# Quality of medical care for persons with serious mental illness: A comprehensive review

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## ARTICLE INFO

## ABSTRACT

*Objectives:* Prior studies suggest variation in the quality of medical care for somatic conditions such as cardiovascular disease and diabetes provided to persons with SMI, but to date no comprehensive review of the literature has been conducted. The goals of this review were to summarize the prior research on quality of medical care for the United States population with SMI; identify potential sources of variation in quality of care; and identify priorities for future research.
*Methods:* Peer-reviewed studies were identified by searching four major research databases and subsequent reference searches of retrieved articles. All studies assessing quality of care for cardiovascular disease, diabetes, dyslipidemia, and HIV/AIDs among persons with schizophrenia and bipolar disorder published between January 2000 and December 2013 were included. Quality indicators and information about the study population and setting were abstracted by two trained reviewers.
*Results:* Quality of medical care in the population with SMI varied by study population, time period, and setting. Rates of guideline-concordant care tended to be higher among veterans and lower among Medicaid beneficiaries. In many study samples with SMI, rates of guideline adherence were considerably lower than estimated rates for the overall US population.
*Conclusions:* Future research should identify and address modifiable provider, insurer, and delivery system factors that contribute to poor quality of medical care among persons with SMI and examine whether adherence to clinical guidelines leads to improved health and disability outcomes in this vulnerable group.

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## 1. Introduction

Persons with serious mental illnesses (SMIs) such as schizophrenia and bipolar disorder have a mortality rate two to three times higher than the overall United States (US) population (Brown, 1997; Saha et al., 2007). Almost all of this premature mortality is due to somatic causes, particularly cardiovascular disease (Daumit et al., 2010; Osborn et al., 2007; Osby et al., 2000). Prevalence of every cardiovascular risk factor and risk behavior – including diabetes mellitus (Osborn et al., 2008), dyslipidemia (Osborn et al., 2008), hypertension (Osborn et al., 2008), tobacco smoking (Compton et al., 2006), obesity (Osborn et al., 2008), physical inactivity (Daumit et al., 2005) and poor diet (Henderson et al., 2006) – is elevated in the population with SMI. Obesogenic effects of commonly prescribed antipsychotic medications often cause weight gain and alter glucose metabolism, compounding the burden of cardiovascular illness in this group (Casey et al., 2004;

McGinty and Daumit, 2011). Persons with SMI are at heightened risk for other somatic conditions as well. In particular, high rates of risky sexual behaviors (Dickerson et al., 2004) and intravenous drug use (Carey et al., 2004) contribute to increased prevalence of HIV in this group (Rosenberg et al., 2001). The high burden of somatic conditions in this population leads to costly disability: persons with SMI are the largest and fastest growing subgroup of social security disability beneficiaries in the US (Drake et al., 2013; Substance Abuse and Mental Health Administration (SAMHSA), 2010).

Poor health and disability outcomes in the population with SMI are affected by multiple factors, including severity and complexity of co-morbid conditions (Jones et al., 2004), individual health behaviors (Compton et al., 2006; Daumit et al., 2005; Henderson et al., 2006), socioeconomic status (Mueser and McGurk, 2004), neighborhood and living conditions that may facilitate or impede adoption of healthy behaviors or access to services (Chun-Chung, 2003), and – the focus of this review – quality of medical care. Prior studies have shown mixed results regarding quality of care for somatic conditions in the population with SMI. For example, studies of post-myocardial infarction quality of care have shown significant variation in rates of guideline-concordant care across Medicaid beneficiaries (McGinty et al., 2012), Medicare

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beneficiaries (Druss et al., 2000), and veterans with SMI (Desai et al., 2002; Petersen et al., 2003). A large body of quality of care research suggests that variation in quality is attributable to a range of interacting patient, provider, insurer, and health-system factors.

Delivery of high quality medical care for somatic conditions in the population with SMI should be a priority given this population's high rates of somatic co-morbidity and premature mortality due to cardiovascular disease. To date, no comprehensive review of the literature has documented and characterized the variation in quality of care for somatic conditions in the population with SMI. This information could inform development of quality improvement initiatives and provide direction for future research designed to identify and address modifiable provider, insurer, and delivery system factors that lead to poor quality of care for somatic conditions in this vulnerable population. To fill this gap in the literature, we reviewed studies on quality of medical care for cardiovascular disease, diabetes, dyslipidemia, and HIV/AIDs in the population with SMI published in the peer-reviewed literature between January 2000 and December 2013. Our objectives were to provide a comprehensive review of the prior research on quality of medical care for the population with SMI; identify potential sources in variation of quality of care by study population and setting; and identify priorities for future research on this topic.

## 2. Methods

We conducted a comprehensive review of studies measuring quality of care for somatic conditions in the population with SMI published in the peer-reviewed literature between January 2000 and December 2013. Robust epidemiologic literature shows heightened rates of cardiovascular disease, the cardiovascular risk factors diabetes mellitus and dyslipidemia, and HIV/AIDS among persons with SMI. Our review therefore focused on studies measuring quality of care for these conditions. Relevant studies were identified by searching the PubMed, Web of Science, EMBASE, PsycINFO, and SCOPUS databases. Full search strategies are included in Appendix A. The titles and abstracts of all articles identified were independently reviewed by two authors (EM and GD) to determine if a given article met the inclusion criteria described below. In the case of discrepancy, the authors reviewed the full article and then conferred in order to make a final determination of whether or not it met inclusion criteria. Reference lists of included articles were examined in order to identify additional studies.

### 2.1. Inclusion and exclusion criteria

Studies were included if they met the following criteria: (1) published between January 2000 and December 2013; (2) published in English; (3) conducted in the US; (4) study sample of 100 or more participants; (5) study sample of adults aged 18+; (6) measured the quality of medical care for cardiovascular disease, cardiovascular risk factors (diabetes mellitus, dyslipidemia, hypertension), or HIV/AIDS delivered to persons with SMI and (7) the SMI study sample included persons with schizophrenia, bipolar disorder, or other psychoses (e.g. diagnosis of 'psychosis not otherwise specified'). We included study samples comprised solely of persons with these diagnoses as well as study samples that included but were not limited to persons with schizophrenia, bipolar disorder, and/or other psychoses. Because multiple studies did not present the prevalence of specific diagnoses within their study population, we did not require that a certain proportion of study participants be diagnosed with one of these three conditions. However, when authors stratified their results by diagnostic categories, we only included quality measures calculated in subgroups that included persons with schizophrenia, bipolar disorder, and/or other psychoses. For example, if a study presented stratified results for schizophrenia and major depression, we only included the results for the schizophrenia group. The diagnoses of the study samples used to calculate each measure of interest are presented in Appendix D. We

excluded intervention studies designed to improve quality of care, which were included in a separate review of the intervention literature conducted by this study's authors (McGinty and Daumit, 2014). The studies in our review are therefore observational and descriptive. As a result, we did not systematically measure the bias of individual studies as is typically done in systematic reviews of clinical trials. Standard bias assessments focus on indicators of internal validity (Owens et al., 2009), which are not relevant for descriptive studies.

### 2.2. Data abstraction

Two authors (EM and JB) abstracted measures of care quality in the population with SMI from included articles using a computer-entry standardized abstraction protocol (see paper copy in Appendix B). If studies compared quality of care between populations with and without SMI, these measures were also abstracted. In addition, data about the study population (number of subjects, diagnoses, and % antipsychotic users in studies measuring quality of cardiovascular disease or risk factors), study setting (place and time period), and data source(s) was abstracted. Following initial abstraction, a second reviewer checked the accuracy of all abstracted information.

Following abstraction, measures of medical care quality in the population with SMI were compiled in three overarching categories: first, quality of care for cardiovascular disease, including acute and post-myocardial infarction quality of care and care for congestive heart failure; second, quality of care for cardiovascular risk factors, including adherence to guidelines for care and treatment of diabetes mellitus, co-morbid conditions among those with diabetes mellitus, and dyslipidemia; and third, we abstracted measures of adherence to guidelines for care and treatment of HIV/AIDS.

### 2.3. Comparison with national guidelines and quality of care in the general US population: methods

When available, we compared measures of quality in the population with SMI to national guidelines and measures in the general US population. National guidelines were obtained from the American College of Cardiology and the American Heart Association, the American Diabetes Association, the National Cholesterol Education Program, the HIV Medicine Association of the Infectious Diseases Society of America, and the US Department of Health and Human Services. Measures of care quality in the US population were obtained from reports and peer-reviewed studies using national data sources such as the National Ambulatory Medical Care Survey (NAMCS). When published studies using US data sets were not available, we included estimates from the largest, most representative data sets available in the published literature. To enhance comparability with the quality metrics included in our review, we excluded US estimates measured prior to 2000. Comparisons between national estimates and the quality metrics in the population with SMI included in our study were purely descriptive. We compared the range in measures in study populations with SMI to the range in comparable measures calculated in the national or other representative data sets described above.

## 3. Results

Our search yielded a total of 778 unique studies. 757 studies were excluded for failure to meet inclusion criteria, yielding an initial sample of 21 studies. Two additional studies were identified by searching the reference lists of studies included in the initial sample, for a final sample of 23 articles (see Appendix C for inclusion flow diagram).

### 3.1. Scope of included studies

Thirteen of the 23 studies presented quality measures calculated among participants with schizophrenia, bipolar disorder, or other psychoses only (Banta et al., 2009; Desai et al., 2002; Druss et al., 2000;