# Evidence-based Practice Center Systematic Review Protocol

# Interventions for Adults With Serious Mental Illness Who Are Involved With the Criminal Justice System

## I. Background

### Involvement of Individuals With Serious Mental Illness in the Criminal Justice System and Rationale for the Review

For the purposes of this evidence review, we define patients with serious mental illness (SMI) as individuals 18 years of age or older who currently have received a diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or major depression. Study populations classified as SMI or as having a severe and persistent mental illness are also included in this definition. Adults with dementia, personality disorder, or mental retardation are excluded from this definition.

Numerous reports indicate that individuals with SMI are over-represented in the criminal justice system. Prevalence estimates of SMI among incarcerated adults range from 15 to 25 percent, depending on the study and data source.[1-3] These estimates are three to five times higher than in the general population, in which the prevalence of SMI ranges from 5 to 8 percent.[4] In its report on U.S. prisons and offenders with mental illness, the organization Human Rights Watch indicated that up to 19 percent of adults in State prisons have significant psychiatric or functional disabilities.[5,6] The National Commission on Correctional Health Care reported the following prevalence estimates of mental illness within State prisons: between 2.3 and 3.9 percent of inmates are estimated to have schizophrenia or another psychotic disorder, 13.1 to 18.6 percent have major depression, and between 2.1 and 4.3 percent have bipolar disorder.[7] Research conducted in the United States found that between 28 and 52 percent of those with SMI have been arrested at least once.[8]

Overall, offenders with mental illness have higher rates of recidivism when compared with offenders without mental illness. One study reported that 64 percent of offenders who were mentally ill were rearrested within 18 months of release, compared with 60 percent of offenders without mental illness.[9] Another study that followed offenders who were mentally ill for an average of 39 months after release into the community found that "renewed involvement in the criminal justice system was the norm," with 41 percent being convicted of felonies, 61 percent being convicted of any crime, and 70 percent being convicted of new offenses or supervision violations.[10]

In general, recidivism among offenders with mental illness is largely associated with poor coordination of services and treatment upon release into the community.[10] Most offenders with SMI are eligible for Medicaid or Medicare through Supplemental Security Income or Social Security Disability Insurance (during periods when they are not institutionalized).[11] Some advocacy groups are concerned that termination of benefits during the period of incarceration and waiting up to 90 days for benefits to be reinstated upon release may contribute to treatment nonadherence and recidivism.[11]

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Jails and prisons have a constitutional obligation to provide treatment to inmates with serious medical and psychiatric conditions.[12] The case of *Ruiz v. Estelle* set forth minimum requirements for the provision of mental health services in the U.S. correctional system.[13] To receive accreditation by the American Correctional Association and the National Commission on Correctional Health Care, an adult correctional facility must provide all inmates with standard mental health screening and crisis and suicide intervention. More specialized mental health treatment generally varies depending on type of facility (e.g., jail versus prison) and level of security (e.g., minimum versus maximum). However, Baillargeon recommends that all correctional facilities offer standard outpatient or inpatient mental health treatment, such as individual or group psychotherapy, psychotropic medication, and discharge planning.

A study by Steadman and Veysey, however, indicated that few jails provide a range of services, with most providing only intake screening and mental health evaluations (60% to 83% of 10 jails surveyed).[14] Because prisons hold inmates for long periods of time, they generally provide a greater range of services than jails. However, the type and extent of treatment provided varies from prison to prison depending on a number of factors including regional location and funding. A survey of mental health services provided in U.S. prisons indicated that 77 percent provide access to inpatient care and 36 percent have specialized housing.[5] According to Baillargeon, the primary barrier to improving mental health treatment provided in adult correctional facilities is inadequate state funding.[13]

High rates of incarceration and recidivism along with insufficient treatment options has led to considerable interest in improving the outcomes of offenders with SMI. A systematic review of the existing evidence on the comparative effectiveness of interventions intended to improve mental health and other outcomes of offenders with SMI will help individuals with SMI, family members, treatment providers, criminal justice administrators and staff, and state and federal policymakers make decisions about available treatment options. The focus of this review is on interventions provided to offenders with SMI who are detained in a jail, prison, or forensic hospital or who are transitioning from one of these settings back to the community. This is an especially vulnerable population as "jails and prisons have cultures that often lead to maladaptive behaviors in offenders with SMI that subsequently undermine treatment" both in and out of incarceration settings.[15]

## Problems Associated With Involvement of Individuals With Serious Mental Illness in the Criminal Justice System

Overrepresentation of individuals who are mentally ill in the criminal justice system not only places considerable stress on the individuals, their families, and the community in general, but also on the criminal justice system. In general, jails and prisons are not equipped to care for large numbers of inmates with SMI. As a result, offenders with SMI place a substantial structural burden on the criminal justice system, due to longer prison stays and additional demands on the prison staff. According to a report by the Treatment Advocacy Group, the main reason inmates who are mentally ill stay incarcerated longer than inmates who are not is that many find it difficult to understand and follow jail and prison rules.[1] Thus, inmates with mental illness are more likely to be charged with facility rule violations or infractions. For instance, in Washington State prisons, inmates with mental illnesses accounted for 41 percent of infractions even though they constituted only 19 percent of the prison population.[1]

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Because of their impaired thinking, inmates with SMI may be disruptive or aggressive and present unique management challenges within the jail or prison setting.[1,16] Maladaptive behaviors exhibited by inmates with SMI range from physical and nonphysical assault (e.g., spitting, throwing urine) to disruptive behavior (e.g., setting fires, refusing to leave cell) to self-injurious behavior (e.g., cutting or mutilating self, threatening or attempting suicide). Managing these behaviors often places additional demands on custodial staff who may feel underprepared to deal with such difficult behaviors. Maintaining safety and order requires custodial staff to work together and collaborate with mental health professionals.[16]

Studies have reported a wide range of rates of substance abuse among offenders with mental illness (10 to 90 percent).[17] Offenders with co-occurring mental illness and substance use disorders present many unique treatment challenges. In general, they have poorer prognosis for involvement in treatment than individuals with a single disorder.[18] Further, one study found that dually diagnosed inmates involved in jail substance abuse treatment have more pronounced difficulties than other inmates in several areas of functioning, including employment, relationships, and medical problems, and have lower baseline knowledge about substance abuse treatment principles and relapse prevention skills.[18]

**Providing Mental Health Services to Offenders With Serious Mental Illness who are in a Incarceration Setting (e.g., Jail, Prison, or Forensic Hospital)**

Jails are locally operated facilities that typically provide pretrial detention and short-term confinement after sentencing (generally, less than one year).[12] Most arrestees are detained for brief periods usually lasting days or weeks. Mental health services provided in jails typically focus on identifying mental illness, crisis management (including suicide prevention), and short-term treatment. In their study of American jails, Steadman and Veysey found that the mental health services provided in jails varied depending on the size of the facility.[14] Small jails typically offered little more than screening and suicide prevention, whereas some large jails offered a comprehensive array of services that included screening, evaluation, specialized housing, and psychotropic medication.

Prisons, which are correctional facilities that hold sentenced inmates for more than a year, are operated by Federal and State governments or by private companies. The responsibility of providing mental health services in prisons varies from State to State. According to Veysey, in some States, "psychiatric care is provided under the auspice of state mental health facilities, and in others, under the auspice of the state corrections authority."[12] Mental health services in Federal and State prisons are frequently contracted out.

Because incarceration within a prison can last for years, prisons typically provide a greater range of mental health services than shorter term settings such as jails.[12] The mental health services provided in prisons generally parallel those available in the community and may include psychological counseling, treatment of trauma-related symptoms, integrated treatment for co-occurring mental health and substance use disorders, and psychiatric medication management.[16]

Offenders with mental illness are sometimes found not guilty by reason of insanity or incompetent to stand trial. Instead of jail or prison, these individuals are detained within a forensic hospital or a forensic unit within a state mental health hospital that serves the general population. Forensic hospitals provide mental health treatment within an environment that must maintain security to prevent escapes, assaults, and self-injurious behavior from occurring.[19] In

cases where a jail does not provide inpatient care or specialized housing, individuals diagnosed with SMI may be transferred to a forensic hospital while awaiting further sentencing.[12]

Applying mental health services in the jail or prison environment presents some unique challenges. For example, adults with SMI often require medications that may require multiple doses throughout the day. Correctional facilities may not be designed to accommodate a variety of medication administration schedules. In addition, group therapy sessions may be impractical when individuals who commit infractions of prison rules or who pose a safety risk are segregated from other prisoners.

### Examples of Interventions Currently Used in Incarceration Settings

**Individual and group psychotherapy.** Psychological therapies provided in jails, prisons, or forensic hospitals may include cognitive behavioral therapy (CBT, with or without criminal thinking curriculum) and dialectical behavior therapy (DBT). CBT aims to build cognitive skills and replace distorted cognitions (self-justificatory thinking, displacement of blame, schemas of dominance and entitlement) with noncriminal thought patterns.[20] DBT was originally designed to treat chronically parasuicidal women with borderline personality disorder, but has been adapted to other populations, including offenders with severe mental illness. DBT combines traditional combines the basic strategies of CBT with Eastern mindfulness practices.[21]

**Psychopharmacologic therapies.** If a correctional facility houses inmates with SMI, antipsychotic, antidepressant, and mood-stabilizing medications must be included in the medication formulary.[16] Further, "all correctional formulary policies must include a mechanism to access non-formulary medications on a case-by-case basis to ensure access to appropriate treatment for serious mental illness."[16] However, special conditions in correctional facilities such as high rates of substance use disorders require that formularies limit or exclude medications that have a high potential for misuse or abuse. In most correctional facilities, a psychiatrist and other mental health professionals must be involved in the development of the institution's formulary.

Most correctional formularies include both conventional (first-generation) and next-generation antipsychotics for use in treating schizophrenia, psychotic disorders, and psychotic symptoms. First-generation antipsychotics such as chlorpromazine (Thorazine®) and haloperidol (Haldol®) are available in generic form and are thus relatively inexpensive. However, most conventional antipsychotics are associated with severe and often painful movement disorders, such as dystonia (painful muscle spasms), akathisia (profound restlessness), and tardive dyskinesia (uncontrolled movement of various muscle groups usually around the face and mouth), which often interferes with patient compliance. Next-generation or atypical antipsychotic medications such as clozapine (Clozaril®) and olanzapine (Zyprexa®) have a lower risk for developing movement disorders and other unpleasant side effects, but some of these drugs (e.g., quetiapine or Seroquel®) carry the potential for abuse and/or diversion due to their sedating effects. This potentiality has led many facilities to exclude them from their formularies.

Many classes of antidepressants are available to treat major depression: tricyclic antidepressants (TCAs), monoamine oxidase inhibitors (MAOIs), and selective serotonin-reuptake inhibitors (SSRIs). However, some classes of antidepressants such as TCAs and MAOIs are contraindicated in correctional facilities.[16] Because of the risk of death associated with an overdose of TCAs and the availability of safer antidepressants (e.g., SSRIs), drugs such as amitriptyline (Elavil®) and imipramine (Tofranil®) are infrequently prescribed in nonincarcerated

populations. TCAs also carry the potential for abuse based on their anticholinergic properties, which makes them even more risky to prescribe in correctional settings. MAOIs such as phenelzine (Nardil®) are contraindicated for use in correctional facilities because they can cause a hypertensive crisis if ingested with certain foods or over-the-counter medications, such as common cold and flu medications. Thus, if used, MAOIs require close monitoring, which may not always be possible in a correctional setting. SSRIs are safer and have lower toxicity than TCAs and MAOIs and are thus more commonly used in correctional facilities. Mood stabilizers such as lithium and some anticonvulsant medications (e.g., divalproex [Depakote®] and valproic acid [Depakene®]) are included in most prison formularies for treating bipolar disorder and schizoaffective disorder because these drugs carry no potential for abuse.

**Specialized housing.** Includes self-contained mental health units for the care of inmates with SMI who are unable to function in the general population.[13] Specialized housing options may vary from facility to facility (e.g., jail to prison or prison to prison), but include inpatient care, short-term crisis beds, and long-term residential units.

**Integrated dual disorders treatment (IDDT).** The same treatment team treats both addiction and SMI simultaneously. The substance abuse treatment is tailored to people with mental illness. Individuals are taught how mental health and substance abuse disorders interact. This approach utilizes CBT.[22]

**Telemedicine/telepsychiatry.** Telemedicine is becoming an increasingly common mode of delivery for psychological/ and psychiatric services. Treatment is delivered by way of videoconferencing.[23]

### Providing Mental Health Services to Offenders With Serious Mental Illness Transitioning from Incarceration to the Community

Successful reentry into the community is a challenge for returning inmates with SMI.[13] They are more likely than returning inmates without SMI to experience homelessness and are less likely to find employment. This is especially true for returning inmates with SMI and a co-occurring substance use disorder. A recent study assessing short-term post release outcomes of prisoners with SMI only and those with SMI and substance abuse found that the population with a dual diagnosis was more likely than the SMI-only population to experience homelessness and to be returned to correctional custody.[24]

Obtaining appropriate community mental health and other related services is often difficult for returning inmates with SMI. According to Baillargeon, the primary difficulties include "inadequate treatment programs and discharge planning during incarceration and an insufficient number of public mental healthcare programs in the community."[13] Additionally, mainstream community-based mental health programs may be ineffective in meeting the diverse needs of returning inmates with SMI. Some community mental health programs may also be unwilling to provide services to those with a criminal history.[13]

## Examples of Interventions Provided When Transitioning into the Community

**Discharge or release planning.** Discharge planning has been defined as the process of "creating a continuum of care pertaining to mental health and substance abuse services as an inmate is released to the community."[13]The basic element of discharge planning should include an assessment of the inmate's clinical and social needs, a written plan detailing the treatment and

services required by the inmate, and identification and coordination with specific community providers. The extent of discharge planning may vary depending on the needs of the inmate, availability of resources to meet those needs, and incarceration setting (e.g., jail versus prison, rural setting versus urban setting). One important factor in successfully linking returning inmates with SMI to community mental health services is access to health benefits.[13]

**Critical time intervention (CTI).** CTI is a three-phase treatment model that supports transitions from institutional settings into community settings.[25] The phases of treatment include transition, tryout, and transfer to care. CTI was designed to prevent homelessness and other adverse outcomes in people with mental illness following discharge from hospitals, shelters, prisons, and other institutions. It combines several treatment models, including CBT, illness management, supported housing, IDDT, and motivational enhancement.

**Case management interventions, including, but not limited to:**

*Strengths-based case management*. The goal of this intervention is to build on a person's successes so he/she develops a sense of personal empowerment. This treatment promotes the use of informal helping networks, offers assertive community involvement by case managers, and emphasizes the relationship between client and case manager.[26]

*Assertive case management*. This type of management follows a "service broker" model that emphasizes assessment, planning, referral, and monitoring of functions without extensive outreach, linkage, or direct service contacts.[27]

**Intensive community treatments including, but not limited to:**

*Assertive community treatment (ACT)*. ACT provides comprehensive (around-the-clock) community care to patients who are mentally ill, including access to a psychiatrist, nurse, substance abuse specialist, and case manager. The ratio of care is 10 patients to 1 staff member. Provisions are included for medication; CBT, including structuring time and handling activities of daily living; supported employment; support and education of family members; and help with housing, transportation, or whatever other needs the client has.[28]

*Forensic assertive community treatment*. Modification of ACT meant to reduce recidivism rates.[29]

*Modified therapeutic community (MTC)*. MTC is an intensive, long-term residential treatment program that has been modified to meet the special needs/issues of a correctional population. The goal of MTC is to teach individuals how to live/function within the greater society and within their own families in a sober, prosocial manner. The program labels its users "family members" and assigns each person to a unit that staff refer to as a "family" or "community."[30]

## II. Scope of Report and Key Questions

The focus of this report is on the comparative effectiveness of interventions provided to offenders with SMI with or without a co-occurring substance use disorder during incarceration in jail, prison, or forensic hospital or during transition from incarceration in these settings to the community. Beyond the scope of this report are programs designed to prevent or minimize incarceration. This includes prebooking diversion interventions such as mobile crisis intervention teams or other interventions delivered at the point of contact with the police. Also excluded from this report are postbooking strategies designed to divert offenders with SMI to a treatment environment in lieu of a lengthy incarceration, such as mental health courts.[13] Further, court

ordered involuntary treatment intended to restore competency to stand trial is beyond the scope of this report.

We posted four key questions for public comment on the Web site of the Effective Health Care Program from January 18, 2012, to February 15, 2012. Following the public comment period, for clarity, we included our definition of SMI within the key questions. Based on discussions with members of the technical expert panel (TEP) for the report, we condensed key questions 1 and 2 and key questions 3 and 4 into two broader key questions that incorporate those with and without a substance abuse disorder. The key questions as currently written also reflect feedback from the TEP on the importance of including jails as a treatment setting of interest in this report.

Question 2 was further modified to more clearly indicate the types of community-oriented interventions covered in this report. More specifically, it clarifies that we will consider studies that describe a community treatment that is being provided to inmates with SMI who are returning to the community from incarceration. This does not include studies of community treatment provided to individuals with SMI who are under community supervision, such as individuals who are on probation, or individuals who have been diverted out of the criminal justice system. We recognize that the types of interventions provided to these groups are likely to be similar. However, the intent of the interventions may differ depending on the population being served. For instance, diversion programs focus on reducing or eliminating involvement in the criminal justice system and replacing it with treatment, whereas re-entry programs focus on community re-integration and reducing future involvement in the criminal justice system (i.e., recidivism or re-incarceration).[31]

The final key questions are listed below. They are followed by the PICOTS outline (Patients, Interventions, Comparisons, Outcomes, Timing, and Settings), which clarifies the scope of each key question; and the analytic framework, which provides the same information in a pictorial format.

**Key Question 1**

What is the comparative effectiveness of interventions applied within a jail, prison, or forensic hospital setting for adults with SMI (schizophrenia, schizoaffective disorder, bipolar disorder, or major depression) with and without a co-occurring alcohol/substance abuse diagnosis?

- Is there a difference in the comparative effectiveness of interventions based on the setting (jail, prison, forensic hospital) in which the interventions are provided?

**Key Question 2**

What is the comparative effectiveness of incarceration-to-community transitional interventions for adults with SMI (schizophrenia, schizoaffective disorder, bipolar disorder, or major depression) with and without a co-occurring alcohol/substance abuse diagnosis?

- Is there a difference in the comparative effectiveness of interventions based on the setting (jail-to community, prison-to-community, forensic hospital-to-community) in which the interventions are provided?

## Populations

Adults (18 years of age or older) with a diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or major depression with or without a co-occurring substance abuse disorder who have been found guilty of a crime, not guilty by reason of insanity or its equivalent, and who have been incarcerated for a minimum of 24 hours in one of the settings of interest. *Diagnosis must have been made based on clinical assessment or a validated instrument. Self-report alone will not quality an individual as having a SMI.*

**Interventions** (See Table 1)

**Table 1. Interventions Listed by Setting**

| Intervention[a] | Jail | Prison | Forensic Hospital | Incarceration-to-community transitional services[b] |
|---|---|---|---|---|
| Individual or group psychotherapy (e.g., cognitive behavior therapy, or dialectical therapy) | X | X | X | X |
| Psychopharmacologic therapies (includes, first-generation antipsychotics, next-generation/atypical antipsychotics, tricyclic antidepressants, monoamine oxidase inhibitors, selective serotonin-reuptake inhibitors, serotonin-norepinephrine reuptake inhibitors, mood stabilizers, anticonvulsants, and any other medications reported in the literature.) | X | X | X | X |
| Specialized housing | X | X | | |
| Integrated dual disorders treatment | X | X | X | X |
| Telemedicine/telepsychiatry | X | X | X | X |
| Discharge planning | X | X | X | X |
| Critical time interventions | | | | X |
| Case management interventions | X | X | | X |
| Intensive community treatments (ACT/FACT) | | | | X |
| Modified therapeutic community | | X | X | X |
| Other treatments (e.g., art therapy, music therapy, or peer support training) | X | X | X | X |

[a] For the interventions, compelled versus voluntary treatment (e.g., forced medication vs. voluntary medication) will be examined if data permit

[b] For the interventions, immediate access to mental health services upon release versus no or delayed access will be examined if data permit

**Source:** www.effectivehealthcare.ahrq.gov
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## Comparators

- For Key Question 1 the comparators are usual care or any one of the interventions listed in Table 1 applied within in a jail, prison, or forensic hospital setting or the same intervention applied across settings.
- For Key Question 2 the comparators are usual care or any one of the interventions listed in Table 1 applied within an incarceration-to-community setting; the same intervention applied across settings; or an incarceration intervention compared to an incarceration-to-community transitional intervention.

## Patient Oriented Outcomes

- Mental health outcomes:
  - Psychiatric symptoms that characterize SMI
  - Hospitalization for SMI
  - Time to re-hospitalization
  - Drug or alcohol use
  - New mental health diagnosis
  - Completed suicide
  - Suicide attempts
  - Time to relapse
- Dangerousness to others
- Other outcomes:
  - Independent functioning (including employment, housing, social integration)
  - Quality of life
- Adverse events including, but not limited to, medication side effects
- Criminal justice outcomes:
  - Time in prison
  - Infractions of prison code of conduct (time in administrative segregation, secure housing)
  - Recidivism
  - Reincarceration
- **Intermediate mental health outcomes**
  - Mental health service access/engagement
  - Adherence with treatment

## Time Points

- Minimum 3 months followup

## Settings

- Jail, prison, forensic hospital, and incarceration-to-community transitional services

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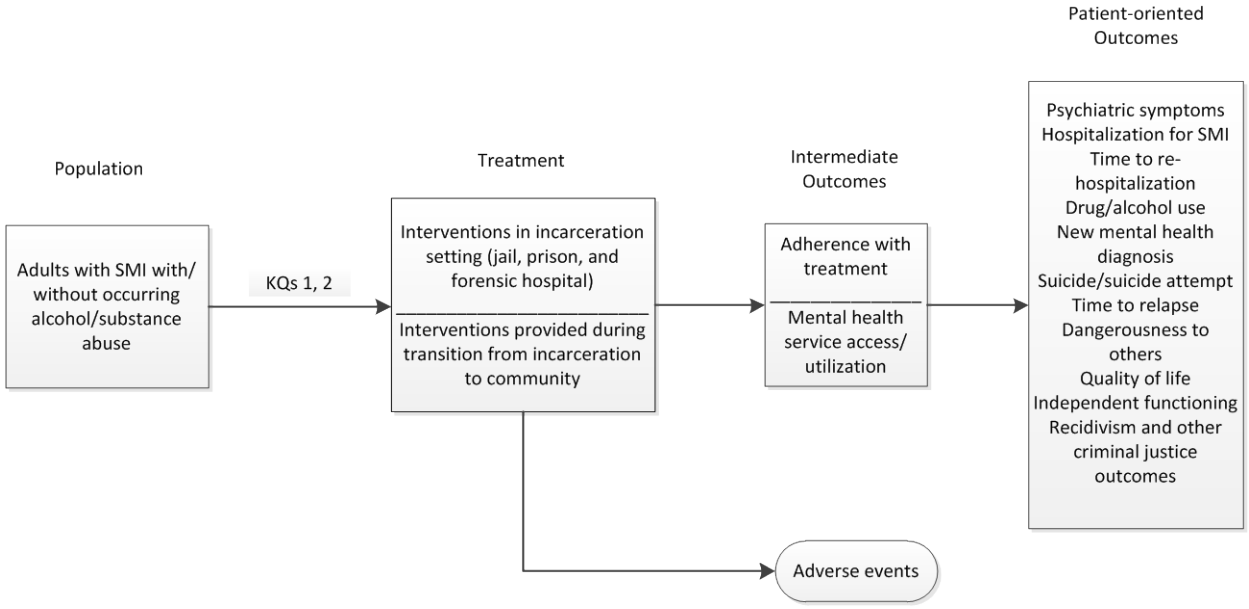
# III. Analytic Framework

**Figure 1. Analytic Framework for Interventions for Adults With Serious Mental Illness Who Are Involved With the Criminal Justice System**




Abbreviations: KQ = key question; SMI = serious mental illness

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# IV. Methods

## A. Study Selection Criteria

We used the following criteria to determine which studies would be included in our analysis:

### Patient Characteristics

- Seventy-five percent of the sample has (1) a diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or major depression or, in cases where the diagnoses are not clearly presented, the study author(s) refer to the population as SMI or as having severe and persistent mental illness or other equivalent Studies will be considered to address the dually diagnosed if at least 75% of the subjects also have an alcohol/substance use diagnosis. For studies with less than a 75% rate of substance use disorders, unless the study specifically excluded those with alcohol/substance use, the sample will be considered a "mixed" population.

  *Studies of individuals with a primary diagnosis of a mental disorder such as post-traumatic stress disorder or a personality disorder will not be included in the report.*

### Study Design

- Randomized controlled trials (RCTs) will be assessed first. If insufficient RCTs are available to draw a conclusion to a key question for the included mental health outcomes, we will examine nonrandomized (prospective or retrospective) comparative trials. Studies must either randomly assign patients or facilities to treatments or use an analytic method to address selection bias, such as baseline matching on multiple characteristics, propensity scoring, or other analytic approach. Studies with large differences at baseline between groups will be excluded.

  *Studies must have an active treatment comparator (including treatment as usual). Because symptoms of SMI tend to wax and wane over time, we will not include noncomparative studies, such as case series, in this report.*

- Studies must enroll an independent control group.

  *Studies in which subjects are acting as their own controls, such as in a prepost or crossover study design, will be excluded. Facility versus facility comparisons as well as within facility comparisons which employ an independent historical control group will be included in the report.*

- Studies must include at least five subjects in both treatment arms.

  *The results of studies with very small patient groups are often not applicable to the general population.*

- Included studies must follow patients for a minimum of 3 months.

  *For many outcomes, a minimum of 3 months may be necessary to determine if the treatment is effective (e.g., time to relapse).*

**Outcomes**

- Studies must report at least one of the mental health outcomes assessed in this report. Studies that only report an intermediate mental health outcome, but no patient oriented mental health outcomes, will be discussed but not analyzed.
- For all outcomes, we consider data only from time points for which at least 50 percent of the originally enrolled participants contributed data.
- Subjective outcomes, such as psychiatric symptoms and quality of life, must be measured using validated instruments.

**Publication Type**

- Study must provide a sufficient description of the treatment provided (e.g., duration, dose) such that the treatment could be replicated by others.

  *Basing conclusions about treatments that are inadequately described will not add to our knowledge base in the current report.*

- Study must have been conducted in the United States or in another country (e.g., Canada, United Kingdom, Australia, New Zealand) with a similar legal system and heritage (i.e., rule of law and common law) and a similar approach to the treatment of mental illness to the United States.

  *This report is aimed at assessing the comparative effectiveness of interventions available within the United States or interventions that could be applied in the United States. Because of differences across countries in justice systems and health care systems, only studies likely to produce results that are generalizable to the United States will be included in this report.*

- Publication must be a peer-reviewed, full-length article or conducted by one of the agencies identified in the description of grey literature sources in this protocol.

  *Abstracts alone will not be included, because they do not include sufficient detail about experimental methods to permit an evaluation of study design and conduct and they also may contain only a subset of the measured outcomes.*[32,33] *Abstracts of randomized studies that did not subsequently appear as full-length articles will be flagged for possible evidence of publication bias.*

- To capture the most relevant data, we will include studies published on or after January 1, 1990. Studies published before 1990 are likely to describe procedures and treatments no longer in common use or outcomes/conditions that are not likely to be predictive of current outcomes. For our evidence searches, we anticipate that the last search will be conducted on June 15, 2012, and an updated search will be conducted while the report is under review.
- To avoid double-counting of patients when several reports of overlapping patients are available, only outcome data from the report with the largest number of patients will be included. We will include the data when a smaller report provides data on an outcome that was not provided by the largest report.

- Studies must be published in English.

  *As this report will be limited to studies conducted in English speaking countries, we do not anticipate being at risk of language bias by restricting to studies published in English.*

## B. Searching for the Evidence: Literature Search Strategies for Identification of Relevant Studies to Answer the Key Questions

Literature searches will be performed by Medical Librarians within the Evidence-based Practice Center (EPC) Information Center, and will follow established systematic search protocols. The searches will be led by the Medical Librarian.

Consistent with our evidence-based searching protocol, for all key questions, we will search the following databases on the OVID SP platform using the one-search and deduplication features: MEDLINE, PreMEDLINE, and EMBASE. The Cochrane Library (including the Central Register of Controlled Trials, the Cochrane Database of Methodology Reviews, and the Cochrane Database of Systematic Reviews), the Database of Abstracts of Reviews of Effects, the Health Technology Assessment Database, and the United Kingdom National Health Service Economic Evaluation Database will also be searched for unique reviews, trials, economic analyses, and technology assessments. Because this topic involves mental health and criminal justice issues, three additional databases will be searched for this project: PsycINFO (OVID SP platform), NCJRS Abstracts Service (publicly-available Web site), and ProQuest Criminal Justice (ProQuest platform).

Search terms have been identified by: (1) reviewing relevant systematic reviews on similar topics that are identified by members of the research staff, (2) reviewing how other relevant studies are indexed, their subject heading terms, and their keywords, and (3) reviewing MeSH, EMTREE, PsycINFO, NCJRS, and ProQuest Criminal Justice indexes for relevant and appropriate terms. After reviewing these, a combination of subject headings and keywords were identified. Search strategies have been developed using these terms and were reviewed by the principal investigator and the Medical Librarian. A study-design filter will be applied to retrieve systematic reviews and comparative studies. Details (specific search terms and search strategies) are provided in Appendix A of the draft report.

We will mine Web sites for grey literature meeting our inclusion/exclusion criteria. We will exclude dissertations and literature that is not available as a full report (i.e., conference abstracts, slide presentations). Potential sources of grey literature include Bazelon Center for Mental Health Law, The Campbell Collaboration, Center for Evidence-based Policy, Justice Center (The Council of State Governments), Justice Policy Center (Urban Institute), Mental Health Primary Care in Prison, National Institute of Corrections, National Institute of Justice, RAND Corporation, and the Washington State Institute for Public Policy. Resources (both for grey literature and peer-reviewed journal literature) and search strategies will be shared with the Technical Expert Panel (TEP) and supplemented according to their recommendations. We will contact agencies identified by TEP members that may have data that address one of our key questions.

Literature search results will initially be reviewed by the Medical Librarian. Using the key questions and inclusion/exclusion criteria identified by the principal investigator, the Medical Librarian will assess relevancy and retrieve results. Feedback from the principal investigator and the Director of the Health Technology Assessment/EPC Information Center—including details regarding gaps in the search strategy, as well as articles (identified by the principal investigator) not retrieved by the searches—will be integrated into the search strategy using key terms and subject headings. The updated strategy will be re-run in all identified databases. Additional results will be scanned, and their relevancy will be assessed by the Medical Librarians. New results will be downloaded and forwarded to the principal investigator for review. Hand searches of reference lists in identified articles will also be reviewed for possible inclusion. The search will be updated during the peer-review period of the draft report.

### C. Data Abstraction and Data Management

Articles will be reviewed first at the abstract level by two members of the review team. Any articles possibly meeting the inclusion criteria for at least one key question will be obtained for full review. Likewise, in cases where there is a disagreement between the two abstract reviewers, the full article will be retrieved.

Full articles meeting the inclusion criteria will be retained for abstraction of information on general study characteristics, patient characteristics, treatment characteristics, risk-of-bias items, and outcome data (see next section). Each full article will be screened by a single person. Separately for each person who screened full articles, we will randomly select 10 percent of the articles excluded at the full-article level and have them screened by a second person to ensure that no articles are excluded inappropriately. If this process reveals any studies that the team agrees were mistakenly excluded, then all of the other articles excluded at the full-article level will be screened by a second person.

We plan to use the DistillerSR® Web-based systematic review software for abstract screening and data extraction. Each team member's data extraction will be reviewed by one other team member Also, because of the possibility of subjective interpretation, the risk-of-bias items will be judged in duplicate. All discrepancies will be resolved with discussion. The overall categories of information to be obtained from each study will include:

- **General study characteristics.** Author, publication year, country, setting (rural or urban, as well as jail, prison, forensic hospital, and incarceration-to-community transitional services), study design, dates of patient enrollment, length of followup, funding source, and which key question(s) the study addressed.
- **Patient characteristics.** Number of enrolled patients, age, sex, primary mental health diagnosis, duration of mental health diagnosis, presence of a co-occurring personality disorder, drug of choice, prior criminal justice involvement, history of suicide attempts.
- **Treatment characteristics.** Treatment, duration of treatment, dosage/frequency, education/degree of treatment administrator, modality, compelled versus voluntary.
- **Risk-of-bias items.** See the next section.

- **Outcome data.** Study methods of followup for data collection will be extracted as well as the time point(s) of evaluation. For each included outcome, we will extract the number of patients contributing data to each included time point. We will extract the numerical data necessary for us to compute an effect size and its standard error for all included outcomes for each study. These may include means, standard deviations, counts, proportions, results of authors' statistical tests, or other statistical details, depending on what is reported.

Multiple publications of the same study (e.g., publications reporting subgroups, other outcomes, or longer followup) will be identified by examining author affiliations, study designs, enrollment criteria, and enrollment dates. Study authors will be contacted, on an as-needed basis, to clarify any uncertainty about the independence of two or more articles.

## D. Assessment of Methodological Risk of Bias of Individual Studies

As stated above, because of the possibility of subjective interpretation, assessment of methodological risk of bias of individual studies will be performed by two extractors for each study, and discrepancies will be resolved by consensus. We will assess the risk of bias (i.e., internal validity) separately for each of the mental health outcomes ranked as most important by the TEP members and for each time point for which it is reported. The reason for outcome specificity is that some subjective outcomes are more susceptible to bias than other outcomes. The reason for time-point specificity is that longer followup often results in attrition or right-censoring, which may yield patients who are somewhat different from the full set of enrolled patients and also may introduce a systematic bias. These items were selected from a pool of items typically used by this EPC for technology assessments. Each of these items will be answered as "Yes," "No," or "Not reported (NR)."

| Item | Comments |
|---|---|
| 1. Were patients randomly assigned to the study's groups? | |
| 2. Was the process of assigning patients to groups made independently from physician/mental health care provider and patient preference? | |
| 3. For nonrandomized trials, did the study employ any other methods to enhance group comparability? | |
| 4. Was the comparison of interest prospectively planned? | |
| 5. Were the two groups treated concurrently? | |
| 6. Were those who assessed the patients' outcomes blinded to the group to which the patients were assigned? | |

| Item | Comments |
|---|---|
| 7. Was the outcome measure of interest objective and was it objectively measured? | The following will always be considered objective outcomes: hospitalization for SMI, mental health service access, suicide, recidivism, and adverse events.<br>The following will always be considered subjective outcomes: change in primary psychiatric symptoms and quality of life.<br>For adherence to pharmacotherapy and avoidance of drug/alcohol use, we will consider it objective if the patient had a blood or urine test. |
| 8. Was the treatment applied consistently across study subjects and over time? | To ensure that all patients, even those enrolled later, receive the same treatment, (e.g., the original version vs. an updated version). |
| 9. Was there a ≤5 difference between groups in ancillary treatment(s)? | |
| 10. Was there ≤15% difference in the length of followup for the two groups? | |
| 11. Did ≥85% of enrolled patients provide data at the time point of interest? | |
| 12. Was there a ≤15% difference between groups in the percentage of patients who provided data at the time point of interest? | |
| 13. Was funding free of financial interest? | For authors who developed the treatment, the answer would be “no”. |

We will categorize each study as “Low,” “Medium,” or “High” risk of bias using the following method:

- To be considered low risk of bias, the study must receive a “yes” on ALL of the following conditions and have at least 50 percent of the other items on the checklist above answered “yes”:
  - Randomized
  - Blinded outcome assessors
  - If NOT blinded outcome assessors (or NR blinded outcome assessors), then the outcome was objective
  - Treatment applied consistently across patients and time
  - ≤15 percent difference in length of followup between groups
  - ≥85 percent of enrolled patients provided data to this time point.
  - ≤15 percent difference in data provision rates to this time point
- To be considered high risk of bias, the study must receive a “no” on question 1 and a “yes” on question 2 below and have at least 50 percent of the other items on the checklist answered “no”:
  - Was the process of assigning patients to groups made independently from physician and patient preference?
  - Was a nonblinded outcome assessor assessing a subjective outcome?

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- To be considered medium risk of bias, the study meets neither the criteria for low risk of bias nor the criteria for high risk of bias.

## E. Data Synthesis

If we find two or more similar studies for a comparison of interest, we will perform a meta-analysis. This decision will depend on the judged clinical homogeneity of the different study populations and the outcomes reported by those studies. To determine whether meta-analyses are appropriate, we will assess the clinical heterogeneity using the PICOTS framework. We will consider similarities and differences by prior rates of criminal justice involvement, duration of illness, primary diagnosis, and how similar the applied treatments are within a treatment category. We will evaluate the statistical heterogeneity of the pooled analysis using the $I^2$ statistic. Subgroup analyses may be performed based on key identified aspects of the studies, such as the specific features of the treatment (e.g., modality [individual vs. group], dosage, compelled vs. voluntary treatment) and study design (e.g., randomization or not).

If meta-analysis is deemed appropriate and possible for a given comparison and a given outcome, we will compute effect sizes and standard errors using standard methods and will perform DerSimonian and Laird random-effects meta-analysis[34] using Comprehensive Meta-Analysis (CMA) software (Biostat, Inc., Englewood, NJ).[35] If $I^2$ is greater than 50 percent no meta-analysis will be performed of the entire evidence base, but subgroup meta-analyses may be performed.

If $I^2$ is above 0 percent but less than 50 percent and there are at least five studies, we will perform a meta-regression in an attempt to explain the heterogeneity.

For analysis of rare events (rates <1 percent), we will use either the Peto or Mantel-Haenszel odds ratios, as recommended on page 8 of the "Methods Guide for Effectiveness and Comparative Effectiveness Reviews" chapter, "Conducting Quantitative Synthesis When Comparing Medical Interventions,"[36] and supported by the simulation studies of Sweeting et al.[37] and Bradburn et al.[38]

For each outcome in the review, an important consideration is the smallest difference between groups that can still be considered clinically significant (minimum important difference). This definition aids interpretation in two main ways: (1) to determine whether a statistically significant difference is clearly clinically significant, and (2) to determine whether a statistically nonsignificant difference is small enough to exclude the possibility of a clinically significant difference. For quality of life, we will use established values for a clinically significant difference (e.g., SF-36, mental health subscale – five points).[39] For all other outcomes assessed on a scale in this report, we will define the minimum important difference as an odds ratio of 1.39, which corresponds to a Hedges' g of 0.2, using the formula recommended by Sánchez-Meca.[40] For suicide, any statistically significant difference will meet the standard of a clinically significant difference.

## F. Grading the Evidence for Each Key Question

We plan to provide evidence ratings for mental health outcomes. Depending on time constraints of the review, we may grade additional outcomes as well.

We will assess strength of evidence by following the guidelines from the "Methods Guide for Effectiveness and Comparative Effectiveness Reviews."[41] We will judge the strength of evidence for each major mental health outcome according to risk of bias, consistency, directness, and precision. Risk of bias is an inverse measure of internal validity. Consistency is the similarity in effect sizes of different studies in an evidence base. Directness refers to a direct link between the intervention and the ultimate health outcome, while precision is a measure of the degree of certainty around a single outcome's effect size. We will focus on direct evidence from head-to-head RCTs. We define treatment effect estimates as precise when pooled estimates have narrow 95 percent confidence intervals. When appropriate, we will include dose-response associations, presence of confounders that would diminish the observed effect, or strength of association.

We define high strength of evidence as evidence based consistent findings from well-designed RCTs that reflect true effects of the treatments; these are findings for which future research would be very unlikely to change the estimate of effect. We assign a moderate strength of evidence when RCTs and non-RCTs with a medium risk of bias reported consistent treatment effects. We assign a low strength of evidence to evidence bases composed of trials with a high risk of bias; these are findings for which future research is likely to change the estimate. We defined the evidence base as insufficient to support an evidence-based conclusion when there are fewer than two trials or when the combined effect size from two or more trials does not demonstrate that one treatment is significantly better than another.

## G. Assessing the Applicability of the Evidence for Each Key Question

Applicability will be assessed by considering important patient characteristics (e.g., prior criminal justice involvement, drug of choice, other patient characteristics identified by TEP members as particularly relevant to treatment response), treatment characteristics (including treatment fidelity), and information on how the setting may have influenced treatment delivery.

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**Published Online:** September 13, 2012

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**Published Online:** September 13, 2012

## VI. Definition of Terms

$I^2$ This is a measure of heterogeneity, ranging from 0 to 100 percent, in which higher values suggest greater heterogeneity. See Higgins and Thompson[42] for more details.

## VII. Summary of Protocol Amendments

In the event of protocol amendments, the date of each amendment will be accompanied by a description of the change and the rationale.

## VIII. Review of Key Questions

For all EPC reviews, key questions are reviewed and refined as needed by the EPC with input from Key Informants and the TEP to assure that the questions are specific and explicit about what information is being reviewed. In addition, for Comparative Effectiveness reviews, the key questions are posted for public comment and put in final form by the EPC after review of the comments.

## IX. Key Informants

Key Informants are the end users of research, including patients and caregivers, practicing clinicians, relevant professional and consumer organizations, purchasers of health care, and others with experience in making health care decisions. Within the EPC program, the Key Informant role is to provide input into identifying the Key Questions for research that will inform health care decisions. The EPC solicits input from Key Informants when developing questions for systematic review or when identifying high priority research gaps and needed new research. Key Informants are not involved in analyzing the evidence or writing the report and have not reviewed the report, except as given the opportunity to do so through the public review mechanism.

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 are invited to serve as Key Informants and those who present with potential conflicts may be retained. The AHRQ Task Order Officer (TOO) and the EPC work to balance, manage, or mitigate any potential conflicts of interest identified.

## X. Technical Experts

Technical Experts comprise a multidisciplinary group of clinical, content, and methodologic experts who provide input in defining populations, interventions, comparisons, or outcomes as well as identifying particular studies or databases to search. They are selected to provide broad expertise and perspectives specific to the topic under development. Divergent and conflicted opinions are common and perceived as healthy scientific discourse that results in a thoughtful, relevant systematic review. Therefore study questions, design and/or methodological approaches do not necessarily represent the views of individual technical and content experts. Technical Experts provide information to the EPC to identify literature search strategies and recommend approaches to specific issues as requested by the EPC. Technical Experts do not do analysis of

any kind nor contribute to the writing of the report and have not reviewed the report, except as given the opportunity to do so through the public review mechanism.

Technical Experts must disclose any financial conflicts of interest greater than $10,000 and any other relevant business or professional conflicts of interest. Because of their unique clinical or content expertise, individuals are invited to serve as Technical Experts and those who present with potential conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any potential conflicts of interest identified.

## XI. Peer Reviewers

Peer reviewers are invited to provide written comments on the draft report based on their clinical, content, or methodologic expertise. Peer review comments on the preliminary draft of the report are considered by the EPC in preparation of the final draft of the report. Peer reviewers do not participate in writing or editing of the final report or other products. The synthesis of the scientific literature presented in the final report does not necessarily represent the views of individual reviewers. The dispositions of the peer review comments are documented and will, for Comparative Effectiveness Reports and Technical Briefs, be published 3 months after the publication of the Evidence report.

Potential Reviewers must disclose any financial conflicts of interest greater than $10,000 and any other relevant business or professional conflicts of interest. Invited Peer Reviewers may not have any financial conflict of interest greater than $10,000. Peer reviewers who disclose potential business or professional conflicts of interest may submit comments on draft reports through the public comment mechanism.

## XII. EPC Team member disclosures

No EPC members had a conflict of interest.

## XIII. Role of the Funder

This project was funded under Contract No. HHSA 290 2007 10063 I from the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. The TOO reviewed contract deliverables for adherence to contract requirements, including the objectivity and independence of the research process and the methodological quality of the report. The authors of this report are responsible for its content. Statements in the report should not be construed as endorsement by AHRQ or the U.S. Department of Health and Human Services.

# Appendix A. Literature Search Methods

## *Electronic Database Searches*

The following databases have been searched for relevant information:

| Name | Date Limits | Platform/Provider |
|---|---|---|
| ClinicalTrials.gov | None | www.clinicaltrials.gov |
| The Cochrane Central Register of Controlled Trials (CENTRAL) | 1990 through current | www.thecochranelibrary.com |
| The Cochrane Database of Methodology Reviews (Methodology Reviews) | 1990 through current | www.thecochranelibrary.com |
| The Cochrane Database of Systematic Reviews (Cochrane Reviews) | 1990 through current | www.thecochranelibrary.com |
| Database of Abstracts of Reviews of Effects (DARE) | 1990 through current | www.thecochranelibrary.com |
| EMBASE (Excerpta Medica) | 1990 through current | OVID |
| Health Technology Assessment Database (HTA) | 1990 through current | www.thecochranelibrary.com |
| MEDLINE/PreMEDLINE | 1990 through current | OVID |
| National Criminal Justice Reference Service (NCJRS) | 1990 through current | www.ncjrs.gov |
| ProQuest Criminal Justice | 1990 through current | ProQuest |
| PsycINFO | 1990 through current | OVID |
| PubMed (In-process and Publisher records) | 1990 through current | www.pubmed.gov |
| U.K. National Health Service Economic Evaluation Database (NHS EED) | 1990 through current | www.thecochranelibrary.com |
| U.S. National Guideline Clearinghouse™ (NGC) | None | www.ngc.gov |

Detailed search strategies are presented below.

## *Hand Searches of Journal and Nonjournal Literature*

Journals and supplements maintained in ECRI Institute's collections were routinely reviewed. Nonjournal publications and conference proceedings from professional organizations, private agencies, and government agencies were also screened. Other mechanisms used to retrieve additional relevant information included review of bibliographies/reference lists from peer-reviewed and grey literature. (Grey literature consists of reports, studies, articles, and monographs produced by federal and local government agencies, private organizations, educational facilities, consulting firms, and corporations. These documents do not appear in the peer-reviewed journal literature.)

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*Medical Subject Headings (MeSH), EMTREE, PsycINFO, and Keywords*

The search strategies employed combinations of freetext keywords as well as controlled vocabulary terms including (but not limited to) the concepts shown in the Topic-specific Search Terms table.

## Topic-specific Search Terms

| Concept | Controlled Vocabulary | Keywords |
|---|---|---|
| Serious mental illness and dual diagnosis | **MEDLINE (MeSH)**<br>Depression/<br>Diagnoses dual/<br>Exp mood disorders/<br>Exp schizophrenia and disorders with psychotic features/<br>Mental disorders/<br>Mentally ill persons/<br><br>**EMBASE (EMTREE)**<br>((Exp addiction/ OR Exp substance abuse/) AND comorbidity/)<br>Exp mood disorder/<br>Exp psychosis/<br>Mental disease/<br><br>**PsycINFO**<br>Dual diagnosis/<br>Exp affective disorders/<br>Exp chronic mental illness/<br>Exp psychosis/<br>Mental disorders/<br>Schizoaffective disorder/ | Affective disorder/s<br>Bipolar<br>Co-occurring<br>Depression<br>Depressive<br>Dual diagnosis/es<br>Dual disorder/s<br>Dually diagnosed<br>MDD<br>Mental disorder/s<br>Mental illness/es<br>Mentally disordered<br>Mentally ill<br>MICA<br>Mood disorder/s<br>Psychiatric disorder/s<br>Psychosis/es<br>Psychotic<br>Schizoaffective<br>Schizophren*<br>SMI<br>SPMI |
| Criminal justice system | **MEDLINE**<br>Criminals/<br>Prisoners/<br>Prisons/<br><br>**EMBASE**<br>Offender/<br>Prison/<br>Prisoner/<br><br>**PsycINFO**<br>Correctional institutions/ | Correctional<br>Criminal*<br>Forensic hospital/s<br>Forensic setting/s<br>High secure/ity<br>Incarcerated<br>Incarceration<br>Inmate*<br>Jail*<br>Low secure/ity<br>Medium secure/ity<br>Offender* |

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| Concept | Controlled Vocabulary | Keywords |
|---|---|---|
| | Exp criminals/<br>Incarceration/<br>Mentally ill offenders/<br>Prisoners/ | Parole*<br>Prison/s<br>Prisoner/s<br>Probation* |
| Re-entry | | Discharge planning<br>Reentering<br>Re-entering<br>Reentrance<br>Re-entrance<br>Reentry<br>Re-entry<br>Reintegrating<br>Re-integrating<br>Reintegration<br>Re-integration<br>Releas*<br>Return to society |
| Psychiatric interventions and delivery of services | **MEDLINE**<br>Case management/<br>Community mental health services/<br>Exp forensic psychiatry/<br>Exp mandatory programs/<br>Exp medical assistance/<br>Exp program evaluation/<br>Exp psychotherapy<br>Exp self-help groups/<br>Mental health services/<br>*psychiatry/<br>Voluntary programs/<br><br>**EMBASE**<br>Case management/<br>Community based rehabilitation/ OR<br>Community care/<br>Community program/<br>Counseling/<br>Exp psychotherapy/<br>Forensic psychiatry/<br>Medicaid/<br>Medicare/<br>Mental health service/ | Aftercare<br>After-care<br>Assertive community treatment<br>Case management<br>Cognitive behavior/al therapy<br>Cognitive behavior/al treatment<br>Cognitive behaviour/al therapy<br>Cognitive behaviour/al treatment<br>Cognitive therapy<br>Community-based program<br>Community-based treatment<br>Complementary<br>Counseling<br>Criminal thinking curricula<br>Critical time intervention<br>Dialectical<br>Forensic psychiatry<br>Group intervention<br>Group support<br>IDDT<br>Integrated dual disorders treatment<br>Intensive community treatment<br>Meditat*<br>Mental health team/s |

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| Concept | Controlled Vocabulary | Keywords |
|---|---|---|
| | Program development/<br>Psychiatric treatment/<br>*psychiatry/<br>Social psychiatry/<br>Support group/<br>Voluntary program/<br><br>**PsycINFO**<br>Cognitive therapy/<br>Community mental health centers/<br>Community mental health services/<br>Counseling/<br>Crisis intervention/<br>Exp *intervention/<br>Exp case management/<br>Exp program development/<br>Exp program evaluation/<br>Exp psychotherapy/<br>Forensic psychiatry/<br>Involuntary treatment/<br>Medicaid/ OR medicare/<br>Mental health programs/<br>Motivational interviewing/<br>Outpatient commitment/<br>Outpatient treatment/<br>*psychiatry/<br>Support groups/ | Modified therapeutic community<br>Motivational interviewing<br>Outpatient commitment<br>Outpatient treatment<br>Psychiatric treatment<br>Psychoeducation*<br>Psychotherapy<br>Seeking safety<br>Strengths-based care management<br>Support group/s<br>Trauma informed interventions<br>Trauma recovery and empowerment model<br>Trauma-informed services<br>Treatment alternatives for safer communities<br><u>Broad terms</u>:<br>Intervention*<br>Medicaid<br>Medical assistance<br>Medical benefits<br>Medicare<br>Program*<br>Rehabilitation<br>Service*<br>Social security disability insurance<br>SSI<br>Supplemental security income<br>Therap*<br>Treatment* |
| Pharmacologic interventions | **MEDLINE**<br>Anti-anxiety agents/<br>Antimanic agents/<br>Antipsychotic agents/<br>Drug therapy.fs.<br>Drug therapy/<br>Exp antidepressive agents/<br>Psychotropic drugs/<br>Therapeutic use.fs.<br><br>**EMBASE**<br>Drug therapy.fs. | Antidepressant*<br>Anti-depressant/s<br>Antipsychotic*<br>Anti-psychotic/s<br>Benzodiazepine*<br>Drug counseling<br>Drug therapy<br>Drug treatment/s<br>Drug-based<br>Incarceration-based drug treatment<br>Mood stabiliser/s<br>Mood stabilizer/s |

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| Concept | Controlled Vocabulary | Keywords |
|---|---|---|
| | Drug therapy/<br>Exp antidepressant agent/<br>Exp anxiolytic agent/<br>Exp benzodiazepine derivative/<br>Exp neuroleptic agent/<br>Psychopharmacotherapy/<br>Psychotropic agent/<br><br>**PsycINFO**<br>Benzodiazepines/<br>Drug therapy/<br>Exp antidepressant drugs/<br>Exp neuroleptic drugs/ | Pharmacologic*<br>Psychopharmacologic*<br>Psychotropic/s<br>Risperidone<br>Serotonin reuptake inhibitor/s<br>SSRIs<br>Substance abuse treatment |

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# *Search Strategies*

The strategy below is presented in OVID syntax; the search was simultaneously conducted across EMBASE, MEDLINE, and PsycINFO. A similar strategy was used to search the databases comprising the Cochrane Library, ProQuest Criminal Justice, and NCJRS.

**OVID Conventions:**

| | | |
|---|---|---|
| * | = | truncation character (wildcard) |
| ADJ*n* | = | search terms within a specified number (*n*) of words from each other in any order |
| exp | = | "explodes" controlled vocabulary term (e.g., expands search to all more specific related terms in the vocabulary's hierarchy) |
| .de. | = | limit controlled vocabulary heading |
| .fs. | = | floating subheading |
| .hw. | = | limit to heading word |
| .md. | = | type of methodology (PsycINFO) |
| .mp. | = | combined search fields (default if no fields are specified) |
| .pt. | = | publication type |
| .ti. | = | limit to title |
| .tw. | = | limit to title and abstract fields |

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# EMBASE/MEDLINE/PsycINFO
# OVID Syntax

| Set # | Concept | Search Statement |
|---|---|---|
| 1 | Mentally ill population | Mental disease/ OR mental disorders/ OR mentally ill persons/ OR exp chronic mental illness/ OR exp affective disorders/ OR depression/ OR exp mood disorder/ OR exp mood disorders/ OR exp psychosis/ OR schizoaffective disorder/ OR exp schizophrenia and disorders with psychotic features/ OR ((mental* OR psychiatric) ADJ (disorder* OR health OR ill OR illness*)) OR SMI OR SPMI OR (affective ADJ disorder*) OR bipolar OR depress* OR MDD OR (mood ADJ disorder*) OR psychosis OR psychoses OR psychotic OR schizoaffective OR schizophreni* |
| 2 | Dually diagnosed population | Diagnosis dual/ OR ((exp addiction/ OR exp substance abuse/) AND comorbidity/) OR dual diagnosis/ OR (co ADJ occurring) OR comorbid* OR (dual* ADJ (diagnos* OR disorder*)) OR MICA.ti,ab. |
| 3 | Criminal justice population | Exp criminals/ OR exp correctional institutions/ OR incarceration/ OR offender/ OR exp prison/ OR exp prisons/ OR prisoner/ OR prisoners/ OR correctional OR criminal* OR incarcerat* OR inmate* OR (offender* NOT sex*.ti.) OR high secure OR low secure OR medium secure OR jail* OR parole* OR prison OR prisons OR (prisoner* NOT (political* OR war).ti.) OR probation* |
| 4 | Concepts that cover both populations | mentally ill offenders/ OR (forensic ADJ (hospital* OR patients OR setting* OR unit OR units)) |
| 5 | Psychiatric interventions<br>Subject headings | Exp forensic psychiatry/ OR *psychiatry/ OR psychiatric treatment/ OR exp psychotherapy/ OR cognitive therapy/ OR exp complementary therapies/ OR counseling/ OR exp case management/ OR crisis intervention/ OR *intervention/ OR group intervention/ OR self help/ OR exp self-help groups/ OR self help techniques/ OR social psychiatry/ OR support group/ OR support groups/ OR group intervention/ OR mental health programs/ OR mental health services/ OR motivational interviewing/ OR involuntary treatment/ OR exp mandatory programs/ OR voluntary program/ OR voluntary programs/OR exp program development/ OR exp program evaluation/ OR community based rehabilitation/ OR community care/ OR community mental health centers/ OR community mental health services/ OR community program/ OR outpatient treatment/ OR telepsychiatry/ |
| 6 | Psychiatric interventions<br>Text words | Aftercare OR after care OR assertive case management OR assertive community treatment OR (case management).ti. OR cognitive therapy OR (cognitive ADJ behav* ADJ (therapy OR treatment)) OR CBT OR (community based).ti. OR community treatment OR complementary OR counseling OR (crisis ADJ intervention ADJ team*) OR critical thinking curricula OR critical time intervention OR dialectical.ti. OR forensic psychiatry OR (group* ADJ (intervention* OR support* OR therapy)) OR (support ADJ group*) OR integrated dual disorders treatment OR IDDT OR (intensive ADJ community ADJ treatment*) OR intensive supervision OR meditat* OR mindfulness based relapse prevention OR modified therapeutic community OR motivational interviewing OR psychoeducation* OR psychotherap* OR psychiatry.ti. OR self help OR seeking safety OR strengths based case management OR trauma informed OR (trauma ADJ recovery ADJ2 empowerment) OR TREM OR outpatient commitment OR outpatient treatment OR (treatment ADJ alternatives ADJ2 safer ADJ communities) OR telemental OR telepsychiatry OR telepsychology OR (intervention* OR program* OR rehabilitat* OR service* OR treat* OR therap*).ti. |

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| Set # | Concept | Search Statement |
|---|---|---|
| 7 | Pharmacologic interventions<br>Subject headings | Exp anxiolytic agent/ OR exp anticonvulsants/ OR exp anticonvulsive agent/ OR exp anticonvulsive drugs/ OR exp antidepressant agent/ OR exp antidepressive agents/ OR exp antidepressant drugs/ OR anti-anxiety agents/ OR antimanic agents/ OR antipsychotic agents/ OR exp benzodiazepine derivative/ OR benzodiazepines/ OR drug therapy/ OR drug therapy.fs. OR exp neuroleptic agent/ OR exp neuroleptic drugs/ OR psychopharmacotherapy/ OR psychotropic agent/ OR psychotropic drugs/ |
| 8 | Pharmacologic interventions<br>Text words | (drug ADJ (based OR counseling OR therapy OR treatment*)) OR formular* OR medication* OR pharmac* OR psychopharmacologic* OR psychopharmacotherap* OR (substance ADJ abuse ADJ treatment*) OR agonist* OR anticonvulsant* OR anticonvulsive* OR antidepress* OR (anti ADJ depress*) OR antipsychotic* OR (anti ADJ psychotic*) OR benzodiazepine* OR (mood ADJ (stabiliser* OR stabilizer*)) OR psychotropic* OR risperidone OR (serotonin ADJ reuptake ADJ inhibitor*) OR SSRI* |
| 9 | Benefits | Exp medical assistance/ OR medicaid OR medicare/ OR medical assistance OR medical benefits OR medicaid OR medicare OR supplemental security income OR SSI OR social security disability insurance |
| 10 | Combine intervention and benefits sets | OR/5-9 |
| 11 | Community re-entry population | Discharge planning OR reentry OR re entry OR reentering OR re entering OR reentrance OR re entrance OR reintegration OR re integration OR releas* OR (return ADJ2 society) |
| 12 | Key question 1 | (((1 OR 2) AND 3) OR 4) AND 10 |
| 13 | Key question 2 | (((1 OR 2) AND 3) OR 4) AND 11 |
| 14 | Combine | 12 OR 13 |
| 15 | Limit to english language | limit 14 to english language |
| 16 | Limit to journals (excludes dissertations, etc from PsycINFO) | limit 15 to all journals |
| 17 | Limit by publication type | 16 NOT (book/ OR edited book OR case report/ OR case reports/ OR comment/ OR conference abstract/ OR conference paper/ OR conference review/ OR editorial/ OR letter/ OR news/ OR note/ OR proceeding/ OR (book OR edited book OR case report OR case reports OR comment OR conference abstract OR conference paper OR conference review OR editorial OR letter OR news OR note OR proceeding).pt. OR ("comment/reply" OR editorial OR letter OR review-book).dt.) |
| 18 | Limit by publication date | Limit 17 to yr="1990-Current" |
| 19 | Limit to Adults in MEDLINE and EMBASE | 18 AND (adolescent/ OR child/ OR infant/ OR (adolescen* OR juvenile* OR teen* OR young* OR youth*).ti.) |
| 20 | | 18 AND (Exp adult/ OR adult.ti.) |
| 21 | | 19 NOT 20 |
| 22 | | 18 NOT 21 |

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**Published Online:** September 13, 2012

| Set # | Concept | Search Statement |
|---|---|---|
| 23 | | 22 use EMEZ |
| 24 | | 22 use MESD |
| 25 | | 23 OR 24 |
| 26 | Limit to Adults in PsycINFO using Empirical Population Limits | Limit 25 to (childhood <birth to 12 years> or adolescence <13 to 17 years>) |
| 27 | | Limit 25 to adulthood <18+ years> |
| 28 | | 26 NOT 27 |
| 29 | | 25 NOT 28 |
| 30 | | 29 use PSYF |
| 31 | Total Adult studies sets | 25 OR 30 |
| 32 | Limit to studies performed in the United States | 31 AND (exp africa/ OR exp asia/ OR exp central america/ OR exp eastern hemisphere/ OR exp europe/ OR exp latin america/ OR mexico/ OR exp south america/ OR exp south and central america/ OR (china OR finland OR france OR germany OR india OR iran OR ireland OR Italy OR japan OR malaysia OR mexico OR portugal OR singapore OR spain OR sweden OR taiwan OR thailand OR turkey).ti,in.) |
| 33 | | 31 AND (exp united states/ OR exp canada/ OR exp australasia/ OR exp australia/ and new zealand/ OR exp great britain/ OR exp united kingdom/ OR (america* OR united states OR US OR USA OR canada* OR australia OR new zealand OR england OR great britain OR united kingdom OR UK OR wales OR scotland).ti,in.) |
| 34 | | 32 NOT 33 |
| 35 | | 31 NOT 34 |
| **36** | **Eliminate overlap** | **Remove duplicates from 35*** |

*Note that weeding for desired study types will be done by hand rather than with search limits.

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**Additional Conventions:**

**PubMed**

[tiab] = limit to title or abstract

**Cochrane Library**

Menu-driven

**ProQuest Criminal Justice**

* = truncation character (wildcard)
NEAR/*n* = search terms within a specified number (*n*) of words from each other in any order
[SU] = ProQuest subject heading
[TI] = limit to title
[AB] = limit to abstract
[STYPE] = source type (i.e., scholarly journal)

**NCJRS**

Menu-driven, thesaurus selections also available

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