SOURCE: 2007 MAX data.

a. Female enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia.

TABLE E.10a. ED Utilization for Mental Health Conditions Among Enrollees with Schizophrenia[a] by Enrollee Characteristics (All States)			
Characteristic	**Denominator**	**ED for Mental Health Conditions[b]**	
	N	**N**	**Percent**
Gender			
Male	49,949	13,696	27.4
Female	48,462	14,805	30.5
Age			
25 - 30	10,454	3,747	35.8
31 - 40	19,770	6,513	32.9
41 - 50	35,211	10,279	29.2
51 - 60	27,890	6,751	24.2
61 - 64	5,087	1,211	23.8
Unknown	0	0	0.0
Race/Ethnicity			
African American	38,067	12,145	31.9
Caucasian	41,105	11,978	29.1
Hispanic	7,001	1,906	27.2
Other	5,513	902	16.4
Unknown	6,726	1,570	23.3
Comorbid Diagnoses			
Cardiovascular disease[c]	4,700	2,170	46.2
Diabetes[d]	17,027	5,343	31.4
Managed Care Status			
Enrolled in HMO	11,273	2,879	25.5
Enrolled in BHO	1,372	409	29.8
Enrolled in other MC	6,605	1,995	30.2
Total	**98,412**	**28,501**	**29.0**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia.
b. ED use for mental health conditions includes any ED claim with a visit related ICD-9 code of 290, 293, 295-302, 306-316.
c. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
d. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.10b. ED Utilization for Mental Health Conditions Among Enrollees with Schizophrenia[a] by State			
State	Denominator	SMI ED Use[b]	
	N	N	Percent
AL	4,071	1,221	30.0
AK	270	97	35.9
CA	36,571	8,168	22.3
CT	2,699	993	36.8
DC	1,716	564	32.9
GA	6,177	2,003	32.4
ID	781	208	26.6
IL	12,781	4,631	36.2
IN	3,198	830	26.0
IA	1,376	409	29.7
LA	4,314	1,485	34.4
MD	4,340	1,487	34.3
MO	4,775	1,607	33.7
MS	3,377	897	26.6
NH	374	125	33.4
NC	5,670	1,981	34.9
ND	219	53	24.2
NV	749	201	26.8
OK	2,600	785	30.2
SD	279	76	27.2
WV	1,933	630	32.6
WY	142	50	35.2
Total	**98,412**	**28,501**	**29.0**

SOURCE: 2007 MAX data.

a. Enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia.
b. ED utilization for mental health conditions includes any ED claim with a visit related ICD-9 code of 290, 293, 295-302, 306-316.

TABLE E.11a. 7-Day Follow-Up After Mental Health Discharge Among Enrollees with Schizophrenia[a] by Enrollee Characteristics (All States)			
Characteristic	**Denominator**	**7-Day Follow-Up**	
	N	**N**	**Percent**
Gender			
Male	19,467	4,842	24.9
Female	19,755	5,731	29.0
Age			
25 - 30	5,064	1,338	26.4
31 - 40	9,589	2,459	25.6
41 - 50	14,916	3,998	26.8
51 - 60	8,414	2,402	28.5
61 - 64	1,239	376	30.3
Unknown	0	0	0.0
Race/Ethnicity			
African American	18,259	4,740	26.0
Caucasian	15,042	4,724	31.4
Hispanic	2,765	466	16.9
Other	1,114	208	18.7
Unknown	2,042	435	21.3
Comorbid Diagnoses			
Cardiovascular disease[b]	4,098	1,161	28.3
Diabetes[c]	7,710	2,464	32.0
Managed Care Status			
Enrolled in HMO	4,541	939	20.7
Enrolled in BHO	725	272	37.5
Enrolled in other MC	2,337	996	42.6
Total	**39,222**	**10,573**	**27.0**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. Mental health discharges among enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia. Mental health discharges include discharges for any of the following visit related ICD-9 codes: 290, 293, 295-302, 306-316. Follow-up services include any outpatient visit; see Appendix F for a listing of codes included.
b. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
c. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.11b. 7-Day Follow-Up After Mental Health Discharge Among Enrollees with Schizophrenia[a] by State			
State	**Denominator**	**7-Day Follow-Up**	
	N	**N**	**Percent**
AL	1,484	650	43.8
AK	32	10	31.3
CA	10,953	908	8.3
CT	1,229	354	28.8
DC	1,303	551	42.3
GA	2,386	843	35.3
ID	72	20	27.8
IL	8,366	2,212	26.4
IN	1,253	656	52.4
IA	725	272	37.5
LA	441	102	23.1
MD	2,864	849	29.6
MO	2,453	832	33.9
MS	1,420	334	23.5
NH	121	80	66.1
NC	2,181	1,123	51.5
ND	79	20	25.3
NV	124	47	37.9
OK	862	349	40.5
SD	106	35	33.0
WV	735	309	42.0
WY	33	17	51.5
Total	**39,222**	**10,573**	**27.0**

SOURCE: 2007 MAX data.

a. Mental health discharges among enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia. Mental health discharges include discharges for any of the following visit related ICD-9 codes: 290, 293, 295-302, 306-316. Follow-up services include any outpatient visit; see Appendix F for a listing of codes included.

TABLE E.12a. 30-Day Follow-Up After Mental Health Discharge Among Enrollees with Schizophrenia[a] by Enrollee Characteristics (All States)			
Characteristic	**Denominator**	**30-Day Follow-Up**	
	N	**N**	**Percent**
Gender			
Male	14,622	7,340	50.2
Female	15,930	9,277	58.2
Age			
25 - 30	3,949	2,047	51.8
31 - 40	7,284	3,771	51.8
41 - 50	11,470	6,213	54.2
51 - 60	6,795	3,948	58.1
61 - 64	1,054	638	60.5
Unknown	0	0	0.0
Race/Ethnicity			
African American	13,734	7,230	52.6
Caucasian	12,114	7,371	60.8
Hispanic	2,135	883	41.4
Other	924	387	41.9
Unknown	1,645	746	45.3
Comorbid Diagnoses			
Cardiovascular disease[b]	2,804	1,728	61.6
Diabetes[c]	5,852	3,807	65.1
Managed Care Status			
Enrolled in HMO	3,582	1,634	45.6
Enrolled in BHO	597	470	78.7
Enrolled in other MC	2,033	1,472	72.4
Total	**30,552**	**16,617**	**54.4**

SOURCE: 2007 MAX data.
HMO = health maintenance organization; BHO = behavioral healthcare organization; MC = managed care.

a. Mental health discharges among enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia. Mental health discharges include discharges for any of the following visit related ICD-9 codes: 290, 293, 295-302, 306-316. Follow-up services include any outpatient visit; see Appendix F for a listing of codes included.
b. Refer to Appendix F for all CPT, HCPC, and ICD9 codes used to identify cardiovascular disease.
c. Diabetes identified using ICD-9 diagnoses of 250, 357.2, 362.0, 366.41, 648.0.

TABLE E.12b. 30-Day Follow-Up After Mental Health Discharge Among Enrollees with Schizophrenia[a] by State			
State	**Denominator**	**30-Day Follow-Up**	
	N	**N**	**Percent**
AL	1,329	950	71.5
AK	27	21	77.8
CA	8,498	2,172	25.6
CT	1,008	602	59.7
DC	941	613	65.1
GA	2,008	1,349	67.2
ID	66	48	72.7
IL	5,601	3,119	55.7
IN	1,091	897	82.2
IA	597	470	78.7
LA	412	247	60.0
MD	2,195	1,348	61.4
MO	1,938	1,226	63.3
MS	1,257	770	61.3
NH	96	85	88.5
NC	1,881	1,471	78.2
ND	69	55	79.7
NV	107	81	75.7
OK	713	530	74.3
SD	83	57	68.7
WV	605	480	79.3
WY	30	26	86.7
Total	**30,552**	**16,617**	**54.4**

SOURCE: 2007 MAX data.

a. Mental health discharges among enrollees with 1 inpatient or 2 outpatient claims where the primary diagnosis is schizophrenia. Mental health discharges include discharges for any of the following visit related ICD-9 codes: 290, 293, 295-302, 306-316. Follow-up services include any outpatient visit; see Appendix F for a listing of codes included.

TABLE E.13. Distributions of Measures at the State Level (N=22)						
Measure	**Minimum**	**25th Percentile**	**Median**	**Mean**	**75th Percentile**	**Maximum**
Schizophrenia						
Use of Antipsychotic Medications	89.4	92.1	93.4	93.3	94.8	96.0
Antipsychotic Medication Possession Ratio	48.3	62.6	65.7	65.7	70.9	84.6
Diabetes Monitoring	9.1	55.6	62.1	57.3	67.7	81.6
Cardiovascular Health Monitoring	11.7	44.4	59.6	54.5	67.3	85.7
Cervical Cancer Screening	7.9	21.7	23.7	24.4	27.8	34.8
ED Utilization For Mental Health Conditions	22.3	26.8	32.5	31.0	34.4	36.8
Follow-up After Mental Health Discharge (7-day)	8.3	27.8	34.6	36.0	42.3	66.1
Follow-up After Mental Health Discharge (30-day)	25.6	61.4	72.1	69.7	78.7	88.5
Schizophrenia or Bipolar Disorder						
Diabetes Screening	2.3	8.4	10.3	12.1	17.9	28.2
Cardiovascular Health Screening	6.9	42.1	46.1	43.4	50.6	63.3
SOURCE: 2007 MAX data.						

TABLE E.14. Utilization by Measure Performance Quartile				
Measure	**Enrollees Hospitalized for Schzophrenia (Percentage)**		**Enrollees Hospitalized for Schzophrenia (Percentage)**	
	States in Bottom 25%	**States in Top 25%**	**States in Bottom 25%**	**States in Top 25%**
Schizophrenia				
Use of antipsychotic medications	18.5	10.5	21.2	22.3
Antipsychotic possession ratio	14.0	15.5	23.4	23.3
Diabetes monitoring	23.7	14.3	26.7	24.2
Cardiovascular health monitoring	24.2	17.1	26.6	16.1
Cervical cancer screen	17.9	18.4	15.8	21.2
Mental health follow-up (7 day)	19.4	16.3	18.1	23.0
Mental health follow-up (30 day)	19.3	16.0	18.6	19.1
Schizophrenia or Bipolar Disorder				
Diabetes screening	24.3	18.1	26.6	24.5
Cardiovascular health screening	24.2	17.4	26.6	16.2

SOURCE: 2007 MAX data.

NOTES:

Lower rates of hospitalization and ED use hypothesized for enrollees in the top 25% for each measure.

Hospitalization percentages significantly different at $p<0.01$ except Cervical Cancer Screen.

ED percentages significantly different at $p<0.01$ except Use of Antipsychotic Medications, Antipsychotic Possession Ratio, and Mental Health Follow-up (30-day).

TABLE E.15. Enrollee Level Correlation Matrix (2007)									
	Antipsychotic Use	**Antipsychotic Possession Ratio**	**Diabetes Screening**	**Diabetes Monitoring**	**Cardiovascular Screening**	**Cardiovascular Monitoring**	**Cervical Cancer Screen**	**ED Utilization (MH)**	**Follow-Up (7-Day)**
Antipsychotic Use									
Antipsychotic Possession Ratio	0.000								
Diabetes Screening	0.000	0.063							
Diabetes Monitoring	0.013	0.073	0.000						
Cardiovascular Screening	0.000	0.116	0.276	0.908					
Cardiovascular Monitoring	0.039	0.073	0.198	0.888	0.000				
Cervical Cancer Screen	-0.008	0.028	0.050	0.082	0.112	0.104			
ED Utilization (MH)	0.031	-0.138	0.013	-0.038	-0.026	-0.033	-0.013		
MH Follow-up (7-day)	0.092	0.103	0.014	0.081	0.068	0.095	0.051	0.060	
MH Follow-up (30-day)	0.105	0.153	0.007	0.092	0.063	0.069	0.081	0.019	0.495
SOURCE: 2007 MAX data.									

TABLE E.16. State Measure Correlations, 2007-2008 (N=16)	
	2007-2008 Correlation
Use of Antipsychotic Medications	0.252
Antipsychotic Medication Possession Ratio	0.550
Diabetes Screening	0.330
Diabetes Monitoring	0.453
Cardiovascular Health Screening	0.426
Cardiovascular Health Monitoring	0.403
Cervical Cancer Screen	0.314
ED Utilization for Mental Health Conditions	0.416
Follow-up after Mental Health Discharge (7-day)	0.173
Follow-up: after Mental Health Discharge (30-day)	0.202
SOURCE: 2007 and 2008 MAX data.	

APPENDIX F. SCHIZOPHRENIA QUALITY MEASURES: NUMERATOR, DENOMINATOR AND EXCLUSION CRITERIA

TABLE F.1. Measure Criteria: Numerators, Denominators and Exclusions			
Measure Title	**Numerator**	**Denominator**	**Exclusions**
Use of Antipsychotic Medications	Individuals with schizophrenia prescribed any antipsychotic medication during the year.	Adults age 25-64 with a diagnosis of schizophrenia during the measurement year.	None.
Antipsychotic Medication Possession Ratio	Individuals who achieved a PDC[a] of at least 80% for their antipsychotic medications during the measurement year.	Adults age 25-64 with a diagnosis of schizophrenia with a claim for any antipsychotic medication during the measurement year.	Individuals with fewer than 90 days in observation period.
Diabetes Screening	Individuals with a CPT code for glucose screening: 82947, 82950, 82951, or ICD9 DX code V77.1.	Adults age 25-64 with a diagnosis of schizophrenia or bipolar disorder during the measurement year who received at least 2 months of an antipsychotic medication.	Individuals with diabetes[b].
Diabetes Monitoring	Individuals with a CPT code for HbA1c testing: 83036, 83037, 3044F, 3045F, 3046F, and any CPT code for LDL-C screening: 80061, 83700, 83701, 83704, 83721, 3048F, 3049F, 3050F.	Adults age 25-64 with a diagnosis of schizophrenia and diabetes[b] during the measurement year.	None.
Cardiovascular Health Screening	Individuals with a CPT code for LDL-C screening: 80061, 83700, 83701, 83704, 83721, 3048F, 3049F, 3050F.	Adults age 25-64 with a diagnosis of schizophrenia or bipolar disorder during the measurement year who received at least 2 months of an antipsychotic medication.	Individuals who had diagnoses or CPT, HCPCS codes indicating CABG, PCI, CHF, IVD or MI during the measurement year.
Cardiovascular Health Monitoring	Individuals with a CPT code for LDL-C testing: 80061, 83700, 83701, 83704, 83721, 3048F, 3049F, 3050F.	Adults age 25-64 with a diagnosis of schizophrenia and any codes indicating CABG, CHF, PCI, IVD or MI during the measurement year.	None.
Cervical Cancer Screening	Individuals with a CPT code for cervical cancer screen.	Female adults age 25-64 with a diagnosis of schizophrenia.	Hysterectomy.
ED Utilization for Mental Health Conditions	ED visit with a visit related diagnosis of 290, 293, 295-302, 306-316.	Adults age 25-64 with a diagnosis of schizophrenia during the measurement year.	None.

TABLE F.1 (*continued*)			
Measure Title	**Numerator**	**Denominator**	**Exclusions**
Follow-up after Mental Health Discharge (7 days)	Any CPT, HCPCs or POS codes to identify follow-up visit within 7 days of discharge date. CPT=90804-90815, 98960-98962, 99078, 99201-99205, 99211-99215, 99217-99220, 99241-99245, 99341-99345, 99347-99350, 99383-99387, 99393-99397, 99401-99404, 99411, 99412, 99510. [90801, 90802, 90816-90819, 90821-90824, 90826-90829, 90845, 90847, 90849, 90853, 90857, 90862, 90870, 90875, 90876 (required POS=03, 05, 07, 09, 11, 12, 13, 14, 15, 20, 22, 24, 33, 49, 50, 52, 53, 71, 72)] [99221-99223, 99231-99233, 99238, 99239, 99251-99255 (require POS=52, 53)] HCPS=G0155, G0176, G0177, G0409-G0411, H0002, H0004, H0031, H0034-H0037, H0039, H0040, H2000, H2001, H2010-H2020, M0064, S0201, S9480, S9484, S9485.	Inpatient mental health discharges (ICD-9 diagnosis=290, 293, 295-302, 306-316) among adults age 25-64 with a diagnosis of schizophrenia.	None.
Follow-up after Mental Health Discharge (30 days)	Any CPT, HCPCs or POS codes to identify follow-up visit within 30 days of discharge date. (See 7-day measure for listing of codes to identify outpatient follow-up visit).	Inpatient mental health discharges (ICD-9 diagnosis=290, 293, 295-302, 306-316) among adults age 25-64 with a diagnosis of schizophrenia.	None.

NOTE: Schizophrenia identified by any inpatient primary diagnosis ICD-9 code of 295 or 2 primary outpatient ICD-9 codes of 295 observed on different days.

a. Proportion of days covered (PDC) = number of days filled divided by days in observation period.
b. Diabetes identified by the following ICD-9 diagnoses: 250, 357.2, 362.0, 366.41, 648.0.

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