

# *Draft Technical Brief*

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Number XX

## **Disparities Within Serious Mental Illness**

**Prepared for:**

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## **Key Informants**

In designing the study questions, the EPC consulted a panel of Key Informants who represent subject experts and end-users of research. Key Informant input can inform key issues related to the topic of the technical brief. Key Informants are not involved in the analysis of the evidence or the writing of the report. Therefore, in the end, study questions, design, methodological approaches and/or conclusions do not necessarily represent the views of individual Key Informants.

Key Informants must disclose any financial conflicts of interest greater than \$10,000 and any other relevant business or professional conflicts of interest. Because of their role as end-users, individuals with potential conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any conflicts of interest.

The list of Key Informants who participated in developing this report follows: [Redacted]

## Peer Reviewers

Prior to publication of the final evidence report, EPCs sought input from independent Peer Reviewers without financial conflicts of interest. However, the conclusions and synthesis of the scientific literature presented in this report does not necessarily represent the views of individual reviewers.

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## Preface

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AHRQ has an established network of Evidence-based Practice Centers (EPCs) that produce Evidence Reports/Technology Assessments and Comparative Effectiveness Reviews to assist public- and private-sector organizations in their efforts to improve the quality of health care. Technical Briefs are the most recent addition to this body of knowledge.

A Technical Brief provides an overview of key issues related to a clinical intervention or health care service—for example, current indications for the intervention, relevant patient population and subgroups of interest, outcomes measured, and contextual factors that may affect decisions regarding the intervention. Technical Briefs generally focus on interventions for which there are limited published data and too few completed protocol-driven studies to support definitive conclusions. The emphasis, therefore, is on providing an early objective description of the state of science, a potential framework for assessing the applications and implications of the new interventions, a summary of ongoing research, and information on future research needs.

Transparency and stakeholder input are essential to the Effective Health Care Program. Please visit the Web site ([www.effectivehealthcare.ahrq.gov](http://www.effectivehealthcare.ahrq.gov)) to see draft research questions and reports or to join an e-mail list to learn about new program products and opportunities for input. Comparative Effectiveness Reviews will be updated regularly, while Technical Briefs will serve to inform new research development efforts.

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# Structured Abstract

## Background

Individuals with serious mental illness (SMI) often experience gaps in access to needed health care compared with other populations. Such disparities may be even more pronounced between certain subgroups of patients with SMI, differing by race, ethnicity, gender, economic disadvantage (including housing stability) and low socioeconomic status, and geographic location (chiefly, rural versus urban residence); disparities arise as well for lesbian, gay, bisexual, and transgender (LGBT) individuals and those who have difficulty communicating in English (because it is a second language).

## Purpose

The primary goal of this Technical Brief is to describe and review the effectiveness of interventions that address disparities among patients with SMI in these important subgroups.

## Methods

We reviewed the published and gray literature and interviewed Key Informants (KIs) to address four Guiding Questions (GQs). The four refined GQs for this Technical Brief focus on the critical areas of concern in relation to disparities—namely access to health insurance with appropriate coverage for these SMI conditions, access to accurate diagnostic evaluations, access to necessary and appropriate therapeutic services, quality of the health services provided and received, adherence to treatment over the long term, and various outcomes of care. The principal focus for the first three GQs is a description of the interventions (GQ 1), the context in which they are implemented (GQ 2), and a description of the evidence about the effectiveness of the interventions (GQ 3); GQ 4 examines the gaps in the knowledge base and the high-priority needs for future research. We included interventions addressing diagnosis, as well as access and quality of treatment and support services among disparity subgroups of adults with SMI.

## Findings

We identified 32 descriptive articles meeting inclusion criteria for GQs 1, 2, and 4 and 28 articles measuring intervention effectiveness from 17 unique studies (GQ 3). For GQ 1, we did not identify any studies that focused on interventions targeting the LGBT subgroup or gender disparities. For GQ 2, settings involved primarily mental health specialists being colocated in nonpsychiatric locations. These were usually primary care but sometimes obstetrics-gynecology clinics, perinatal health care settings and community mental health entities.

For GQ 3, most interventions tested adding enhanced services to usual available care; we found no studies of interventions for LGBT individuals and no studies focusing only on English as a second language. We found no studies addressing access to health insurance or diagnostic accuracy.

## Conclusions

Future research should identify interventions that are effective in reducing the disparities between SMI and the general population along the health care continuum and determine whether such interventions are equally effective for subgroups of the SMI population.

## Background

Serious mental illness (SMI) commonly refers to a diagnosis of psychotic disorders, bipolar disorder, and either major depression with psychotic symptoms or treatment-resistant depression; SMI can also include anxiety disorders, eating disorders, and personality disorders, if the degree of functional impairment is severe.<sup>1,2</sup> SMIs are long-term illnesses involving substantial functional impairment over multiple symptom domains. These impairments often lead to an inability to maintain gainful employment, poor social support, repeated psychiatric hospitalizations, homelessness, incarceration, and coexisting substance use disorders.

The prevalence of SMI and morbidity from these illnesses in the United States is striking. Rates of SMI for adults range from 4 percent to 6 percent, affecting more than 11 million adults.<sup>3,4</sup> Furthermore, SMI is frequently under- or misdiagnosed or undertreated, and many people with an SMI receive no treatment at all. Among adults with an SMI in 2008, less than 60 percent had used mental health services in the previous year, and only 40 percent had used any outpatient health care services.<sup>5</sup>

Individuals with SMI often experience disparities in health care, specifically differences or gaps in care compared with populations without SMI. Such disparities are even more pronounced in certain subgroups of patients with SMI. Such subgroups include those differing by race, ethnicity, gender, economic disadvantage (including housing stability) and low socioeconomic status, and geographic location (chiefly rural versus urban residence); disparities arise as well for lesbian, gay, bisexual, and transgender (LGBT) individuals and those who have difficulty communicating in English (because it is a second language). Research has provided empirical support for variation in how patients interpret and define SMI from diverse ethno and racial backgrounds.<sup>6</sup> Studies have illustrated the complex relationship and how these subgroups can overlap in regard to disparities; for example, a study found that African American and Hispanic SMI clients were less likely to travel further for treatment than white patients.<sup>7</sup>

Disparities can occur at multiple points along the health care continuum,<sup>8</sup> including access to basic health insurance coverage. The issues may arise in receiving an accurate diagnosis of the SMI; in receiving appropriate, standard-of-care therapies for the SMI in question as well as having access to adequate health care generally; and in adequate monitoring and both short- and long-term followup. The American Psychological Association highlights the fact that lack of access to mental health care is quite pronounced in various racial groups.<sup>9</sup> For example, research has found that barriers to care for ethnic minorities include a lack of insurance, distrust of care providers, and racism by providers.<sup>10</sup> Moreover, disparities in the quality of care (both processes and end results of care) (i.e., differences in health care services available to SMI patients or in the outcomes of those services) are often related to racial, ethnic, geographic, and socioeconomic differences. A study comparing African American with white inpatients in state psychiatric hospitals found a higher percentage of African American inpatients diagnosed with schizophrenia.<sup>11</sup> Other research has explored the contributory effects of setting in the over-diagnosis of African American patients.<sup>12</sup>

Considering how to reduce these disparities effectively at each stage of care is crucial for optimizing care for patients with SMI who often have complex and chronic treatment needs. These differences or gaps in care between groups also reflect inefficiencies in the health care system and can pose substantial economic burdens on the health care system as a whole.<sup>13</sup>

Although disparities in access to needed care exist between patient populations with and without SMI, the focus of this Technical Brief is limited to disparities between groups *within* the

SMI population. For example, among Medicaid beneficiaries with schizophrenia, the quality of mental health care differs among white, black, and Latino patients; a measure of quality of care, incorporating indicators of pharmacological, psychosocial, and health services utilization, was lowest for black patients in all states and was lower for Latino than white patients in three of the four states sampled.<sup>14</sup> Appropriate use of atypical antipsychotics by veterans with schizophrenia differs by race.<sup>15</sup> Individuals who lived in rural geographic areas had higher death rates from suicide than those who resided in large fringe metropolitan areas (suburbs) from 2008 to 2011, based on a 2013 National Health Care Disparities Report from the Agency for Healthcare Research and Quality (AHRQ).<sup>16</sup> Research related to mental health care among LGBT people is limited, but gaining a greater understanding is important because this population experiences higher rates of mood and anxiety disorders and suicidal ideation and behavior.<sup>17,18</sup>

This Technical Brief stems from two important perceptions by clinicians, patients, and families. First, disparities exist along a health care continuum and in relation to (1) access to health insurance with appropriate coverage for these conditions; (2) access to accurate diagnostic evaluations; (3) access to necessary and appropriate therapeutic and support services, including housing stability; (4) quality of the health services provided and received; (5) adherence to treatment over the long term; and (6) various other outcomes of care, which can include, but would not be limited to, remission of disorder, symptom relapse, physical health and functioning, broader quality-of-life domains, and satisfaction with care. Other issues complicating this entire topic involve a wide range of challenges: housing stability, social support, clinical engagement, criminal justice encounters, suicidality and other self-injurious behaviors, and homicide and other aggressive behaviors.

Second, interventions exist to address these disparities along the health care continuum within the SMI population, but little is known about their effectiveness (or comparative effectiveness). The nominators of this topic are seeking to identify solutions to promote equal access to diagnosis and treatment and to improve the quality of care, including outcomes for all SMI patients within the specified disparity subgroups. Thus, the primary goal of this Technical Brief is to describe the literature addressing the effectiveness of interventions to reduce disparities among patients with SMI in these important subgroups.

The topic emerged from a priority listing developed through an AHRQ Issues Exploration Forum that the RTI International-University of North Carolina Evidence-based Practice Center conducted early in the fourth round of AHRQ's EPC program.<sup>19</sup> Thus, we aim to identify and summarize issues about interventions to reduce disparities of the types noted above among subgroups with SMI. Subgroups as defined above include patients who differ by racial, ethnic, gender, economic, and geographic characteristics; LGBT status; and facility in English (English as a second language). "Care" can refer to access to accurate and timely diagnosis, appropriate and timely treatment, and receipt of related services; it concerns both the processes and outcomes of that care. As a Technical Brief, however, this report does not attempt to be the definitive summary or synthesis of evidence on these matters or interventions meant to address them. Rather, it describes and maps the available evidence and clarifies the gaps in the knowledge base.

## Guiding Questions

Technical Briefs are structured in terms of “guiding questions” (GQs) of interest to groups that nominate the topic to the Agency for Healthcare Research and Quality (AHRQ). They may be explored or refined in various ways (e.g., by interviews with representatives of critical stakeholder groups or formal procedures for exploring significant clinical or policy issues through panels and forums). The original GQs posed for this Technical Brief are in Appendix A.

The four refined GQs for this Technical Brief that are listed below focus on the critical areas of concern in relation to disparities—namely access to health insurance with appropriate coverage for these serious mental health (SMI) conditions, access to accurate diagnostic evaluations, access to necessary and appropriate therapeutic services, quality of the health services provided and received, adherence to treatment over the long term, and various outcomes of care. The principal focus for the first three GQs is a description of the interventions and the context in which they are implemented and tested (GQs 1 and 2), as well as a description of the evidence about the effectiveness of the interventions (GQ 3); GQ 4 examines the gaps in the knowledge base and the high-priority needs for future research.

The specific issues for the four GQs are the following:

1. From available evidence and input from Key Informants (KIs): Describe interventions (types or modalities) to reduce disparities among SMI subgroups. Interventions may address one or more of the concerns stated above. Primary subquestions include:
  - a. What are the goals, components, and outcomes of the interventions?
  - b. What are the disparity subgroups that are the focus of the interventions?
  - c. What are the potential advantages and disadvantages of these types of interventions?
2. From available evidence and input from KIs: Describe the context for each intervention (type or modality) identified in GQ 1 to reduce disparities among SMI subgroups. Key contextual subquestions concern the following:
  - a. What is the setting for the intervention?
  - b. What responsibilities do the health professionals (including clinicians) participating in the intervention have for the medical and mental health care of patients with SMI?
  - c. What resources (e.g., health information technology) are needed to provide the intervention?
3. From available evidence: Describe the current evidence about the effectiveness (or comparative effectiveness) of interventions that have been implemented to reduce disparities among SMI subgroups. Interventions may address one or more of any of the concerns identified for GQs 1 and 2. Data on a specific intervention will include but not be limited to:
  - a. Patient inclusion criteria;
  - b. Type of intervention and setting;
  - c. Comparator intervention(s) used in comparative effectiveness evaluations, if any; and
  - d. Outcomes
4. From available evidence and input from KIs, identify gaps in knowledge and future research needs, with specific attention to the following subquestions:
  - a. Are any interventions to address disparities among SMI subgroups planned by researchers, clinicians, patient advocacy groups, or others, but not yet implemented?

- b. In current interventions, are the correct outcomes being measured? Are relevant outcomes being measured with appropriate instruments and data?
- c. What gaps exist in the evidence base for best practices or interventions for addressing disparities in SMI?
- d. What are possible areas of future research? What are potential long-term (10 years or more) developments in this field?

## Methods

Systematic reviews require some certainty about how (1) interventions are defined and operationalized and (2) the body of studies to advance understanding of important issues is assembled and synthesized. Technical Briefs done for the Agency for Healthcare Research and Quality (AHRQ), in contrast, are generally more appropriate reports for emerging issues about health and health care interventions with major uncertainties about definitional issues and limited or no (published) evidence, precisely because they focus on uncertainties in definition, context, and outcomes. A Technical Brief does not rate the risk of bias of individual studies, synthesize data on outcomes, or grade the strength of the evidence of the literature. Rather, it provides an overview of key issues related to the intervention, such as current indications, relevant patient populations and subgroups of interest, outcomes measured, and contextual factors that may affect decisions regarding future interventions. Because Technical Briefs generally focus on interventions with limited published data or few completed studies, the goal is to provide an early and objective description of the state of the science, a potential conceptual framework, and insight on the critical issues that will may inform future research.

For the four Guiding Questions (GQs) specified above, we reviewed the published and gray literature, taking into consideration insights that Key Informants (KIs) may have provided concerning interventions and available evidence. We targeted our review of the literature to rely on the best and most recent evidence available to support GQ 3 (effectiveness of interventions), while also considering related articles that supported GQs 1, 2, and 4. For GQ3, our effectiveness question, we conducted a systematic search of the peer-reviewed and gray literature. We anticipated that we would address GQs 1 and 2 primarily with information from the peer-reviewed and gray literature about interventions identified for GQ 3; these articles may be nonsystematic reviews, published descriptions of intervention protocols, or economic evaluations of interventions. The KI discussions helped us to identify relevant data sources and researchers when we could not identify published evidence about GQs 1 and 2. When evidence from empirical studies was available, we first summarize that empirical evidence and then review findings from additional sources. Responses to GQ 4 are shaped by the peer-reviewed, published literature, gray literature, and discussions with KIs.

## Literature Review

### Published Literature Search

We systematically searched the published literature for studies to address GQs. An experienced research librarian developed our search strategy (Appendix B). In the 1992 Alcohol, Drug Abuse, and Mental Health Services Administration (ADAMHA) Reorganization Act (P.L. 102-321), Congress directed the Secretary of Health and Human Services to develop a federal definition of SMI: “Adults with a serious mental illness are persons: (1) age 18 and over, (2) who currently or at any time during the past year, (3) have a diagnosable mental, behavioral, or emotional disorder of sufficient duration to meet diagnostic criteria specified within the *Diagnostic and Statistical Manual of Mental Disorders* (DSM)-III-R, (4) that has resulted in functional impairment which substantially interferes with or limits one or more major life activities. All of these disorders have episodic, recurrent, or persistent features; however, they vary in terms of severity and disabling effects”.<sup>20</sup> To accommodate the timing of the ADAMHA Reorganization Act, as well as the *Diagnostic and Statistical Manual of Mental Disorders*, 3<sup>rd</sup>

Edition (DSM-III) that was released in 1980, we systematically searched the published literature from January 1, 1980, through June 4, 2015. We searched in MEDLINE® via PubMed, the Cochrane Library, PsycINFO, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and ProQuest Psychology Journals.

To capture disparities, we used the MeSH heading of “Cultural Competency,” “Healthcare Disparities,” “Health Status Disparities,” “Minority Groups,” “Sexism,” “Discrimination (Psychology),” “Social Discrimination,” “Ageism,” “Racism,” “Rural Population,” “Socioeconomic Factors,” “Social Class,” “Sexual Behavior,” “Homeless Persons,” “African Americans,” “Homosexuality,” and “Transgendered Persons” in our search. We also reviewed the reference lists of relevant papers to identify any relevant citations that our electronic searches might have missed, and we examined any literature (identified by specific citation or author) suggested by KIs. We will conduct updated literature searches concurrent with the peer-review process.

## Gray Literature Search

We searched the gray literature to identify information beyond the published literature on interventions to reduce disparities among subgroups of people with SMI. Sources for the gray literature included the following: OpenSIGLE, ClinicalTrials.gov, Academic Search Premier, and NIH RePORTER. We also searched Web sites of the National Guidelines Clearinghouse (NGC), the National Quality Measures Clearinghouse (NQMC), and The Joint Commission. Appendix C briefly describes each of these gray literature sources.

## Eligibility Criteria

We carefully considered how best to define our eligibility criteria to reflect the current state of the science addressing interventions for reducing disparities in mental health care (GQs 1, 2, and 4) and to examine the current evidence base for the effectiveness of these interventions (GQ 3). We aimed to be more inclusive, respective to varying definitions of SMI, by focusing on the broad federal definition cited above.

Our basic population of interest was adults ( $\geq 18$  years of age) with SMI currently or at any time during the past year. Building on the federal definition of SMI above and on the requests of the topic nominator, we defined SMI to include a clinical diagnosis of (1) schizophrenia or schizoaffective disorder (or other related primary psychotic disorder), (2) bipolar disorder, (3) current major depressive disorder (MDD), (4) anxiety disorders, (5) eating disorders, or (6) personality disorders; the diagnoses should relate to the *Diagnostic and Statistical Manual of Mental Disorders*, 4<sup>th</sup> Edition (DSM-IV) or the International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) equivalent (and subsequent revisions). We included a clinical diagnoses of dysthymia among the SMI-eligible diagnoses to accommodate studies with mixed populations of people with MDD, dysthymia, or a combination of both diagnoses; dysthymia can sometimes involve functional impairment that substantially interferes with or limits one or more major life activities, a key feature of SMI.

Given that many subgroups of people with SMI experience disparities in health care and outcomes, we focused this Technical Brief on particular subgroups of concern suggested by the nominator (and confirmed by the KIs) appearing in the available literature. Adults with SMI had to be a part of a subgroup identified as being at risk of experiencing a mental health care disparity based on one or more of the following attributes: race or ethnicity; gender; economic status including homelessness; age (being elderly); geographic location (rural versus urban

settings); being lesbian, gay, bisexual, and/or transgender (LGBT); or difficulties communicating in English (English as a second language).

We included interventions intended to reduce various disparities in care and outcomes of care among these subgroups of adults with SMI. Health outcomes included but were not limited to the following: mental health outcomes; housing stability among the homeless subgroup; physical health outcomes, particularly among the elderly; quality of life; and satisfaction with care. To ensure that we evaluated health care disparities, we limited our included articles to those in which the setting was either inpatient or outpatient and in which clinicians provided either primary care or mental health (specialty) care (or both). We excluded articles about studies conducted outside the United States or not published in English to maximize the likelihood of generalizability to our topic nominators' populations of interest and relevant treatment settings.

We developed slightly different criteria for our two sets of questions: GQs 1, 2, and 4 as one set and GQ 3 as the other. For GQs 1, 2, and 4, to ensure that we captured the spectrum of current thinking and evidence on reducing disparities, we applied no study design restrictions; we anticipated that relevant information might come from a variety of publications, including review articles, qualitative research, feasibility studies, study protocols, and opinion pieces. We did not require articles to report on outcomes for these GQs.

For GQ 3, we applied stricter criteria for our review of the evidence on the effectiveness of interventions to reduce health care disparities. Articles were required to report on outcomes related to interventions to reduce health care disparities. In addition, we excluded articles if the study designs were case reports or series, cross-sectional studies, nonsystematic reviews, or commentaries, opinions, or letters to the editor with no primary data.

Trained members of the research team dually reviewed all abstracts for eligibility based on the pre-established inclusion/exclusion criteria presented in Table 1. These are organized in terms of PICOTS (populations, interventions, comparators, outcomes, time frames, and settings) as well as study designs and language or publication date. Any study with inadequate information in the abstract or marked for possible inclusion by at least one reviewer underwent full-text review. We retrieved and reviewed the full text of all articles included during the title/abstract review phase. Trained members of the research team dually reviewed each full-text article for inclusion or exclusion on the basis of the eligibility criteria. Reasons for exclusion were documented and those for inclusion were tagged for the relevant GQ(s) that the article addressed. Disagreements about inclusion were resolved by discussion or consensus with review by the majority research team as needed.

**Table 1. Selection criteria for relevant interventions to reduce disparities for subgroups of patients with SMI<sup>a</sup>**

<b>Criterion</b>	<b>Inclusion</b>	<b>Exclusion</b>
Population	All GQs	All GQs
	≥18 years with SMI currently or at any time during the past year	<18 years
	AND	Primary diagnosis of substance abuse, dementia, or mental retardation without SMI
	Part of a subgroup identified as being at risk of experiencing a mental health care disparity based on race, ethnicity, gender, economic status (including homelessness), geographic location (e.g., urban versus rural), identifying as LGBT, being elderly, or difficulty communicating in the local primary language (e.g., English as a second language)	

**Table 1. Selection criteria for relevant interventions to reduce disparities for subgroups of patients with SMI (continued)**

<b>Criterion</b>	<b>Inclusion</b>	<b>Exclusion</b>
Intervention	All GQs  Interventions intended to reduce disparities among subgroups of individuals with SMI, including disparities in (1) access to accurate diagnostic evaluation; (2) access to health care, including health care coverage; (3) quality of health care; and/or (4) adherence to treatment, response to treatment, or health outcomes	All GQs  Approaches that do not attempt to reduce these disparities
Comparator	GQs 1, 2, and 4  No limitations GQ 3  Another intervention to reduce the same disparity  Usual care/active control  Waitlist  No comparator for single group pre-post studies	GQs 1, 2, and 4  Not applicable  GQ 3  Studies with no comparator group except for single group pre-post studies
Outcomes	GQs 1, 2, and 4  No limitations GQ 3  Benefits, including improvements in disparity subgroups in (1) access to health insurance with appropriate coverage for these conditions; (2) access to accurate diagnostic evaluations; (3) access to necessary and appropriate therapeutic services; (4) quality of the health services provided and received; (5) adherence to treatment over the long term; and (6) various other outcomes of care, which can include but would not be limited to remission of disorder, symptom relapse, physical health and functioning, broader quality of life domains (including housing stability), and satisfaction with care.  Harms or adverse effects of using these interventions	GQs 1, 2, and 4  Not applicable  GQ 3  Outcomes not attributable to the interventions of interest
Time frames	All GQs  None	All GQs  None
Setting	All GQs  Inpatient or outpatient  Primary care or mental health (specialty) care  United States	All GQs  No setting described in study  Non-United States

**Table 1. Selection criteria for relevant interventions to reduce disparities for subgroups of patients with SMI (continued)**

<b>Criterion</b>	<b>Inclusion</b>	<b>Exclusion</b>
Study design	GQs 1, 2, and 4	GQs 1, 2, and 4
	No limitations	Not applicable
	GQ 3	GQ 3
	Systematic reviews	Case reports
	Randomized controlled trials	Case series
	Nonrandomized controlled trials	Cross-sectional studies
	Prospective and retrospective cohort studies	Opinions
	Case-control studies	Commentaries
	Single-group pre-post studies	Nonsystematic reviews
		Letters to the editor with no primary data
Other	All GQs	All GQs
	English language	Non-English language
	Published 1980 and later	Published prior to 1980

<sup>a</sup>SMI defined as (1) schizophrenia or schizoaffective disorder (or other related primary psychotic disorder), (2) bipolar disorder, (3) depression, (4) anxiety disorders, (5) eating disorders, or (6) personality disorders, per DSM-IV (*Diagnostic and Statistical Manual of Mental Disorders*, 4<sup>th</sup> Edition) or their ICD-9-CM (International Classification of Diseases, Ninth Revision, Clinical Modification) equivalent (and subsequent revisions).

GQ = Guiding Question; LGBT = lesbian, gay, bisexual, transgender; SMI = serious mental illness.

## Discussions with Key Informants

KIs provide context to empirical findings (or lack of them) and may raise new concerns that prompt additional literature searches. KIs were particularly vital to shaping this Technical Brief because of their contributions to the myriad conceptual frameworks related to interventions for reducing health care disparities among SMI subgroups. Distinguishing commonalities or differences in how studies defined disparities or SMI (or both) was expected to be particularly challenging.

In consultation with our team and AHRQ staff, we identified distinct perspectives that we needed to develop a well-rounded and balanced Technical Brief on interventions for reducing health care disparities among subgroups of people with SMI. Specifically, we recruited six KIs representing a spectrum of expertise and stakeholder interests: mental health providers and representatives of professional societies (four KIs), patient advocacy groups (one KI), and Federal policymakers (one KI). Some KIs represented multiple fields of expertise and provided insights to the issues the SMI population faces. More detail about the KI process is available in Appendix D.

We interviewed KIs through telephone calls, having shared our preliminary GQs and other materials with them before the calls. An experienced moderator led the calls following a semistructured guide with built-in places for obtaining input from the KIs. We used insights from KIs to confirm the findings from our literature review and the scope of our eventual Technical Brief. We began each KI interview with introductory questions that addressed definitional aspects of this Technical Brief, namely how the KI would define “disparities” and “usual care”

for disparate subgroups. We asked the KIs what the important disparate subgroups were within a broader SMI patient population. Following that discussion, we focused on the preliminary GQs related to interventions to reduce disparities among the subgroups of interest, using the subquestions for each GQ as prompts to discuss issues further.

## **Data Management and Abstraction**

We collected information from discussions with KIs, comprehensive searches of the peer-reviewed literature, and targeted searches of the gray literature. All literature screening results were tracked in an EndNote database. We recorded the reason that each excluded full-text publication did not satisfy the eligibility criteria (Appendix E). We abstracted data from each study that met our inclusion criteria for GQ 3, using a standardized template. One member of the review team recorded the data, and a second team member reviewed those data in the template for accuracy and completeness. The following information was obtained from each study, where applicable: author, year of publication, source of study funding, study design characteristics, study population (including study inclusion and exclusion criteria), the subgroup(s) of interest, the primary SMI diagnosis, interventions to reduce disparities, duration of patient followup, outcomes assessed (specific measures used and timing of assessment), and other pertinent information.

## **Peer Review and Public Comment**

The draft Technical Brief was available for peer review and public comment at [www.effectivehealthcare.ahrq.gov](http://www.effectivehealthcare.ahrq.gov) from \_\_\_\_\_ to \_\_\_\_\_, 2015. ## peer reviewers provided feedback on the draft; ### individuals or organizations offered public comment. We revised the Brief in response to these comments where appropriate.

# Findings

For each of the following sections, we first summarize key findings and then provide a detailed synthesis of the data collected. We present our results in the order of the four Guiding Questions (GQs) stated in the GQ section above. The literature from which we established findings for GQ 1, GQ 2, and GQ 4 includes studies that met and also did not meet our literature search criteria for GQ 3. The findings in GQ 3 are limited to only studies that met the relevant search criteria.

As previously noted, many subgroups of people with serious mental illness (SMI) of various types experience disparities in health care and outcomes, and some of those specific patient populations are the focus of this Technical Brief. Therefore, we present the findings about the interventions by these commonly identified disparity subgroups as available in the literature and suggested by the topic nominators. The subgroups are based on the following characteristics:

- Race or ethnicity (or both);
- Gender;
- Lower socioeconomic status (SES);
- Homelessness;
- Age, specifically being elderly;
- Geographic location (e.g., geographic isolation from needed treatment because of rural residence);
- Identifying as lesbian, gay, bisexual, and/or transgender (LGBT); and
- Having difficulty communicating in English (when the person has a different primary language and for whom English is a second language [ESL]).

We assigned studies to various subgroups largely according to the descriptions of the main target or intent of the intervention as described by the investigators and mapped to the subgroups of specific interest for this Technical Brief. For example, if an intervention sought to address linguistic barriers in an ESL group, we grouped that study in terms of that ESL subgroup and not by the race or ethnicity of the study population.

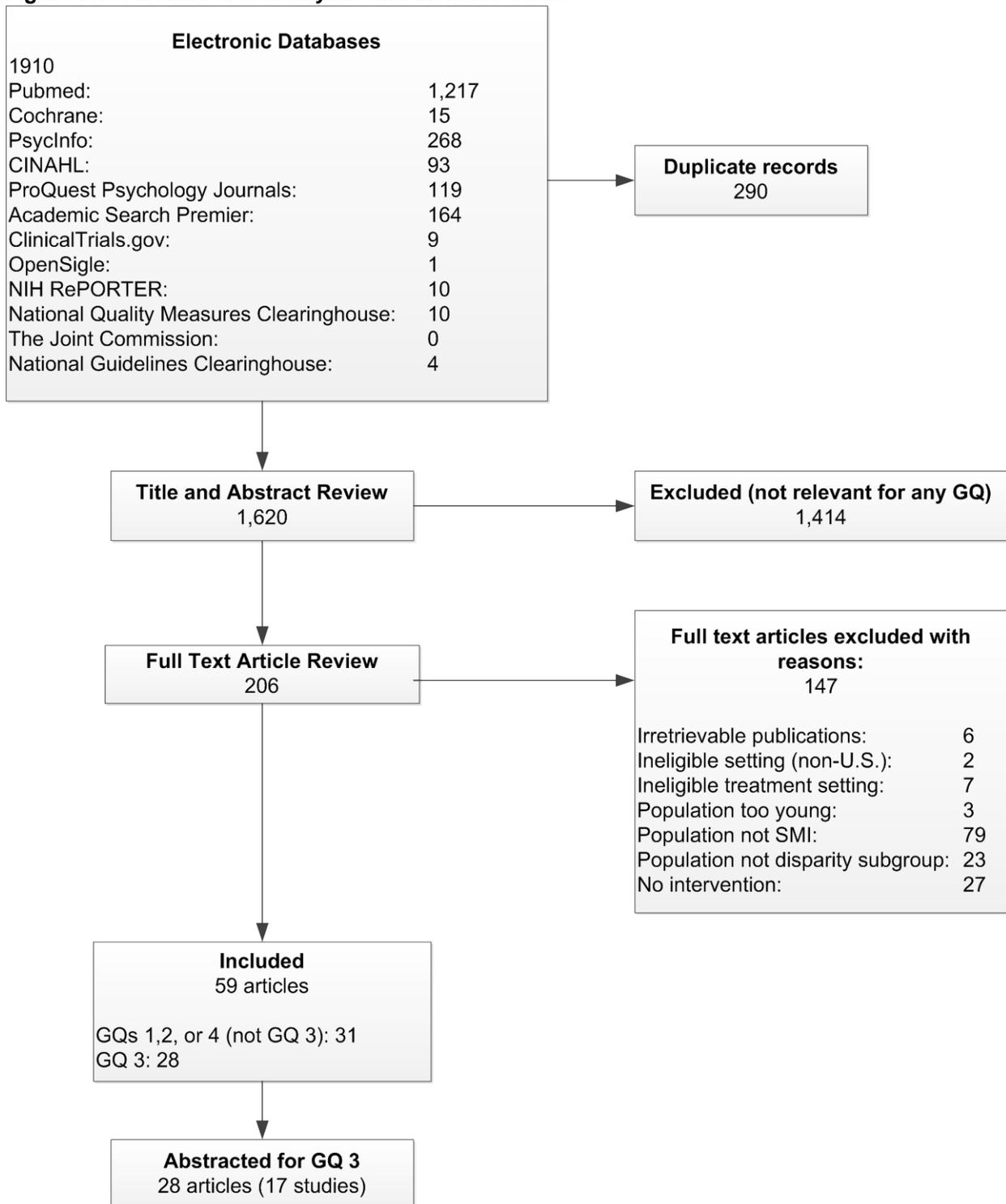
Overall, for GQ 3, our searches identified 17 distinct studies in 28 articles that met our inclusion criteria and addressed the effectiveness of interventions to reduce disparities among SMI subgroups (see Figure 1). We note that the searches for GQs 1, 2, and 4 were broader than for GQ 3; the former GQs were descriptive of interventions, contextual considerations, and research gaps and directions, whereas the latter was focused on studies that could provide information on effectiveness. We identified 32 additional articles appropriate for GQs 1, 2, and 4, but not for GQ 3.

In the following GQ 1 and GQ 2 sections, we describe broadly the relevant findings in literature that included articles appropriate for GQ 3 and those that were not eligible for GQ 3. We also included the context our Key Informants (KIs) provided. Characteristics and components of the empirical literature for GQ 3 are described in more detail in the GQ 3 section.

Finally, we present what information is available on the major outcomes of interest, as defined earlier. These included issues such as health insurance (and insurance plan coverage), access to diagnostic and therapeutic services that are accurate and appropriate for the SMI under consideration, the quality of those services, and various health and related outcomes. Most evidence was identified in the published literature; however, we note specifically relevant issues that our KIs raised.

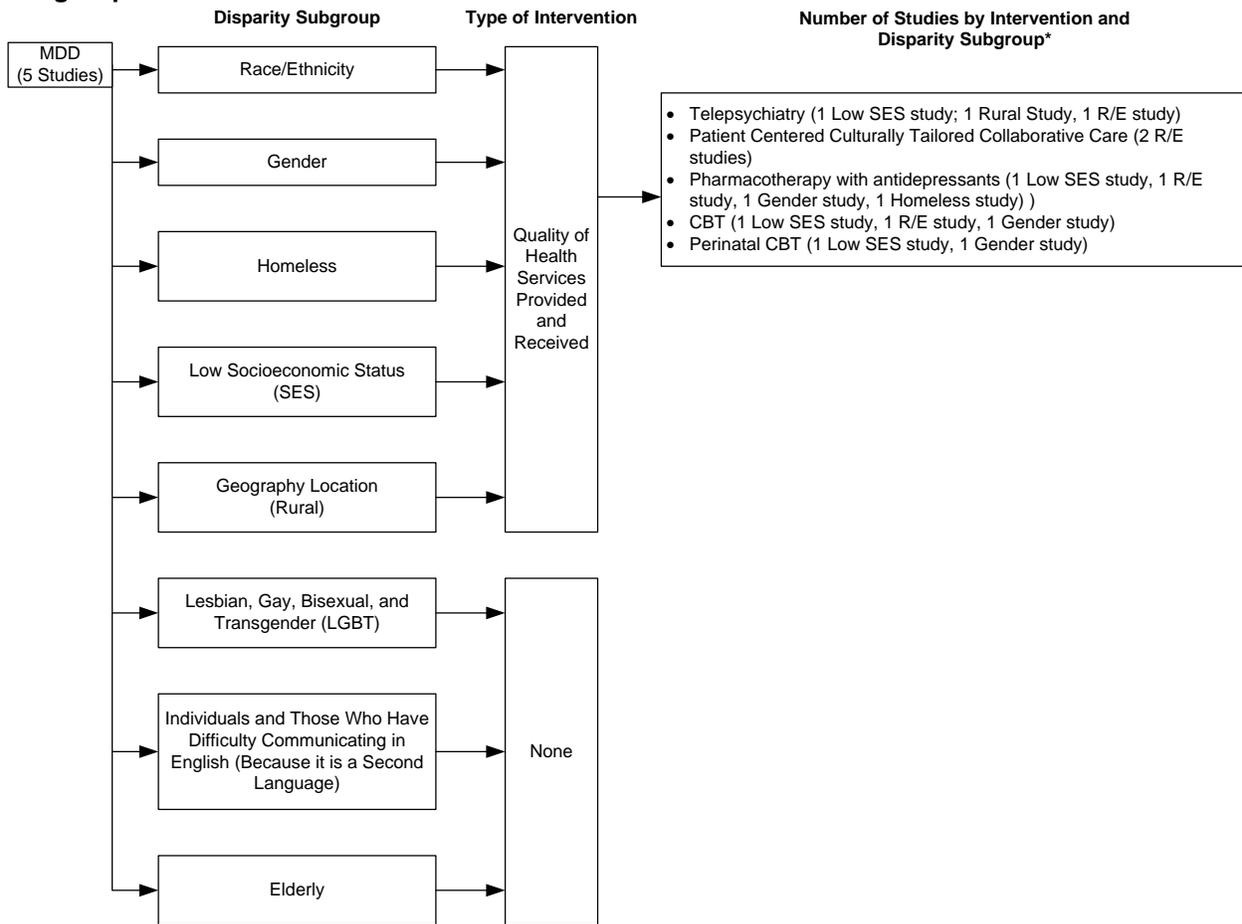
Figure 1 illustrates the yield of our search at the various review stages including the 1,620 title and abstracts we reviewed, the 206 full texts we reviewed, and the 28 articles from which we extracted data for GQ 3. The subsequent figures (2 through 5) describe the type of interventions and the number of studies by each disparity subgroup within one of the four diagnosis categories: 1) major depressive disorder (MDD), 2) schizophrenia or schizoaffective disorder, 3) post-traumatic stress disorder (PTSD), and 4) a combination of diagnoses or the specific SMI diagnosis of the population was not specified in the study.

**Figure 1. Flow chart of search yield and included studies**



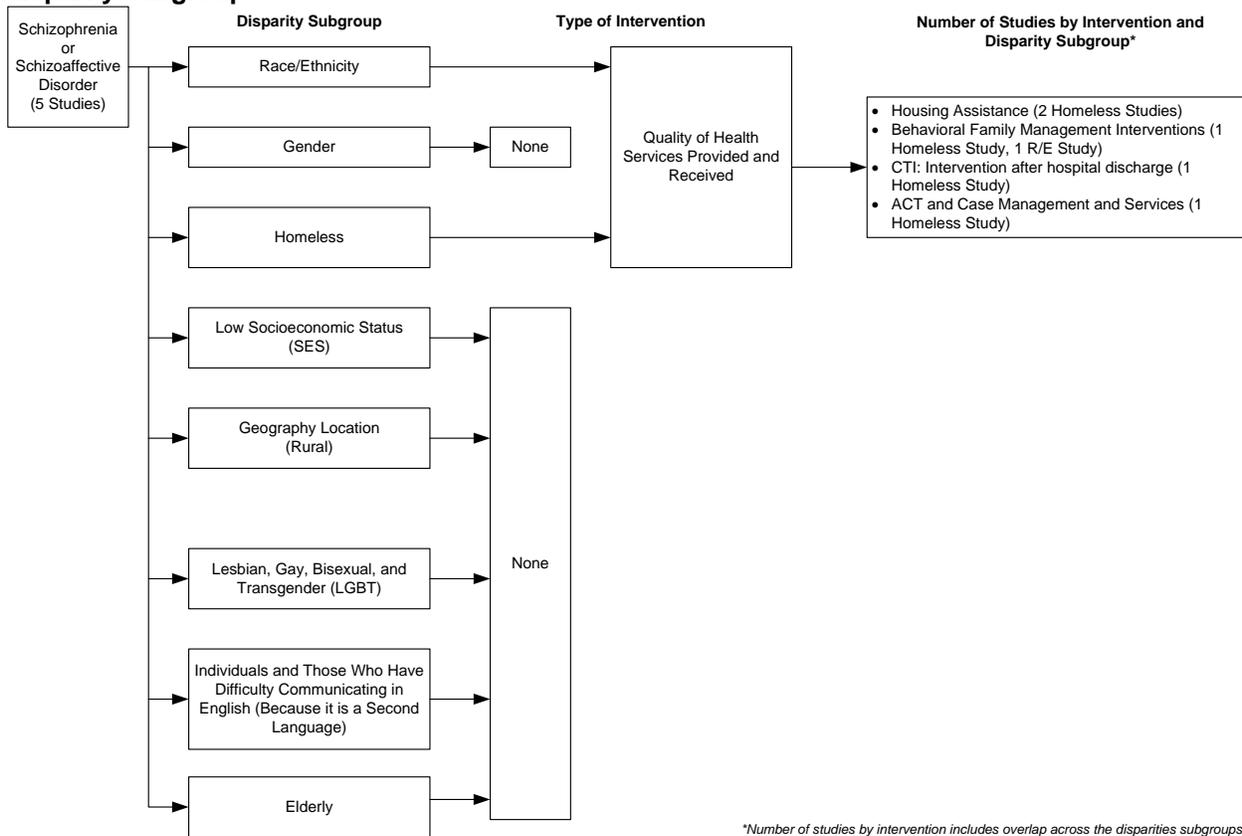
GQ = Guiding Question; SMI = serious mental illness.

**Figure 2. Major depressive disorder: Number of studies by intervention type and disparity subgroup**

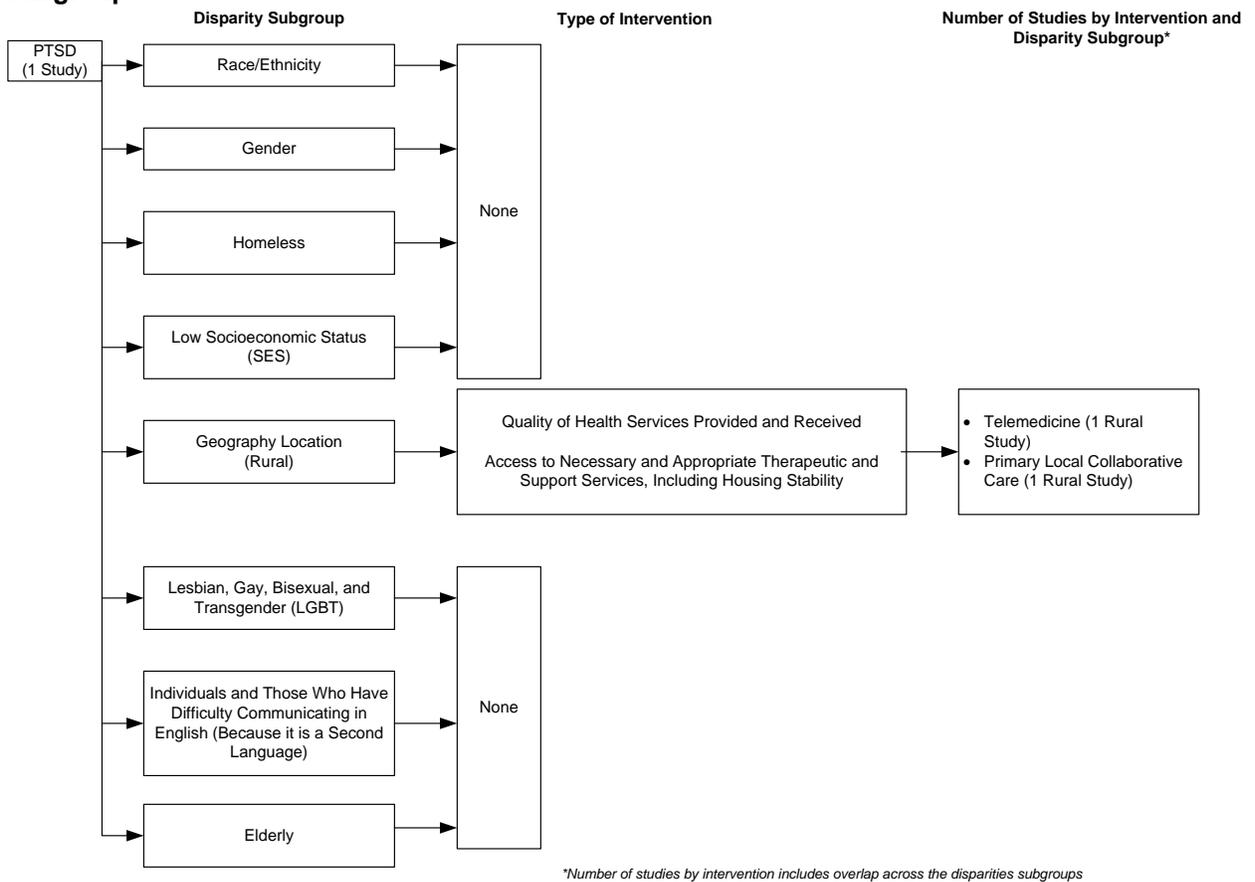


*\*Number of studies by intervention includes overlap across the disparities subgroups*

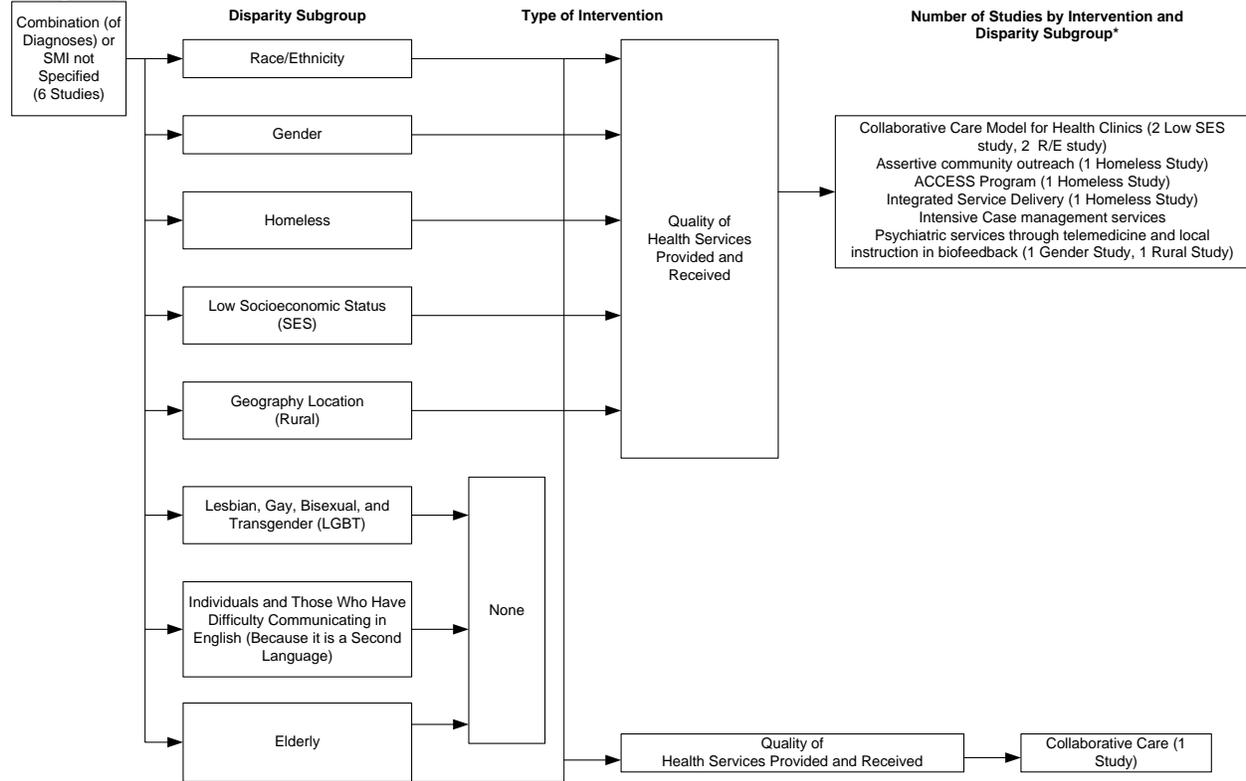
**Figure 3. Schizophrenia or schizoaffective disorder: Number of studies by intervention type and disparity subgroup**



**Figure 4. Post-traumatic stress disorder: Number of studies by intervention type and disparity subgroup**



**Figure 5. Combination of diagnoses: Number of studies by intervention type and disparity subgroup**



*\*Number of studies by intervention includes overlap across the disparities subgroups*

## Guiding Question 1: Description of Interventions to Reduce Disparities Among Serious Mental Illness Subgroups

### Key Findings

This section describes the targets, components, characteristics, outcomes, advantages, and disadvantages of interventions addressing the major outcomes variables listed above. For this GQ, the elderly subgroup appeared primarily in studies of racial and ethnic subgroups. We did not identify any studies that focused on interventions targeting the LGBT subgroup, American Indian/Alaska Natives within the racial ethnic minority groups, or gender disparities.

### Intervention Targets and Components

#### Interventions for the Homeless

The literature usually defined the homeless population by self-reports of living on the streets or in a homeless or similar type of shelter or temporary accommodations for a specific amount of time. Studies also used the definition from the National Institute of Mental Health<sup>21</sup> to define their homeless populations. We considered these study populations as homeless.

Multiple studies described the findings of several major programs focused on homeless populations with SMI: the Assertive Community treatment (ACT) program, the Access to Community Care and Effective Services and Supports (ACCESS) program, and the Critical Time Intervention (CTI) program. Investigators modified the ACT model in several studies to

include components tailored to provide certain services or aspects related to the homelessness of the population. The ACCESS program was a 5-year, 18-site demonstration program funded by the Center for Mental Health Services in the Substance Abuse and Mental Health Services Administration between 1994 and 1996 to assess whether more integrated systems of service delivery enhanced the use of services, outreach, and the quality of life of homeless people with SMI. The CTI program seeks to prevent recurrent homelessness in people with SMI leaving shelters, hospitals, or other institutions.

These interventions focused primarily on expanding access to health care, including health insurance coverage; improving quality of health care; and improving adherence to treatment, response to (outcomes of) treatment, or other health outcomes. A goal of all the interventions for the homeless population was increasing housing stability. Additional goals in individual studies included improving access to mental health services, reducing depressive symptoms, and improving quality of life.<sup>22-26</sup>

Researchers tailored intervention designs to meet the unique needs of the transient homeless population. Intervention components included integration of services, multicare team structures, and street outreach and followup.<sup>22,23,26-30</sup> The predominance of multicare teams as an intervention focus reflected a need for a breadth of skills and associated qualifications among staff. Staff types included outreach workers, clinical case managers, psychiatrists, primary care physicians, and psychiatric nurses; the outreach worker was consistently reported across studies as a required staffing component for the program to reach the homeless population effectively.<sup>23,31-33</sup>

Outcomes mainly included trends in service utilization patterns (e.g., decrease in visits to emergency departments, increase in access to outpatient services) and housing stability (e.g., decreased number of days on the street or in a shelter).<sup>23,32-36</sup> KIs underscored the importance of interventions targeting the homeless, but they did not provide any additional contextual observations about such interventions.

## **Interventions for Racial and Ethnic Minority Groups**

We considered any group as described by the available MeSH headings used by the National Library of Medicine for indexing studies (i.e., Medical Subject Headings, or MeSH terms) as a racial and ethnic minority for this analysis. These groups include Black/African American; Hispanic/Latino; and American Indian/Alaska Native, among others. We also considered participants as members of a “racial and ethnic minority” if individual studies defined them as such in describing their study populations. As previously noted, we did not identify any studies describing interventions for the American Indian/Alaska Natives.

Like interventions for the homeless, the goals for interventions targeting racial and ethnic minority groups included extending access to health insurance and health care, improving quality of health care, and improving adherence or response to treatment (or both) or other health outcomes.<sup>37-39</sup> We also encountered access to accurate diagnostic evaluation as an important outcome for studies in these patient subgroups.<sup>40,41</sup> One study looked at the effectiveness of telepsychiatry in a low-income Hispanic population to increase access to and quality of health care by providing the study population with access to a psychiatrist via a Web-based modality.<sup>42</sup> Another study looked at collaborative care telemedicine as an intervention in this same population.<sup>43</sup> The investigators found that this service was acceptable to this study population, although its feasibility and effectiveness were not conclusively demonstrated.

KIs highlighted other similar alternative service delivery options. These included using virtual health homes and integrating services such as a virtual health home plus a health outreach worker doing illness self-management training and support or a virtual health home plus automatic teller assistance (a kind of robotic in-home support using technology). One KI noted that a team at Dartmouth is working on mobile health technology for measuring the mental health of patients called “Common Ground,” which is a Web-based computer program based on self-management featuring video testimonials that allows the patient to select a testimonial from someone they can identify with racially and otherwise.

Staff qualifications required for case management and integrated service interventions targeting racial and ethnic populations included primary care providers, psychiatric nurses, psychiatrists, and lay health workers that were familiar to and trusted by the study population. Intervention components targeted other key demographic characteristics of concern, such as low SES or older age.<sup>44</sup>

The primary goals of the interventions focusing on racial and ethnic minority groups were mainly increased access to psychiatric services, higher attendance at therapy sessions, better adherence to treatment, and lower severity of depressive symptoms.<sup>37,39,42</sup>

### **Interventions for the Elderly**

We generally considered the elderly population to be 65 years of age or older but also used definitions that included individuals under 65 years of age if investigators specified their study populations as elderly. The goals for these studies sought to examine the effectiveness of interventions supporting access to treatment and adherence to treatment (compared with usual care).<sup>45,46</sup> The intervention components included algorithm-based recommendations to physicians and case managers to improve the quality of care<sup>45</sup> and pre-psychoeducational sessions before the delivery of services.<sup>46</sup> Similar to interventions for the homeless population, the components of interventions for the elderly also included integrative service teams and resources (primary care, case management, monitoring and tracking systems) to address the multifaceted needs of this population.<sup>44,47</sup>

Other key characteristics of this disparity subgroup included race and ethnicity<sup>44</sup> and low SES (homelessness).<sup>48</sup> Intervention outcomes included reduction in depression severity, increase in quality of life, and enhanced psychiatric services. KIs emphasized the importance of interventions specifically targeting the elderly homeless population.

### **Interventions for Geographic Location (Urban vs. Rural Residence)**

We found that researchers used similar intervention strategies across multiple subgroups. For example, this subgroup, which is focused essentially on rural populations, was captured primarily in other disparity subgroups, and findings are presented in later sections. Two studies,<sup>49,50</sup> however, looked at geographic location independent of any other subgroup characteristics; both found that telemedicine approaches were acceptable to the targeted populations. KIs had reinforced the importance of interventions focused on increasing access to accurate diagnoses in rural areas given the dearth of psychiatrists and behavioral health professionals in those regions.

### **Intervention Advantages and Disadvantages**

Interventions described in the available literature or by KIs appear to have two main advantages: (1) they address the unique needs of the disparity subgroup by integrating

specifically identified services, clinical care models, or resources, and (2) they seek to build on existing treatment modalities. For example, KIs reported that collaborative care is the only intervention for which more than minimum evidence exists for reducing the disparity or improving engagement. We found that many of the interventions had a collaborative care base with components modified to be specific to the disparate population of interest.

Compared with usual care, most of these interventions produced improvement in the targeted outcomes within the subgroup of interest. For example, in one study, cognitive behavioral therapy to treat depression was enhanced with specific perinatal content and an interpersonal component.<sup>51</sup>

We did not identify any studies that addressed either potential disadvantages of any of the interventions or issues of safety or harm. KIs did not directly address this issue.

## **Guiding Question 2: Context of Interventions to Reduce Disparities Among Serious Mental Illness Subgroups**

### **Key Findings**

This section describes contextual issues associated with these interventions; of specific interest were intervention settings, organization and staff characteristics, and resources and other requirements for successful implementation. Most evidence was identified in the existing literature; we indicate specifically where KIs specifically noted relevant issues. We first sort by disparity subgroup and then within each subgroup address the contextual considerations.

The homeless population and racial and ethnic minorities have been the targets of most of this research. Settings involved primarily mental health specialists being colocated in nonpsychiatric locations. These were usually primary care, but sometimes obstetrics-gynecology clinics and perinatal health care settings; settings also included community mental health entities, although other community-based settings or in-home locations were described.

Use of, and thus research on, mobile health and Internet technology are increasing (for all populations and health care purposes). Many of the interventions for disparity subgroups defined (e.g., ACT teams and CTI for the homeless, colocation of mental health specialists for minorities or the elderly, telemedicine for rural areas) require giving additional responsibilities to existing health care clinicians and adding new personnel and new resources (e.g., mobile health technology). Homeless populations, racial and ethnic minorities, the elderly, and rural populations have all been included in this research, but what is needed for successful implementation remains unclear.

### **Interventions for the Homeless**

#### **Settings for Interventions to Reduce Disparities**

Interventions to reduce the various disparities of interest in homeless populations were set in multiple locations, each of which increased the likelihood of capturing homeless patients. These interventions focused primarily on patients with psychotic disorders. The settings included public agencies in urban areas that involved contract service delivery programs,<sup>25</sup> community mental health clinics that provided both in-home service and services for the homeless through ACT teams,<sup>23</sup> and homeless shelters<sup>28</sup> or institutions.<sup>52,53</sup> The aim was to help create a bridge to follow up with community mental health providers by, for instance, providing a CTI program for SMI

populations or Directly Observed Therapy (DOT) in HIV clinics trying to improve depression care.<sup>32</sup> Each of the interventions was an outreach, although the DOT in HIV clinics was delivered at a specific research site (not a formal clinic).

KIs were generally in agreement that the settings described in the literature, which were primarily public-sector mental health settings, were the correct ones to target. They also indicated that the criminal justice setting, whether by diversion of homeless patients or because released mentally ill inmates are at increased risk of becoming homeless, can be important for better reaching SMI patients who are (or may become) homeless. Programs such as the Consensus Project (<http://csgjusticecenter.org/mental-health-projects/report-of-the-consensus-project>) can provide information on the implementation of practical, flexible mental health strategies in criminal justice environments such as on-site technical assistance and dissemination of information about programs, research, and policy developments in the field.

### **Additional Responsibilities of Health Professionals for Medical and Mental Health Care and Resources Needed to Provide Interventions**

Additional responsibilities for health professionals vary by intervention type. Some add no clear burden to health professionals providing care by virtue of their emphasis on public service agencies, whereas others put increasing degrees of burden on health care providers. All require additional resources, primarily an additional case manager and/or clinical personnel and effort.

The Los Angeles Homeless Opportunity Providing Employment (LAs HOPE), for example, placed various responsibilities on public health agencies and their contract service delivery programs.<sup>25</sup> Some intervention models, such as the ACCESS Program,<sup>24,54</sup> gave more responsibilities to case managers who provide intensive case management with outreach in an attempt to integrate more efficiently various delivery systems (e.g., medical, mental health, public services) to reduce disparities and improve quality of care. The ACT program, combining intensive case management services with more clinical intervention and outreach, can add substantial responsibilities, including in-home care delivery, to health care professionals' activities.<sup>23,55</sup>

CTI programs expanded responsibilities of health professionals by requiring participation in initial treatment planning to identify potential areas of intervention, such as adhering to medication regimens, managing money, making followup appointments, or dealing with conflict with caregivers. These added responsibilities occur often at a time of transition from an institution to the community, when discontinuity in care might lead to homelessness; it also entails providing ongoing supervision of CTI workers by mental health professionals.<sup>35,52</sup> DOT therapy required receipt of fluoxetine to be directly observed by a care provider (not a psychiatrist) with weekly meeting with the psychiatrist for 1 month, followed by a meeting every 2 weeks for the second month, and then monthly thereafter.<sup>32</sup>

KIs did not directly address the question of adding additional responsibilities to health care providers, but they did place it in a useful context. They noted that the nation lacks enough behavioral health professionals (including a dearth of psychiatrists) to address the mental health needs of those with SMI, in general. KIs also emphasized that, as an extension and intensification of this general problem, not enough psychiatrists are available to work with SMI patients who are homeless.

## **Required Changes, Cooperation, or Integration by Other Service Providers**

Successful implementation of any of the interventions requires greater cooperation and integration with other service providers, primarily between case managers,<sup>23,35,52,55,56</sup> mental health providers,<sup>23,35,43,45,46,52,55,56</sup> and (in one instance) HIV providers.<sup>32</sup> Additional vocational assistance (with job training and placement assistance) and psychosocial rehabilitation services (including links to peer support and daily living skills training) appear to be key components.<sup>34</sup> In addition, dissemination strategies and challenges, including successful integration into large urban systems, have been described.<sup>36,57</sup>

Three important organizational issues must be addressed to allow successful implementation of these types of interventions for the homeless. The first is the need to allow staff to divide their time effectively between institution-based and community-based assignments. A second important change is to allow workers to focus their efforts on particular areas that can cause greatest opportunity for successful transition to or maintenance in a community (in contrast to being required to provide comprehensive services to all clients). Third is the need to overcome barriers between different organizations that can prevent collaboration (e.g., the need for client consent to exchange information).<sup>36 680</sup>

KIs did not directly comment on this issue.

## **Interventions for Racial and Ethnic Minority Groups**

All interventions addressing disparities within racial and ethnic minority groups also were limited to low SES groups, so the findings for these two groups overlap. The primary subgroup addressed by these interventions was defined by race or ethnicity, however, so we describe these interventions here rather than for a low SES group.

The literature addresses the following groups of patients: low-income Hispanic,<sup>42,58</sup> some of whom were depressed during the perinatal period<sup>43</sup> or had an SMI and were at risk of cardiovascular disease;<sup>59</sup> African Americans who either represented a range of SES backgrounds<sup>37</sup> or were elderly;<sup>46 66</sup> low-income Chinese Americans;<sup>39</sup> low-income primarily African American/black pregnant women;<sup>51</sup> low-income predominantly minority women who were pregnant or planned to become so;<sup>33</sup> and racial or ethnic minority patients who were also elderly.<sup>45</sup>

## **Settings for Interventions to Reduce Disparities**

Interventions to reduce disparities within racial and ethnic minority groups were delivered in several different settings: community mental health clinics;<sup>42,58</sup> primary care clinics with some integration of mental health specialists,<sup>37,39,45,46,59</sup> primary care clinics with some description of this integration occurring within a patient-centered medical home;<sup>29 1569</sup> obstetric-gynecologic clinics;<sup>43,51</sup> and family planning or pediatric-related services.<sup>33</sup>

Some research has suggested that culturally informed tailoring of treatment (“cultural congruence”) for older Latinos with depression and anxiety may be more effective in a specialty referral model than in an integrated primary care model.<sup>60</sup> However, this difference may be explained by the fact that the integrated model is a newer model that, initially, may lack the organizational efficiency to integrate cultural congruence in an effective way; a key characteristic appears to be a model able to successfully deliver treatment over longer periods of time.<sup>60</sup>

KIs did not comment on the role of settings.

## **Additional Responsibilities of Health Professionals for Medical and Mental Health Care and Resources Needed to Provide Interventions**

The burden of additional responsibilities and need for resources varied by setting. For example, in community mental health settings, some interventions had psychiatrists performing what they usually did to monitor medications but needed telepsychiatry resources were added through a virtual clinical interaction.<sup>42</sup> Others provided enhanced case management with bilingual workers; weekly or biweekly followup by psychiatrists; or a behavioral intervention package targeting the family, which required a substantial addition of personnel resources.<sup>58</sup>

For interventions in primary care settings, mental health care was often integrated with standard medical care. Systematic support of diagnosis and management was provided by culturally tailored collaborative care interventions; these could involve medication or psychotherapy (or both) services and enhanced provider training in cultural competence to align services and patients' needs better. All these steps require both increased effort and more personnel such as a care manager or a health care manager.<sup>37,39,45,46,59,61</sup>

In primary care clinics, this additional effort involved patient-centered assessment of barriers to access, better understanding of social stressors that disproportionately affected the particular minority subgroup, and more culturally targeted materials to address barriers to treatment.<sup>37</sup> Interventions in obstetric-gynecologic clinics required additional personnel to provide cognitive behavioral therapy and active outreach, services that had not previously been provided.<sup>43,51</sup> Studies in family planning or pediatric clinics looked at adding a nurse practitioner under supervision from a psychiatrist to better manage patients with MDD.<sup>33</sup>

KIs did not directly address this issue.

## **Required Changes, Cooperation, or Integration by Other Service Providers**

All interventions to reduce disparities for racial and ethnic minorities required increased cooperation and integration with other service providers. Most frequently this involved mental health providers colocating with nonpsychiatric medical providers.<sup>33,37,39,43,45,46,51,59</sup> “Peer services” in this subgroup have also been considered as an additional type of provider. The point is to help individuals with SMI better navigate the process of obtaining and maintaining better health care, which can improve both physical and psychiatric outcomes.<sup>41,62</sup>

KIs did not directly address this issue.

## **Interventions for the Elderly**

### **Settings for Interventions to Reduce Disparities**

Interventions to reduce disparities in the elderly with SMI have focused on primary care settings. This situation is often one in which mental health specialists have been colocated through collaborative care interventions (some of which have been described above). This approach can offer an infrastructure to support ongoing monitoring and management of medication or psychotherapy treatment;<sup>44,81,48</sup> it can also provide peer-led collaborative activation programs in primary care to improve “patient activation” and person-centered care of older adults with SMI and cardiovascular risk.<sup>47,117</sup>

## **Additional Responsibilities of Health Professionals for Medical and Mental Health Care and Resources Needed to Provide Interventions**

One potential cause of reduced care in elderly patients with SMI is that primary care physicians may not know the preferences for decisionmaking among their patients with SMI or how to communicate clearly and effectively with them. A collaborative care approach that addresses this gap provides a skills training intervention consisting of collaborative activation training for SMI patients and their primary care providers (CAT-PC); its goal is to improve patient activation skills and provider communication in the primary care medical encounter.<sup>47</sup> This collaborative care intervention requires additional personnel and effort; these additional components can include a depression clinical specialist (often a nurse or psychologist) with increased followup and closer monitoring. The peer-led collaborative activation training requires a 45 minute video training of primary care providers.<sup>47</sup>

KIs did not directly address this issue.

## **Required Changes, Cooperation, or Integration by Other Service Providers**

Colocation of a mental health specialist with the primary care clinic, and the requisite cooperation between mental health and primary care providers, is a part of this collaborative model. It involves provider education, patient activation, systematic treatment monitoring, mobilization of community resources, and ready access to mental health services.<sup>44 81,48</sup> Such a model requires a substantial degree of cooperation and integration. For example, the peer-led CAT requires patient training, which consists of nine group-based 90-minute sessions delivered weekly over 2 months.<sup>47</sup>

KIs did not directly address this issue.

## **Interventions for Rural Populations**

### **Settings for Interventions to Reduce Disparities**

Interventions to reduce disparities in rural populations address the difficulties created by patients living in areas with limited access to specialty mental health providers (if not even basic primary or specialty medical care professionals). Settings studied included community-based outpatient clinics of the Department of Veterans Affairs.<sup>49,50,63</sup> One limited research demonstration was conducted in an in-home treatment setting.<sup>64 657</sup>

KIs did not directly address this issue.

## **Additional Responsibilities of Health Professionals for Medical and Mental Health Care/Resources Needed to Provide Interventions**

Interventions studied involved a variety of options. These included use of offsite mental health professionals to provide on-site health care providers with decision support for medication or psychotherapy (or both) or to render patient therapy through a "tele-psychologist";<sup>63</sup> the latter can support or provide individual or group-based psychotherapy through a telemedicine link.<sup>49</sup> Adding telepsychiatry required resources to provide and maintain the video-conferencing link. Other research examined providing ACT interventions to veterans by adding small specialized intensive case management teams.<sup>50</sup>

KIs noted that providing mental and physical health care to rural residents with a major mental illness is a rapidly growing disparity population; in addition, their view was that using technology for this population has great potential, especially telemedicine or telepsychiatry.

Additionally, technology based on machines that learn by collecting information from patients and incorporating responses into decisionmaking offer considerable promise. Mobile health technology is another key area, which is only now being tapped as a way to better assess and monitor patients in real time.

### **Required Changes, Cooperation, or Integration by Other Service Providers**

The interventions to reduce disparities in rural populations similarly require cooperation and integration with community-based psychiatric and medical clinics.<sup>49,50,63</sup>

KIs did not directly address this issue.

## **Guiding Question 3: Current Evidence About the Effectiveness (or Comparative Effectiveness) of Interventions**

We identified 17 studies (reported in 28 publications) that evaluated the effectiveness or comparative effectiveness of interventions to improve access to mental health treatment, quality of care, and outcomes among disparity subgroups of individuals with SMI. The number of studies providing evidence for each of the subgroups is presented below. Counts of studies across subgroups is larger than the total number of studies because some studies are included in more than one subgroup category (e.g., racial or ethnic minority and elderly).

- Homeless: eight studies (17 articles)<sup>22,23,25,28,31,32,35,52,53,55,56,65-70</sup>
- Low SES: five studies (6 articles)<sup>33,39,42,48,51,71</sup>
- Racial or ethnic minorities: six studies (seven articles)<sup>33,37,39,42,44,58,71</sup>
- Elderly: one study (two articles)<sup>44,48</sup>
- Geographic location (rural residence): three studies (three articles)<sup>42,49,63</sup>
- Gender: three studies<sup>33,49,51,71</sup>

For each included study, Table 2 documents the disparity group membership(s) of the participants and their SMI diagnoses; it also briefly describes the intervention being evaluated in the study. We found no studies of interventions for LGBT individuals, directly addressing gender disparities, or specifically for individuals with difficulty communicating in English. However, as discussed below, several interventions provided written materials or direct services through individuals who spoke the participant’s primary language (when other than English). In relation to the primary concerns that the interventions were seeking to address, we found no studies addressing mental health diagnosis or access to health insurance. All studies were conducted in the United States.

**Table 2. Studies with evidence for Guiding Question 3: Study citation, disparity group(s), SMI diagnosis, and type of intervention**

<b>Study Citation</b>	<b>Disparity Group: Low SES, Homeless</b>	<b>Disparity Group: Racial or Ethnic Minority</b>	<b>Disparity Group: Elderly</b>	<b>Disparity Group: Geographic Isolation (Rural)</b>	<b>Disparity Group: Gender</b>	<b>SMI Diagnosis</b>	<b>Intervention Being Evaluated</b>
Arean et al., 2005 <sup>44</sup>	Separate analyses: Low income, not low income	Separate analyses: white, black and Hispanic	Elderly			MDD or dysthymia	Primary care based
Arean et al., 2007 <sup>48</sup>							collaborative care

Burt et al., 2012 <sup>25</sup>	Homeless			Schizophrenia or affective disorder	Housing assistance
Chong, 2012 <sup>42</sup>	Low income	Hispanic	Rural	MDD	Telepsychiatry
Cooper 2013 <sup>37</sup>		African American		MDD	Patient-centered, culturally tailored collaborative care
Fortney et al., 2014 <sup>63</sup>			Rural	PTSD	Psychiatric services through telemedicine, local collaborative care
Herman 2011 <sup>53,66-68</sup>	Homeless			Schizophrenia and other psychotic disorders	CTI: intervention after hospital discharge N=150
Kwong et al., 2013 <sup>39</sup>	Low income	Chinese American		MDD, generalized anxiety disorder, and/or panic disorder	MH collaborative care model for health clinic
Lehman et al., 1997 <sup>23</sup>	Homeless			Schizophrenia or schizoaffective disorder	Assertive community treatment (ACT) assertive community outreach and case management services

**Table 2. Studies with evidence for Guiding Question 3: Study citation, disparity group(s), SMI diagnosis, and type of intervention (continued)**

Study Citation	Disparity Group: Low SES, Homeless	Disparity Group: Racial or Ethnic Minority	Disparity Group: Elderly	Disparity Group: Geographic Isolation (Rural)	Disparity Group: Gender	SMI Diagnosis	Intervention Being Evaluated
Miranda et al., 2003 <sup>71</sup> ; Revicki et al., 2005 <sup>33</sup>	Low income	Black and Hispanic			Women	MDD	Pharmacotherapy with antidepressants; CBT
O'Mahen et al., 2013 <sup>51</sup>	Low income				Women	MDD	Modified CBT for perinatal period
Rosenheck et al., 1998 <sup>22</sup> ; Rosenheck et al., 1998 <sup>69</sup> ; Lam et al., 1999 <sup>31</sup> ; Rothbard et al., 2004 <sup>70</sup>	Homeless					SMI not specified	Access to Community Care and Effective Services and Supports (ACCESS) Program: integrated service delivery
Shern et al., 1997 <sup>55</sup>	Homeless					SMI not specified	Assertive community outreach and case management services.
Shern et al., 2000 <sup>56</sup>	Homeless					NYS definition of serious and persistent mental illness	The Choices program: intensive case management
Susser et al., 1997 <sup>52</sup> ; Herman et al., 2000 <sup>35</sup> ; Jones et al., 2003 <sup>65</sup> ; Jones et al., 1994 <sup>28</sup>	Homeless					Schizophrenia and other psychotic disorders	CTI: intervention after hospital discharge
Tan et al., 2013 <sup>49</sup>				Rural	Women	PTSD, MDD, or both	Psychiatric services through telemedicine and local instruction in biofeedback
Telles et al., 1995 <sup>58</sup>		Hispanic				Schizophrenia	Behavioral family management intervention
Tsai 2013, #1486	Homeless					MDD	Intervention arm: Directly observed therapy (DOT) fluoxetine

ACCESS = Access to Community Care and Effective Services and Supports; ACT = Assertive community treatment; CBT = cognitive behavioral therapy; CTI = Critical Time Intervention; DOT = directly observed therapy; MDD = major depressive disorder; MH = mental health ; N = number; NYS = New York State; PTSD = post-traumatic stress disorder; SMI = serious mental illness; SES=socioeconomic status

To promote a parsimonious presentation of the included studies, we describe each of the 17 studies only once, even if it should cut across disparity, diagnostic, or outcome categories. We grouped studies into the following categories:

- Eight studies of enhanced services for the homeless;
- Two studies of cognitive behavioral therapy (CBT) to treat depression in low-income women;
- Three studies of enhanced collaborative care for racial or ethnic minorities;
- One study to improve access and quality of care for depression among the elderly; and
- Three studies to address disparities in access to treatment attributable to rural residence.

In the tables below, we present summary information regarding the patient population, the design of the study including the treatment intervention and comparison, and the key findings. Evidence tables include more detailed data for each study (Appendix F).

## **Interventions for the Homeless**

Among the eight studies of interventions for homeless individuals with SMI (Table 3), seven included services to address homelessness and considered improving housing stability to be a key intervention activity and outcome goal. The interventions addressing homelessness generally focused on individuals with psychotic or affective disorders. The two largest studies were implemented in multiple cities; the McKinney research demonstration projects<sup>55</sup> and ACCESS.<sup>22,31,69,70</sup> Three studies were randomized controlled trials (RCTs) conducted in New York City, New York; two evaluated CTI, an intervention providing services to homeless men recently discharged from inpatient psychiatric hospitalizations,<sup>28,35,52,65</sup> and the third was Choices, a program of intensive case management and support.<sup>56</sup> The ACT program was conducted in Baltimore, Maryland; this RCT was also an evaluation of outcomes after adding intensive case management to an array of services offered to program participants.<sup>23</sup> The last two included studies were LA's HOPE, a program focusing on housing and employment support<sup>25</sup> and an RCT of directly observed pharmacotherapy (DOT) for depression; the DOT trial did not provide services to ease homelessness.<sup>32</sup>

**Table 3. Characteristics of studies of interventions to address disparities based on homelessness among individuals with SMI**

<b>Diagnosis</b>			
<b>Author, Year</b>	<b>N Included in Study</b>	<b>Intervention</b>	<b>Major Benefit Outcome Measures</b>
<b>Design</b>	<b>Intervention Duration (Length of End of Intervention Followup)</b>	<b>Comparator</b>	<b>Subgroup Analyses and Comparisons (If Any)</b>
<b>Setting</b>	<b>Other Key Participant Characteristics</b>	<b>Co-interventions (If Any)</b>	
Susser et al., 1997 <sup>52</sup> ; Herman et al., 2000 <sup>35</sup> ; Jones, 2003 <sup>65</sup> Jones, 1994 <sup>28</sup>	Schizophrenia and other psychotic disorders Randomized: N=96; subgroup with symptom outcomes at 6 months: N=76	Intervention: Critical Time Intervention (CTI), 9 months of CTI + usual services followed by 9 months of just usual services.  Clinical team devised Individualized plan for the transfer of care to other formal and informal supports; identified one or two specific areas in which intervention was likely to be effective in preventing homelessness and each participant assigned to a "CTI worker" (experienced in working with this population) to implement the plan. CTI worker received supervision from a psychiatrist or other MH professional. Goal was strengthening long-term ties and determining key issues that would put patient at risk. CTI worker provided support for both patient and those who could assist him in treatment, such as visiting the family home or community residence, being present at appointments, and giving advice in crises. During first 2 weeks after discharge, CTI worker spent time with patient in the community observing his physical and social surroundings and daily habits. Subsequent support was individually tailored.  Comparison: Referral to MH and rehabilitation programs that were described as "generally of high quality." Staff of onsite shelter psychiatry program available upon request, referral to services as needed.	Health outcomes  CTI group greater decrease in negative symptoms at 6-month followup; no significant difference positive or general psychopathology symptoms  Homelessness outcomes: CTI group better: average number of homeless nights over 18 months (32 vs. 90 days), likelihood of homeless at 18 months; difference widened during the course of the study  Cost outcomes: Over 18 months, CTI group: \$52, 374, usual care: \$51,649 including acute care services, outpatient services, housing, shelter, criminal justice, and transfer payments. CTI cost \$152 per nonhomeless night
RCT New York City: discharged to community following inpatient psychiatric hospitalization	Intervention duration: 18 months  Other characteristics: Men; had completed on-site treatment prior to entering the program, had been homeless for an extended period of time, being transferred from institutions to the community; many had other comorbid conditions		

**Table 3. Characteristics of studies of interventions to address disparities based on homelessness among individuals with SMI (continued)**

Diagnosis			
Author, Year	N Included in Study	Intervention	Major Benefit Outcome Measures
Design	Intervention Duration (Length of End of Intervention Followup)	Comparator	Subgroup Analyses and Comparisons (If Any)
Setting	Other Key Participant Characteristics	Co-interventions (If Any)	
Burt et al., 2012 <sup>25</sup> Cohort and comparison Receiving services in Los Angeles	Axis I diagnosis, usually schizophrenia or affective disorder N=415 Intervention period: at least 13 months	Intervention: Los Angeles' Homeless Opportunity Providing Employment program (LA's HOPE) through four public agencies and their contract service delivery programs. Technically, AB2034 participants but provided also with greater assistance with housing and employment; case managers to help with securing employment.  Comparison: AB2034: supportive services and housing assistance.	Homelessness and other outcomes: LA HOPE better: days in supportive housing, days housed More days employed, greater likelihood of employment
Lehman et al., 1997 <sup>23</sup> RCT Baltimore, Maryland	Disabled due to a mental health disorder or diagnosis of schizophrenia or schizoaffective disorder; Axis I MH disorder or extensive prior MH hospitalization history; unable to work due to a mental health disorder N=152 Intervention duration: at least 12 months	Intervention: Assertive Community Treatment (ACT) for homeless; program model integrating assertive, community-based clinical treatment with intensive case management and advocacy; compared to other programs, ACT sites scored higher on scales of emergency access, longitudinality of care, team model, housing assistance, linking to entitlements, and referral advocacy  Comparison: variety of community-based service organizations providing case management services to the homeless; scored similarly in relation to outreach orientation and vocational emphasis	Health service use and health outcomes: ACT fewer psychiatric inpatient days; fewer emergency department visits; more outpatient MH visits  No difference general medical care service use (inpatient, outpatient, emergency department)  At 12 months, ACT better clinical outcomes; no difference self-rated health status  Housing and other outcomes ACT more days in stable community housing  Both groups improved in quality of life and life satisfaction

**Table 3. Characteristics of studies of interventions to address disparities based on homelessness among individuals with SMI (continued)**

Diagnosis			
Author, Year	N Included in Study	Intervention	Major Benefit Outcome Measures
Design	Intervention Duration (Length of End of Intervention Followup)	Comparator	Subgroup Analyses and Comparisons (If Any)
Setting	Other Key Participant Characteristics	Co-interventions (If Any)	
Shern et al., 1997 <sup>55</sup>	Psychotic disorder or affective disorder: 90% of participants N=894 Followup: 12–24 months	Intervention: McKinney research demonstration projects: different case management models at different sites that included rehabilitation, assertive community treatment and intensive case management. All models used assertive outreach and case management teams  Comparison: Usual care at 3 sites in 2 cities; differed in relation to time and intensity of services	Housing outcomes: Active interventions Increased attainment of community housing for participants: 47.5%  Stable housing (residing in community housing) based on interventions in all but New York City intervention: 78%; no difference across experimental groups
Shern et al., 2000 <sup>56</sup>	Meeting New York State's definition of serious and persistent mental illness; includes evidence of mental illness combined with serious disability resulting from mental illness N=168 Followup: every 6 months for up to 24 months	Intervention: Choices, an intensive case management program of outreach and engagement to foster relationship with staff; invitation to attend Choices Center, low demand day program with food, showers, assistance with obtaining support services, socializing; respite housing; and assistance in finding and maintaining community housing  Comparison: told of availability of usual care; including array of homelessness and specialty MH services	Health service use: No difference emergency department, outpatient or inpatient services; greater day program use Psychological status Choices greater reduction in anxiety, depression, and thought disturbances Housing outcomes Choices greater use of shelters and community housing Quality of life Choices greater improvement in life satisfaction

**Table 3. Characteristics of studies of interventions to address disparities based on homelessness among individuals with SMI (continued)**

<b>Diagnosis</b>			
<b>Author, Year</b>	<b>N Included in Study</b>	<b>Intervention</b>	<b>Major Benefit Outcome Measures</b>
<b>Design</b>	<b>Intervention Duration (Length of End of Intervention Followup)</b>	<b>Comparator</b>	<b>Subgroup Analyses and Comparisons (If Any)</b>
<b>Setting</b>	<b>Other Key Participant Characteristics</b>	<b>Co-interventions (If Any)</b>	
Herman et al., 2011 <sup>53</sup> ; Tomita & Herman, 2012 <sup>66</sup> ; Tomita & Herman, 2015 <sup>67</sup> ; Tomita et al., 2014 <sup>68</sup>	Schizophrenia (61%), schizoaffective disorder and other psychotic disorders N=150	Intervention: CTI: Time-limited intervention designed to enhance continuity of care during transition from institution to community; long-term assertive community treatment model to promote independent living through building community supports by providing services during transition. Phase 1: transition, intensive support and assessing resources that exist for transition Phase 2—tryout: testing and adjusting systems of support developed during phase 1; community providers will have assumed primary responsibility for delivering support and services, and CTI worker can focus on assessing degree to which support system is functioning as planned. Phase 3: transfer of care responsibility to community resources Comparison: No additional treatment Co-intervention: Range of “usual” community-based services, depending on individual's needs, preferences, and living situation	Health services use CTI lower odds of psychiatric rehospitalization, including after controlling for housing stability CTI reduced psychiatric re-hospitalizations through improved satisfaction with family relations CTI greater perceived access to MH care No difference in stability of relationship with psychiatrist or case manager at 18 months but better at 9 months No difference in severity of instability of patient-MH service provider relationship Homelessness CTI group sig higher probability of no homeless days past 18 weeks Quality of life CTI greater frequency of family contact and greater improvement in satisfaction with family relations at 18 months
RCT	Intervention: 9 months in CTI group, followed by 9 months of usual care only; (every 6 weeks for 18 months)		
New York City			

**Table 3. Characteristics of studies of interventions to address disparities based on homelessness among individuals with SMI (continued)**

<b>Diagnosis</b>			
<b>N Included in Study</b>			
<b>Author, Year</b>	<b>Intervention</b>	<b>Intervention</b>	<b>Major Benefit Outcome Measures</b>
<b>Design</b>	<b>Duration (Length of End of Intervention Followup)</b>	<b>Comparator</b>	<b>Subgroup Analyses and Comparisons (If Any)</b>
<b>Setting</b>	<b>Co-interventions (If Any)</b>		<b>Subgroup Analyses and Comparisons (If Any)</b>
<b>Other Key Participant Characteristics</b>			
Tsai et al., 2013 <sup>32</sup> RCT San Francisco, California	Depression: (major, minor, or dysthymia)  Intervention duration: 24 weeks (12 weeks)  HIV positive	Intervention: DOT with fluoxetine for 24 weeks, introduced in 3 phases of gradually increasing independence: 20 mg DOT each weekday and self-administered on weekends, for 2 weeks; 90mg fluoxetine DOT weekly, for 22 weeks; and 90 mg self-administered weekly, for 12 weeks  Psychiatrist met with participants weekly for first month, every 2 weeks for second month, and monthly thereafter  Comparison: Referral only to treatment at public MH clinic specializing in care of persons HIV positive	Health outcomes  Intervention reduced depression symptom severity, and increased response and remission  Adherence  No difference in ART adherence or probability of viral suppression
Rosenheck et al., 1998; <sup>22</sup> Rosenheck et al., 2002; <sup>69</sup> Lam & Rosenheck, 1999; <sup>31</sup> Rothbard et al., 2004; <sup>70</sup>  Cohort and comparison in some analyses  18 sites in 9 states	MDD, schizophrenia, other psychoses, personality disorder, anxiety disorder, bipolar disorder  18 sites with approximately 100 participants each; cohorts differed across analyses  Intervention duration: 12 months; program duration 5 years	Intervention: ACCESS Program: to assess whether integrated systems of service delivery enhance the use of services, outreach, and the quality of life of the homeless with SMI. Sites provided outreach and intensive case management. Each site provided with funding to: create outreach teams to make contact with untreated homeless with SMI and to facilitate their involvement in more intensive services and to provide intensive case management teams to provide comprehensive services.  Comparison: Community sites providing services for the homeless with SMI that did not receive funding for system integration	Health service use:  Among Medicaid participants in Pennsylvania, likelihood of any use and amount of psychiatric outpatient service use increased during period from before to after the program, likelihood of inpatient psychiatric use did not change but days declined.  Homelessness outcomes  ACCESS improved access to housing services 3 months after program entry and, through these services, to independent housing after 12 months, but not other services; no difference between system integration sites and comparison sites.

ACCESS = Access to Community Care and Effective Services and Supports; ACT = Assertive Community Treatment; ART=antiretroviral therapy; CTI = Critical Time Intervention; DOT = directly observed therapy; MDD = major depressive disorder; MH = mental health; N = number; RCT = randomized controlled trial; SMI = serious mental illness.

The McKinney research demonstration project was conducted across sites in four cities; all included assertive outreach and intensive case management teams.<sup>55</sup> Usual care comparisons differed across sites. Overall, the percentage of individuals living in community housing

increased over time in both the McKinney intensive case management demonstrations and the traditional case management programs. The goal of the ACCESS program, conducted at 18 sites, was to improve outcomes through enhancing system integration. Sites also provided outreach and intensive case management.<sup>22,31,69,70</sup> Limited data were available on the effect of the program on use of health services. Like the McKinney demonstration, access to independent housing improved over time for both participants in ACCESS and those receiving services in comparison programs that had not received funding for system integration.

The CTI program provided services to homeless participants over an 18-month period. During the first 9 months, a CTI worker provided individualized assistance in bridging the transition from institutional care to obtaining services and promoting independent living in the community, based on a long-term assertive community treatment model. In the second 9 months, referral was available to a range of usual community-based mental health and rehabilitation services. In two RCTs of the comparative effectiveness of CTI, the comparison groups only had access to referral to usual care.<sup>28,35,52,53,65-68</sup> The earlier trial found mixed results in relation to mental health outcomes; the CTI group experienced a greater decrease in negative symptoms after 6 months but no difference in positive or general psychopathology outcomes. In a more recent trial, CTI participants had lower odds of psychiatric rehospitalization, greater perceived access to mental health services, and greater satisfaction with family relations. Both trials found that CTI was more likely to reduce homelessness.

Choices, an intensive case management day program, provided outreach and participant engagement, including food, showers, assistance with obtaining services, socializing, and respite housing.<sup>56</sup> An RCT evaluating the comparative effectiveness of Choices and referral to usual care found no differences in health service use (emergency department, inpatient or outpatient) but better psychological status, greater use of shelters and life satisfaction.

The ACT program, integrating assertive community-based treatment, intensive case management, and advocacy, was compared in an RCT to other community-based organizations providing case management.<sup>23</sup> After 12 months, ACT participants had better use of psychiatric services (fewer inpatient and emergency department visits and more outpatient visits), no difference in general medical care service use, but better clinical outcomes. ACT participants also had more days in stable community housing.

LA's HOPE provided enhanced assistance with housing and employment compared with other similar programs but without the enhancements.<sup>25</sup> After approximately 1 year, LA HOPE participants were more likely to have secured housing and employment.

An RCT for homeless HIV-positive patients with depression randomized participants to DOT with fluoxetine or referral to a mental health clinic. The intervention was associated with reduced depression symptom severity, but it had no effect on antiretroviral therapy adherence.

## **Interventions for Low-Income Individuals**

Two of the four studies that evaluate interventions for low-income individuals, not identified as homeless, were grouped together because they similarly include CBT in at least one of the intervention arms (Table 4). A third study, that was limited to a low-income population concerned telepsychiatry; it is discussed with studies of interventions to address disparities based on rural residence.<sup>42</sup> A fourth, concerning a collaborative care intervention for low-income Chinese Americans with MDD is discussed with other studies focusing on racial/ethnic minority individuals with SMI.<sup>39</sup>

Both studies focused on treatment for low-income women with MDD and evaluated the comparative effectiveness of CBT for treating depression and usual care. In one of the studies, entitled Women Entering Care, a pharmacotherapy arm is also compared with usual care.<sup>33,71</sup> In both studies, usual care provided education and referral to community mental health providers; only a small percentage of women adequately followed up on the referral and received psychotherapy services. In contrast, in the intervention arms, women were more likely to receive the CBT or pharmacotherapy. Both interventions being tested were offered onsite at a clinic in which women were already receiving services. Also, both provided support services. The Women Entering Care study offered materials in Spanish, services through culturally aware clinicians, preliminary educational sessions for those who may be reluctant to enter treatment, and financial assistance for day care and transportation. The second intervention, focusing on low-income perinatal women included active outreach to help women schedule and, if necessary, repeatedly reschedule appointments.<sup>51</sup> In both studies, depression outcomes were superior in the intervention arms.

**Table 4. Characteristics of studies of interventions to address disparities based on being low income among individuals with SMI**

<b>Diagnosis</b>			
<b>Author, Year</b>	<b>N Included in Study</b>	<b>Intervention</b>	<b>Major Benefit Outcome Measures</b>
<b>Design</b>	<b>Intervention Duration (Length of End of Intervention Followup)</b>	<b>Comparator</b>	<b>Subgroup Analyses and Comparisons (If Any)</b>
<b>Setting</b>	<b>Co-interventions (If Any)</b>		<b>Other Key Participant Characteristics</b>
Miranda et al., 2003 <sup>71</sup> ; Revicki et al., 2005 <sup>33</sup>	MDD N=267	Intervention: Women Entering Care Study, two separate arms: Pharmacotherapy managed by a primary care nurse practitioner	Access and adherence to health care services
RCT	Intervention duration: medication, 6 months; CBT, 8 or 16 weeks; comparison varied (6 and 12 months)	CBT: individual or group, provided by licensed clinical psychologist; 8 weeks of treatment that could be extended to 16, if needed	Women randomized to medications: 75% completed 9 or more weeks
Clinics in Maryland counties near Washington, DC, Arlington and Alexandria Virginia	Women; primarily black and Hispanic (96%)	Both arms: All written materials available in Spanish for Spanish-speaking women, clinicians experienced treating this population, Education sessions available to those reluctant to receive treatment, funds for transportation and child care provided	Women randomized to CBT: 53% received 4 or more sessions
		Comparison: Community referral including education about depression and its treatment; referral to appropriate community provider (one-quarter declined referral)	Women receiving community referral: 83% attended no sessions
			Health outcomes
			At 6 months, pharmacotherapy and CBT both resulted in better depression outcomes; results did not differ by race/ethnicity
			At 12 months, both pharmacotherapy and CBT had greater number of depression free days. The cost per additional depression-free day was \$24.65 for pharmacotherapy and \$27.04 for CBT.

**Table 4. Characteristics of studies of interventions to address disparities based on being low income among individuals with SMI**

Author, Year	Diagnosis	Intervention	Major Benefit Outcome Measures
	N Included in Study		
Design	Intervention Duration (Length of End of Intervention Followup)	Comparator	Subgroup Analyses and Comparisons (If Any)
Setting	Other Key Participant Characteristics	Co-interventions (If Any)	
O'Mahen et al., 2013 <sup>51</sup>	MDD	Intervention: modified CBT, adapted for the perinatal period, included motivational interviewing, behavioral activation, cognitive restructuring, and interpersonal support	Adherence to treatment
RCT	N=55	Also, active outreach, including reminder phone calls and flexible rescheduling for women who missed or cancelled appointments	CBT group: 83% attended at least 1 session, 60% were adherent (4 or more, of up to 12 sessions); comparison group: 17% received any psychotherapy
Obstetrics clinics that primarily serve low income women	Intervention duration: 16 weeks (3 months) Perinatal women, pregnant at baseline	Comparison: Treatment as usual, feedback and psychoeducational materials about perinatal depression, local referral for psychotherapy and case management. Risk reassessed at each interview	Health outcomes CBT group better depression outcomes and end of treatment period and at followup.

CBT = cognitive behavioral therapy; MDD = major depressive disorder; N = number; RCT = randomized controlled trial; SMI = serious mental illness.

## Interventions for Racial and Ethnic Minority Groups

Three studies evaluated enhanced interventions for particular racial or ethnic disparity groups (Table 5). Two studies tested collaborative care strategies in PCPs primarily for patients diagnosed with MDD (African American, Chinese American),<sup>37,39</sup> and the third added behavioral family management, a structured approach to enhance family engagement in care for a family member with schizophrenia (Hispanic).<sup>58</sup> Each of the interventions was culturally tailored to the particular group. For example, the collaborative care model for African American patients included depression care managers who were African American.<sup>37</sup> The collaborative care model for Chinese Americans sought to provide culturally and linguistically relevant materials.<sup>39</sup> The third intervention, promoting additional family involvement for Hispanic patients with schizophrenia, also provided translations and culturally tailored materials. Both studies examining culturally tailored collaborative care models compared the new approach with a more standard collaborative care or enhanced physician-patient engagement approach; patient outcomes improved over time in both arms. In contrast, among Hispanic patients with schizophrenia, adding structured family engagement to case management, compared with case management without family engagement, resulted in worse outcomes, particularly in less acculturated patients.

**Table 5. Characteristics of studies of interventions to address disparities based on race or ethnicity among individuals with SMI**

Diagnosis			
Author, Year	N Included in Study	Intervention	Major Benefit Outcome Measures
Design	Intervention Duration (Length of End of Intervention Followup)	Comparator	Subgroup Analyses and Comparisons (If Any)
Setting	Other Key Participant Characteristics	Co-interventions (If Any)	
Cooper 2013 <sup>37</sup>	MDD	Intervention: Blacks Receiving Interventions for Depression and Gaining Empowerment (BRIDGE) study. Patient-centered, culturally tailored collaborative care strategy delivered by PCP, consultation-liaison psychiatrist team, and female African American depression care manager. Services included followup, needs assessment, education, individualized approach to engagement and counseling	Adherence to treatment Medication rates increased in comparison but not intervention group Quality of care Intervention group more likely to consider clinician as participatory; rate their care manager as helpful Health outcomes Both groups improved depression symptom levels, mental health functioning
Cluster RCT 10 urban community-based primary care clinics in Maryland and Delaware	N=132 receiving services from 36 PCPs Intervention duration: NR (6, 12, 18 months) African American	Comparison: Standard collaborative care strategy: delivered by PCP, female Caucasian depression care manager. Services included followup, needs assessment and generic educational materials	
Kwong et al., 2013 <sup>39</sup>	MDD, generalized anxiety disorder, and/or panic disorder	Intervention: Collaborative care model including depression care manager to coordinate depression care with PCP, active monitoring of symptoms, adherence to treatment and proactive collaboration between PCP and MH specialists. Self-help manuals in English and Chinese, field tested for cultural relevancy and literacy level	Health outcomes Both groups significant reduction of depressive symptoms, anxiety and improved MH functioning; no significant difference between the two groups
RCT FQHC in Chinatown, New York City	N=57 Intervention duration: 12 weeks (1 month) Chinese American, low income, poor or no English language skills: 68%	Comparison: Physician and patient in enhanced physician care group that to jointly decide appropriate treatment regimen. PCP responsible for all aspects of patient treatment	
Telles et al., 1995 <sup>58</sup>	Schizophrenia	Intervention: Case management plus behavioral family management intervention including family education about schizophrenia, communication and problem-solving skills training. Translations and sociocultural adaptation of materials.	Health outcomes Intervention was related to greater exacerbation of symptoms in less acculturated patients Among more acculturated patients, exacerbation related to poor medication compliance but not intervention
RCT Los Angeles, public mental health clinics	N=40 Intervention duration: 1 year Hispanic (Mexican, Guatemalan, or Salvadoran descent), living in the community with a family member	Comparison: Case management, no regular family involvement Co-intervention: weekly case management by bilingual, bicultural social workers, weekly or biweekly medication reassessments, weekly clinic appointments for 6 months, every 2 weeks for next 3 months, and monthly for last 3 months	

FQHC = Federally Qualified Health Center; MDD = major depressive disorder; MH = mental health; N = number; NR = not reported; PCP = primary care provider; RCT = randomized controlled trial; SMI = serious mental illness.

## Interventions for the Elderly

We identified only one study that examined enhanced treatment for MDD, specifically for elderly patients (Table 6). The intervention in this large multisite RCT, conducted in primary care sites, followed a collaborative care, stepped-care approach. Intervention components included education for PCPs about late-life depression; a depression care manager to work with the patient and PCP and to activate the patient to manage his or her care, to provide ongoing monitoring of mood and medication, and to provide brief psychotherapy; a clinical information tracking system; and access to consultation with a psychiatrist when needed. In comparison with usual care, which could be any care or no care, intervention participants were more likely to use treatment services for their MDD and to experience better depression outcomes. Superior results were experienced across race and ethnicity subgroups (black, Hispanic, and white) and income groups (low and high).

**Table 6. Characteristics of studies of interventions to address disparities based on being elderly among individuals with SMI**

Author, Year	Diagnosis	Intervention	Major Benefit Outcome Measures
	N Included in Study	Comparator	Subgroup Analyses and Comparisons (If Any)
Arean et al., 2005 <sup>44</sup>	MDD or dysthymia N=1,801	<b>Intervention:</b> Improving Mood-Promoting Access to Collaborative Treatment (Impact) Study: primary care based collaborative care model including depression care manager, ongoing mood and medication monitoring based on evidence-based treatment guidelines, brief psychotherapy, depression clinical specialist developed individual treatment plan with patient	Access to health care services Intervention patients in each race/ethnicity and income group improved use of services (utilization of antidepressant medication and psychotherapy)
Arean et al., 2007 <sup>48</sup>	Intervention duration: 1 year (3, 6, & 12 months)	<b>Comparison:</b> Usual care from PCP, any MH provider, or no treatment	Health outcomes Intervention patients in each race/ethnicity and income group better depression outcomes
Multisite RCT 18 Primary care sites	60 years of age and older Subgroups: black, Hispanic, and white; low income and not low income		

MDD = major depressive disorder; MH = mental health; N = number; PCP = primary care provider; RCT = randomized controlled trial; SMI = serious mental illness.

## Interventions for Rural Populations

Three studies examined the use of telemedicine services to individuals living in areas and receiving services in clinics considered to have inadequate availability of local psychiatric services (Table 7). The psychiatric telemedicine services were provided in addition to locally based care. Two of the interventions were implemented in Department of Veterans Affairs Community-based Outpatient Clinics (CBOCs): one for male veterans with PTSD<sup>63</sup> and one small study for female veterans with PTSD or MDD or chronic pain (or combinations of these diagnoses).<sup>49</sup> The third intervention was provided to low-income Hispanic patients with MDD

who were receiving services at a community health center.<sup>42</sup> These interventions were found to be feasible enhancements to local services. Improvement in health outcomes were mixed.

**Table 7. Characteristics of studies of interventions to address disparities based on rural residence among individuals with SMI**

Diagnosis			
Author, Year	N Included in Study	Intervention	Major Benefit Outcome Measures
Design	Intervention Duration (Length of End of Intervention Followup)	Comparator	Subgroup Analyses and Comparisons (If Any)
Setting	Other Key Participant Characteristics	Co-interventions (if any)	
Chong, 2012 <sup>42</sup>	MDD Randomized: N=167	<b>Intervention:</b> At CHC, telepsychiatry sessions (1/2 hour) provided by Hispanic psychiatrists; medication management based on “Texas Medication Algorithm Project” model	Access to health care services No difference in appointment keeping Intervention patients better working alliance with psychiatrist, visit satisfaction, antidepressant use Health outcomes No difference in depression scores, number of work days lost
RCT CHC, Tucson, Arizona	Intervention duration: 6 months Low income, Hispanic	<b>Comparison:</b> Usual care at CHC including referral to MH specialist (sessions 1 hour)	
Fortney et al., 2014 <sup>63</sup>	PTSD Randomized: N=265	<b>Intervention:</b> PTSD care team used telemedicine outreach for PTSD (TOP), telemedicine to provide telepsychiatric services to enhance and support collaborative care at local CBOC including care manager and 12 sessions of CPT	Access to health care services Intervention patients more likely to receive CPT but no difference in medication use No difference in adherence Health outcomes Intervention patients greater improvement in PTSD
Multisite RCT 11 VA CBOCs	Intervention duration: 12 months (6 and 12 months) Male veterans, MDD: 79%	<b>Comparison:</b> Usual care at CBOC including pharmacotherapy and counseling	
Tan et al., 2013 <sup>49</sup>	PTSD, MDD, or both Participants: N=34	<b>Intervention:</b> Biofeedback training with weekly clinical video-teleconference support sessions. Sessions included: clinical video-teleconference group-based treatment, education, pain-coping skills training, and support elements.	Access to health care services Protocol was feasible Health outcomes
Single group pre-post study Two rural Texas CBOCS areas	Intervention duration: 6 weeks (6 weeks) Female veterans with chronic pain	<b>Comparison:</b> Pre-post study, one group was compared to previous group	Some improved pain measures, depression, and PTSD symptoms No improvement in pain intensity

CBOC = community-based outpatient clinic; CHC = community health center; CPT = cognitive processing therapy; MDD = major depressive disorder; MH = mental health; PTSD = post-traumatic stress disorder; RCT = randomized controlled trial; SMI = serious mental illness; VA = Department of Veterans Affairs (Veterans Administration).

## Summary and Implications: Guiding Question 4

Using our findings from the Guiding Questions (GQs 1, 2, and 3), we address here important issues that have not been adequately addressed in the current research base and that merit high priority attention for future research. These include gaps in the knowledge base and the evidence for the effectiveness or comparative effectiveness of strategies addressing critical disparities among subgroups of persons with SMI. In addition, we comment on future areas of research (including research we believe may be in a planning stage but not yet completed). Finally, we discuss next steps and major implications to be drawn from the findings in this Technical Brief.

### Gaps in Evidence Base

Based on the topic nomination, the focus of this Technical Brief is those with SMI who also fall within specific, generally established disparity subgroups. These are defined by race or ethnicity; gender; economic disadvantage or low income; homelessness; age (specifically being elderly); geographic isolation (i.e., rural residence); and disparities experienced by lesbian, gay, bisexual, transgender (LGBT) individuals or by those who have difficulty communicating in English (e.g., for whom English is a second and not a primary language). These subgroups were among a larger group considered a priori, and we developed the final set after input from our KIs, who especially emphasized the importance of the elderly, homeless, and LGBT subpopulations.

Interventions were required to target one of the above listed subgroups and were categorized along the health care continuum. Briefly, these were access to health insurance, accurate diagnostic evaluations, appropriate therapeutic interventions for SMI patients, adherence to treatment, quality of the health care rendered, and a wide array of health and other outcomes (including housing).

We kept this context in mind in designing our literature search criteria (as described in Methods). As previously noted, the searches for GQs 1 and 2 were broader than for GQ 3; the two former GQs were descriptive of interventions and contextual considerations, whereas the latter was focused on studies that could provide information on effectiveness. Across all the studies included for any question, many addressed multiple disparity subgroups at once. This factor complicated our analyses somewhat because we strove, generally, to describe a study only once. Examples of these “overlapping” subgroups include the following: elderly minority patients with SMI<sup>44,48</sup> and low-income minority women with SMI.<sup>71</sup> See Table 1 for a full description of overlapping disparity subgroups targeted in interventions include as evidence for GQ 3. The largest subgroup studied comprised patients with an economic disadvantage; four studies focused on persons of low SES,<sup>39,42,51,71</sup> and eight examined the homeless SMI population.<sup>23,25,31,32,35,53,55,56</sup> Of those eight studies, two focused on a single type of intervention, namely, CTI.<sup>35,53</sup>

Importantly, no studies addressed the LBGT population or gender disparities within SMI. In addition, although some studies examined access to health care (i.e., therapeutic services), none addressed access to health care insurance (or coverage within health care plans). In the future, we can assume that health care reform (broadly understood) and health insurance (more particularly focused on employer-based insurance, Medicare, Medicaid, and the Patient Portability and Affordable Care Act [ACA]) will be active areas of research; some studies on these topics might well address various kinds of disparities or mental health population subgroups defined either by diagnosis (e.g., SMI) or by sociodemographic characteristics.

Furthermore, of the 17 included studies for GQ 3, none addressed the problem of access to accurate diagnosis, despite evidence that such a disparity exists.<sup>72</sup> Although few if any studies targeted only the issue of SMI patients who experience difficulty communicating in English, several studies did make services or materials available in languages other than English, as part of a more complex intervention addressing more than one problem area for the disparity subgroup.

Moreover, KIs mentioned additional projects related to homelessness and disability. One example is the SOAR initiative of the North Carolina Coalition to End Homelessness (the SSI/SSDI Outreach, Access and Recovery program of the U.S. Substance Abuse and Mental Health Services Administration); it is intended to help individuals who are homeless and eligible for disability benefits to obtain those benefits, some of the beneficiaries of this program include persons with SMI (<http://www.ncceh.org/ncsoar/>). We did not find published empirical studies about this specific program, however.

As already implied by the literature findings, numerous gaps exist in the evidence base. This fact had been highlighted at the outset in our KI discussions, so it was not unexpected. One KI aptly stated: “gaps are everywhere.” Multiple KIs mentioned the absence of literature addressing the LGBT population with SMI. They also agreed that relatively little literature addresses either rural populations with SMI or elderly persons; the latter is of particular concern because of the aging of the U.S. population as a whole. Furthermore, one KI pointed out that no research is available on cultural competency at the assessment (diagnostic) level for these SMI subpopulations and how this capability can affect patients’ outcomes (for better or worse). Another KI mentioned the importance of federal funding for disparity research. KIs generally agreed with the expressed need to conduct such research rigorously and dispassionately.

## **Limitations of Evidence Review**

The ability to review the relevant evidence base for this topic has some general limitations. First, as noted in the text, many of the disparities overlapped (e.g., sometimes a population had patients selected both because of older age and race/ethnicity); in these cases, we tried to group the intervention into the primary disparity the intervention targeted. Such overlap, however, complicates the attribution of those outcomes to the intervention effect for a particular disparity subgroup. Second, the definitions and categorization of the disparity subgroups continue to evolve, making the area at risk of inconsistent terminology. As a result, the comprehensive search for relevant literature for an area (e.g., gender disparity, or difficulty communicating in a secondary language) can be challenging, and it is possible that some relevant eligible literature were missed. Ideally, KI input, peer review, and public comment can help address this limitation. Furthermore, because the focus of this Technical Brief, as detailed above, was on subgroups of SMI, literature addressing the SMI population, as a whole, in comparison to the general population did not meet our inclusion criteria and, thus, was not reviewed.

## **Future Areas of Research**

The gaps in the evidence base noted above provide a framework for potential areas of future research. With respect to patient subgroups, clear holes lie in the area of interventions for the LGBT SMI population, gender disparities, and the elderly with SMI. Across disparity subgroups, the absence of interventions aimed at improving access to diagnostic services, and specifically to “accurate” diagnosis, was clear.

In addition, the literature meeting inclusion criteria for this Technical Brief also identified several areas for future research. Some of these ideas overlapped with gaps in the evidence base that the KIs had already pointed out. Examples included the need to study larger samples of minority elderly patients with SMI, in terms of both examining comparative effectiveness of psychotherapy versus pharmacotherapy<sup>44</sup> and engaging elders with very low incomes who do not have basic services such as transportation or telephones.<sup>73</sup> Many articles echoed the need for studies of all disparity subgroups with larger, more representative samples, with longer followup, and in various settings.<sup>37,44,51,61,65</sup> Other investigators mentioned the need for randomized controlled trials of various interventions, rather than other, less rigorous study designs,<sup>49</sup> even though some authors noted the difficulty of enrolling and retaining these patients in a randomized trial.<sup>39</sup> Yet others highlighted the importance of studies of cost-effectiveness of specific interventions.<sup>42,70</sup>

KIs mentioned some research projects currently under way that would not yet have appeared in the literature. One such project, entitled “DECIDE,” uses motivational interviewing techniques with pharmacotherapy in a Latino population; another, the “Cultural Formulation Interview Project (CFI),” will focus on developing a guide for clinicians in how to include cultural factors in their psychiatric assessments. Research is also ongoing in the use of interpreters (e.g., how interpreter services compare and contrast with bilingual clinicians) and use of video interpretation.

In addition, the area of health promotion and prevention is an active area. Ongoing studies address the implementation challenges of such health promotion interventions, although they may target the SMI population as a whole and focus on addressing the decreased life expectancy for individuals with SMI, rather than target the subgroups of interest for this Technical Brief. According to one KI, the biggest disparity subgroup within the SMI population is those without insurance, including those who should be eligible for Social Security Disability Insurance but are still without benefits. Some interventions currently being investigated include the SOAR program mentioned above to help such individuals understand and enroll in the Medicaid and Medicare programs and obtain appropriate benefits. Finally, the impact of the ACA, with expansion of Medicaid in some states, may open up other avenues of clinical and policy research on disparities in SMI populations or subgroups.

## **Implications**

We discussed in the specific results of the included studies that the preponderance of published interventions address the SMI subgroup who are homeless. Consequently, the paucity of published interventions addressing any other disparity subgroup is marked. This is true even for those subgroups defined by, for instance, race or ethnicity, for which an extensive literature is available outside the realm of mental illness (or SMI in particular), including recent work documenting the existence of disparities in the use of mental health services by race.<sup>74</sup>

We see several possible explanations for these observations about gaps in published research. One possibility is that individuals with SMI experience such disparities in health services, quality of care, and outcomes compared with the general population that accurately characterizing subgroups for which to design interventions is difficult. Support for this hypothesis comes from the literature mentioned by the KIs, which clearly establishes overall decreased life expectancy (in some studies up to 25 years) for individuals with SMI;<sup>75</sup> this pattern suggests that persons suffering from SMI, as a whole (irrespective of subgroups characteristics) are, indeed, an important health disparity group.

Similarly, one might hypothesize that a large percentage of the homeless population has an SMI. Evidence suggests that up to 30 percent of the homeless population has mental illness.<sup>76</sup> Interventions addressed for the obvious health disparity category of homelessness will likely apply to a broader set of individuals with SMI. This possibility might explain why relatively more literature is available on the homeless than on steps to reduce disparities among SMI patients in general.

This issue of research being driven by numbers of individuals affected could also explain the lack of diagnostic diversity in the studied interventions. For instance, several interventions focused on access to high-quality depression treatment for various subgroups, especially under the umbrella of collaborative care or colocation of primary care and mental health services. No such studies reported on interventions addressing the quality of treatment for patients with schizophrenia, which affects a smaller proportion of the general population than depression.

Another key issue is the applicability of evidence about effectiveness of interventions (e.g., to address clinical issues or reduce disparities) derived from studies of general populations to specific subgroups. Even if clinicians or policymakers could identify *which* disparity subgroups within the SMI population are at greatest risk, available interventions shown to be effective for those subgroups in the general population may not be equally efficacious in the SMI population. For example, a specific outreach program for rural individuals to enhance access to diagnosis or treatment, such as telemedicine, may not be as effective for individuals with schizophrenia living in a rural area, given the prevalence of paranoia about monitoring and technology in populations with this particular condition.

Nevertheless, given the limited amount of funding that has historically been made available for disparities research, focusing on SMI populations as a whole, rather than specific subgroups, may provide greater opportunities for research investments. One considerable unknown is whether the magnitude of health disparities in the SMI population is similar to (or lower or higher than) the magnitude among, say, overall rural populations or the elderly. Establishing such clinical and epidemiological baselines would be a logical next step, which we believe the results of this Technical Brief suggests. Additionally, we used a very broad definition of SMI for this Technical Brief—one that included diagnoses ranging from dysthymia to schizophrenia—but the specific diagnostic category may well affect the type and magnitude of the disparity experienced. Thus, identifying a clear and consistent definition of SMI for research purposes is needed.

## Next Steps

The findings of this Technical Brief point to several next steps for the research community, policymakers, and patient advocates.

1. Establish a consistent definition of SMI across stakeholders and describe the health disparities experienced by this group as a whole relative to those for the general population.

As mentioned previously, we used a broad definition of SMI based on the intent of the topic nominators. Thus, we included a wide range of diagnostic categories and range of severity—from dysthymia (as a milder form of depression) or anxiety to bipolar or psychotic disorders. Moreover, we put no restrictions on the degree of functional impairment these patients might be experiencing. Even with such a broad scope, we identified relatively few interventions for SMI disparity subgroups.

For that reason, we propose changing the lens and using available resources to clearly define SMI as a disparity, in and of itself, as step one. This includes reaching a consensus on a definition of SMI, perhaps one that focuses on a required degree of functional impairment (regardless of specific mental disorder). The rationale for that idea is that, presumably, the degree of functional impairment is directly correlated with “costs” to both individuals and society in terms of productivity, health care expenses, and life expectancy. Using such a strategy will help garner necessary research dollars and effort because the target population is likely to be larger (than specific subgroups) and for which solutions to the clinical, public health, and policy issues are likely to have a larger impact. Indeed, SMI may be a particularly large health disparity (in the United States) given the stark data showing reduced life expectancy. As further support for this concept, a 2015 meta-analysis estimated that approximately 8 million deaths worldwide each year are attributable to mental disorders.<sup>77</sup>

2. Identify interventions that are effective in reducing the disparity between SMI and the general population along the health care continuum.

Once a consensus among researchers, policymakers, and patient advocates is reached as to a workable definition of SMI, a second step would be to design and study interventions aimed at reducing the disparity between individuals with SMI and their non-SMI counterparts in the general population. Such interventions could occur anywhere along the health care continuum (including access to health insurance), but of particular relevance are access to both mental and physical health care generally, access to evidence-based treatment based on accurate diagnoses, and the quality of those services. Of special interest would be outcomes related to better physical health and life expectancy. The groundwork for some of this research has already been laid; this includes expanding the idea and reality of “medical homes,” increasing efforts to co-locate medical and mental health care, and otherwise fostering “collaborative care.”

3. Determine whether such interventions are equally effective for subgroups of the SMI population.

This approach leads logically to a third step, after effective interventions are identified, of confirming this effectiveness in subgroups of the SMI population. These would explicitly include subgroups identified for this Technical Brief. The main reason is that they may be particularly at risk for inadequate access to care or poor outcomes of care, based in part on belonging to multiple disparity groups (e.g., being homeless or of advanced age and also belonging to a minority racial or ethnic group). Identifying what combinations of interventions might be appropriate for certain subgroups could then be an important next step; complex interventions might involve combining an outreach approach such as CTI with a collaborative care model to enhance adherence to both physical and mental health treatment for, for instance, homeless individuals with SMI. Organizing research and policy efforts in this order has the potential to use available resources efficiently *and* to promote improvement across a broad range of outcomes for all individuals with mental illness.

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63. Fortney JC, Pyne JM, Kimbrell TA, et al. Telemedicine-based collaborative care for posttraumatic stress disorder: a randomized clinical trial. *JAMA Psychiatry*. 2015 Jan;72(1):58-67. Epub: 2014/11/20. PMID: 25409287.
64. Hauenstein EJ. Testing innovative nursing care: home intervention with depressed rural women. *Issues Ment Health Nurs*. 1996 Jan-Feb;17(1):33-50. Epub: 1996/01/01. PMID: 8682665.
65. Jones K, Colson PW, Holter MC, et al. Cost-effectiveness of critical time intervention to reduce homelessness among persons with mental illness. *Psychiatr Serv*. 2003 Jun;54(6):884-90. Epub: 2003/05/30. PMID: 12773605.
66. Tomita A, Herman DB. The impact of critical time intervention in reducing psychiatric rehospitalization after hospital discharge. *Psychiatr Serv*. 2012 Sep 1;63(9):935-7. Epub: 2012/07/20. PMID: 22810163.
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68. Tomita A, Lukens EP, Herman DB. Mediation analysis of critical time intervention for persons living with serious mental illnesses: assessing the role of family relations in reducing psychiatric rehospitalization. *Psychiatr Rehabil J*. 2014 Mar;37(1):4-10. Epub: 2013/11/14. PMID: 24219767.
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70. Rothbard AB, Min SY, Kuno E, et al. Long-term effectiveness of the ACCESS program in linking community mental health services to homeless persons with serious mental illness. *J Behav Health Serv Res*. 2004 Oct-Dec;31(4):441-9. Epub: 2004/12/17. PMID: 15602144.
71. Miranda J, Chung JY, Green BL, et al. Treating depression in predominantly low-income young minority women: a randomized controlled trial. *JAMA*. 2003 Jul 2;290(1):57-65. Epub: 2003/07/03. PMID: 12837712.

72. Chrishon K, Anderson D, Arora G, et al. Race and psychiatric diagnostic patterns: understanding the influence of hospital characteristics in the National Hospital Discharge Survey. *J Natl Med Assoc.* 2012 Nov-Dec;104(11-12):505-9. Epub: 2013/04/09.
73. Cunningham M, Zayas LH. Reducing depression in pregnancy: designing multimodal interventions. *Soc Work.* 2002 Apr;47(2):114-23. Epub: 2002/05/22. PMID: 12019798.
74. Ault-Brutus AA. Changes in racial-ethnic disparities in use and adequacy of mental health care in the United States, 1990-2003. *Psychiatr Serv.* 2012 Jun;63(6):531-40. Epub: 2012/03/17. PMID: 22422014.
75. Gill KJ, Murphy AA, Zechner MR, et al. Co-Morbid Psychiatric and Medical Disorders: Challenges and Strategies. *J Rehabil.* 2009;75(3):32-40. PMID: 45463596.
76. Bishop SM. Impressions of the National Hearing on Severe Mental Illness and Homelessness. *J Child Adolesc Psychiatr Ment Health Nurs.* 1992 Jan-Mar;5(1):3-4. Epub: 1992/01/01. PMID: 1432585.
77. Walker ER, McGee RE, Druss BG. Mortality in mental disorders and global disease burden implications: a systematic review and meta-analysis. *JAMA Psychiatry.* 2015 Apr;72(4):334-41. PMID: 25671328.

## Appendix A. Original Guiding Questions from Study Protocol

1. From available evidence and input from Key Informants (KIs): Describe interventions (types or modalities) to reduce disparities among SMI subgroups. Interventions may address one or more of the following concerns within an SMI subgroup: (a) access to accurate diagnostic evaluation; (b) access to health care, including health care coverage; (c) improving quality of health care; and (d) improving adherence to treatment, response to treatment, or other health outcomes.
  - a. What are the goals of the interventions?
  - b. What are the components of the interventions?
  - c. What are the outcomes of the interventions?
  - d. What disparity subgroups are the focus of the interventions?
  - e. What are other key characteristics of the disparity subgroups who are eligible for each of the interventions (e.g., age; type, stage, or severity of the SMI condition; or other risk-stratification issues)?
  - f. What is the level of staffing and qualifications of staff required (including background, training, and/or necessary certification)?
  - g. What are the potential advantages of this type of intervention when compared with other types of interventions or with usual care?
  - h. What are the potential disadvantages of these types of interventions, including safety issues and harms?
2. From available evidence and input from KIs: Describe the context for each intervention (type or modality) identified in GQ 1 to reduce disparities among SMI subgroups. Intervention may address one or more of the following concerns: (a) access to accurate diagnostic evaluation; (b) access to health care, including health care coverage; (c) improving quality of health care; and (d) improving response to treatment, adherence to treatment, or other health outcomes.
  - a. What is the setting for the intervention; in particular, what is the structure, components, and/or characteristics of the organization(s) providing the intervention?
  - b. What other responsibilities do the health professionals (including clinicians) participating in the intervention have for the medical and mental health care of patients with SMI, including transitions of patients from inpatient to outpatient care and vice versa?
  - c. What other resources (e.g., health information technology) are needed to provide the intervention?
  - d. Does successful implementation of this intervention require changes/cooperation/integration by other service providers?
3. From available evidence: Describe the current evidence about the effectiveness (or comparative effectiveness) of interventions that have been implemented to reduce

disparities among SMI subgroups. Interventions may address one or more of the following concerns: (a) access to accurate diagnostic evaluation; (b) access to health care, including health care coverage; (c) improving quality of health care; and (d) improving adherence to treatment, response to treatment, or other health outcomes. Data on a specific intervention will optimally include:

- a. Patient inclusion criteria
  - b. Type of intervention
  - c. Intervention design and size
  - d. Comparator intervention(s) used in comparative effectiveness evaluations
  - e. Length of followup
  - f. Outcomes
  - g. Types of health care professionals providing services in the intervention or targeted by the intervention
  - h. Concurrent and prior treatment
  - i. Setting of the intervention
  - j. Costs and resource used in providing the intervention
  - k. Payment considerations (such as availability of insurance coverage)
4. From available evidence and input from KIs, identify gaps in knowledge and future research needs:
- a. Are any interventions to address disparities among SMI subgroups planned by researchers, clinicians, patient advocacy groups, or others but not yet implemented?
  - b. In current interventions, are the correct outcomes being measured? Are relevant outcomes being measured with appropriate instruments and data?
  - c. What gaps exist in the evidence base for best practices or interventions for addressing disparities in SMI?
  - d. What are possible areas of future research?
  - e. What are potential long-term (10-year +) developments in this field?

# Appendix B. Literature Search and Yields

## PubMed Original Search, 4/8/2015:

Search	Query	Items Found
<a href="#">#1</a>	Search (("Mood Disorders"[Mesh] OR "Schizophrenia and Disorders with Psychotic Features"[Mesh] OR Depression[Mesh] OR ("Depressive Disorder, Major"[Mesh]) OR "Anxiety Disorders"[Mesh] OR "Eating Disorders"[Mesh] OR "Personality Disorders"[Mesh] OR ((severe OR serious OR persistent) mental illness[Text Word])))	<a href="#">382729</a>
<a href="#">#2</a>	Search (((("Cultural Competency"[Mesh] OR ( "Healthcare Disparities"[Mesh] OR "Health Status Disparities"[Mesh] ))) OR (((("Minority Groups"[Mesh] OR "Sexism"[Mesh] OR ( "Discrimination (Psychology)"[Mesh] OR "Social Discrimination"[Mesh] OR "Ageism"[Mesh] OR "Racism"[Mesh] )) OR "Rural Population"[Mesh] OR ( "Socioeconomic Factors"[Mesh] OR "Social Class"[Mesh] )) OR "Sexual Behavior"[Mesh]))) OR (("Homeless Persons"[Mesh] OR "African Americans"[Mesh])) OR ("Homosexuality"[Mesh] OR "Transgendered Persons"[Mesh])	<a href="#">512136</a>
<a href="#">#3</a>	Search (#1 AND #2)	<a href="#">26654</a>
<a href="#">#12</a>	Search (("Intervention Studies"[Mesh] OR "Crisis Intervention"[Mesh] OR intervention)) OR (("Program Development"[Mesh] OR "Program Evaluation"[Mesh] OR "Health Services Research"[Mesh]) OR ( "Evidence-Based Medicine"[Mesh] OR "Evidence-Based Practice"[Mesh] OR "Decision Support Techniques"[Mesh] ))	<a href="#">665190</a>
<a href="#">#13</a>	Search (#3 AND #12)	<a href="#">2769</a>
<a href="#">#14</a>	Search (#3 AND #12) Filters: Humans	<a href="#">2766</a>
<a href="#">#15</a>	Search (#3 AND #12) Filters: Humans; English	<a href="#">2654</a>
<a href="#">#16</a>	Search (#3 AND #12) Filters: Publication date from 1980/01/01; Humans; English	<a href="#">2610</a>
<a href="#">#19</a>	Search (("United States"[Mesh] OR "United States Government Agencies"[Mesh] OR "United States Dept. of Health and Human Services"[Mesh] OR "Research Support, U.S. Gov't, P.H.S." [Publication Type]	<a href="#">3228942</a>
<a href="#">#20</a>	Search (#16 AND #19) Filters: Publication date from 1980/01/01; Humans; English	<a href="#">1217</a>

Original searches in the following databases were conducted on 4/8/2015; the only limit was publication date from 1/1/1980. Publications were not limited to the United States.

Database	Query	Items Found
Cochrane Reviews	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	7
Cochrane Clinical Trial Registry	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	8
PsychINFO	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	268
CINAHL	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	93
ProQuest Psychology Journals	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	119
Academic Search Premier	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	164
ClinicalTrials.gov	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	9

Original searches in the following databases were conducted on 6/3/2015; the only limit was publication date from 1/1/1980. Publications were not limited to the United States.

Database	Query	Items Found
OpenSige	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	1
NIH RePORTER	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	10
National Quality Measures Clearinghouse	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	10
The Joint Commission	(severe OR serious OR persistent) mental illness AND ("cultural competency" OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	0

An original search in the following database was conducted on 6/4/2015; the only limit was publication date from 1/1/1980. Publications were not limited to the United States.

<b>Database</b>	<b>Query</b>	<b>Items Found</b>
National Guidelines Clearinghouse	(severe OR serious OR persistent) mental illness AND (“cultural competency” OR disparities OR disparity OR racism OR sexism OR discrimination OR ageism)	4

## Appendix C. Gray Literature Search Methodology

Sources for the gray literature included the following:

- **OpenSIGLE:** Operated by GreyNet, the OpenSIGLE Repository preserves and makes openly accessible research results originating in the International Conference Series on Grey Literature. GreyNet together with the Institute for Scientific and Technical Information-National Center for Scientific Research designed the format for a metadata record, which encompasses standardized PDF attachments for full-text conference preprints, PowerPoint presentations, abstracts, and biographical notes. All 11 volumes (1993–2009) of the Grey Literature Conference Proceedings are available in the OpenSIGLE Repository.
- **ClinicalTrials.gov:** ClinicalTrials.gov offers up-to-date information for locating federally and privately supported clinical trials for a wide range of diseases and conditions. The site contains approximately 12,400 clinical studies sponsored by the National Institutes of Health, other federal agencies, and private industry. Studies listed in the database are conducted in all 50 states and in more than 100 countries.
- **Academic Search Complete:** This source provides information from a wide range of academic areas, including business, social sciences, humanities, general academic, general science, education, and multicultural topics. This multidisciplinary database features full text for more than 4,000 journals with many dating back to 1975, abstracts and indexing for more than 8,200 scholarly journals, and coverage of selected newspapers and other news sources.
- **NIH RePORTER:** The information found in RePORTER is drawn from several extant databases (eRA databases, Medline®, PubMed Central, the NIH Intramural Database, and iEdison), using newly formed linkages among these disparate data sources.

We also searched Web sites of the National Guidelines Clearinghouse (NGC), the National Quality Measures Clearinghouse (NQMC), and The Joint Commission.

## **Appendix D. Key Informant Interview Methodology**

We adhered to the Office of Management and Budget (OMB) requirements and limited standardized question (the list of Guiding Questions [GQs]) to no more than 9 nongovernment-associated individuals. As a result, we did not need to obtain OMB clearance for the interviews.

After review and approval of the completed Disclosure Forms for Conflicts of Interest for the proposed Key Informants (KIs) by the Agency for Healthcare and Quality (AHRQ), we conducted interviews with six selected KIs on three calls; the number of KIs on each call was two, one, and three, respectively. The interviews were a combination of individual KIs based on availability and concordance of perspectives. The Technical Brief's Scientific Director from the Evidence-based Practice Center (EPC), a psychiatrist, led two of the KI interviews; a Co-Investigator from the EPC for this Technical Brief, also a psychiatrist, led one of the interviews. The Task Order Officer (TOO) was in attendance for two of the three discussions, along with other EPC team members who would be authors on the Technical Brief. The KI interviews were one hour each.

Project staff from xxx, Inc., a professional services firm, were also in attendance for the three KI interviews; xxx, Inc. is a small-, minority-, and women-owned business. xxxx, Inc. provided professional and extensive notes, similar to transcription, for each interview following the calls. The professional notes, along with summary notes and a summary of findings from all KI interviews, were submitted to the TOO for documentation. Authors identified any unique perspectives from KIs that were not part of the literature review findings.

## Appendix E. Excluded Studies

### Exclusion Codes:

- X0-Irretrievable publication
- X1-Ineligible publication type: Not published in English
- X2-Ineligible publication: Published prior to 1980
- X3-Ineligible setting: Non-US
- X4-Ineligible setting: Not inpatient or outpatient, primary care of mental health care setting
- X5-Ineligible population: Too young, all participants are <18 years of age
- X6-Ineligible population: Does not focus on individuals with SMI now or in the past year
- X7-Ineligible population: Does not focus on a disparity subgroup with SMI
- X8-Ineligible intervention: No intervention(s)

1. Adams CE, Rash CJ, Burke RS, et al. Contingency Management for Patients with Cooccurring Disorders: Evaluation of a Case Study and Recommendations for Practitioners. *Case Reports in Psychiatry*. 2012;1-7. PMID: 86827569. Exclusion Code: X6
2. Alexander MJ, Haugland G, Ashenden P, et al. Coping with thoughts of suicide: Techniques used by consumers of mental health services. *Psychiatr Serv*. 2009;60(9):1214-21. PMID: 2009-18465-008. Exclusion Code: X7
3. Amirkhanian YA, Kelly JA, McAuliffe TL. Psychosocial needs, mental health, and HIV transmission risk behavior among people living with HIV/AIDS in St Petersburg, Russia. *AIDS*. 2003 Nov 7;17(16):2367-74. PMID: 14571189. Exclusion Code: X3
4. Arnold JG, Miller AL, Canive JM, et al. Comparison of outcomes for African Americans, Hispanics, and Non-Hispanic Whites in the CATIE study. *Psychiatr Serv*. 2013 Jun;64(6):570-8. PMID: 23494108. Exclusion Code: X8
5. Bartels SJ. Can behavioral health organizations change health behaviors? The STRIDE study and lifestyle interventions for obesity in serious mental illness. *The American Journal of Psychiatry*. 2015;172(1):9-11. PMID: 2015-02706-004. Exclusion Code: X7
6. Baumgartner JN, Herman DB. Community integration of formerly homeless men and women with severe mental illness after hospital discharge. *Psychiatr Serv*. 2012;63(5):435-7. PMID: 22549529. Exclusion Code: X7
7. Bayard-Cooks R. Momma's story: An exploratory case study of Black mothers' experiences caring for a son with a severe mental illness and history of incarceration. US: ProQuest Information & Learning; 2012. Exclusion Code: X0
8. Beach SR, Brody GH, Kogan SM, et al. Change in caregiver depression in response to parent training: genetic moderation of intervention effects. *J Fam Psychol*. 2009 Feb;23(1):112-7. PMID: 19203166. Exclusion Code: X5
9. Beeber LS. A clinical translation of the research article titled, 'exploring the impact of race on mental health service utilization among African Americans and whites with severe mental illness'. *J Am Psychiatr Nurses Assoc*. 2010;16(2):90-2. PMID: 2010-07453-003. Exclusion Code: X8
10. Beeber LS, Cooper C, Van Noy BE, et al. Flying under the radar: engagement and retention of depressed low-income mothers in a mental health intervention. *ANS Adv Nurs Sci*. 2007 Jul-Sep;30(3):221-34. PMID: 17703122. Exclusion Code: X6
11. Beeber LS, Holditch-Davis D, Belyea MJ, et al. In-home intervention for depressive symptoms with low-income mothers of infants and toddlers in the United States. *Health Care Women Int*. 2004 Jun-Jul;25(6):561-80. PMID: 15354622. Exclusion Code: X6

12. Belcher JR. Defining the service needs of homeless mentally ill persons. *Hosp Community Psychiatry*. 1988 Nov;39(11):1203-5. PMID: 3224957. Exclusion Code: X8
13. Belcher JR. The homeless mentally ill and the need for a total care environment. *Can J Psychiatry*. 1989 Apr;34(3):186-9. PMID: 2720551. Exclusion Code: X8
14. Bell MD, Lysaker PH. Clinical benefits of paid work activity in schizophrenia: 1-year followup. *Schizophr Bull*. 1997;23(2):317-28. PMID: 9165640. Exclusion Code: X7
15. Bluthenthal RN, Jones L, Fackler-Lowrie N, et al. Witness for Wellness: preliminary findings from a community-academic participatory research mental health initiative. *Ethn Dis*. 2006 Winter;16(1 Suppl 1):S18-34. PMID: 16681126. Exclusion Code: X4
16. Bogner HR, de Vries HF. Integrating type 2 diabetes mellitus and depression treatment among African Americans: a randomized controlled pilot trial. *Diabetes Educ*. 2010 Mar-Apr;36(2):284-92. PMID: 20040705. Exclusion Code: X6
17. Bond GR, Becker DR, Drake RE, et al. Implementing supported employment as an evidence-based practice. *Psychiatr Serv*. 2001 Mar;52(3):313-22. PMID: 11239097. Exclusion Code: X8
18. Breland-Noble AM. Community and treatment engagement for depressed African American youth: the AAKOMA FLOA pilot. *J Clin Psychol Med Settings*. 2012 Mar;19(1):41-8. PMID: 22354616. Exclusion Code: X5
19. Breland-Noble AM, Bell C, Nicolas G. Family first: the development of an evidence-based family intervention for increasing participation in psychiatric clinical care and research in depressed African American adolescents. *Fam Process*. 2006 Jun;45(2):153-69. PMID: 16768016. Exclusion Code: X5
20. Burt MR, Pearson C, Montgomery AE. Community-wide strategies for preventing homelessness: recent evidence. *J Prim Prev*. 2007 Jul;28(3-4):213-28. PMID: 17558555. Exclusion Code: X7
21. Cabassa LJ, Hansen MC, Palinkas LA, et al. Azucar y nervios: explanatory models and treatment experiences of Hispanics with diabetes and depression. *Soc Sci Med*. 2008 Jun;66(12):2413-24. PMID: 18339466. Exclusion Code: X6
22. Campbell K, Bond GR, Drake RE. Who benefits from supported employment: a meta-analytic study. *Schizophr Bull*. 2011 Mar;37(2):370-80. PMID: 19661196. Exclusion Code: X7
23. Carpenter-Song E, Whitley R, Lawson W, et al. Reducing disparities in mental health care: suggestions from the dartmouth-howard collaboration. *Community Ment Health J*. 2011;47(1):1-13. PMID: 2010921681. Language: English. Entry Date: 20110304. Revision Date: 20120210. Publication Type: journal article. Journal Subset: Biomedical. Exclusion Code: X8
24. Casas RN, Gonzales E, Aldana-Aragón E, et al. Toward the early recognition of psychosis among Spanish-speaking adults on both sides of the U.S.–Mexico border. *Psychol Serv*. 2014;11(4):460-9. PMID: 2014-45739-008. Exclusion Code: X6
25. Cassells A, Lin TJ. Collaborative Care to Reduce Depression and Increase Cancer Screening Among Low-Income Urban Women Project (Prevention Care Manager 3 Project) (PCM3). Clinical Directors Network. Bronx, New York: [ClinicalTrials.gov](http://ClinicalTrials.gov); October 17, 2014 2014. Exclusion Code: X0
26. Chen FP, Ogden L. A working relationship model that reduces homelessness among people with mental illness. *Qual Health Res*. 2012 Mar;22(3):373-83. PMID: 21890715. Exclusion Code: X8
27. Chesney MA, Chambers DB, Taylor JM, et al. Coping effectiveness training for men living with HIV: results from a randomized clinical trial testing a group-based intervention. *Psychosom Med*. 2003 Nov-Dec;65(6):1038-46. PMID: 14645783. Exclusion Code: X6
28. Cole S, Reims K, Kershner L, et al. Improving care for depression: performance measures, outcomes and insights from the Health Disparities Collaboratives. *J Health Care Poor Underserved*. 2012 Aug;23(3 Suppl):154-73. PMID: 22864495. Exclusion Code: X7

29. Collins PY, Geller PA, Miller S, et al. Ourselves, our bodies, our realities: an HIV prevention intervention for women with severe mental illness. *J Urban Health*. 2001 Mar;78(1):162-75. PMID: 11368195. Exclusion Code: X7
30. Correll JA, Cantrell P, Dalton WT. Integration of behavioral health services in a primary care clinic serving rural Appalachia: reflections on a clinical experience. *Fam Syst Health*. 2011 Dec;29(4):291-302. PMID: 22214296. Exclusion Code: X6
31. Corrigan PW, Morris SB, Michaels PJ, et al. Challenging the public stigma of mental illness: A meta-analysis of outcome studies. *Psychiatr Serv*. 2012;63(10):963-73. PMID: 2013-00066-006. Exclusion Code: X6
32. Crockett K, Zlotnick C, Davis M, et al. A depression preventive intervention for rural low-income African-American pregnant women at risk for postpartum depression. *Arch Womens Ment Health*. 2008 Dec;11(5-6):319-25. PMID: 18982408. Exclusion Code: X6
33. Cully JA, Breland JY, Robertson S, et al. Behavioral health coaching for rural veterans with diabetes and depression: a patient randomized effectiveness implementation trial. *BMC Health Serv Res*. 2014;14:191. PMID: 24774351. Exclusion Code: X6
34. Daub S. Turning toward treating the seriously mentally ill in primary care. *Families, Systems, & Health*. 2014;32(1):12-3. PMID: 2014-10566-006. Exclusion Code: X7
35. Davis TD, Deen T, Bryant-Bedell K, et al. Does minority racial-ethnic status moderate outcomes of collaborative care for depression? *Psychiatr Serv*. 2011 Nov;62(11):1282-8. PMID: 22211206. Exclusion Code: X6
36. DeCoux Hampton M. The role of treatment setting and high acuity in the overdiagnosis of schizophrenia in African Americans. *Arch Psychiatr Nurs*. 2007;21(6):327-35. PMID: 2007-18284-008. Exclusion Code: X8
37. DeCoux Hampton M, Chafetz L, White MC. Exploring the Impact of Race on Mental Health Service Utilization Among African Americans and Whites With Severe Mental Illness. *J Am Psychiatr Nurses Assoc*. 2010 May 2010;16(2):78-88. PMID: 810234388; 12686318. Exclusion Code: X8
38. Denkins BA. Are we really helping? The problem of dual diagnoses, homelessness, & hospital-hopping. *J Psychosoc Nurs Ment Health Serv*. 2005 Nov;43(11):48-50. PMID: 16350915. Exclusion Code: X8
39. Desai MM, Rosenheck RA. Unmet need for medical care among homeless adults with serious mental illness. *Gen Hosp Psychiatry*. 2005 Nov-Dec;27(6):418-25. PMID: 16271656. Exclusion Code: X8
40. Dinh TQT. Sociocultural influences on mental health functioning over time: Implications for the design of community-based services. US: ProQuest Information & Learning; 2009. Exclusion Code: X0
41. Dobransky-Fasiska D, Brown C, Pincus HA, et al. Developing a community-academic partnership to improve recognition and treatment of depression in underserved African American and white elders. *Am J Geriatr Psychiatry*. 2009 Nov;17(11):953-64. PMID: 20104053. Exclusion Code: X6
42. Dobransky-Fasiska D, Nowalk MP, Cruz M, et al. A community-academic partnership develops a more responsive model to providing depression care to disadvantaged adults in the US. *Int J Soc Psychiatry*. 2012 May;58(3):295-305. PMID: 21441280. Exclusion Code: X6
43. Dobransky-Fasiska D, Nowalk MP, Pincus HA, et al. Public-academic partnerships: improving depression care for disadvantaged adults by partnering with non-mental health agencies. *Psychiatr Serv*. 2010 Feb;61(2):110-2. PMID: 20123813. Exclusion Code: X6
44. Dwight-Johnson M, Aisenberg E, Golinelli D, et al. Telephone-based cognitive-behavioral therapy for Latino patients living in rural areas: a randomized pilot study. *Psychiatr Serv*. 2011 Aug;62(8):936-42. PMID: 21807834. Exclusion Code: X6
45. Dwight-Johnson M, Ell K, Lee PJ. Can collaborative care address the needs of low-income Latinas with comorbid depression and cancer? Results from a randomized pilot study. *Psychosomatics*. 2005 May-Jun;46(3):224-32. PMID: 15883143. Exclusion Code: X6

46. Dwight-Johnson M, Lagomasino IT, Hay J, et al. Effectiveness of collaborative care in addressing depression treatment preferences among low-income Latinos. *Psychiatr Serv.* 2010 Nov;61(11):1112-8. PMID: 21041350. Exclusion Code: X6
47. Eack SM, Bahorik AL, Newhill CE, et al. Interviewer-perceived honesty as a mediator of racial disparities in the diagnosis of schizophrenia. *Psychiatr Serv.* 2012;63(9):875-80. PMID: 2012-25687-008. Exclusion Code: X8
48. Ell K, Aranda MP, Xie B, et al. Collaborative depression treatment in older and younger adults with physical illness: pooled comparative analysis of three randomized clinical trials. *Am J Geriatr Psychiatry.* 2010 Jun;18(6):520-30. PMID: 20220588. Exclusion Code: X6
49. Ell K, Katon W, Cabassa LJ, et al. Depression and diabetes among low-income Hispanics: design elements of a socioculturally adapted collaborative care model randomized controlled trial. *Int J Psychiatry Med.* 2009;39(2):113-32. PMID: 19860071. Exclusion Code: X6
50. Ell K, Katon W, Xie B, et al. Collaborative care management of major depression among low-income, predominantly Hispanic subjects with diabetes: a randomized controlled trial. *Diabetes Care.* 2010 Apr;33(4):706-13. PMID: 20097780. Exclusion Code: X6
51. Ell K, Quon B, Quinn DI, et al. Improving treatment of depression among low-income patients with cancer: the design of the ADAPT-C study. *Gen Hosp Psychiatry.* 2007 May-Jun;29(3):223-31. PMID: 17484939. Exclusion Code: X6
52. Ell K, Xie B, Kapetanovic S, et al. One-year follow-up of collaborative depression care for low-income, predominantly Hispanic patients with cancer. *Psychiatr Serv.* 2011 Feb;62(2):162-70. PMID: 21285094. Exclusion Code: X6
53. Ell K, Xie B, Quon B, et al. Randomized controlled trial of collaborative care management of depression among low-income patients with cancer. *J Clin Oncol.* 2008 Sep 20;26(27):4488-96. PMID: 18802161. Exclusion Code: X6
54. Fortney JC, Harman JS, Xu S, et al. The association between rural residence and the use, type, and quality of depression care. *J Rural Health.* 2010 Summer;26(3):205-13. PMID: 20633088. Exclusion Code: X6
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## Appendix F. Characteristics and Outcomes for Interventions for Disparity Subgroups

Citation	Design	Number of Participants	Disparity Group SMI Diagnosis	Study Goal	Intervention	Comparator	Outcomes	Results
<p>Arean et al., 2005;<sup>44</sup> Arean et al., 2007<sup>48</sup></p> <p>Multisite RCT: 18 primary care sites</p> <p>Recruitment: 7/1999-8/2001</p> <p>Randomized: N=1801</p> <p>Length of intervention: 1 year</p> <p>Followup: Telephone survey at 3, 6, and 12 months.</p>	<p>Disparity group: Elderly, 60 years or older (mean age=71.2)</p> <p>White, black and Hispanic; poor and not poor analyzed separately</p> <p>SMI:</p> <p>Current diagnosis of MDD or dysthymia, based on SCID</p> <p>MDD and Dysthymia: 53% MDD:17% Dysthymia: 30%</p>	<p>Improving Mood-Promoting Access to Collaborative Treatment (Impact) Study</p> <p>Compare primary care based collaborative care intervention to usual care for elderly with depression to address functional barriers to service use</p>	<p>Primary care based collaborative care:</p> <p>PCP education about evidence-based treatment of late-life depression</p> <p>Depression care manager who works with patient and primary care provider to activate patient in management of their depression</p> <p>Ongoing mood and medication monitoring based on evidence-based treatment guidelines</p> <p>Brief psychotherapy (Problem-solving Treatment of Primary Care; PST-PC)</p>	<p>Usual care: care from PCP, any MH specialty provider of participant's choosing; or no receipt of any MH treatment at all.</p>	<p>Access to health care</p> <p>Utilization: use of antidepressant medications and psychotherapy</p> <p>Quality of health care</p> <p>Satisfaction with depression care</p> <p>Other health outcomes</p> <p>Depression and health-related functional impairment</p>	<p>Collaborative Care Intervention superior at 12 month followup:</p> <p>Improved use of services and all outcomes, in each race/ethnicity group (white, black, and Latino) and both income groups.</p> <p>Low-income group improved in physical functioning, but it took longer than higher income groups.</p>		

Citation	Design	Number of Participants	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Length of Intervention	SMI Diagnosis	Length of Post-Intervention Follow Up						
Arean et al., 2005; <sup>44</sup> Arean et al., 2007 <sup>48</sup>		(continued)			Clinical information tracking system to assist care manager and PCP in making treatment decisions			
					Ready access to a psychiatrist for consultation on complicated cases.			
					Patient received 20-minute video and written information about late-life depression			

Citation	Design	Number of Participants	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Length of Intervention	SMI Diagnosis	Length of Post-Intervention Follow Up						
Arean et al., 2005; <sup>44</sup> Arean et al., 2007 <sup>48</sup>		(continued)			Depression clinical specialist (DCS), typically a nurse or psychologist trained in the collaborative care model, reviewed educational materials and developed treatment plan with the patient; medication or course of PST-PC (monitoring every 2 weeks during acute phase and then monthly for 1 year after stabilization. If unsuccessful, other treatment options also explored.			
					Few cultural accommodations made			

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
<p><b>Design</b></p> <p><b>Number of Participants</b></p> <p><b>Length of Intervention</b></p> <p><b>Length of Post-Intervention Follow Up</b></p> <p>Burt et al., 2012<sup>25</sup></p> <p>Cohort compared to comparison group: retrospective data analysis with propensity score matching to controls in a state funded program</p> <p>Intervention (LA HOPE) N=56</p> <p>Comparison: AB2034 participants during same period: N=415</p> <p>Enrollment between July 2004, and May 2005. Followup data for 13 months or more.</p>	<p><b>SMI Diagnosis</b></p> <p>Disparity group: Homeless or extremely high risk of homelessness</p> <p>SMI: Axis I diagnosis, usually schizophrenia or affective disorder (approach used for clinical diagnosis not specified).</p>	<p>To examine the impact of a federally funded housing and employment demonstration program for homeless adults with serious mental illness.</p>	<p>Los Angeles' Homeless Opportunity Providing Employment (LA's HOPE). LA's HOPE involved four public agencies and their contract service delivery programs. Technically, AB2034 participants but provided with greater assistance with housing and employment; case managers to help with securing employment.</p>	<p>Special state-funded program called AB2034: supportive services and housing assistance.</p>	<p>Other health outcomes</p> <p>Tenancy in permanent supportive housing; Housing stability</p>	<p>Other health outcomes:</p> <p>LA's HOPE participants more days in supportive housing, more days housed.</p> <p>More days employed, greater likelihood of employment</p>

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Chong, 2012 <sup>42</sup> RCT CHC, Tucson, Arizona Recruitment 6/2008-10/2009 Randomized: N=167 Length of intervention: Monthly tele-psychiatry sessions at the CHC for 6 months No post-treatment followup	Disparity group: Low income, Hispanic, rural SMI: MDD diagnosed through MINI Low-income Hispanic patients	To evaluate the feasibility and acceptability of telepsychiatry for low-income Hispanic patients with MDD	Webcam telepsychiatry and medication Monthly telepsychiatry sessions at CHC provided by one of two Hispanic psychiatrists using an online virtual meeting program. Appointment were ½ hour Medication was based on the "Texas Medication Algorithm Project" strategies for treatment of nonpsychotic MDD.	Treatment as usual at the CHC included having one of several in-house MH specialists to whom the providers could refer patients if needed. Appointments for the mental health specialists tended to be for 1hour	Access to health care Feasibility of implementing telepsychiatry program Antidepressant use Quality of health care Acceptability of telepsychiatry: appointment-keeping, visit satisfaction, working alliance with provider Satisfaction with care Other outcomes days lost, unproductive days Satisfaction with care	Appointment keeping through various measures, primary care and MH: no difference. Rating of working alliance with psychiatrist, visit satisfaction, antidepressant use: higher in telepsychiatry group Although depression severity decreased faster among telepsychiatry group, no differences found in overall depression score. Groups did not differ in number of days lost or unproductive due to depression. Although both groups reported willingness to pay for MH services provided by CHC, almost proportionately twice as many WEB patients were willing to pay for telepsychiatry

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Cooper 2013 <sup>37</sup> Cluster RCT 10 urban community-based primary care clinics in Maryland and Delaware Recruitment: 6/2004-3/2006 PCPs: 36 randomized; 132 patients enrolled, Length of intervention NR; Follow-up time points at 6, 12, and 18 months after baseline	Disparity group: African American SMI: MDD through diagnostic interview	To evaluate the comparative effectiveness of standard and patient-centered, culturally tailored collaborative care for African American patients with MDD BRIDGE Study: Blacks Receiving Interventions for depression and Gaining Empowerment Study	Patient-centered, culturally tailored collaborative care strategy: Delivered by PCP, consultation-liaison psychiatrist team, and female African American depression case manager. Clinician received academic detailing visits, monthly newsletters, and a case-based, interactive multi-media CD-ROM communication skills training including interview with simulated patient, along with companion workbook and individualized feedback.	Standard collaborative care strategy: Delivered by a PCP, consultation-liaison psychiatrist team, and female Caucasian depression care manager. Clinician received academic detailing visits and monthly newsletters. Clinician intervention: didactic, disease-oriented approach.	Access to health care: Receipt of depression treatment Quality of care: Patient ratings of providers' skills Health outcomes: Depression symptom reduction and remission, MH functional status, adherence	Patients in both interventions: statistically significant improvements over 12 months in depression severity, similar reductions in depression symptom levels, improvement in mental health functioning scores, and odds of rating their clinician as participatory Treatment rates (taking anti-depressant medications) increased among standard but not patient-centered collaborative care patients Patient-centered collaborative care patients rated their care manager as more helpful at identifying their concerns and helping them adhere to treatment

<b>Citation</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Design</b> <b>Number of Participants</b> <b>Length of Intervention</b> <b>Length of Post-Intervention Follow Up</b>	<b>SMI Diagnosis</b>					
Cooper 2013 <sup>37</sup> (continued)			Patient intervention delivered by depression care manger: telephone follow-up, needs assessment, explored access barriers, and educational materials, used an individualized approach to guide engagement and supportive counseling and provided contact information for culturally sensitive psychotherapists as appropriate; provided with culturally targeted materials designed to address barriers to depression treatment.	Patient intervention: delivered by depression care manager included telephone follow-ups, needs assessment, and generic depression educational materials		

<b>Citation</b>	<b>Design</b>	<b>Number of Participants</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Length of Intervention</b>	<b>Length of Post-Intervention Follow Up</b>	<b>SMI Diagnosis</b>						
Fortney et al., 2014 <sup>63</sup>			Disparity group: Rural	Telemedicine outreach for PTSD (TOP) intervention	Off-site PTSD care team used telemedicine (e.g., telephone, interactive video, electronically shared medical records and intranet) to enhance care available onsite at CBOCS. Care manager for coordinating care, with follow up every 2 weeks; 12 sessions of CPT through a telepsychiatrist	Usual care may include: pharmacotherapy from a PCP, psychiatric nurse practitioner, or telepsychologist; counseling/groups from an on-site mid-level mental health specialist.	Access to health care Utilization of CPT and psychiatric care Prescribed PTSD medication Adherence or response to treatment PTSD severity Depression severity Medication adherence Other health outcomes Health-related quality of life	More patients randomized to TOP received CPT than usual care, no difference in medication use or adherence Patients randomized to TOP reported larger decreases in PTSD scores than patients randomized to usual care at both 6 and 12 months.
Multisite pragmatic RCT: 11 VA CBOCS Recruitment: 11/2009-9/2011 Randomized: N=265 Length of intervention: 12 months Followup: 6 and 12 months			SMI: Current diagnosis of PTSD MDD: 79% Other characteristics: Male veterans	Compare collaborative care model designed to improve access to and engagement in evidence-based psychotherapy and pharmacotherapy to usual care. Goal is to support treatment provided by the VA's CBOCS that lack onsite psychiatrists				

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Herman et al., 2011 <sup>53</sup> ; Tomita & Herman, 2012 <sup>66</sup> ; Tomita & Herman, 2015 <sup>67</sup> ; Tomita et al., 2014 <sup>68</sup> RCT N=150 patients Recruitment: 2002-2006 Intervention: 9 months of intervention (in the CTI group) followed by 9 months of usual care only; Followup: every 6 weeks for 18-months	Disparity group: Homeless Schizophrenia (61%), schizoaffective disorder and other psychotic disorders	To evaluate the Critical Time Intervention (CTI), to reduce homelessness among individuals with SMI recently discharged from a psychiatric hospital	CTI: Time-limited intervention designed to enhance continuity of care during the transition from institution to community; long-term assertive community treatment model to promote independent living through building community supports; Services during transition to community living that will stay in place at end of intervention. Received usual community-based services and CTI. CTI delivered in 3 phases, each lasts approximately three months:	Control group: Both groups received a range of "usual" community-based services, depending on individual's needs, preferences, and living situation; usually included various types of case management and clinical treatment.	Homelessness Probability of homeless days Health services use *Odds of Psychiatric rehospitalization Continuity of care Family contact Mediation analysis examining whether changes in quality of family relationship mediated the association between the intervention and psychiatric re-hospitalization outcomes	Health services use CTI lower odds of psychiatric rehospitalization, including after controlling for housing stability. CTI reduced psychiatric re-hospitalizations through improved satisfaction with family relations CTI greater perceived access to MH care No difference in stability of relationship with psychiatrist or case manager at 18 months but better at 9 months No difference in severity of instability of patient-MH service provider relationship

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Design	SMI Diagnosis					
Number of Participants						
Length of Intervention						
Length of Post-Intervention Follow Up						
Herman et al., 2011 <sup>53</sup> ; Tomita & Herman, 2012 <sup>66</sup> ; Tomita & Herman, 2015 <sup>67</sup> ; Tomita et al., 2014 <sup>68</sup> (continued)			Phase 1—transition to the community—focuses on providing intensive support and assessing resources that exist for transition from inpatient care to community providers.  Phase 2—tryout: devoted to testing and adjusting systems of support developed during phase 1. By now, community providers will have assumed primary responsibility for delivering support and services, and CTI worker can focus on assessing degree to which support system is functioning as planned.  Phase 3—transfer of care: focuses on completing transfer of responsibility to community resources that will provide long-term support.			Homelessness  CTI group sig higher probability of no homeless days past 18 weeks.  Quality of life  CTI group greater frequency of family contact and greater improvement in satisfaction with family relations at 18 months.

<b>Citation</b>						
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<b>Number of Participants</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Length of Intervention</b>	<b>SMI Diagnosis</b>					
<b>Length of Post-Intervention Follow Up</b>						
Kwong et al., 2013 <sup>39</sup>  RCT FQHC in Chinatown, New York City Randomized: 57 Length of intervention: 12 weeks Length of follow-up following end of treatment: 1 month	Disparity group: Low-income Chinese Americans  Diagnosis: MDD, generalized anxiety disorder, and/or panic disorder diagnosed through MINI  Other characteristics: Poor or no English: 68%	To examine a collaborative care model to integrate culturally and linguistically relevant integrated MH and primary care to address depression and/or anxiety among low income, low literacy, immigrant Chinese American adults	Enhanced physician care with addition of care management, delivered at FQHC.  Protocol included: use of PHQ-9 to screen patients for increased risk for MDD, active monitoring of symptoms of depression, suicidality, and patient adherence to treatment and outcomes; education about adherence to treatment regimens; proactive collaboration or consultation between PCPs and MH specialists.  Providers received standardized training from MH specialists in use of chronic care model, depression diagnosis, evidence-	Enhanced physician care only delivered FQHC  Physician and patient in enhanced physician care group jointly decided which treatment regimen they considered appropriate, and how often and when the patient would receive followup.  PCP was responsible for all aspects of patients' treatment, including monitoring of patient progress, providing patients with educational materials, and monitoring self-management goals	Quality of health care Satisfaction with care Other health outcomes Depressive symptoms Mental health functioning SF12, quality of life Adherence to medication	Intervention group more visits  Both groups reported significant reduction of depressive symptoms, anxiety and improved MH functioning from baseline to follow-up; although there was no significant difference between the two groups.

<b>Citation</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Design</b> <b>Number of Participants</b> <b>Length of Intervention</b> <b>Length of Post-Intervention Follow Up</b> Kwong et al., 2013 <sup>39</sup> (continued)	<b>SMI Diagnosis</b>		based pharmacological treatment, and use of depression treatment algorithms.  Self-management: set of bilingual (English and Chinese) self-help materials, all field tested for cultural relevancy and literacy appropriateness.  At weeks 2, 6, and 12, seen by depression care manager, who coordinated depression care with PCP (reinforced PCP instructions, facilitated communication, reinforced physicians' treatment instructions; served as a communication bridge			

<b>Citation</b>						
<b>Design</b>						
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<b>Length of Intervention</b>	<b>SMI Diagnosis</b>					
<b>Length of Post-Intervention Follow Up</b>						
Lehman et al., 1997 <sup>23</sup>	Disparity group: Homeless	To evaluate the effectiveness of a program of assertive community treatment to shift treatment away from emergency to outpatient services to improve symptoms, satisfaction, and health status.	Assertive community Treatment (ACT)	Usual care included a variety of community-based service organizations that provide case management services to the homeless in Baltimore. Scored similarly in relation to outreach orientation and vocational emphasis.	Health care service use: • Use of psychiatric inpatient hospitalization; emergency department visits; outpatient MH visits and general medical services  Clinical Outcomes: CSI symptom index Self-rated health status Other health outcomes: Number of days in stable community housing Quality of Life	Health care service use  ACT participants fewer psychiatric inpatient days; fewer emergency department visits; more outpatient MH visits;  No difference general medical care service use (inpatient, outpatient, emergency department)  Clinical outcomes At 12 months, ACT participants better clinical outcomes but no difference in self-rated health status  ACT participants more days in stable community housing,  Both groups improved in quality of life and life satisfaction.
RCT N=152; Baltimore, Maryland Recruited: 3/1991-9-1992 Followup: 2, 6, and 12-months	Receipt of social security disability income or 100% VA disability benefits because of a mental disorder or diagnoses of schizophrenia or schizoaffective disorder; Axis I mental disorder or extensive prior hospitalization history; history of mental disorder lasting during past year and inability to spend at least 75% of time in some gainful activity owing to a mental disorder.		For homeless: program model that integrated assertive, community-based clinical treatment with intensive case management and advocacy. Services included: 24 hour availability of 12 full-time staff, including social worker, psychiatrist, clinical case managers, consumer activists, family outreach worker. Each participant assigned to a mini team. In relation to comparison programs, ACT programs scored higher on scales of emergency access, longitudinality of care, team model, housing assistance, linking to entitlements, and referral advocacy.			

<b>Citation</b>						
<b>Design</b>						
<b>Number of Participants</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Length of Intervention</b>	<b>SMI Diagnosis</b>					
<b>Length of Post-Intervention Follow Up</b>						
Miranda et al., 2003 <sup>71</sup> ; Revicki et al., 2005 <sup>33</sup>	Disparity group: Low income, minority	Women Entering Care trial:	Pharmacotherapy group: antidepressant medication managed by a primary care nurse practitioner under the supervision of a board-certified psychiatrist, for up to 6 months.	Community referral group: educated about depression and its treatment and provided a referral to appropriate community providers. One-quarter declined referral	Adherence or response to treatment: Symptom reduction Depression remission Medication adherence and CBT attendance	83% of women referred to community referral attended no sessions; among those randomized to medication: 75% completed 9+ weeks, among those randomized to CBT: 53% received 4 or more sessions
RCT	SMI: MDD	Comparative effectiveness of treatments for low-income women with MDD: CBT vs antidepressant medication vs referral to community health services	CBT group: therapy from psychotherapists supervised by a licensed clinical psychologist, 8 weekly sessions (individual or group administration); CBT could be extended an additional 8 weeks if patient continued to meet criteria for MDD.			At 6 months: pharmacotherapy and CBT resulted in greater improvement in depression outcomes than community referral. Results did not differ by race/ethnicity.
Maryland counties near DC, Arlington and Alexandria VA	Other characteristics: Women, primarily Hispanic and black (96%)		All written materials available in Spanish for Spanish-speaking women, clinicians experienced treating this population, Education sessions available to those reluctant to receive treatment, funds for transportation and child care provided			Also, both groups better social functioning; instrumental role functioning better in pharmacotherapy group only
Randomized: N=267						At 12 months, both pharmacotherapy and CBT groups had greater number of depression free days and both had higher outpatient costs per depression free day
Study participants were assessed at 3, 6 and 12 months						

<b>Citation</b>						
<b>Design</b>						
<b>Number of Participants</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Length of Intervention</b>	<b>SMI Diagnosis</b>					
<b>Length of Post-Intervention Follow Up</b>						
O'Mahen et al., 2013 <sup>51</sup> Pilot RCT Obstetrics clinics that primarily serve low income women Randomized: N=55 Outcomes were assessed posttreatment (16 weeks after randomization) and 3 months posttreatment	Disparity group: Low SES SMI: MDD Other characteristics: Pregnant women primarily recruited from clinics serving low-income women	To evaluate the comparative effectiveness of modified CBT and treatment of usual among low-income perinatal women with MDD.	Modified CBT: up to twelve 50-minute individual sessions, adapted for the perinatal period. The course of mCBT included an initial engagement session that included motivational interviewing, and sessions that included behavioral activation, cognitive restructuring, and interpersonal support.  Active outreach to women who cancelled or missed therapy appointments, including multiple reminder phone calls and flexible appointment rescheduling.	Treatment as usual: feedback about depression status post-regular care, psychoeducational materials about perinatal depression, and local referral information about psychotherapy and case management. Risk reassessed at each interview	Adherence or response to treatment: Session attendance Symptom reduction Quality of care: Treatment satisfaction Content applicability	Women who received mCBT intervention reported greater improvement in depressive symptoms at the conclusion of treatment and 3 months posttreatment.  Satisfaction with mCBT correlated with the perceived applicability of the material.

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Rosenheck et al., 1998 <sup>22</sup> Rosenheck et al., 2002 <sup>69</sup> Lam & Rosenheck, 1999; <sup>31</sup> Rothbard et al., 2004 <sup>70</sup> Cohort study N=1832 (first year), N=7,055 (4 cohorts); Medicaid eligible (N=600) 18 sites with approximately 100 participants each Enrollment: 5/1994-7/1995 Followup: 3 and 12 months	Disparity group: Homeless  Major depression, schizophrenia, other psychoses, personality disorder, anxiety disorder, bipolar disorder	To evaluate the effectiveness of a demonstration project, Access to Community Care and Effective Services and Supports (ACCESS) Program providing greater service delivery integration for the homeless with SMI	Access to Community Care and Effective Services and Supports (ACCESS) Program, a 5-year, 18 site demonstration program to assess whether integrated systems of service delivery enhance the use of services, outreach, and the quality of life of the homeless with SMI. Sites across the country provided outreach and intensive case management to homeless with SMI.  Each site provided with funding to: create outreach teams to make contact with untreated homeless with SMI and to facilitate their involvement in more intensive services and to provide intensive	Comparison sites: did not receive funds for system integration.	Quality of health care  Proportions of clients who reported having a primary case manager relationship at either three or at 12 months  Clinical outcomes  Mental health symptoms  Achievement of independent housing  Quality of Life	Treatment by consumer providers was associated with equivalent client outcomes to treatment by other case managers.  ACCESS improved access to housing services  3 months after program entry and, through these services, to independent housing after 12 months, but not other services; no difference between system integration sites and comparison sites.  Improvement on most outcome indicators for those clients contacted through street outreach who were successfully engaged in treatment was equal to those contacted through health and social service agencies, at 3 months.

<b>Citation</b>						
<b>Design</b>						
<b>Number of Participants</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Length of Intervention</b>	<b>SMI Diagnosis</b>					
<b>Length of Post-Intervention Follow Up</b>						
Rosenheck et al., 1998 <sup>22</sup> Rosenheck et al., 2002 <sup>69</sup> Lam & Rosenheck, 1999; <sup>31</sup> Rothbard et al., 2004 <sup>70</sup>  (continued)			case management teams to provide comprehensive services.			Among Medicaid participants in Pennsylvania, likelihood and amount of psychiatric outpatient service use increased during period from before to after the program, likelihood of inpatient psychiatric use did not change but days declined.
Shern et al., 1997 <sup>55</sup>  RCT for each project, results here combined and presented as overall cohorts; 4 cities: Baltimore, Boston, San Diego, New York City  N=894  Follow up: 12 to 24 months	Disparity group: Homeless  Participants identified as SMI population (90% with psychotic disorder or affective disorder)	To describe the McKinney research demonstration projects, testing different housing, support, and rehabilitative services with the goal of reducing homelessness among individuals with SMI.	McKinney research demonstration projects: different case management models at different sites that included rehabilitation, assertive community treatment and intensive case management. All models used assertive outreach and case management teams.	Usual care was compared, based on 3 sites in 2 cities. These interventions differed in relation to time and intensity of services	Other health outcomes  Housing stability  Primary housing setting  Change in proportion housed	Increase in attainment of community housing by active intervention participants: 47.5%  Stable housing (residing in community housing) based on interventions in all but New York City intervention: 78% with no difference across experimental groups.

<b>Citation</b>						
<b>Design</b>						
<b>Number of Participants</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Length of Intervention</b>	<b>SMI Diagnosis</b>					
<b>Length of Post-Intervention Follow Up</b>						
Shern et al., 2000 <sup>56</sup> RCT N=168 Followup: every 6 months for up to 24 months	Disparity group: Homeless  Meeting New York State's definition of serious and persistent mental illness; includes evidence of mental illness combined with serious disability resulting from mental illness.	To test a psychiatric rehabilitation approach for organizing and delivering services to street-dwelling persons with serious mental illness	Choices: outreach and engagement to foster relationship with staff; invitation to attend and join the Choices Center, a low demand environment available during the day for food, showers, assistance with obtaining support services, socializing; respite housing in informal shelters or YMCA; and in-community and on-site rehabilitation to assist in finding and maintaining community housing. Choices similar to an intensive case management program	Control group: told of availability of usual care; including array of homelessness and specialty MH services in New York City.	Service use:  Emergency department, outpatient, inpatient, day program  Psychological status  Housing outcomes  Shelter use  Community housing use  Quality of life  Life satisfaction	Health service use:  No difference emergency department, outpatient or inpatient services; greater day program use  Psychological status  Choices greater reduction in anxiety, depression, and thought disturbances  Housing outcomes  Choices greater use of shelters and community housing  Quality of life  Choices greater improvement in life satisfaction

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Design Number of Participants Length of Intervention Length of Post-Intervention Follow Up Susser et al., 1997 <sup>52</sup> Herman et al., 2000 <sup>35</sup> , Jones, 2003 <sup>65</sup> , Jones, 1994 <sup>28</sup> RCT Randomized: N=96 Discharged to community: 1991-1993 Length of intervention: 18-months	Disparity group: Homeless SMI: Schizophrenia and other psychotic disorders Other characteristics: Men; had completed on-site treatment prior to entering the program, had been homeless for an extended period of time, being transferred from institutions to the community; many had other comorbid conditions	To examine the comparative effectiveness of the Critical Time Intervention (CTI), enhanced continuity of care for individuals with SMI being discharged from institutions to community living vs. usual care at deinstitutionalization	CTI: Time-limited intervention, 9 months of CTI + usual services followed by 9 months of just usual services Clinical team devised Individualized plan for the transfer of care to other formal and informal supports; identified one or two specific areas of potential discontinuity related to the risk of homelessness for this individual, in which intervention was likely to be effective in preventing homelessness. Each participant assigned to a "CTI worker" to implement the plan. Worker did not need to have a professional degree but	Usual Services: Referral to MH and rehabilitation programs that were generally of high quality. Following the usual model of discharge from an institution, staff of the onsite shelter psychiatry program available to these agencies for consultation on request but did not actively seek a role in the patient's care after discharge. Men referred as needed to community agencies for substance abuse, general health, income support, education, legal	Other health outcomes Homelessness Symptom severity: positive symptoms, negative symptoms, and general psychopathology Housing Costs (shelter costs, criminal justice costs) Cost-effectiveness	CTI group better: average number of homeless nights over 18 months (32 vs. 90 days), likelihood of homeless at 18 months; difference widened during the course of the study. CTI associated with greater decrease in negative symptoms at 6-month followup, reflecting modest clinical improvement; no significant difference positive or general psychopathology symptoms Cost over 18 months: CTI group: \$52, 374, usual care: \$51,649 including acute care services, outpatient services, housing, shelter, criminal justice and transfer payments. CTI cost \$152 per nonhomeless night

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Design Number of Participants Length of Intervention Length of Post-Intervention Follow Up Susser et al., 1997 <sup>52</sup> Herman et al., 2000 <sup>35</sup> ; Jones, 2003 <sup>65</sup> ; Jones, 1994 <sup>28</sup> (continued)	SMI Diagnosis		did need to have experience working with this population and enough "street smarts" to work with these men in the community.  A psychiatrist or other MH professional supervised CTI worker. Goal was strengthening long-term ties and determining key issues that would put patient at risk. CTI worker provided support for both the man and those who could assist him in treatment, such as: visiting the family home or community residence, being present at appointments, and giving advice in crises.	advocacy, and other services.		

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
<b>Design</b> <b>Number of Participants</b> <b>Length of Intervention</b> <b>Length of Post-Intervention Follow Up</b>	<b>SMI Diagnosis</b>					
Susser et al., 1997 <sup>52</sup> Herman et al., 2000 <sup>35</sup> , Jones, 2003 <sup>65</sup> , Jones, 1994 <sup>28</sup> (continued)			During first 2 weeks after discharge, CTI worker spent time with patient in the community observing his physical and social surroundings and daily habits. Subsequent support was individually tailored.			
Tan et al., 2013 <sup>49</sup> Single group pre-post pilot study N=34 Length of intervention: 6 weeks Followup: 6 weeks post-treatment	Disparity group: Rural SMI: PTSD, MDD, or both Other characteristics: Female veterans residing in two rural Texas CBOCS areas; Chronic pain condition	To improve access to care for pain to women veterans living in rural areas through mobile biofeedback device, local support group for women, and therapy/education delivered through telemedicine	Biofeedback training using a handheld biofeedback device (Stress Eraser) with weekly clinical video-teleconference support sessions.  The first session was a face-to-face group orientation to the project that included biofeedback device training. Subsequent sessions included clinical video-teleconference group-based treatment, education, pain-coping skills training, and support elements.	Pre-post design: omparison group	Adherence or response to treatment:  Depression and/or PTSD symptom reduction  Other health outcomes:  Pain intensity, unpleasantness, and interference  Sleep disturbance  Quality of care:  Treatment acceptability  Satisfaction with group care for women vets	The clinical protocol was acceptable and feasible and resulted in some improved pain measures, depression, and PTSD symptom outcomes. No improvement in pain intensity.

<b>Citation</b>						
<b>Design</b>						
<b>Number of Participants</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Length of Intervention</b>	<b>SMI Diagnosis</b>					
<b>Length of Post-Intervention Follow Up</b>						
Telles et al., 1995 <sup>58</sup> RCT Los Angeles, public mental health clinics Randomized: N=40 Length of intervention: 1 year; No followup beyond the end of the intervention	Disparity group: Hispanic (Mexican, Guatemalan or Salvadoran descent) SMI: Schizophrenia Other characteristics: 18-55 years of age, living in the community with a family member	Comparative effectiveness and cross-cultural applicability of behavioral family management and standard case management in preventing exacerbation of symptoms and relapse in Hispanics with schizophrenia.	Behavioral family management intervention:  Case management weekly by psychosocial therapists (licensed bilingual bicultural clinical social workers).  Assessment weekly or biweekly by research psychiatrists to attain clinical stability with optimal neuroleptic dosage  Seen in clinical setting weekly sessions for first 6 months; every 2 weeks for next 3 months; and monthly for last 3 months  Behavioral Family Management: a highly structured behavioral intervention package	Case management: weekly by psychosocial therapists (licensed bilingual bicultural clinical social workers).  Assessed weekly or biweekly by research psychiatrists to attain clinical stability with optimal neuroleptic dosage  Seen in clinical setting weekly sessions for first 6 months; every 2 weeks for next 3 months; and monthly for last 3 months	Access to health care Medication compliance Health outcomes Prevention of relapse Reduction of psychotic exacerbations	Survival analyses: overall, exacerbation results worse in behavioral family management group; among less acculturated patients, behavioral family management was significantly related to greater risk of exacerbation of symptoms.  Among more acculturated patients, risk of exacerbation predicted by medication compliance but not by type of intervention. In analyses of symptom severity and functional status at 1-year: level of patient acculturation significantly related to measures of treatment outcome

Citation	Disparity Group	Study Goal	Intervention	Comparator	Outcomes	Results
Design	SMI Diagnosis					
Number of Participants						
Length of Intervention						
Length of Post-Intervention Follow Up						
Telles et al., 1995 <sup>58</sup> (continued)			<p>targeted to the family unit. Three separate modules, introduced sequentially and later integrated: (i) patient family education about schizophrenia; (ii) training in communication skills; and (iii) training in problem-solving skills, to help the family to think of solutions and apply them</p> <p>Socioculturally appropriate translations and adaptations of educational and instructional materials were made on the basis of earlier pilot study and by consensus among this study's bicultural clinicians.</p>	<p>Case management involves goal-oriented supportive psychotherapy sessions with only the identified patient and is directed towards enhancing functioning in the community.</p> <p>Family members, though sometimes contacted, were not involved in treatment sessions</p>	<p>Medication compliance did not differ between the two groups; however, it was highly confounded with level of patient acculturation</p>	

<b>Citation</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>
<b>Design</b> <b>Number of Participants</b> <b>Length of Intervention</b> <b>Length of Post-Intervention Follow Up</b>	<b>SMI Diagnosis</b>					
Tsai et al., 2013 <sup>32</sup> N=137 San Francisco, California Recruitment: 7/2002-2/2008 Intervention: 24-weeks, 12-week follow-up period after intervention	Disparity group: homeless Depression: (major, minor, or dysthymia) Other characteristics: HIV+	To evaluate directly observed therapy of fluoxetine to homeless individuals with MDD.	Intervention: Directly observed therapy (DOT) with fluoxetine Fluoxetine treatment directly observed for 24 weeks, introduced in 3 phases of gradually increasing independence: (1) 20mg DOT each weekday and self-administered on weekends, for 2 weeks; (2) 90mg fluoxetine DOT weekly, for 22 weeks; and (3) 90mg self-administered weekly, for 12 weeks.	Referral only: received an explanation of their diagnosis and advised to seek treatment at a public MH clinic that specialized in the care of HIV-positive persons, located 0.5 mile away along a major public transportation corridor.	Health outcomes Depression Secondary HIV outcomes (antiretroviral uptake) Adherence: antiretroviral adherence measured by unannounced pill count, and HIV-1 RNA viral suppression	Health outcomes Intervention reduced depression symptom severity, and increased response and remission. Adherence No difference in in ART adherence or probability of viral suppression

<b>Citation</b>							
<b>Design</b>							
<b>Number of Participants</b>	<b>Disparity Group</b>	<b>Study Goal</b>	<b>Intervention</b>	<b>Comparator</b>	<b>Outcomes</b>	<b>Results</b>	
<b>Length of Intervention</b>	<b>SMI Diagnosis</b>						
<b>Length of Post-Intervention Follow Up</b>							
Tsai et al., 2013 <sup>32</sup> (continued)			Psychiatrist met with participants weekly for first month, every 2 weeks for second month, and monthly thereafter. At each visit, psychiatrist conducted a thorough psychiatric interview and mental status exam and inquired about treatment response and possible adverse side effects.				

CBT = cognitive behavioral therapy; CPT = cognitive processing therapy; CBOCS = community-based outpatient clinics; CHC = community health center; FQHC = federally qualified community health center; MDD = major depressive disorder; MH = mental health; MINI=Mini International Neuropsychiatric Interview; SCID = Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition; PTSD = post-traumatic stress disorder; PCP = primary care provider; VA = Veteran's Administration.