

Draft Comparative Effectiveness Review

Number XX

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

Prepared for:

Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
www.ahrq.gov

Contract No. [redacted]

Prepared by: [redacted]

Investigators: [redacted]

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Preface

The Agency for Healthcare Research and Quality (AHRQ) conducts the Effective Health Care Program as part of its mission to organize knowledge and make it available to inform decisions about health care. As part of the Medicare Prescription Drug, Improvement, and Modernization Act of 2003, Congress directed AHRQ to conduct and support research on the comparative outcomes, clinical effectiveness, and appropriateness of pharmaceuticals, devices, and health care services to meet the needs of Medicare, Medicaid, and the Children's Health Insurance Program.

AHRQ has an established network of Evidence-based Practice Centers (EPCs) that produce Evidence Reports/Technology Assessments to assist public- and private-sector organizations in their efforts to improve the quality of health care. The EPCs lend their expertise to the Effective Health Care Program by conducting comparative effectiveness reviews (CERs) of medications, devices, and other relevant interventions, including strategies for how these items and services can best be organized, managed, and delivered.

Systematic reviews are the building blocks underlying evidence-based practice; they focus attention on the strength and limits of evidence from research studies about the effectiveness and safety of a clinical intervention. In the context of developing recommendations for practice, systematic reviews are useful because they define the strengths and limits of the evidence, clarifying whether assertions about the value of the intervention are based on strong evidence from clinical studies. For more information about systematic reviews, see <http://www.effectivehealthcare.ahrq.gov/reference/purpose.cfm>.

AHRQ expects that CERs will be helpful to health plans, providers, purchasers, government programs, and the health care system as a whole. Additionally, AHRQ is committed to presenting information in different formats so that consumers who make decisions about their own and their family's health can benefit from the evidence.

Transparency and stakeholder input from are essential to the Effective Health Care Program. Please visit the Web site (<http://www.effectivehealthcare.ahrq.gov>) to see draft research questions and reports or to join an email list to learn about new program products and opportunities for input. CERs will be updated regularly.

We welcome comments on this CER. They may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850, or by email to epc@ahrq.hhs.gov.

Carolyn M. Clancy, M.D.
Director, Agency for Healthcare Research
and Quality

Jean Slutsky, P.A., M.S.P.H.
Director, Center for Outcomes and Evidence
Agency for Healthcare Research and Quality

Stephanie Chang M.D., M.P.H.
Director, EPC Program
Center for Outcomes and Evidence
Agency for Healthcare Research and Quality

Kim Marie Wittenberg, M.A.
Task Order Officer
Center for Outcomes and Evidence
Agency for Healthcare Research and Quality

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Key Informants

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Technical Expert Panel

To be added to final report

Peer Reviewers

To be added to final report

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

Structured Abstract

Objective. To comprehensively review the evidence for treatments for offenders with serious mental illness in jail, prison, forensic hospital, or transitioning from any of these settings to the community.

Data Sources. MEDLINE, PreMEDLINE, EMBASE, the Cochrane Library, the Database of Abstracts of Reviews of Effects, the Health Technology Assessment Database, the United Kingdom National Health Service Economic Evaluation Database, PsycINFO, NCJRS Abstracts Service, and ProQuest Criminal Justice were searched from January, 1990, through April, 2012.

Review Methods. We refined the topic, key questions, and protocol with experts in the field and determined the study inclusion criteria and risk-of-bias items *a priori*. Abstract and full-text review and the risk-of-bias assessment were done in duplicate. Data extraction was verified by a second reviewer. Extracted study information included study design, patient enrollment and baseline characteristics, risk-of-bias items, and outcome data. Due to the nature of the available evidence, we chose to perform a qualitative synthesis rather than to perform meta-analysis. We rated the strength of evidence for each treatment comparison and outcome based on a qualitative analysis of the evidence. We discussed applicability by focusing on the population, interventions, and settings of the included studies.

Results. We included 16 publications describing 14 comparative trials. The studies were conducted in the United States, Canada, United Kingdom, New Zealand and Australia. The risk of bias was moderate for all reported outcomes.

For all of the incarceration-based interventions assessed, pharmacotherapy, cognitive therapy, and modified therapeutic community, there was insufficient evidence to draw a conclusion.

For individuals transitioning from the incarceration-to-community setting, low strength of evidence supported discharge planning with benefit application assistance and intensive dual disorder treatment compared with standard of care for increasing mental health service use and/or reducing psychiatric hospitalizations. The evidence was insufficient to draw a conclusion about the effectiveness of intensive dual disorder treatment for reducing psychiatric symptoms, substance abuse, and institutional infractions and for improving functioning and medication adherence. The evidence was also insufficient for comparing generalist- to forensic specialist-administered interventions for offenders transitioning from incarceration to the community..

Conclusions. We identified some promising incarceration-to-community treatments for individuals with serious mental illness. Discharge planning with Medicaid application assistance and intensive dual disorder treatment programs appear to be effective interventions for seriously mentally ill offenders transitioning back into the community. Health care providers and policymakers can use this evidence review to improve the treatment of offenders with serious mental illness. The applicability of our findings is limited to the types of populations and settings in the included studies.

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Executive Summary

Background

Numerous reports indicate that individuals with serious mental illness (SMI) are over-represented in the criminal justice system. Prevalence estimates of SMI among incarcerated adults range from 15 percent 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 percent 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 The National Commission on Correctional Health Care reported the following prevalence estimates of mental illness within State prisons: between 2.3 percent and 3.9 percent of inmates are estimated to have schizophrenia or another psychotic disorder, 13.1 percent to 18.6 percent have major depression, and between 2.1 percent and 4.3 percent have bipolar disorder.⁵ Research conducted in the United States found that between 28 percent and 52 percent of those with SMI have been arrested at least once.⁶

Overall, offenders with mental illness have high rates of recidivism. One study reported that 64 percent of offenders who were mentally ill were rearrested within 18 months of release.⁷ 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.⁸

In general, recidivism among offenders with mental illness is largely associated with poor coordination of services and treatment upon release into the community.⁸ 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).⁹ 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.⁹

Jails and prisons have a constitutional obligation to provide treatment to inmates with serious medical and psychiatric conditions.¹⁰ The case of *Ruiz v. Estelle* set forth minimum requirements for providing mental health services in the U.S. correctional system.¹¹ 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 vs. prison) and level of security (e.g., minimum vs. maximum). However, Baillargeon et al. recommend that all correctional facilities offer standard outpatient or inpatient mental health treatment, such as individual or group psychotherapy, psychotropic medication, and discharge planning.¹¹

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 percent to 83 percent of 10 jails surveyed).¹² Because prisons hold inmates for long periods of time, they generally provide a greater range of services compared with 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.¹³ According to Baillargeon et al., the primary barrier to improving mental health treatment in adult correctional facilities is inadequate State funding.¹¹

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 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 because “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.¹⁴

Scope of This Review and Key Questions

This report focuses 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. Programs designed to prevent or minimize incarceration such as mobile crisis intervention teams or other interventions delivered at the point of contact with the police are beyond the scope of this report. Also beyond the scope of this report are court ordered, involuntary treatments intended to restore competency to stand trial and other postbooking strategies, such as mental health courts, designed to divert offenders with SMI to a treatment environment in lieu of a lengthy incarceration.

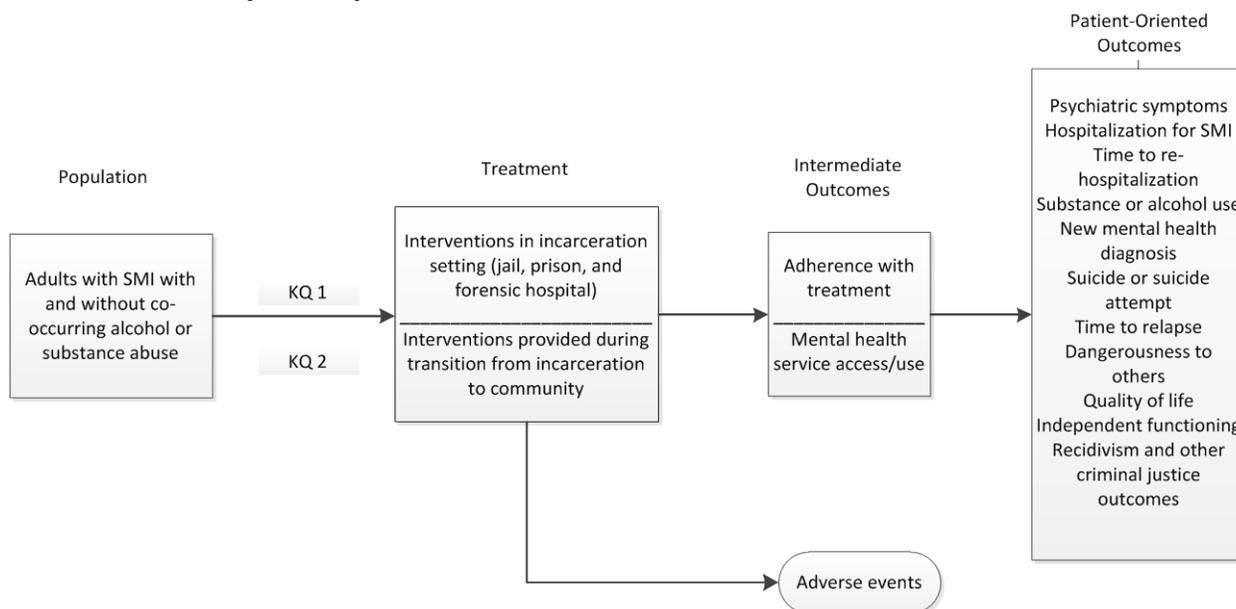
This report addresses the following key questions:

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?

Analytic Framework

Figure A. Analytic framework for interventions for adults with SMI who are involved with the criminal justice system



KQ = Key question; SMI = serious mental illness

Figure A depicts the population, treatment, intermediate- and patient-oriented outcomes that are assessed in this report. On the left side of the figure we list the populations of interest: adults with serious mental illness (SMI) with and without a co-occurring alcohol or substance abuse diagnosis who are involved in one of the criminal justice system settings of interest. Key Question 1 (KQ1) compares interventions within an incarceration setting (jail, prison, or forensic hospital) or the same intervention applied across incarceration settings. Key Question 2 (KQ2) compares interventions provided during the transition from incarceration (jail, prison, or forensic hospital) to the community. For Key Question 2, the comparisons are different interventions applied within an incarceration-to-community setting, the same intervention applied across settings, or an incarceration intervention compared with an incarceration-to-community transitional intervention. We gathered information on any treatment-related adverse events. “Intermediate outcomes,” which may lead to improved patient-oriented outcomes, include adherence with treatment and mental health service access/use.

To the far right of the diagram we list the patient-oriented outcomes assessed: psychiatric symptoms, hospitalization for SMI, time to rehospitalization, substance- or alcohol use, new mental health diagnosis, suicide and suicide attempts, time to relapse, dangerousness to others, quality of life, independent functioning, and recidivism and other criminal justice outcomes.

Population

The population in this report is 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 or found 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 administered by a trained professional. For the purposes of this report, self-report alone will not qualify an individual as having an SMI.

Interventions

A variety of interventions that appeared in the literature were considered for inclusion in this report, provided they were directed toward the population of interest, were intended to improve mental health outcomes, and were delivered within the treatment settings of interest to this report. Ultimately, this review assessed the following incarceration-based interventions: pharmacotherapy with clozapine, risperidone, and chlorpromazine; psychological therapies including cognitive skills training in the form of Reasoning and Rehabilitation and group cognitive therapy; comprehensive interventions for individuals with a dual diagnosis including modified therapeutic community with or without an aftercare component, and modified therapeutic community tailored to the needs of female offenders. This report also assessed high-fidelity integrated dual disorder treatment, the Mentally Ill Offender Community Transition Program; discharge planning interventions that included mental health benefit-application assistance; and interventions coordinated and/or administered by specially trained forensic providers for offenders transitioning from incarceration to the community.

Comparators

For Key Question 1, the comparators were usual care or any one of the interventions identified in the literature 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 interventions identified in the literature applied in an incarceration-to-community setting, the same intervention applied across settings, or an incarceration intervention compared with an incarceration-to-community transitional intervention.

Outcomes

For both incarceration-based and incarceration-to-community transitioning interventions, the outcomes of interest to this report are psychiatric symptoms, hospitalization for SMI, time to rehospitalization, substance- or alcohol use, new mental health diagnosis, suicide and suicide attempts, time to relapse, dangerousness to others, quality of life, independent functioning, recidivism and other criminal justice outcomes, adherence to treatment, and service use.

Time point

A minimum followup of 3 months was required for studies included in this report.

Settings

For Key Question 1, the intervention settings were jail, prison, and forensic hospital. For Key Question 2, the settings were jail-to-community, prison-to-community, and forensic hospital-to-community.

Methods

Review Team

A three-person team conducted the systematic review: one person with a Ph.D. (the lead analyst), one person with an M.S.S., and one person with an M.D. While each member of the team has a background in behavioral health and has worked with individuals with SMI and co-occurring substance use disorders, none of the members are currently working with or within the criminal justice system or any other organization(s) that may have an interest in this report. Each member of the team has experience performing systematic reviews of behavioral health and health care evidence.

Mental health clinicians, representatives from the criminal justice system, and policymakers from both the behavioral health and criminal justice field were involved as Key Informants and/or members of the Technical Expert Panel. These groups provided input on the key questions, reviewed the protocol, answered specific questions during the review process, and reviewed the document.

Topic Development and Refinement

A patient advocacy group and a national organization for psychiatry in November 2010 nominated this topic. Topic triage and refinement occurred between February 2011 and April 2011. We enlisted five Key Informants to help refine the key questions and determine the scope of the report. AHRQ posted the key questions for public comment for a 4-week period ending February 15, 2011.

Following the public posting period, the Technical Expert Panel, which was comprised of an associate director of a forensic fellowship program, a former mental health director for a State department of corrections, three Ph.D.-level professors teaching in the areas of social policy and correctional mental health, a State health services director, two methodologists, and a professor of psychiatry, medicine, and law, reviewed the protocol and further refined it. The protocol was finalized in April 2012.

Search Strategy

We searched 15 external and internal resources, including MEDLINE, EMBASE, and PsycINFO, for controlled studies on interventions for adults with SMI who are involved in the criminal justice system. We also examined the bibliographies of included studies, scanned the content of new issues of selected journals, and reviewed gray literature for additional relevant articles. Our searches covered the time period of January 1, 1990, through April 1, 2012. A total of 4,436 titles were identified, of which 3,625 abstracts were reviewed for possible inclusion in the report. Library staff used search terms that represented populations, settings, and interventions of interest, and included concepts such as SMI, major depressive disorder, schizophrenia, dual diagnoses, jails, prisons, community reentry, assertive community treatment, case management, cognitive behavioral therapy, integrated dual disorders treatment, and modified therapeutic community. See the Literature Search Methods in the main report, Appendix A, for a complete list of terms and resources searched.

Study Selection

The main criteria for study selection were randomized trials or nonrandomized comparative trials that employed a matching procedure to ensure baseline comparability of treatment groups; the trials must have assessed either two or more of the interventions of interest or an intervention of interest versus standard of care; must have enrolled a minimum of 75 percent of subjects with SMI (schizophrenia, schizoaffective disorder, major depression, or bipolar disorder); been published in English and conducted in the United States, Canada, United Kingdom, New Zealand or Australia; reported at least one mental health outcome; and included a minimum followup period of 3 months.

Data Extraction and Management

Two members of the review team reviewed all abstracts of identified articles. We obtained for full review any articles that met the inclusion criteria for at least one key question. We also retrieved full articles in cases where there was a disagreement between the two abstract reviewers. Two people screened each full article. We used DistillerSR[®] Web-based systematic review software for abstract screening and full article screening. Each team member's data extraction was reviewed by one other team member.

Individual Study Risk-of-Bias Assessment

We assessed the risk of bias (i.e., internal validity) separately for each outcome at various time points for each study. Our risk-of-bias assessment included, but was not limited to, the following: randomization, blinding of outcome assessors, concurrently administered treatments, objective or subjective outcome measurement, and funding source. Two reviewers independently performed the risk-of-bias assessment. Disagreements were resolved by consensus and/or by a third reviewer.

We categorized each study as “Low,” “Moderate,” or “High” risk of bias. To be considered low risk of bias, the study must have been a randomized trial assessing either an objective outcome or have a blinded outcome assessor, maintained treatment fidelity, had a similar followup period for both treatment arms, and had a low rate of attrition in all treatment arms. High risk-of-bias trials used patient or clinician preference to determine group membership and had an unblinded outcome assessor assessing a subjective outcome. All other trials were graded as moderate on risk of bias. For this report, all included studies received a moderate risk of bias for all reported outcomes.

Data Synthesis

From each included study, we extracted all important information about study design, patients, and reported data. Because the populations, interventions, and outcome measures were heterogeneous, they did not lend themselves to a pooled analysis, so we chose to explore the data using a narrative, qualitative analysis. When data from a study permitted, we calculated individual study effect size estimates. The choice of effect size metric depended on whether reported outcomes were continuous or dichotomous. Pre-post treatment differences in outcomes measured using continuous data (e.g., scores on psychological tests) were calculated as the standardized mean difference. We computed baseline adjusted values using a pre-post correlation of 0.5. For dichotomous outcomes, we used the odds ratio as the measure of effect size; values greater than one favored the experimental group, and values less than one favored the control

group. For all effect size metrics, we computed 95 percent confidence intervals using standard methods.

The results of our analysis along with additional analysis reported by the authors of the studies were reported in the findings section under each key question. We used calculated effect size estimates to help determine the overall strength of the evidence. See next section for further details about our strength-of-evidence assessment.

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 used established values for a clinically significant difference (e.g., SF-36, mental health subscale – five points).¹⁵ For all other outcomes assessed on a scale in this report, we defined 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.¹⁶ For suicide, any statistically significant difference was considered to meet the standard of a clinically significant difference.

Grading the Evidence for Each Key Question

We assessed the strength of evidence by following the guidelines from the “Methods Guide for Effectiveness and Comparative Effectiveness Reviews.”¹⁷ We judged the evidence for each major mental health outcome according to the four core domains: risk of bias, consistency, directness, and precision. Our methods for judging risk of bias of individual studies are described above; we took the median risk of bias of the relevant studies to assign an overall risk of bias.

Consistency is the similarity in effect sizes or direction of an effect of different studies in an evidence base. An inconsistent evidence base is one in which the studies report conflicting results. Consistency cannot be assessed when a body of evidence has only a single study (consistency is unknown). Directness refers to whether there is 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. In the report, we defined a “precise” result as one in which the data were informative (the confidence interval around the effect size clearly indicated there was a difference between groups), and an “imprecise” result was one in which the data were not informative (the confidence interval was too wide to determine whether there was a difference between groups).

The various domains were considered together to grade the evidence for the outcome as “High” (confident that future research will not change our conclusions), “Moderate” (future research may change our estimate of the effect), “Low” (future research is likely to change our estimate of effect), or Insufficient (there was not enough evidence to draw a conclusion). To receive a grade of low or better, at least two studies had to report consistent results for the same outcome.

Applicability Assessment

To assess applicability, we first abstracted data from each included study on factors that may affect the study's applicability. Using the PICOTS (populations, interventions, comparators,

outcomes, timing, and setting) approach as a guide, we primarily focused on the following three most relevant categories:

- Population—demographic characteristics, co-morbidity of substance abuse diagnosis, criminal history
- Intervention and comparators—pharmacologic, psychological, dual diagnoses, discharge planning with benefit assistance, and generalist versus specialist provided treatments. The comparator was usually standard of care.
- Setting—place of incarceration, rural versus urban

Based on a review of the data abstracted, we narratively summarized any patterns reflected from these factors that might affect the applicability of the evidence. We made no attempt to generate any rating or score for the applicability of the evidence. Our narrative summaries are intended to draw stakeholders' attention to potential applicability issues embedded in the evidence.

Results

Our searches of the literature identified 4,436 potentially relevant articles, and we excluded 811 of these at the title level. We excluded another 3,075 articles at the abstract level and 534 articles at full-length article review level typically because they were irrelevant to our key questions; were background, review, commentary, or protocol articles; were not comparative trials; were not conducted within a country of interest to this report or the populations were not primarily SMI. The remaining 14 unique studies described in 16 publications made up the evidence base for this review. We present results by key question. See Appendix F of the main document for detailed evidence tables.

Key Question 1. Interventions applied within jail, prison or forensic hospital settings

Eight moderate risk of bias studies addressed Key Question 1. There was insufficient evidence to conclude that there is any difference in the effectiveness of interventions assessed in Key Question 1. A total of four trials tested the efficacy of pharmacotherapies. Two trials compared clozapine with other antipsychotics but failed to demonstrate that clozapine was superior. One of the two trials reported that clozapine was associated with neutropenia and seizures. One trial each assessed risperidone and chlorpromazine.

Cognitive therapy was compared with other psychological treatment in two trials. One trial found an improvement in psychiatric symptoms among those who received cognitive therapy, compared with those who received standard psychological treatment. The other study did not find a difference by treatment group.

Two trials that evaluated modified therapeutic communities—one in an all-female and the other in an all-male population—versus standard treatment found no between-group differences in psychiatric symptoms. Both trials reported substance abuse, with one favoring modified therapeutic community and the other finding no difference by treatment arm. These trials also assessed several measures of recidivism but had conflicting results, with one favoring modified therapeutic community and the other trial finding no difference between a modified therapeutic community and standard treatment.

Key Question 2. Incarceration-to-community transitional interventions

Six moderate risk of bias trials assessed the comparative effectiveness of treatments in the incarceration-to-community setting. One of these trials was categorized as both a discharge planning and dual diagnosis treatment trial. There was a low strength-of-evidence grade for the following findings. Two trials found that providing assistance with the medical benefit application, as part of the discharge planning process, whether alone or in combination with other interventions, was an effective method for increasing service use in the first 90 days postrelease. Two dual diagnosis treatment trials reported that psychiatric hospitalizations were reduced and service use, both during incarceration and upon release, was increased among clients who received intensive dual diagnosis treatment compared with other, nondual-diagnosis treatments.

One trial compared treatment provided by a forensic specialist with treatment as usual and with Assertive Community Treatment. A second trial compared treatment by a forensic specialist with treatment provided by a mental health generalist. There was insufficient evidence to draw a conclusion about the comparative effectiveness of treatments administered by a forensic specialist for psychiatric symptomology, psychiatric hospitalization, substance abuse, quality of life, and completed suicide because only one trial reported on each of these outcomes. See Table A for a summary of our main findings.

Discussion

Key Findings and Strength of Evidence

For Key Question 1, the incarceration setting, there was insufficient evidence that any of the treatments assessed (pharmacotherapy, cognitive therapy, and modified therapeutic community) differed in effectiveness from their comparators. More research is needed to better assess the efficacy of these treatments. Presently, there are two ongoing trials looking at two of the treatments assessed in this review. One trial is testing the efficacy of paliperidone palmitate compared with oral antipsychotic treatments in delaying time to treatment failure for individuals with schizophrenia who have been incarcerated. The second trial is comparing the efficacy of modified therapeutic community reentry compared to case management and parole supervision.

Overall, our searches identified nine previous systematic reviews on some of the treatments assessed under Key Question 1 of this review. Two comprehensive systematic reviews have been conducted on interventions for offenders with SMI; however, neither review described the interventions assessed in their included studies and both conducted meta-analyses based on single treatment components (e.g., presence or absence of a homework component).^{18,19} An important goal of our comparative effectiveness review (CER) is to describe incarceration-based and incarceration-to-community interventions in a manner that would allow treatment providers to replicate effective treatments and to identify gaps in the scientific literature for future research in the field. See Table 53 in Appendix H of the main document for additional information on previous systematic reviews.

Two additional previous systematic reviews examined the effectiveness of pharmacotherapy for the treatment of offenders with mental illness. Griffiths et al. found that using more than one psychotropic medication simultaneously was a common practice in prison, as was prescribing medication at doses above the recommended maximum daily amount.²⁰ Huband et al. examined the effectiveness of antiepileptic pharmacotherapy on prisoners with personality disorders, as

well as variety of other individuals requiring treatment for recurrent aggression. These researchers identified one study which demonstrated that high-dose diphenylhydantoin (phenytoin) was superior to low-dose phenytoin at reducing the intensity and frequency of aggressive outbursts.²¹ In our review, the one study that assessed high-dose versus low-dose therapy with chlorpromazine found more side effects among patients on the higher dose.

Another systematic review examined the effectiveness of psychological interventions on reoffending behavior in a variety of male offender populations. Nagi and Davies performed a qualitative synthesis of the evidence and concluded that cognitive behavioral therapy was the most effective treatment and the most commonly offered treatment in low security forensic settings.²² Our review did not find cognitive therapy to be more effective than more standard psychological treatment, but as previously indicated more research is needed.

A final systematic review examined the effectiveness of modified therapeutic community compared with standard of care. However, the review by Sacks et al. only included studies conducted by the author's own research team. Sacks reported that, based on a qualitative synthesis, modified therapeutic community was superior to standard of care at improving both mental health and criminal justice outcomes.²³ Our review identified too much heterogeneity in the study populations of these trials to comfortably combine them in an analysis.

For Key Question 2, the incarceration to community transition setting, limited evidence showed that discharge planning with benefit application assistance increased the use of mental health services upon release from incarceration. Limited evidence also demonstrated that intensive dual diagnosis treatments were more effective than standard treatments at reducing psychiatric hospitalizations and increasing mental health service use both during and upon release from incarceration.

Two studies assessed the efficacy of treatments provided by forensic specialists versus mental health generalists. However, as only one trial reported any outcome of interest, the evidence was insufficient to draw a conclusion. More research is needed to better assess the impact of provider type on treatment outcomes. However, one ongoing trial is testing the efficacy of forensic assertive community treatment (FACT) with enhanced outpatient treatment for individuals with a psychotic disorder who are facing criminal charges but who have not yet been sentenced. This trial is due to be completed in May, 2013. See Table 54 in Appendix I of the main report for more detail about this and other ongoing clinical trials.

The main findings of this review are presented below for all interventions assessed in this report. In most cases, the evidence was insufficient to draw a conclusion.

Table A. Summary of findings for incarceration-based interventions

Comparison	Outcome	ROB	Consistency	Precision	Directness	SOE Grade
Clozapine vs. other antipsychotics	Psychiatric symptoms	Moderate (k=2, n=171)	Unknown (different measures used)	Imprecise	Direct	Insufficient
Clozapine vs. other antipsychotics	Independent functioning	Moderate (k=1, n=98)	Unknown	Precise	Direct	Insufficient
Risperidone vs. other antipsychotics	Psychiatric symptoms; institutional infractions	Moderate (k=1, n=20)	Unknown	Imprecise	Direct	Insufficient

Comparison	Outcome	ROB	Consistency	Precision	Directness	SOE Grade
High dose chlorpromazine vs. standard dose	Psychiatric symptoms	Moderate (k=1, n=64)	Unknown	Precise for BPRS, subscales of NOISE, general and peak SDAS, and adverse events	Direct	Insufficient
Cognitive problem solving group (R & R) vs. treatment as usual	Psychiatric symptoms	Moderate (k=1, n=84)	Unknown	Precise for impulsive/carelessness and avoidant subscales of the SPSI	Direct	Insufficient
Cognitive group therapy vs. individual supportive therapy	Psychiatric symptoms	Moderate (k=1, n=10)	Unknown	Imprecise	Direct	Insufficient
Modified therapeutic community vs. intensive outpatient	Psychiatric symptoms	Moderate (k=1, n=314)	Unknown	Precise for improvement in posttraumatic stress symptoms (not for depression or global symptoms)	Direct	Insufficient
Modified therapeutic community vs. intensive outpatient	Substance use or abuse	Moderate (k=1, n=314)	Unknown	Imprecise	Direct	Insufficient
Modified therapeutic community vs. intensive outpatient	Criminal justice outcomes	Moderate (k=1, n=314)	Unknown	Precise for reduction in arrests for crimes other than parole violations	Direct	Insufficient
Modified therapeutic community vs. standard mental health treatment	Psychiatric symptoms; criminal justice outcomes	Moderate (k=1, n=139)	Unknown	Imprecise	Direct	Insufficient
Modified therapeutic community vs. standard mental health treatment	Substance use or abuse	Moderate (k=1, n=139)	Unknown	Precise for all measures of substance use/abuse including reduction in use, severity of use, and time to relapse	Direct	Insufficient

ROB=Risk of bias; k=number of studies; SOE=strength of evidence; BPRS=Brief Psychiatric Symptom Inventory; NOISE=Nurses' Observational Scale for Inpatient Evaluation; SDAS=Social Dysfunction and Aggression Scale; R&R=Reasoning and Rehabilitation

Table B. Summary of findings for incarceration-to-community interventions

Comparison	Outcome	ROB	Consistency	Precision	Directness	SOE Grade
Discharge planning with benefit-application assistance vs. no application assistance	Mental health service use upon release ^a	Moderate (k=2, n=824)	Consistent	Imprecise	Indirect	Low in favor of discharge planning with benefit-application assistance

Comparison	Outcome	ROB	Consistency	Precision	Directness	SOE Grade
Intensive jail treatment followed by high-fidelity integrated dual diagnosis treatment vs. intensive jail treatment followed by treatment as usual	Psychiatric symptoms (crisis visits)	Moderate (k=1, n=182)	Unknown	Precise	Direct	Insufficient
Intensive dual disorder treatment vs. treatment as usual in the community	Psychiatric hospitalization (administrative records)	Moderate (k=2, n=460)	Consistent	Precise	Direct	Low in favor of intensive dual disorder treatment
Mentally ill chemical abuser treatment vs. treatment as usual	Function (correctional facility agent reports)	Moderate (k=1, 278)	Unknown	Imprecise	Direct	Insufficient
Mentally ill chemical abuser treatment vs. treatment as usual	Medication adherence (correctional facility agent reports) ^a	Moderate (k=1, n=278)	Unknown	Precise	Indirect	Insufficient
Mentally ill chemical abuser treatment vs. treatment as usual	Substance use (urinalysis)	Moderate (k=1, n=278)	Unknown	Imprecise	Direct	Insufficient
Intensive dual disorder treatment vs. treatment as usual in the community	Mental health service use upon release (administrative records) ^a	Moderate (k=2, n=320)	Consistent	Imprecise	Indirect	Low in favor of intensive dual disorder treatment
Intensive dual diagnosis treatment vs. treatment as usual	Mental health service use during incarceration (administrative records) ^a	Moderate (k=2, n=416)	Consistent	Imprecise	Indirect	Low in favor of intensive dual disorder treatment
Mentally ill chemical abuser vs. treatment as usual	Institutional infractions (time in segregation, conduct reports)	Moderate (k=1, n=278)	Unknown	Imprecise	Direct	Insufficient
ACT vs. forensic specialist vs. treatment as usual	Psychiatric symptoms, substance use/abuse, quality of life	Moderate (k=1, n=176)	Unknown	Imprecise	Direct	Insufficient
Forensic specialist vs. general MH services	Psychiatric hospitalization, completed suicide	Moderate (k=1, n=1,061)	Unknown	Imprecise	Direct	Insufficient

ROB=Risk of bias; k=number of studies; SOE=strength of evidence; ACT=Assertive community treatment; MH=mental health

^a Intermediate outcome

Applicability

In all of the pharmacological therapy studies, the patients had a psychotic disorder and most had a history of violence and aggression. The findings of these studies are applicable only to this subset of inmates. Further, these studies took place in forensic hospitals or specialized units in which patients may have been more carefully observed for adverse events. This is an important point because clozapine and high-dose chlorpromazine are associated with serious adverse events and patients on these medications need to undergo periodic blood tests and be closely monitored. Such attention may not be available in larger jails or prisons.

In the two studies testing the effectiveness of cognitive therapy on male offenders, one study enrolled only offenders with a diagnosis of schizophrenia, a history of violence, and no cognitive deficits; while the other study enrolled offenders with a diagnosis of depression who were not receiving any other treatment, including antidepressant medication. The findings of these studies may not be applicable to female inmates or inmates with another mental health diagnosis, such as bipolar disorder.

Of the two studies that evaluated modified therapeutic community, one included only all-male prisoners and the other included only women in a women's correctional facility. The women-only modified therapeutic community treatment was tailored to meet the additional needs of its participants including issues of trauma and abuse, parenting, and relationships. The findings of each study indicated differences in how men and women responded to this type of treatment.

In both of the discharge planning with benefit-application assistance studies, the population was made up of young men with an SMI, about half of whom were Caucasian. About one-third had a prior or current conviction for violent crime. These are the only participant characteristics that were reported by both trials. The findings presented here may be applicable only to this subset of inmates. It is important to note that 89 percent of subjects in one of these trials had a co-occurring chemical dependence or abuse diagnosis and just over half had a co-occurring personality disorder.

The three studies that tested the efficacy of comprehensive co-occurring disorders treatment for inmates reentering the community enrolled middle-aged men, between 36 and 50 years of age of mixed ethnic backgrounds. In two of the three trials, about 40 percent had a current or prior violent conviction. In the third trial, participants had less criminal justice involvement. The rate of co-occurring personality disorders was variable from study to study. Thus, the findings presented here may be applicable only to this subset of inmates.

The two trials that compared treatment provided by a specialist versus treatment by a generalist enrolled mostly males with an SMI, in their early to mid-30s, with a significant criminal history. Between 25 percent and 50 percent of enrollees in these trials had a substance abuse disorder. The findings presented here may be applicable only to this subset of inmates.

Research Gaps

Overall, few comparative trials were identified that assessed treatments for offenders with SMI. Below we outline research gaps based on the PICOS (population, intervention, comparator, outcome, setting) framework.

For treatments administered in the incarceration setting, we noted that all but one of the included trials enrolled mainly male offenders. One study of modified therapeutic community was the exception. We also found that most of the included trials, including all of the

pharmacotherapy trials, enrolled patients with schizophrenia and/or schizoaffective disorder. The all-female modified therapeutic community intervention was also the only trial to enroll offenders with bipolar disorder, although they made up less than a third of its participants. Offenders with depression were also underrepresented in the included studies for Key Question 1. Approximately 60% of the all-female modified therapeutic community intervention had a diagnosis of depression and 100% of those in the study assessing group cognitive therapy were depressed. Additional studies of the effectiveness of pharmacotherapy, cognitive therapy, and modified therapeutic community interventions would be useful for guiding the treatment of female offenders and those with primary mood disorders.

Studies of videoconferencing versus face-to-face psychiatry would be helpful for guiding the treatment of offenders with SMI. For example, one systematic review by Khalifa et al. reported that videoconferencing appears to be an effective treatment in incarceration settings, but that review did not limit itself to comparative trials.²⁴

The included trials which addressed Key Question 1 described the treatment of interest in detail but provided very little information about the comparator treatment. In one of the clozapine trials, the study author did not provide any more detail than that clozapine was being compared to other antipsychotics. Neither of the clozapine trials reported the dosage of the antipsychotic comparator. More detailed information about comparators is needed so future researchers can replicate existing studies and to insure that studies are using the best comparator available.

Standardization of outcomes would be helpful. Investigators used different assessment tools for measuring the same outcome. More standardization, including the use of validated assessment instruments, is needed.

None of the trials that addressed Key Question 1 was conducted in a jail setting. More research is needed on the effectiveness of pharmacotherapy, cognitive therapy, and modified therapeutic community for offenders with SMI who experience longer stays in a jail setting.

For treatments administered in the incarceration-to-community setting, we noted that the included studies were fairly representative of offenders regardless of their sex, ethnicity, or SMI diagnosis. However, very few treatments were studied in the incarceration-to-community setting. For example, no trials of medication initiated in incarceration and continued in the community were identified.

As with Key Question 1, the included trials which addressed Key Question 2 described the treatment of interest in detail but provided very little information about the comparator treatment, the educational level of the provider and whether ancillary treatments were also received by study participants. Future research that provides a more balanced description of both trial arms would facilitate greater understanding of treatment choices.

Patient centered outcomes would be highly relevant to patients and clinicians; unfortunately, such outcomes were not reported. Some of our main findings for Key Question 2 relate to treatments that improve mental health service use. However, based on the available evidence, we cannot determine if increased service use led to improved patient outcomes, such as a decrease in psychiatric symptoms.

All settings of interest were represented among the trials that addressed Key Question 2.

Conclusions

Overall, comparative trials assessing interventions for offenders with SMI in an incarceration or incarceration-to-community setting are few. There was a lack of consistency across trials in

the treatment comparisons and variation in how the same treatment was applied, in how treatments were combined with other treatments, and in outcomes reported. Therefore, for most outcomes, the strength of evidence was graded as insufficient for both the incarceration and incarceration-to-community settings.

In summary, discharge planning with benefit-application assistance appears to increase mental health service use for incarcerated individuals with SMI getting ready to reenter the community. However, this conclusion is based on only two trials and it is unclear if increased service use will lead to improved patient outcomes. Intensive dual diagnosis therapy also appears to be a promising intervention for reducing psychiatric hospitalization in offenders returning to the community, but, replication of this research could increase our confidence in the finding.

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Introduction

Definitions

For this evidence review, we define serious mental illness (SMI) as a diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or major depression occurring in an individual 18 years of age or older. Study populations classified as SMI or as having a severe and persistent mental illness are also included in this definition. Individuals with dementia, personality disorder, or mental retardation are excluded from this definition.

SMI offenders include those housed in jails (which house inmates who are awaiting adjudication of their cases or who are serving short term sentences for minor offenses), prisons (which house inmates convicted of more serious crimes for longer durations), and forensic hospitals (which house inmates for varying lengths of time).

Incidence and Prevalence

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 percent 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 percent 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.^{5,13,25} The National Commission on Correctional Health Care reported the following prevalence estimates of mental illness in State prisons: between 2.3 percent and 3.9 percent of inmates are estimated to have schizophrenia or another psychotic disorder, 13.1 percent to 18.6 percent have major depression, and between 2.1 percent and 4.3 percent have bipolar disorder.⁵ Research conducted in the United States found that between 28 percent and 52 percent of those with SMI have been arrested at least once.⁶

Overall, offenders with mental illness have high rates of recidivism. One study reported that 64 percent of offenders who were mentally ill were rearrested within 18 months of release.⁷ 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.⁸

In general, recidivism among offenders with mental illness is largely associated with poor coordination of services and treatment upon release into the community.⁸ 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).⁹ 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.⁹

Jails and prisons have a constitutional obligation to provide treatment to inmates with serious medical and psychiatric conditions.¹⁰ The case of *Ruiz v. Estelle* set forth minimum requirements for providing mental health services in the U.S. correctional system.¹¹ 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 vs. prison) and level of security (e.g., minimum vs. maximum). However, Baillargeon et al. recommend that all correctional facilities offer standard outpatient or inpatient mental health treatment, such as individual or group psychotherapy, psychotropic medication, and discharge planning.¹¹

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 percent to 83 percent of 10 jails surveyed).¹² 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.¹³ According to Baillargeon et al., the primary barrier to improving mental health treatment provided in adult correctional facilities is inadequate State funding.¹¹

High rates of incarceration and recidivism along with insufficient treatment options have 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 because “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.¹⁴

Disease Burden

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 SMIs. As a result, offenders with SMI place a substantial structural burden on the criminal justice system, because of 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 but constituted 19 percent of the prison population.¹

Because of their impaired thinking, inmates with SMI may be disruptive or aggressive and present unique management challenges within the jail or prison setting.^{1,26} 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.²⁶

Studies have reported a wide range of rates of substance abuse among offenders with mental illness (10 percent to 90 percent).²⁷ 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.²⁸ Further, one study found that inmates with dual diagnoses 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.²⁸

Providing Mental Health Services to Offenders With SMI who are in an Incarceration Setting (e.g., Jail, Prison, Forensic Hospital)

Jails are locally operated facilities that typically provide pretrial detention and short-term confinement after sentencing (generally, less than 1 year).¹⁰ 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.¹² 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 and Bichler-Robertson, 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.”¹⁰ 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.¹⁰ 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.²⁶

Offenders with mental illness are sometimes found not guilty by reason of insanity or incompetent to stand trial. Instead of going to 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.²⁹ In cases in which a jail does not provide inpatient care or specialized housing, individuals in whom SMI has been diagnosed may be transferred to a forensic hospital while awaiting further sentencing.¹⁰

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. Additionally, group therapy sessions may be impractical when individuals who commit prison-rule infractions 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.³⁰ 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 the basic strategies of CBT with Eastern mindfulness practices.³¹

Psychopharmacologic Therapy

If a correctional facility houses inmates with SMI, antipsychotic, antidepressant, and mood-stabilizing medications must be included in the medication formulary.²⁶ 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.”²⁶ 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 developing the institution’s formulary.

Most correctional formularies include both conventional (first-generation) and next-generation antipsychotics for 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 interfere 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 diversion because of their sedating effects. This potentiality has led many correctional 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.²⁶ 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

TCA and MAOI and are thus more commonly used in correctional facilities. Mood stabilizers such as lithium and some anticonvulsant medications (e.g., divalproex [Depakote[®]], 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

Specialized housing includes self-contained mental health units for caring for inmates with SMI who are unable to function in the general population.¹¹ Specialized housing options may vary from facility to facility (e.g., jail to prison, prison to prison), but include inpatient care, short-term crisis beds, and long-term residential units.

Integrated Dual Disorders Treatment (IDDT)

With 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 uses CBT.³²

Modified Therapeutic Community (MTC)

MTC is an intensive, long-term, residential treatment program that has been modified to meet the special needs and issues of a correctional population. The goal of MTC is to teach individuals how to live and 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.”³³ MTCs can be provided within a prison setting as well as in the community as an aftercare program once the inmate is released from prison.

Telemedicine (telepsychiatry, telepsychology)

Telemedicine is becoming an increasingly common mode of delivery for psychological and psychiatric services. Treatment is delivered by way of videoconferencing.³⁴

Providing Mental Health Services to Offenders With SMI Transitioning From Incarceration to the Community

Successful reentry into the community is a challenge for inmates with SMI.¹¹ They are more likely than 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, postrelease outcomes of prisoners with SMI only and those with SMI and substance abuse disorders 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.³⁵

Obtaining appropriate community mental health and other related services is often difficult for returning inmates with SMI. According to Baillargeon et al., the primary difficulties include “inadequate treatment programs and discharge planning during incarceration and an insufficient number of public mental healthcare programs in the community.”¹¹ 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.¹¹

Examples of Interventions Provided When Inmates Are Transitioning to 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.”¹¹ The basic element of discharge planning should include the following actions: assessing the inmate’s clinical and social needs, writing a plan detailing the treatment and services required by the inmate, and identifying and coordinating 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 vs. prison, rural setting vs. urban setting). One important factor in successfully linking returning inmates with SMI to community mental health services is access to health benefits.¹¹

Critical Time Intervention (CTI)

CTI is a three-phase treatment model that supports transition from institutional settings into community settings.³⁶ 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 strength-based case management is to build on a person’s successes so he or 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.³⁷

Assertive Case Management

Assertive case management follows a “service broker” model that emphasizes assessment, planning, referral, and monitoring of functions without extensive outreach, linkage, or direct service contacts.³⁸

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 other needs the client has.³⁹

Forensic Assertive Community Treatment (FACT)

FACT is a modification of ACT meant to reduce recidivism rates.⁴⁰

Scope of Report and Key Questions

This report focuses 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, such as mental health courts, designed to divert offenders with SMI to a treatment environment in lieu of a lengthy incarceration.¹¹ Further, court-ordered involuntary treatment intended to restore competency to stand trial is beyond the scope of this report.

Two comprehensive systematic reviews have been conducted on interventions for offenders with SMI; however, neither review described the interventions assessed in their included studies and both conducted meta-analyses based on single treatment components (e.g., presence or absence of a homework component).^{18,19} An important goal of this comparative effectiveness review (CER) is to describe incarceration-based and incarceration-to-community interventions in a manner that would allow treatment providers to replicate effective treatments and to identify gaps in the scientific literature for future research in the field. See Table 53 in Appendix H for additional information on previous systematic reviews.

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 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 panel on the importance of including jails as a treatment setting of interest in this report.

Key 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 considered 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 for 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 reentry programs focus on community reintegration and reducing future involvement in the criminal justice system (i.e., recidivism or reincarceration).⁴¹

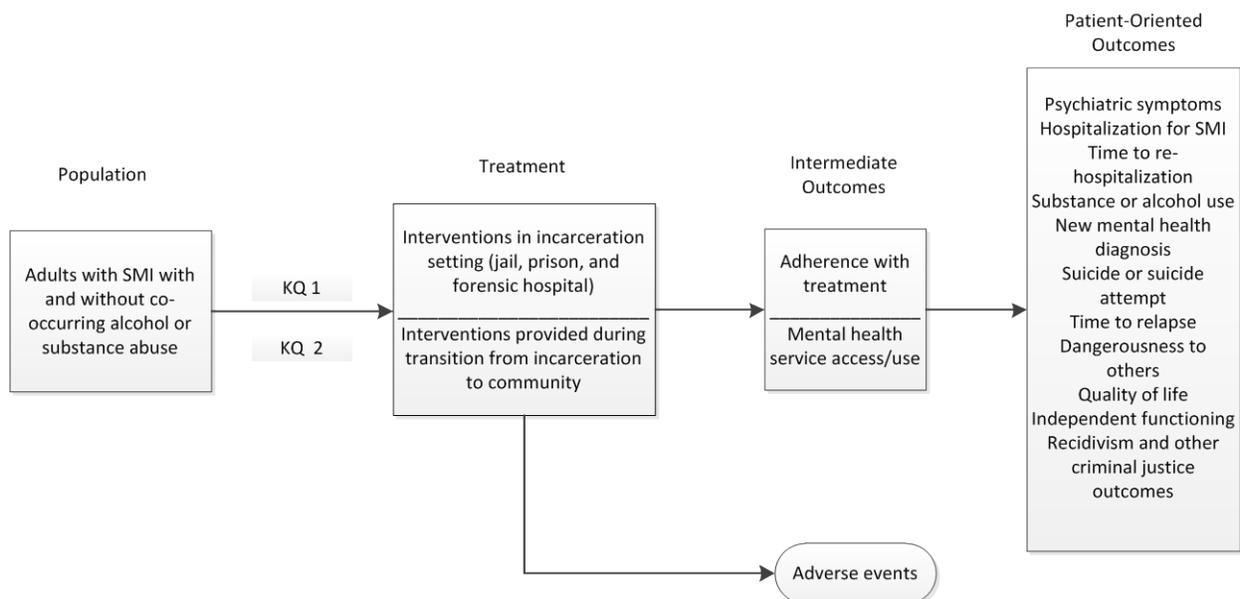
The final key questions are listed below. They are followed by the PICOTS outline (populations, interventions, comparisons, outcomes, timing, and settings), which clarifies the scope of each key question, and the analytic framework, which provides the same information in a pictorial format.

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?

Analytic Framework

Figure 1. Analytic framework for interventions for adults with SMI who are involved with the criminal justice system



KQ = Key question; SMI = serious mental illness

Figure 1 depicts the population, treatment, intermediate- and patient-oriented outcomes that are assessed in this report. On the left side of the figure we list the populations of interest: adults with serious mental illness (SMI) with and without a co-occurring alcohol or substance abuse diagnosis who are involved in one of the criminal justice system settings of interest. Key Question 1 (KQ1) compares interventions within an incarceration setting (jail, prison, or forensic hospital) or the same intervention applied across incarceration settings. Key Question 2 (KQ2) compares interventions provided during the transition from incarceration (jail, prison, or forensic

hospital) to the community. For Key Question 2, the comparisons are different interventions applied within an incarceration-to-community setting, the same intervention applied across settings, or an incarceration intervention compared with an incarceration-to-community transitional intervention. We gathered information on any treatment-related adverse events. “Intermediate Outcomes,” which may lead to improved patient-centered outcomes, include adherence with treatment and mental health service access/use.

To the far right of the diagram we list the patient-oriented outcomes assessed: psychiatric symptoms, hospitalization for SMI, time to rehospitalization, substance- or alcohol use, new mental health diagnosis, suicide and suicide attempts, time to relapse, dangerousness to others, quality of life, independent functioning, and recidivism and other criminal justice outcomes.

Populations

The population considered for this report is 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 or 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 administered by a professional. For the purposes of this report, self-report alone does not qualify an individual as having an SMI.*

Interventions

The interventions considered in this report are listed in Table 1.

Table 1. Interventions 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 (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, telepsychology)	X	X	X	X
Discharge planning	X	X	X	X
Critical time interventions				X
Case management interventions	X	X		X
Intensive community treatments (ACT or 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) was to be examined if the data permitted. However, there were no data available for this comparison.

^b For the interventions, immediate access to mental health services upon release versus no or delayed access would be examined if data were available.

ACT = Assertive community treatment; FACT = forensic assertive community treatment

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 with an incarceration-to-community transitional intervention.

Outcomes

- Mental health outcomes:
 - Psychiatric symptoms that characterize SMI
 - Hospitalization for SMI
 - Time to rehospitalization
 - Substance- or alcohol use
 - New mental health diagnosis
 - Completed suicide
 - Suicide attempts
 - Time to relapse
- Dangerousness to others based on administrative records or validated assessment instruments
- 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

- A minimum followup of 3 months was required for studies included in this report

Settings

- Key Question 1: jail, prison, and forensic hospital.
- Key Question 2, jail-to-community, prison-to-community, and forensic hospital-to-community transitional services.

Organization of this Report

The remainder of this review describes our methods and results in detail and provides a discussion of our findings and recommendations for future research. Appendixes provide details of the search strategy (Appendix A); forms used for title, abstract, and full article review (Appendix B); studies excluded at the full-text review stage (Appendix C); risk-of-bias assessments for studies included in this report (Appendix D); general study, treatment, and patient characteristics of included trials (Appendix E); and comprehensive evidence tables (Appendix F); as well as relevant guidelines (Appendix G); previous systematic reviews (Appendix H); and ongoing clinical trials (Appendix I).

Methods

Review Team

A three-person team conducted the systematic review: one person with a Ph.D. (the lead analyst), one person with an M.S.S. (team member #2), and one person with an M.D. (team member #3). Although each member of the team has a background in behavioral health and has worked with individuals with SMI and co-occurring substance use disorders, none of the members are currently working with or within the criminal justice system or any other organization(s) that may have an interest in this report. Each member of the team has experience performing systematic reviews of behavioral health and health care evidence.

Mental health clinicians, representatives from the criminal justice system, and policymakers from both the behavioral health and criminal justice fields were involved only as Key Informants and/or members of the Technical Expert Panel. These groups provided some guidance on the scope of the report, key questions, reviewed the protocol, and answered any questions that arose during the process.

Topic Nomination, Triage, and Refinement

A patient advocacy group and a national organization for psychiatry nominated this topic in November 2010. Topic triage and refinement occurred between February 2011 and April 2011. Individuals involved in the triage and refinement process conducted a preliminary literature search to determine the feasibility of conducting a CER on this topic and devised a list of possible key questions. ECRI Institute was assigned this CER in June 2011.

We enlisted five Key Informants to assist with refining the key questions and determining the scope of the report. The Key Informants included a physician from a national patient advocacy group, a doctoral-level social worker working in a correctional setting, a representative from a State Medicaid/Medicare agency, a methodologist with experience conducting systematic reviews on the criminal justice system, and the director of medical services for a State correctional system. The key questions were posted for public comment for a 4-week period ending February 15, 2011.

Following the public comment period, a Technical Expert Panel, which was comprised of an associate director of a forensic fellowship program, a former mental health director for a State department of corrections, three Ph.D.-level professors teaching in the areas of social policy and correctional mental health, a State health services director, two methodologists, and a professor of psychiatry, medicine, and law, reviewed and further refined the protocol. The protocol was put in final form in April 2012.

Search Strategy

Information professionals performing literature searches within the Evidence-based Practice Center (EPC) Information Center followed established guidelines and procedures as identified by the Director of Health Technology Assessment/EPC Information Center. Below is an overview of the search process; specific search strategies are listed in Appendix A.

Consistent with our evidence-based searching protocol, for all key questions, we searched the following 12 external and internal databases on the OVID SP platform using the one-search and deduplication features: MEDLINE, PreMEDLINE, 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 were searched for unique reviews, trials, economic analyses, and technology assessments. Because this topic involves mental health and criminal justice issues, three additional databases were searched for this project: PsycINFO (OVID SP platform), NCJRS Abstracts Service (publicly available Web site), and ProQuest Criminal Justice (ProQuest platform). Our searches covered the time period of January 1, 1990, through April 1, 2012.

Search terms were identified by: (1) reviewing relevant systematic reviews on similar topics 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, we identified a combination of subject headings and keywords. Search strategies developed using these terms were reviewed by the principal investigator and the Medical Librarian. We applied a study-design filter to retrieve systematic reviews and comparative studies. Details (specific search terms and search strategies) are provided in Appendix A of this draft report.

We mined Web sites for gray literature meeting our inclusion/exclusion criteria. We excluded dissertations and literature that was not available as a full report (i.e., conference abstracts, slide presentations). Sources of gray literature included 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 Corp., and the Washington State Institute for Public Policy. Resources (both for gray literature and peer-reviewed journal literature) and search strategies were shared with the Technical Expert Panel and supplemented according to their recommendations. See Table 2 for a complete list of gray literature sources.

Table 2. Gray literature sources

Organization	Website
Academy of Criminal Justice Sciences	www.acjs.org/
American Academy of Psychiatry and the Law	www.aapl.org/
American Correctional Association	www.aca.org/
American Correctional Association Annual Conference	www.aca.org/Conferences/Summer2011/home.asp
American Correctional Health Services Association	www.achsa.org/index.html
American Psychiatric Association	www.psych.org/
American Psychological Association	www.apa.org/
Bazelon Center for Mental Health Law	www.bazelon.org/
Bureau of Justice Assistance	www.bja.gov/Default.aspx
Bureau of Justice Statistics	http://bjs.ojp.usdoj.gov/
Campbell Collaboration	www.campbellcollaboration.org/
Center for Behavioral Health Services & Criminal Justice Research (Rutgers)	www.cbhs-cjr.rutgers.edu/
Center for Evidence-based Policy (OHSU)	www.ohsu.edu/xd/research/centers-institutes/evidence-based-policy-center/index.cfm/
Cochrane Collaboration College for Policy at George Mason University	http://cochrane.gmu.edu/about/projects-publications
Cochrane Justice Health Field	http://justicehealth.cochrane.org/welcome
Criminal Justice / Mental Health Consensus Project (this is from The Justice Center—see below)	http://consensusproject.org/
Department of Health (UK)	www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsLibrary/index.htm (Search the site with <i>mental</i> within <i>prison prisons prisoner prisoners</i> – 252 pubs)
(Federal) Bureau of Prisons	www.bop.gov/
HTAi (Health Technology Assessment international Portal)	www.htai.org/index.php?id=579
International Association for Correctional and Forensic Psychology	www.ia4cfp.org/
Justice Center (The Council of State Governments)	http://justicecenter.csg.org/
Justice Policy Center at the Urban Institute	www.urban.org/justice/index.cfm
Mental Health Primary Care in Prison	www.prisonmentalhealth.org/home.html
National Alliance on Mental Illness (NAMI)	www.nami.org/
National Association of State Mental Health Program Directors	www.nasmhpd.org/
National Commission on Correctional Health Care	www.ncchc.org/
National Criminal Justice Reference Service	www.ncjrs.gov/
National Institute of Corrections	http://nicic.gov/
National Institute of Justice (Office of Justice Programs)	http://nij.gov/

Organization	Website
National Institute of Mental Health	www.nimh.nih.gov/
National Institute on Alcohol Abuse and Alcoholism	www.niaaa.nih.gov/
National Institute on Drug Abuse	www.nida.nih.gov/nidahome.html
National Reentry Resource Center (from the Justice Center--see above)	www.nationalreentryresourcecenter.org/
National Research Council	www.nationalacademies.org/nrc/
President's New Freedom Commission on Mental Health	No direct website: www.nami.org/Content/NavigationMenu/Inform_Yourself/About_Public_Policy/New_Freedom_Commission/Default1169.htm
Prison Talk	www.prisontalk.com
RAND Institute for Civil Justice	www.rand.org/icj.html
Reentry Policy Council (from the Justice Center—see above)	www.reentrypolicy.org/
Robert Wood Johnson Foundation	www.rwjf.org/
SEARCH	www.search.org/
Substance Abuse and Mental Health Services Administration (SAMHSA)	www.samhsa.gov/
Substance Abuse and Mental Health Services Administration's National Registry of Evidence-based Programs and Practices (NREPP)	www.nrepp.samhsa.gov/
U.S. Department of Justice	www.justice.gov/
Washington State Institute for Public Policy	www.wsipp.wa.gov/

The Medical Librarian reviewed the initial literature search results. Using the key questions and inclusion/exclusion criteria identified by the principal investigator, the Medical Librarian assessed relevancy and retrieved 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—were integrated into the search strategy using key terms and subject headings. The updated strategy was rerun in all identified databases. The Medical Librarian scanned additional results and assessed their relevancy. New results were downloaded and forwarded to the principal investigator for review. Hand searches of reference lists in identified articles were also reviewed for possible inclusion. The search will be updated during the peer-review period of the draft report.

Study Selection

The inclusion criteria are listed below in separate categories pertaining to patient characteristics, study design, outcomes, and publication type.

Patient Characteristics

- Seventy-five percent of the sample has 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 were considered to address the dually diagnosed population if at least 75 percent of the subjects also had an alcohol/substance use diagnosis. For studies with less than a 75 percent rate of substance use disorders, unless the study specifically excluded individuals with alcohol/substance use, the sample was 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 were not included in the report.

Study Design

- Randomized controlled trials (RCTs) were assessed first. If insufficient RCTs were available to draw a conclusion to a key question for the most important mental health outcomes, we examined nonrandomized (prospective or retrospective) comparative trials. Studies must have either randomly assign patients or facilities to treatments or used 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 were excluded.

Studies must have an active treatment comparator (including treatment as usual).

Because symptoms of SMI tend to wax and wane over time, we did not include noncomparative studies, such as case series, in this report.

- Studies must enroll an independent control group.

Studies in which subjects act as their own controls, such as in a pre-post or crossover study design, were excluded. Facility-versus-facility comparisons as well as within-facility comparisons that employ an independent historical control group were considered for inclusion 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, are discussed but not analyzed.

- For all outcomes, we considered 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

- Studies 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.
- Studies must have been conducted in the United States or in another country (Canada, United Kingdom, Australia, and New Zealand) with a similar legal system and heritage (i.e., rule of law and common law) 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 are included in this report.
- Publications must be peer-reviewed, full-length articles or conducted by one of the agencies identified in the description of gray literature sources in this protocol.
Abstracts alone were not 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.^{42,43} Abstracts of randomized studies that did not subsequently appear as full-length articles were flagged for possible evidence of publication bias.
- To capture the most relevant data, we included 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. An updated search will be conducted while the report is under review.
- To avoid double-counting patients when several reports of overlapping patients are available, only outcome data from the report with the largest number of patients were included. We included the data from a smaller report when it provided data on an outcome that was not provided by the largest report.
- Studies must be published in English.
Because this report has been limited to studies conducted in English-speaking countries for reasons of applicability, we do not anticipate being at risk of language bias by further restricting to studies published in English.

All abstracts and articles were screened against the inclusion criteria, independently in duplicate, by two team members. Disagreements were resolved by consensus.

Data Extraction and Management

Two team members reviewed articles in duplicate at the abstract level. We obtained for full review any articles possibly meeting the inclusion criteria for at least one key question. In cases where there was a disagreement between the two abstract reviewers, the full article was

retrieved. Disagreements between the two reviewers about full-length article inclusion were resolved by discussion and consensus.

We abstracted the information on general study characteristics, patient characteristics, treatment characteristics, risk-of-bias items, and outcome data (see next section) from full articles meeting the inclusion criteria.

We used the DistillerSR[®] Web-based systematic review software for abstract screening and data extraction. Each team member's data extraction was reviewed by another team member. Also, because of the possibility of subjective interpretation, we judged the risk-of-bias items in duplicate. We resolved all discrepancies with discussion. The overall categories of information to be obtained from each study 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, and which key question(s) the study addressed.
- **Patient characteristics.** Number of enrolled patients, age, sex, education, ethnicity, primary mental health diagnosis, presence of a co-occurring personality disorder, percent with a substance abuse diagnosis, and prior criminal justice involvement.
- **Treatment characteristics.** Treatment, duration of treatment, dosage/frequency, education/educational degree of treatment administrator, modality, compelled versus voluntary.
- **Risk-of-bias items.** See the next section.
- **Outcome data.** For each included outcome, we extracted the number of patients contributing data to each included time point. We extracted the numerical data necessary to compute an effect size and its 95 percent confidence interval 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 was reported.

Multiple publications of the same study (e.g., publications reporting subgroups, other outcomes, or longer followup) were identified by examining author affiliations, study designs, enrollment criteria, and enrollment dates.

Individual Study Risk-of-Bias Assessment

We assessed the risk of bias (i.e., internal validity) separately for each outcome and time point. 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 difference between the groups being compared.

For all included studies we assessed risk of bias using the items below. All of these items were selected from a pool of items typically used by this EPC for systematic reviews of controlled trials. Each of these items was answered as "Yes," "No," or "Not reported."

Table 3. Risk-of-bias assessment

Item	Comment
Were patients randomly assigned to the study's groups?	
Was the process of assigning patients to groups made independently from physician/mental health care provider and patient preference?	
For nonrandomized trials, did the study employ any other methods to enhance group comparability?	
Was the comparison of interest prospectively planned?	
Were the 2 groups treated concurrently?	
Were those who assessed the patients' outcomes blinded to the group to which the patients were assigned?	
Was the outcome measure of interest objective and was it objectively measured?	<p>The following will always be considered objective outcomes: hospitalization for SMI, mental health service access, suicide, recidivism, and adverse events.</p> <p>The following will always be considered subjective outcomes: change in primary psychiatric symptoms and quality of life.</p> <p>For adherence to pharmacotherapy and avoidance of substance- or alcohol use, we will consider it objective if the patient had a blood or urine test.</p>
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)
Was there a ≤ 5 difference between groups in ancillary treatment(s)?	
Was there a $\leq 15\%$ difference in the length of followup for the 2 groups?	
Did $\geq 85\%$ of enrolled patients provide data at the time point of interest?	
Was there a $\leq 15\%$ difference between groups in the percentage of patients who provided data at the time point of interest?	
Was funding free of financial interest?	For authors who developed the treatment, the answer would be "no."

We have categorized each study as “Low,” “Moderate,” 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 the first question and a “yes” on the second question 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?
- 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.

Two team members performed all risk-of-bias category assignments (as Low, Moderate, or High) in duplicate, independently, with disagreements resolved by consensus.

Data Synthesis

From each included study, we extracted all important information about study design, patients, and reported data. Because the populations, interventions, and outcome measures used were heterogeneous they did not lend themselves to a pooled analysis, so we chose to explore the data using a qualitative synthesis. When data from a study permitted, we calculated individual study effect size estimates. The choice of effect size metric depended on whether reported outcomes were continuous or dichotomous. Pre-post treatment differences in outcomes measured using continuous data (e.g., scores on psychological tests) were calculated as the standardized mean difference. We computed baseline adjusted values using a pre-post correlation of 0.5. For dichotomous outcomes, we used the odds ratio as the measure of effect size; values greater than one favored the experimental group, and values less than one favored the control group. For all effect size metrics, we computed 95 percent confidence intervals using standard methods.

The results of our analysis along with additional analysis reported by the authors of the studies are reported in the findings section under each key question. We used calculated effect size estimates to help determine the overall strength of the evidence. See next section for further details about our strength-of-evidence assessment.

For each outcome, 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 used established values for a clinically significant difference (e.g., SF-36, mental health subscale – five points).¹⁵ For all other outcomes assessed on a scale in this report, we defined 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.¹⁶ For suicide, any statistically significant difference meets the standard of a clinically significant difference.

Grading the Evidence for Each Key Question

We assessed strength of evidence for each key question based on guidance from the Methods Guide for Effectiveness and Comparative Effectiveness Reviews from the Agency for Healthcare Research and Quality (AHRQ).⁴⁴ We judged the evidence for each outcome reported according to risk of bias, consistency, directness, and precision. All studies in our evidence base were judged to have a moderate risk of bias. As such, we looked to the other domains to make a

determination about the grade. We defined the evidence base as consistent if all trials found an effect in the same direction. We defined direct evidence as studies that reported the effect of treatment on a patient-oriented, rather than intermediate outcome. As we were unable to perform meta-analyses in this report, we considered an effect size to be precise if it was statistically significant in the included studies. We also factored in the number of trials and participants in making this determination. The evidence was graded as insufficient if there was only one trial addressing a particular outcome or if two trials reported inconsistent results for the same outcome). If there was sufficient evidence (at least two trials reporting a consistent conclusion, then we assigned a strength-of-evidence grade based on professional judgment, weighing the number of trials identified heavily. We applied a low SOE grade where only two trials reported an outcome.

Table 4. Strength-of-evidence grade for the body of evidence

Grade	EPC Program Definition	Operational Definition for This Report
High	High confidence that the evidence reflects the true effect. Further research is unlikely to change our confidence in the estimate of effect.	Three or more trials at low risk of bias reported a consistent and precise (narrow confidence interval) effect size estimate for a patient-oriented (direct) outcome.
Moderate	Moderate confidence that the evidence reflects the true effect. Further research may change our confidence in the estimate of effect.	Two or more trials with moderate or low risk of bias reported a consistent and fairly precise (fairly narrow confidence interval) effect size estimate for a patient-oriented (direct) outcome.
Low	Low confidence that the evidence reflects the true effect. Further research is likely to change our confidence in the estimate of effect	Two trials with moderate or low risk of bias reported consistent results on either a direct (patient-oriented) or indirect (intermediate) outcome.
Insufficient	Evidence is either unavailable or does not permit a conclusion.	No trials or only one trial reported an outcome or two trials at high or moderate risk of bias reported inconsistent findings for the outcome.

Applicability Assessment

As defined in the AHRQ Effective Health Care Program Methods Guide for Comparative Effectiveness Reviews of Medical Interventions, applicability is “the extent to which the effects observed in published studies are likely to reflect the expected results when a specific intervention is applied to the population of interest under ‘real-world’ conditions.”⁴⁵ Applicability depends on context and cannot be assessed with a universal rating system.⁴⁵

Assessment of the applicability of a body of evidence is a complex task and involves addressing a series of methodological questions. These questions include:

- What are the populations of interest and the “real world” conditions relevant to the stakeholders of this evidence report? From whose perspectives should the applicability of the evidence be evaluated? This evidence review potentially serves multiple stakeholders, such as policymakers, clinicians, and patients and families. Different stakeholders may have different populations of interest and different applicability issues for consideration.
- What factors may affect the applicability of a study? What factors need to be considered in the assessment of applicability? While the PICOS (i.e., population, intervention, comparator, outcome, and setting) approach may be used to identify these factors, some of the factors may have already been considered, at least in part, in the study inclusion/exclusion process.

- How would the impact of each of these factors be judged or graded? The answer to this question is not always straightforward. For example, it is difficult to judge the exact degree to which the findings of a study that included only patients of 55 years of age or older apply to a younger population. The judgment is often made on a subjective basis.
- How would the impact of these various factors be synthesized to reach a general conclusion about the applicability of an individual study? Studies included in evidence reviews may report different applicability-related data (e.g., different types of comorbidities) or report the same types of data (e.g., recidivism) in different ways (e.g., new offense, new incarceration). No validated instrument is currently available for accommodating these differences to reach a general conclusion about the applicability of a study.
- When the evidence consists of multiple studies, how would the applicability of different studies be synthesized to reach a general conclusion about the applicability of the evidence? We did not identify any validated instrument for this type of synthesis.

Given these unresolved methodological issues, we chose a practical approach to assessing the applicability of evidence for this evidence review. The goal of our assessment is to provide useful information to concerned stakeholders in judging whether the evidence is applicable to the population or conditions of their interest.

We first abstracted data from each included study on factors that may affect the applicability of the study. We primarily focused on factors in the three following areas that are most relevant:

- Population—demographic characteristics, comorbidity of substance abuse diagnosis, criminal history
- Intervention and comparators—pharmacologic, psychological, dual diagnoses, discharge planning with benefit assistance, and generalist versus specialist provided treatments. The comparator was usually standard of care.
- Setting—place of incarceration, rural versus urban

Based on a review of the data abstracted, we narratively summarized any patterns reflected from these factors that could potentially affect the applicability of the evidence. We made no attempt to generate any rating or score for the applicability of the evidence, because of the methodological issues discussed. Our narrative summaries are intended to raise stakeholders' attention to potential applicability issues embedded in the evidence.

Results

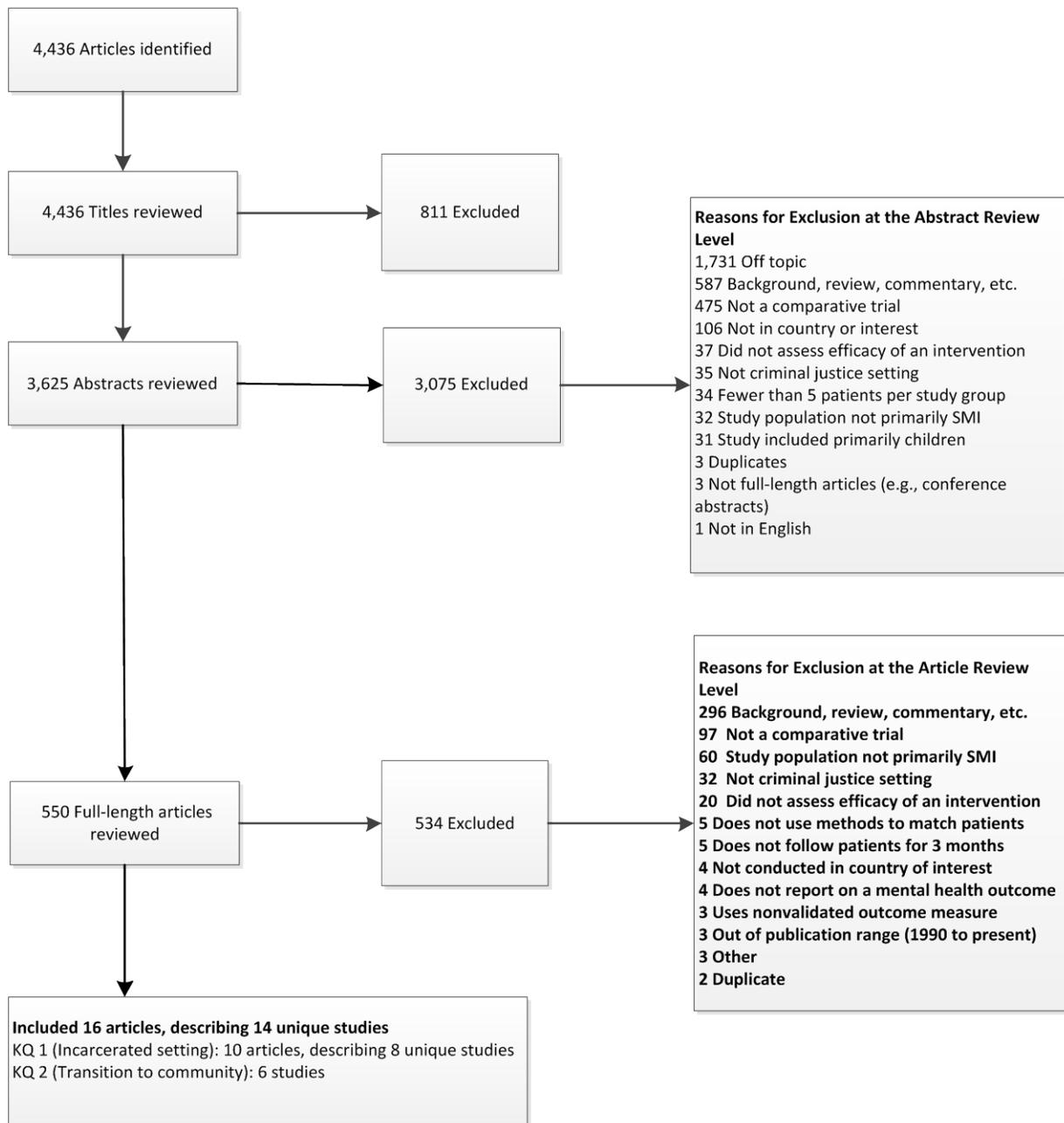
Introduction

In this chapter, the reader will find our literature search results, including information about how many abstracts were identified and why most abstracts were excluded from this report. This is followed by the key findings for Key Question 1 organized by treatment type (pharmacotherapy, psychological therapy, and dual disorder treatments); a description of the included studies for Key Question 1, including basic study design information, inclusion/exclusion criteria, outcomes reported, a description of the instruments used to measure each outcome; a more in-depth description of the study findings; a description of individual study risk-of-bias assessments, strength of evidence grades for the body of evidence; and applicability, all organized by the type of treatment studied. All of the same information is then provided for Key Question 2, organized by treatment type (discharge planning with benefit application assistance, intensive dual disorder treatment, and forensic specialist provided treatments).

Literature Search Results

Our searches of the literature identified 4,436 potentially relevant articles, and we excluded 811 of these at the title level (Figure 2). We excluded another 3,075 articles at the abstract level typically because they were irrelevant to our key questions (1,731 publications); were background, review, commentary, or protocol articles (587 publications); were not comparative trials (475 publications); or were not conducted within a country of interest to this report (106 publications). We further excluded another 534 articles at the full-length article review typically because they were background, review, commentary, or protocol articles (296 publications); were not comparative trials (97 publications); or the study populations were not primarily SMI (60 publications). The remaining 14 unique studies described in 16 publications made up the evidence base for this review. Ten articles describing eight unique studies addressed Key Question 1 (interventions delivered within an incarceration setting), and six studies addressed Key Question 2 (interventions provided during transition from incarceration to a community setting).

Figure 2. Literature flow diagram



KQ = Key question; SMI = serious mental illness

Key Question 1. Interventions Applied Within Jail, Prison or Forensic Hospital Settings

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?

Key Points

- The evidence was insufficient to draw conclusions about the comparative effectiveness of clozapine with other antipsychotics, risperidone with other antipsychotics, or high-dose with low-dose chlorpromazine in these populations and settings.
- The evidence was insufficient to draw conclusions about the comparative effectiveness of cognitive behavioral treatments versus treatment as usual or individual supportive therapy.
- The evidence was insufficient to draw conclusions about the comparative effectiveness of modified therapeutic community treatment with more standard in-prison mental health and substance abuse services for men and women with dual diagnoses.

For Key Question 1, we reviewed studies that evaluated interventions that were provided during incarceration within a jail, prison, or forensic hospital. To be eligible, studies must have covered one or more of the interventions of interest for the settings addressed in Key Question 1 listed in Table 1 in the background section of this report. The studies must have compared one of the identified interventions with another intervention or to standard of care or treatment as usual. Studies that compared an intervention with a waitlist control or no treatment group were not considered for this question. We also considered whether there was a difference in the comparative effectiveness of interventions based on the setting (jail, prison, forensic hospital) in which the interventions were provided.

Description of Included Studies

Eight studies published in 10 separate publications met the eligibility criteria for this report and key question. Table 5 presents key characteristics for the studies that met the eligibility criteria. Three of the publications reported results on different outcomes for the same patient population.⁴⁶⁻⁴⁸ For this report, we considered those publications to be one study. However, we described the results for all outcomes reported in each of the publications.

As presented in Table 5 below, four studies evaluated psychopharmacologic interventions, two considered psychological therapies, and two evaluated interventions designed to treat inmates who had a dual diagnosis of SMI and substance abuse. Four of the studies were randomized controlled trials and four were nonrandomized comparison trials that used a matching strategy to ensure that the patients considered in the study were comparable on key baseline characteristics, such as age, diagnosis, treatment history, and criminal justice history. The average number of patients enrolled in the studies was 98 (range 10 to 314).

Table 5. Characteristics of included studies for Key Question 1

Reference	Number of Patients	Study Design	Treatment	Comparator	Setting
Cullen et al., 2011 ⁴⁹	84	Multisite RCT	Cognitive skills training: Reasoning & Rehabilitation	Treatment as usual	Medium secure forensic units
Balbuena et al., 2010 ⁵⁰	98	Nonrandomized comparative trial	Clozapine	Other antipsychotics	Forensic hospital
Martin et al., 2008 ⁵¹	73	Nonrandomized comparative trial	Clozapine	Other antipsychotics	Acute unit of a forensic hospital
Sacks et al., 2008 ⁵²	314	Randomized control trial	Modified therapeutic community	Intensive outpatient program	Medium secure prison
Sacks et al., 2004 ⁴⁶ & Sullivan et al., 2007 ⁴⁷ & Sullivan et al., 2007 ⁴⁸	139	Randomized control trial	Modified therapeutic community with and without aftercare	Standard mental health interventions	Maximum security forensic prison
Tavernor et al., 2000 ⁵³	50	Nonrandomized comparative trial	High-dose chlorpromazine	Standard-dose chlorpromazine	Maximum security hospital for patients considered to be a “grave and immediate danger”
Beck et al., 1997 ⁵⁴	20	Nonrandomized comparative trial	Risperidone	Traditional neuroleptics	Maximum security unit of a State mental hospital
Wilson, G., 1990 ⁵⁵	10	Randomized control trial	Group cognitive therapy	Individual supportive therapy	Maximum security prison

Sacks 2004, Sullivan 2007, and Sullivan 2007 all report different outcomes for the same patient population. Because these publications report on the same patient population, we consider it a single study.

See Table 6 for details on the types of patients enrolled and excluded for each trial. Two trials required a diagnosis of psychosis, one required depression, three did not clearly specify psychiatric diagnosis for eligibility, and two required both a psychiatric and substance abuse diagnosis for study entry.

Table 6. Participant Inclusion/exclusion criteria for Studies Addressing Key Question 1

Types of Therapies	Study	Participant Inclusion Criteria (as described in article)	Participant Exclusion Criteria (as described in article)
Psychopharmacological therapies	Balbuena et al., 2010 ⁵⁰	The clozapine group included all patients with psychosis who were treated with clozapine for a minimum of 6 weeks since facility opened in 1978. The nonclozapine group included matched patients with psychosis who were never treated with clozapine but were on 1 or more antipsychotic medications for a minimum of 6 weeks during the same period. All patients who met DSM IV criteria for psychosis or other related disorders identified through review of clinical records by 2 research psychiatrists.	Did not meet DSM IV criteria for psychosis or related disorders.
Psychopharmacological therapies	Martin et al., 2008 ⁵¹	Patients admitted to the forensic acute admissions ward between 1999 and 2004	Not reported
Psychopharmacological therapies	Tavernor et al., 2000 ⁵³	NR	Not reported
Psychopharmacological therapies	Beck et al., 1997 ⁵⁴	NR	Not reported
Psychological therapies	Cullen et al., 2011 ⁴⁹	Inmates were included if they met the following: (1) a primary clinical diagnosis of psychotic disorder, (2) a history of violent behavior leading to current admission, (3) not having participated in Reasoning & Rehabilitation or treatment, (4) not actively psychotic, (5) absence of significant cognitive impairment, and (6) proficiency in English language sufficient to allow participation in the program.	Not reported
Psychological therapies	Wilson, G., 1990 ⁵⁵	Inmates were included if they met the following: (1) self-reported depression of not less than 5 weeks, (2) a structured interview and judgment by a trained interviewer (author) that depression was a major presenting psychopathology, (3) Beck Depression Inventory scores of not less than 13, (4) not currently receiving medication or other treatment, (5) willingness to complete treatment and assessment instruments.	Not reported

Types of Therapies	Study	Participant Inclusion Criteria (as described in article)	Participant Exclusion Criteria (as described in article)
Dual disorders treatment	Sacks et al., 2008 ⁵²	Participants had the following: (1) at least 6 months (and no more than 24 months) remaining until parole eligibility, (2) a Colorado Department of Corrections Standardized Offender Assessment score of 4 or greater indicative of serious substance abuse problems requiring treatment, and (3) a security risk level classification of minimum, minimum-restricted, or medium to permit participation in treatment.	Not reported
Dual disorders treatment	Sacks et al., 2004 ⁴⁶ & Sullivan et al., 2007 ⁴⁸ & Sullivan et al., 2007 ⁴⁷ <i>Each publication reports same patient population</i>	Male inmates with psychiatric disorders and co-occurring substance use disorders	Inmates that represented a clear danger to themselves or others

DSM IV = Diagnostic and Statistical Manual of Mental Disorders, 4th edition

Table 7 lists the outcomes reported on for each of the studies that addressed Key Question 1. As per the inclusion criteria for this report, all the studies reported on at least one mental health outcome, with all studies reporting on change in psychiatric or behavioral symptoms. The criminal justice outcomes reported by some of the studies included infractions of prison code, recidivism, and reincarceration. Other outcomes reported by some of the studies included substance- or alcohol use, time to relapse, dangerousness to others, mental health services use, and adherence to treatment. Only two of the included studies, each evaluating psychopharmacological therapies, reported on adverse events.

Table 7. Included studies and outcomes

Reference	Psychiatric Symptoms	Hospitalization for SMI	Time to Rehospitalization	Substance or Alcohol Use	New Mental Health dx	Completed Suicide	Suicide Attempt	Time to Relapse	Independent Functioning	Quality of Life	Time Incarcerated	Dangerousness to Others	Infractions of Prison Code	Recidivism	Reincarceration	Adverse Events	Mental Health Service Use*	Adherence to Treatment*
Cullen et al., 2011 ⁴⁹	✓																	
Balbuena et al., 2010 ⁵⁰	✓								✓				✓					✓
Martin et al., 2008 ⁵¹	✓															✓		
Sacks et al., 2008 ⁵²	✓			✓										✓			✓	
Sacks et al., 2004 ⁴⁶														✓	✓			
Sullivan et al., ^a 2007 ⁴⁷				✓				✓										
Sullivan et al., ^a 2007 ⁴⁸	✓																✓	
Tavernor et al., 2000 ⁵³	✓															✓		✓
Beck et al., 1997 ⁵⁴	✓											✓						
Wilson, G., 1990 ⁵⁵	✓																	

* Intermediate outcomes

^a These studies report outcomes on the same patient population as Sacks et al. 2004⁴⁶ and are not considered independent studies in this report.

In most of the studies, psychiatric or behavioral symptoms were measured using a variety of observational or self-reported instruments. The most common instruments used across studies were the Beck Depression Inventory (BDI, 3 studies) and the Brief Psychiatric Rating Scale (BPRS, 2 studies) and the Brief Symptom Inventory (BSI, 2 studies). The Beck Depression Inventory (BDI, BDI-II) is one of the most widely used instruments for measuring depression severity.⁵⁶

The BDI is a 21-question, multiple-choice, self-report inventory composed of items relating to symptoms of depression such as hopelessness and irritability, cognitions such as guilt or feelings of being punished, as well as physical symptoms such as fatigue, weight loss, and lack of interest in sex. Higher scores on the BDI indicate more severe depressive symptoms.

The BPRS and BSI are designed to measure an array of psychiatric symptoms in a fairly brief amount of time. The BPRS is a one-page, 16–18 item scale measuring self-report and patient observation of affective and psychotic symptoms.⁵⁷ Higher scores on this scale indicate the presence of more symptoms. The BSI is a 53-item, self-report scale used to measure 9 primary symptom dimensions (somatization, obsessive-compulsive behavior, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism), and three global indices (Global Severity Index, Positive Symptom Distress Index, and Positive Symptom Total).⁵⁸ The BSI is a shortened version of the SCL-90 (Symptom Check List-90) and is designed to provide a multidimensional symptom measurement in about 10 minutes. Higher scores on both versions of the BSI indicate the presence of more psychiatric symptoms.

Table 8. Instruments used to measure psychiatric symptoms

Reference	Instrument
Cullen et al., 2011 ⁴⁹	Social Problem Solving Inventory
Balbuena et al., 2010 ⁵⁰	Brief Psychiatric Symptom Inventory
Martin et al., 2008 ⁵¹	Global Impression Scale
Sacks et al., 2008 ⁵²	Beck Depression Inventory, Brief Symptom Inventory, Posttraumatic Symptom Severity
Sacks et al., 2004 ⁴⁶ & Sullivan et al., 2007 ⁴⁷ & Sullivan et al., 2007 ⁴⁸	Beck Depression Inventory, Brief Symptom Inventory, Adult Manifest Anxiety Scale
Tavernor et al., 2000 ⁵³	Brief Psychiatric Symptom Inventory, Global Assessment Scale, Nurses Observation Scale, Social Dysfunction and Aggression Scale
Beck et al., 1997 ⁵⁴	Time Sample Behavioral Checklist
Wilson, G., 1990 ⁵⁵	Beck Depression Inventory, Hopelessness Scale, Multiple Affect Adjective Check List, Minnesota Multiphasic Personality Inventory

Risk-of-Bias Assessment

Our risk-of-bias assessments for the studies that address Key Question 1 appear in Table 20 of Appendix D. All trials were categorized as Moderate risk of bias for all reported outcomes. The most common reasons for the Moderate risk of bias for these studies was use of subjective outcome measures (psychiatric symptoms, self-reported criminal justice outcomes), failure to blind outcome assessors (either not performed or not reported), and attrition.

Psychopharmacological Therapies

Description of Studies

Four studies that addressed Key Question 1 evaluated the efficacy of psychopharmacological therapies for incarcerated individuals with SMI. All four studies were nonrandomized comparison studies that used matching strategies to ensure baseline comparability of the enrolled patients on key characteristics, such as diagnosis, functioning, criminal justice history, and age. Only one study was prospectively planned.⁵⁴ The other three studies were retrospective chart reviews.^{50,51,53} The patients in all four studies were incarcerated in forensic hospitals or specialized forensic units. The studies took place in various locations, with one each taking place in the United States, the United Kingdom, Australia, and Canada. See Table 22 of Appendix E for more information about the general characteristics of the studies.

Two of the studies compared the efficacy of clozapine with other antipsychotics.^{50,51} The objective of both studies was to examine the suitability of clozapine for forensic patients. Clozapine is often used to treat treatment-resistant schizophrenia and is known for its antiaggression properties.⁵⁰ However, its use has been associated with a number of adverse events, including sleepiness, rapid heartbeat, constipation, drooling, weight gain, and orthostatic hypotension.⁵⁹ More serious adverse events include agranulocytosis, myocarditis, cardiomyopathy, pulmonary embolism, respiratory depression, and seizures. Patients taking clozapine are required to undergo regular blood monitoring. This, along with the side effects of clozapine, may interfere with treatment adherence. See Table 23 and Table 24 in Appendix E for further details about the treatment conditions in these and the other studies assessing psychopharmacological therapies.

Another study addressing Key Question 1 compared risperidone with other antipsychotics.⁵⁴ Risperidone has effects similar to clozapine, but is associated with less serious side effects. The final study compared high dose chlorpromazine (>1,400 mg) with standard dose (<1,000 mg). In all four studies, patients had received a diagnosis of a psychotic disorder (schizophrenia or schizoaffective disorder) and most had a history of violence or aggression. The average age of the patients ranged from 34 to 40 years. In one study, the authors reported that the majority of patients had a co-occurring substance use/dependence disorder.⁵¹ See Table 25 and Table 26 in Appendix E for more information about the patients enrolled in the studies.

Findings

Of the two studies that compared clozapine to other antipsychotics, Balbuena et al. (98 patients) measured change in psychiatric symptoms using the BPRS and Martin et al. (73 patients) used the CGIS.^{50,51} Our analysis of the BPRS scores in the Balbuena et al. study indicated that psychiatric symptoms decreased for both groups from baseline to 6-month followup, but there was no statistically significant difference between groups at followup. In their repeated measures analysis using time and drug group as predictor variables, the authors of the study demonstrated a significantly greater decrease in BPRS scores (indicating a greater decrease in symptoms) for the nonclozapine group. While no analysis could be completed because of missing data, the authors suggest that time on medication and adherence to treatment may have had an impact on the BPRS scores of the clozapine group. See Table 32 in Appendix F for more detail.

In the Martin et al. study, no statistically significant difference was observed between patients experiencing very much or much improvement on clozapine compared with the number

of patients on other antipsychotics experiencing a similar improvement. Martin suggests that high rates of co-occurring substance misuse and medical and behavioral problems may have had an impact among patients in the clozapine group.

Besides the above outcomes, Balbuena et al. reported on the number of institutional infractions. At 12-month followup, count data indicated that 68 percent (32/47) of the clozapine-treated patients remained offense free compared with 52 percent (14/27) of the nonclozapine-treated patients. The difference between groups in number of offenses was not statistically significant (likely due to sample sizes at followup). Balbuena et al. also reported a measure of independent functioning, an increase in pay. A significantly greater percentage of patients, about 60 percent, in the clozapine treatment arm received a pay increase versus 30 percent in the other antipsychotic medication group.

Martin et al. reported on adverse events for the clozapine group only. Overall, 10 percent of patients treated with clozapine experienced a serious adverse event. Two (4 percent) developed neutropenia and three (6 percent) experienced seizures. Further, the authors reported that 15 patients discontinued clozapine at some point during the study for the following reasons: sedation (2 or 13 percent), weight gain (1 or 7 percent), patient refusal (2 or 13 percent), seizures (1 or 7 percent), hypersalivation (1 or 7 percent), hyperglycemia (1 or 7 percent), neutropenia (2 or 13 percent), and ineffective (1 or 7 percent). See Table 35 and Table 40 in Appendix F for more detail.

Results of the study by Beck et al. (20 patients), which compared risperidone with other antipsychotics, did not find any significant difference in levels of adaptive and maladaptive behaviors (as measured by the Time Sample Behavioral Checklist) between patients on risperidone and patients on other antipsychotics at 6-month followup.⁵⁴ They also failed to find a difference between groups for the parameter of change in the number of aggressive incidents from baseline to followup. The authors reported that patients on risperidone did not display any change in number of aggressive acts from the time they were placed on the medication to followup. One particularly limiting factor in this study was that there was no washout period between the time patients were taken off other antipsychotic medications and put on risperidone. See Table 32 in Appendix F for more detail.

Finally, the overall findings of the study by Tavernor et al., which compared high-dose chlorpromazine with standard dose, indicated that patients receiving the high dose experienced significantly more psychiatric symptoms and adverse events than patients on the standard dose.⁵³ The patients receiving the high dose demonstrated a higher overall score on the BPRS (standardized mean difference [SMD] 0.744; 95% confidence interval [CI], 0.171 to 1.317; $p=0.011$) and on the following subscales of the Nurses Observational Scale for Inpatient Evaluation: social interest (SMD 0.631; 95% CI, 0.129 to 1.133; $p=0.014$), psychotic depression (SMD 0.750; 95% CI, 0.243 to 1.257; $p=0.004$), manifest psychosis (SMD 0.883; 95% CI, 0.370 to 1.397; $p=0.001$), and irritability (SMD 0.587; 95% CI, 0.087 to 1.088; $p=0.021$).

Patients in the high-dose group also demonstrated higher levels of general and peak aggression than the standard dose group as measured by the Social Dysfunction and Aggression Scale (general SMD 0.532; 95% CI, 0.034 to 1.031; $p=0.036$; and peak SMD 0.631; 95% CI, 0.125 to 1.137; $p=0.014$). The authors reported that the high-dose group experienced significantly more autonomic and neurological side effects than the standard dose group (mean score for high-dose group was 6.96, mean for standard dose was 4.84, $p=0.048$). See Table 32 and Table 40 in Appendix F for additional information.

Table 9. Strength-of-evidence grade for studies assessing pharmacological therapies

Comparison	Outcome	Number of Studies (number of patients)	Overall Risk of Bias	Consistency	Directness	Precision	Evidence Favors	SOE Grade
Clozapine vs. other antipsychotics	Psychiatric symptoms	2 (171)	Moderate	Unknown (different measures used)	Direct	Imprecise	—	Insufficient
Clozapine vs. other antipsychotics	Independent functioning	1 (98)	Moderate	Unknown (1 study)	Direct	Precise	Clozapine	Insufficient
Risperidone vs. other antipsychotics	Psychiatric symptoms	1 (20)	Moderate	Unknown (1 study)	Direct	Imprecise	—	Insufficient
Risperidone vs. other antipsychotics	Institutional infractions	1 (20)	Moderate	Unknown (1 study)	Direct	Imprecise	—	Insufficient
High-dose chlorpromazine vs. standard dose	Psychiatric symptoms	1 (64)	Moderate	Unknown (1 study)	Direct	Precise for BPRS, subscales of NOISE, the general and peak SDAS, and adverse events	Low dose	Insufficient

BPRS = Brief Psychiatric Symptom Inventory; NOISE = Nurses' Observational Scale for Inpatient Evaluation; SDAS = Social Dysfunction and Aggression Scale; SOE = strength of evidence

Applicability

In all of the pharmacological therapy studies, the patients had a psychotic disorder and most had a history of violence and aggression. The findings of these studies are applicable only to this subset of inmates. Further, these studies took place in forensic hospitals or specialized units in which patients may have been more carefully observed for adverse events. This is an important point because clozapine and high-dose chlorpromazine are associated with serious adverse events and patients on these medications need to undergo periodic blood tests and be closely monitored. Such attention may not be available in some jails or prisons.

Psychological Therapies

Description of Studies

Two studies that addressed Key Question 1 evaluated the efficacy of psychological therapies used to treat incarcerated individuals with SMI. Cullen et al. evaluated the use of a cognitive skills program called Reasoning and Rehabilitation (“R & R”) to treat men incarcerated in medium secure forensic units located across London, UK.⁴⁹ In this multisite study, 84 men with a primary diagnosis of psychotic disorder and a history of violence were randomly assigned to receive R & R (n=36) or treatment as usual (“TAU”, n=36). The majority of the patients in this

study had a diagnosis of schizophrenia that was based on Diagnostic and Statistical Manual of Mental Disorders, fourth edition, (DSM-IV) or International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) criteria.

Cullen et al. did not report whether the patients had a history of substance abuse, but did indicate that overall, 44 percent (37 patients) of patients had a co-occurring diagnosis of antisocial personality disorder. The average age of the men enrolled in this study was 35 years and the median number of previous convictions was five for the R & R group and six for the TAU group. For more information about the patients enrolled in this study see Table 25 and Table 26 in Appendix E.

The R & R cognitive skills program was developed on the premise that many offenders, with and without mental illness, “have failed to develop core social cognitive skills and are therefore non-reflective, impulsive, egocentric, concrete in their thinking, and tend to externalize blame for their actions.”⁴⁹ The program targets cognitive deficits and maladaptive thinking styles and encourages offenders to develop prosocial skills and behaviors.

The R & R program consisted of 36, two-hour sessions that covered the following eight modules: problem solving, assertiveness skills, social skills, negotiation skills, creative thinking, emotion management, values reasoning, and critical reasoning. The program was delivered to groups of five to eight patients with group sessions held twice or three times weekly. The groups were led by staff who received intensive training from the program developers.

Patients in the TAU group in the Cullen et al. study were free to receive any interventions considered to be part of their usual treatment with the exception of R & R. See Table 23 of Appendix E for more information about the treatments provided in this study.

Patients in the Wilson study were randomly assigned to receive either group cognitive treatment (n=5) or individual supportive therapy (n=5).⁵⁵ The patients in this study were incarcerated in a large maximum-security prison. They had all received a diagnosis of major depression by the referring physician or therapist. The average age of patients was 33 years and the average length of current incarceration was 28 years. The author did not report whether patients had a history of substance abuse or other co-occurring disorders. See Table 25 and Table 26 of Appendix E for more information about the patients in this study.

According to the author of the study, therapy in the cognitive group was based on the assumptions and techniques developed by Beck and colleagues.⁵⁵ The group sessions were problem-oriented and focused on specific techniques, such as developing activity schedules and recording dysfunctional thinking, as well as on group processes, such as modeling and attention to group interactions. Patients were encouraged to identify, challenge, and modify negative thoughts. Patients were offered 14, ninety-minute sessions, and were given homework assignments to improve mood and teach adaptive skills. The therapy was delivered by the author of the study.

The individual supportive therapy was designed to be a brief form of treatment in which patients were encouraged to discuss their moods, current functioning, and personal concerns. The treatment avoided using specific cognitive or behavioral techniques and, instead, encouraged patients to deal with problematic issues through reflection. Patients in this group received brief, ongoing, individual supportive sessions lasting 5–10 minutes by the author of the study or the cellblock counselor as part of the standard prison routine. See Table 23 of Appendix E for more details about the therapies provided in the Wilson study.

Findings

All included data for these studies appear in Table 32 through Table 40 in Appendix F.

Both studies that evaluated psychological therapies reported on change in psychiatric/behavioral symptoms. The primary outcome in Cullen et al. was change in social problem solving as measured by the Social Problem Solving Inventory (SPSI).⁴⁹ The SPSI is a 25-item questionnaire that consists of two subscales that measure problem-solving orientation (positive orientation and negative orientation) and three that measure problem-solving style (rational problem solving, impulsivity/carelessness, and avoidant). Higher scores indicate more adaptive functioning in the areas of total problem solving skills, positive problem orientation, and rational problem solving. For negative problem orientation, impulsivity/carelessness, and avoidant problem solving, higher scores indicate more maladaptive behaviors.

At posttreatment, the R & R group demonstrated significant improvement compared with the TAU group on the impulsive/carelessness (SMD 0.612; 95% CI, 0.140 to 1.085; $p=0.011$) and avoidant (SMD 0.557; 95% CI, 0.086 to 1.028; $p=0.20$) problem-solving style subscales of the SPSI. The R & R group continued to demonstrate significant improvement on these subscales at 12-month followup (impulsivity/carelessness: SMD 0.524; 95% CI, 0.054 to 0.994; $p=0.029$; and avoidant: SMD 0.834; 95% CI, 0.352 to 1.315; $p=0.001$). Our calculation of effect size estimates did not indicate any significant difference between groups on the SPSI total score or most of the subscales. However, the authors' regression analysis indicated that the R & R group improved significantly compared with the TAU group on the total score of the SPSI ($p=0.04$ at posttreatment and 0.01 at 12 month followup).

Wilson measured change in psychiatric symptoms using multiple instruments (see Table 8 for a list of the instruments used in this study). At posttreatment and at 9-month followup, no statistically significant differences were observed between the cognitive therapy group and the individual supportive therapy group on any of the instruments used to measure depression or other psychiatric symptoms.

Because of differences in the intervention and diagnostic enrollment criteria, these studies were not combined in the strength-of-evidence grades to follow. Both studies that evaluated psychological therapies for incarcerated individuals with SMI had limitations. The primary limitations in the Cullen et al. study were possible selection bias and attrition in the R & R group. The authors of this study reported that 23 percent of the referred patients at the initial recruitment phase refused to participate. Further, only half (21 of 42) of the patients randomly assigned to the R & R group completed treatment.

In a separate publication, Cullen et al. examined treatment dropout among the 42 patients who were assigned to the R & R group.⁶⁰ The goal of the analysis in this study was to determine which patient characteristics (demographic, behavioral, and clinical) predicted dropout. The authors of the study reported that “program noncompletion was significantly predicted in univariate analysis by current and future violence risk, antisocial traits, and recent violence.” Multivariate analysis indicated that psychopathy, antisocial personality disorder, and recent violence were the strongest predictors of failure to complete treatment.

The main limitation of the Wilson study was the small sample. Only 10 inmates agreed to participate in this study. As indicated by the author, such a small sample size limits the ability to uncover any meaningful differences between the two treatment groups.

Table 10. Strength-of-evidence grade for studies assessing psychological therapies

Comparison	Outcome	Number of Studies (number of patients)	Overall Risk of Bias	Consistency	Directness	Precision	Evidence Favors	SOE Grade
Cognitive problem solving group (R & R) vs. treatment as usual	Psychiatric symptoms	1 (84)	Moderate	Unknown (1 study)	Direct	Precise for the impulsiveness/ carelessness and avoidant subscales of the SPSI	Cognitive problem solving group	Insufficient
Cognitive group therapy vs. individual supportive therapy	Psychiatric symptoms	1 (10)	Moderate	Unknown (1 study)	Direct	Imprecise	—	Insufficient

R & R = Reasoning and Rehabilitation; SOE = strength of evidence; SPSI = Social Problem Solving Inventory

Applicability

We further evaluated the studies that assessed psychological therapies for incarcerated individuals with SMI to identify factors that could potentially affect the applicability of the evidence. The patients enrolled in the two studies represent the heterogeneity of incarcerated individuals with SMI. In one study, the patients had a diagnosis of schizophrenia and had a history of violence. In the other study, the patients had a diagnosis of depression. The inclusion/exclusion criteria of the studies include items that may limit the generalizability of the findings of the studies. For instance, the Cullen et al. study excluded patients with cognitive deficits and the Wilson study excluded patients who were taking medication or involved in other treatment for their depression. Further, both studies enrolled only male inmates. The findings of the studies may not be applicable to female inmates.

In general, providing incarcerated individuals with psychological therapy can be challenging. Inmates in the Wilson study were incarcerated in a maximum security prison in which the author indicates they were in “lock-down” for 23 hours a day. Further, as evidenced by the high attrition rate of patients assigned to the R & R group in the Cullen et al. study, certain treatments may not be easily adaptable to inmates with SMI. The R & R program was originally developed for incarcerated individuals without mental illness. It was adapted for use in offenders with mental disorders on the basis that they demonstrate similar patterns of criminal thinking and behavior as offenders without mental disorders. However, as Cullen et al. point out, the program as it currently stands may be too demanding or may not meet the needs of offenders with SMI, particularly those who have a history of violence and antisocial behavior.⁶⁰

Dual-Disorders Treatments

Description of Studies

Two studies assessed the efficacy of modified therapeutic communities (MTCs) for offenders with co-occurring mental illness and substance use disorders.^{46,52} Both studies were randomized controlled trials that compared the outcomes of inmates randomized to MTC with those randomized to more standard in-prison mental health and substance abuse services. One study

reported on different outcomes for the same patient population in three separate publications—one each reporting on criminal justice outcomes,⁴⁶ mental health outcomes,⁴⁸ and substance use outcomes.⁴⁷ Both studies took place in correctional facilities located in urban areas in Colorado.

In the study by Joann Sacks et al., all participants were female with an average age of 35 years (n=314).⁵² The average length of incarceration in this study was 1.1 years with most inmates being incarcerated for a drug-related crime. Based on DSM-IV diagnostic criteria, 69 percent of the patients in this study would have received a lifetime diagnosis of severe mental disorder (mania or hypomania, bipolar disorder, or major depression), and 75 percent would have received a lifetime diagnosis of any Axis I disorder with the majority (65 percent) having major depression. According to the authors, the patients in this study had, on average, two Axis I mental disorder diagnoses. The women's primary substances of choice were crack/cocaine (30 percent), alcohol (23 percent), methamphetamine (19 percent), marijuana (18 percent), and opiates (7 percent).

In the other study, by Stanley Sacks et al., all participants were male with an average age of 35 years (n=139).⁴⁶ The average length of incarceration in this study was 4.5 years with most inmates having committed a drug-related crime in the year prior to incarceration. Based on DSM-IV diagnostic criteria, 78 percent of enrolled patients had an Axis I mental disorder diagnosis, 90 percent had a substance use disorder, and 37 percent had a co-occurring personality disorder. The primary drugs of choice were marijuana (34.5 percent), alcohol (32.0 percent), and crack/cocaine (21.0 percent). See Table 25 and Table 26 in Appendix E for more information about the patients enrolled in these studies.

In both studies, the authors modified existing models of therapeutic community (TC) programs for substances users to fit offenders in whom co-occurring mental and substance use disorders had been diagnosed. The modified TC programs in the studies that addressed Key Question 1 used “a cognitive behavioral curriculum within the foundation of TC principles to change attitudes and lifestyles in three critical areas: substance abuse, mental illness, and criminal thinking.”⁴⁶ The principles of traditional TCs involve developing and fostering a community of both offenders and staff, in which members are encouraged to help themselves and others while using the community as part of the treatment. Within the TC community, inmates are provided with opportunities for leadership, for exercising authority in a positive manner, and for becoming positive role models. Program participants are all housed together in prison, separate from the general inmate population.

The MTC programs in each study included psychoeducational classes, cognitive behavioral protocols, medication, and other therapeutic interventions. See Table 23 and Table 24 in Appendix E for more information about the delivery and duration of the interventions provided within the MTC in each study. In the study by Joann Sacks et al., the MTC program was further adapted to meet the needs of female offenders with co-occurring disorders. In this study, inmates were provided with gender-specific interventions that addressed trauma and abuse, parenting, and relationships. In the study by Stanley Sacks et al., participants in the MTC program were eligible to enter the MTC residential aftercare program upon release from prison. Entry into the aftercare program was voluntary and based on the inmate's preference. However, the authors of the study indicated that entry was never strictly voluntary, because agreeing to enter often facilitated parole approval.

The control condition in the study by Stanley Sacks et al. involved a mental health program that consisted of intensified psychiatric services that included medication, weekly individual therapy and counseling, and specialized groups. The substance abuse services consisted of a

72-hour cognitive behavioral core curriculum that focused on substance abuse education and relapse prevention. Inmates enrolled in the mental health program were offered aftercare services upon release from prison. The mental health aftercare program included a variety of mental health services provided by a community-based agency in an outpatient setting.

The control condition in the study by Joann Sacks et al. was similar. In this study, women in the intensive outpatient program (IOP) received a range of services that included mental assessment, psychiatric evaluation, medication, and counseling. The IOP substance abuse treatment curriculum consisted of a 90-hour course that used a cognitive behavioral format to address underlying issues of substance abuse and criminal behavior. The authors of this study did not report whether participants in the MTC or IOP programs were eligible to receive or participated in any aftercare services. See Table 23 and Table 24 in Appendix E for more information about the delivery and duration of the control interventions in each study.

Findings

All included data for these studies appear in Table 32 through Table 40 in Appendix F.

Because of variations in the interventions assessed and study participant sex differences, these two trials were not combined in the qualitative analysis that follows. Psychiatric symptoms in the study by Joann Sacks et al. were measured using the BDI, the BSI, and the Posttraumatic Symptom Severity Scale (PSS). Scores for all three measures of psychiatric symptoms demonstrated statistically significant improvement for both the MTC and IOP group from pretreatment to 6-month followup. Consistent with authors' findings, our calculation of individual effect size estimates indicated statistically significant improvement favoring inmates in the MTC program in symptoms of posttraumatic stress at 6-month followup (improved scores on the PSS; SMD 0.246; 95% CI, 0.024 to 0.468, $p=0.03$).

No statistically significant differences were observed between groups on symptoms of depression (as measured by the BDI) or in overall symptoms (as measured by the BSI). According to the authors, one-third of the women in each group remained on psychotropic medication upon release from prison. Thus, differences in psychological symptoms cannot be attributed to differences between the groups in terms of medication adherence.

Psychiatric outcomes of participants in the Stanley Sacks et al. study were reported in a separate publication by Sullivan et al.⁴⁸ Symptoms in this study were measured using the BDI, BSI, and Manifest Anxiety Scale (MAS). The authors did not report data from the measures of psychiatric symptoms in a manner that allowed us to calculate individual study effect size estimates. However, according to the authors' reported results, no significant differences were detected between the MTC and mental health program group from baseline to 12-month followup on any measures of symptom change or on measures of medication use or treatment involvement. The authors suggest that the following limitations may have impacted the ability of the study to demonstrate positive mental health effects: small sample size, the use of psychotropic medications by both groups prior to entry into the study, and the high level of trauma experienced by both groups.

Joann Sacks et al. assessed substance use/abuse and other related problems through self-reported information on the historic and current frequency of use of alcohol, illegal substances, misuse of prescribed medication, perceived problems related to substance use, and historic and current substance abuse treatment. The results of both our analysis of individual effect size estimates and the authors' analysis indicated that both the MTC and IOP groups showed significant reductions on all measures of substance abuse (alcohol use, substance use, frequency

of alcohol use, and highest frequency of drug use) from baseline to 6-month followup, with no significant differences between the groups on any of the measures. The authors also reported that the magnitude of the reported improvements appeared to be similar for each group. According to the authors, a number of factors might explain the lack of differences between groups, including the strength of the comparison treatment, the dosage, and the receipt of substance treatment after prison release.

Substance use outcomes of participants in the Stanley Sacks et al. study were reported in a separate publication by Sullivan et al.⁴⁷ Self-reported data were collected on any substance use, use of alcohol, use of illegal substances, severity of use, and time to relapse. At 12-month followup, our analysis indicated, a statistically significant reduction in any substance use (SMD 0.344; 95% CI, 0.171 to 0.690; $p=0.003$) and in use of illegal substances (SMD 0.436; 95% CI, 0.213 to 0.894; $p=0.023$) favored the MTC group over the mental health program group. This is consistent with the authors' findings. The authors also found greater reduction in alcohol use for the MTC group compared with the mental health program group. Further, according to the authors' findings, the MTC group had greater reduction in the severity of substance use and frequency of alcohol used to intoxication. MTC treatment also significantly reduced the likelihood of relapse (3.7 months vs. 2.6 months, $p\leq 0.05$).

Finally, Joann Sacks et al. considered the following measures of criminal behavior: self-reported information about historic and current (within 6 months following release from prison) criminal justice involvement (includes any arrest, arrest for crimes other than parole violation, any criminal acts, drug-related crimes, and sex crimes) and frequency of illegal activities. Both the authors' and our analysis indicated that women in the MTC group showed significantly greater reduction in arrests for crimes other than parole violations (SMD 0.377; 95% CI, 0.195 to 0.729; $p=0.004$) than women in the IOP group. No statistically significant between-group differences were observed for any other criminal justice outcome.

The criminal justice outcomes reported on in the study by Stanley Sacks et al. included reincarceration, involvement in criminal activity, offenses related to alcohol or substances, and nonalcohol or nonsubstance offenses. Our findings and those of the and authors indicated no statistically significant differences in any of the criminal justice outcomes between the MTC-only group and the standard mental health program group. Statistically significant differences were observed only between men who received both in-prison MTC and MTC aftercare and those who received standard mental health and substance use services. Since the men in the MTC plus aftercare were self-selected and not randomly assigned, we did not consider the differences between this group and the standard mental health group when assessing the strength of evidence for this study.

Table 11. Strength-of-evidence grade for studies assessing psychological therapies

Comparison	Outcome	Number of Studies	Overall Risk of Bias	Consistency	Directness	Precision	Evidence Favors	SOE Grade
MTC vs. IOP Sacks et al. ⁵²	Psychiatric symptoms	1 (314)	Moderate	Unknown (1 study)	Direct	Precise for improvement in posttraumatic stress symptoms (not for depression or global symptoms)	MTC	Insufficient
MTC vs. MH Sullivan et al. ⁴⁸	Psychiatric symptoms	1 (139)	Moderate	Unknown (1 study)	Direct	Imprecise	—	Insufficient
MTC vs. IOP Sacks et al. ⁵²	Substance use or abuse	1 (314)	Moderate	Unknown (1 study)	Direct	Imprecise	—	Insufficient
MTC vs. MH Sullivan et al. ⁴⁷	Substance use or abuse	1 (139)	Moderate	Unknown (1 study)	Direct	Precise for all measures of substance use/abuse including reduction in use, severity of use, and time to relapse	MTC	Insufficient
MTC vs. IOP Sacks et al. ⁵²	Criminal justice outcomes	1 (314)	Moderate	Unknown (1 study)	Direct	Precise for reduction in arrests for crimes other than parole violations	MTC	Insufficient
MTC vs. MH Sacks et al. ⁴⁶	Criminal justice outcomes	1 (139)	Moderate	Unknown (1 study)	Direct	Imprecise	—	Insufficient

MTC = modified therapeutic community; IOP = intensive outpatient program; MH = usual mental health services

Applicability

The findings of the studies assessed in this section demonstrate that therapeutic communities can be adapted within a prison setting to treat individuals with co-occurring mental health and substance use disorders. However, TC within the prison setting needs to be further adapted to meet the gender-specific needs of male and female offenders.

Of the two studies that evaluated MTCs, one included only all-male prisons and the other included a women-only facility. The findings of each study indicated differences in the outcomes of women versus men. Women who received MTC treatment demonstrated improvement on some psychological measures and criminal justice outcomes. However, they failed to demonstrate greater improvement than the standard of care group on all measures of substance use/abuse. Men who received MTC showed significant improvement on all substance abuse measures compared with the standard of care group, but failed to demonstrate improvement on any measure of psychiatric symptom change. Further, only those men who went on to receive MTC aftercare demonstrated statistically significant reductions on criminal justice outcomes compared with those who received more standard prison services for mental health and substance use disorders.

Of course, it is difficult to determine if these differences are due to gender-specific responses to treatment or to study-specific factors such as sample size, differences in the characteristics of the MTC programs, strength of the comparison treatment, or other differences in participant characteristics.

Key Question 2. Incarceration-to-community Transitional Interventions

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?

For Key Question 2, we reviewed studies that evaluated interventions that were provided during incarceration within a jail, prison, or forensic hospital and then continued upon release into the community. To be eligible, studies must have covered one or more of the interventions of interest in the settings addressed in Key Question 2 listed in the Introduction under “Providing Mental Health Services to Offenders With SMI Transitioning From Incarceration to the Community.” The studies must have compared one of the identified interventions with another intervention or with standard or care or treatment as usual. Studies that compared an intervention with a waitlist control or with a no-treatment group were not considered for this question. We also considered whether there was 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 were provided.

Key Points

- Low strength evidence demonstrated an increase in service use following release from incarceration with treatment that included discharge planning and assistance applying for health benefits. The two trials that incorporated discharge planning with application assistance had other treatment components as well; therefore, it is unclear if the increased service use was a direct result of application assistance in both of these trials or another component of treatment.
- Low strength evidence indicated that psychiatric hospitalizations were reduced and service use, both during incarceration and upon release, was increased among clients who received intensive dual diagnosis treatment compared with other, nondual-diagnosis treatments.

The evidence for the impact of specialist vs. mental health generalist care on psychiatric symptoms, psychiatric hospitalization, substance abuse, quality of life, and completed suicide was rated as insufficient because only one trial reported these outcomes for these comparisons.

Description of Included Studies

Six comparative trials (2 RCTs and 4 nonrandomized) enrolling 2,521 subjects addressed Key Question 2. The interventions assessed were quite varied but may be divided into three categories: discharge planning with benefit-application assistance, dual diagnosis treatment; and specialist- versus generalist-provided treatment. Two studies assessed treatments that included discharge planning with benefit-application assistance; three comprehensive interventions treated

inmates who had dual diagnoses; and two studies compared treatment provided by a forensic specialist with treatment provided by a mental health generalist. Because the Mentally Ill Offender Community Transition Program (MIOCTP) incorporates both discharge planning with benefit-application assistance and dual diagnosis treatment, this study has been considered in the analysis of both of those treatment categories.⁶¹ See Table 12 below for more details.

Table 12. Characteristics of included studies for Key Question 2

Reference	Number of Patients	Study Design	Treatment	Comparator	Setting
Wenzlow et al., 2011 ⁶²	686	Nonrandomized comparative trial	Discharge planning with benefit-application assistance	Treatment as usual	Prison to community
Theurer and Lovell, 2008 ⁶¹	138	Nonrandomized comparative trial	MIOCTP (this treatment includes discharge planning with benefit-application assistance and co-occurring disorder treatment)	Residential MH treatment program in prison; treatment as usual upon release	Prison to community
Coid et al., 2007 ⁶³	1,061	Nonrandomized comparative trial	Forensic specialist psychiatric services	General adult psychiatric services	Forensic unit of a psychiatric hospital to community
Chandler and Spicer, 2006 ⁶⁴	182	Randomized control trial	Jail: intensive assessment, 1-on-1 counseling, and crisis intervention Community: high-fidelity IDDT	Jail: intensive assessment, 1-on-1 counseling, and crisis intervention Community: treatment as usual	Jail to community
Van Stelle and Moberg, 2004 ⁶⁵	278	Nonrandomized comparative trial	MICA in prison and upon release into community	Treatment as usual	Prison to community
Solomon and Draine, 1995 ⁶⁶	176	Randomized control trial	Jail: mental health services Community: ACT	Jail: forensic mental health services Community: intensive case management Jail: mental health service Community: treatment as usual	Jail to community

ACT = Assertive Community Treatment; IDDT = integrated dual disorders treatment; MH = mental health; MICA = mentally ill chemical abuser treatment; MIOCTP = Mentally Ill Offender Community Transition Program

Five of the six trials were conducted in the United States and the sixth was conducted in the United Kingdom. Three trials were conducted in urban areas within the United States, two did not describe the location, and the sixth trial, conducted in the United Kingdom, covered inmates in both urban and rural areas. In all six trials, treatment was initiated during incarceration and was continued upon release into the community. In three of the six trials, the incarceration setting was prison, in two it was jail, and in the final trial it was a medium-secure psychiatric hospital. See Table 27 in Appendix E for more detail.

The inclusion criteria for patient enrollment appears below, in Table 13.

Table 13. Participant Inclusion/exclusion criteria for Key Question 2

Study	Participant Inclusion Criteria (as described in article)	Participant Exclusion Criteria (as described in article)
Wenzlow et al., 2011 ⁶²	Included adults aged 18 years or older in whom major depression, bipolar disorder, and psychotic illness had been diagnosed and who were identified as requiring intensive treatment and released from 1 of 3 correctional facilities in Oklahoma between July 2007 and March 2008	Adults who required 24-hour monitoring.
Theurer and Lovell, 2008 ⁶¹	MIOCTP: major mental illness that influenced previous criminal activity; judged as less likely to reoffend if provided with ongoing MH treatment; unlikely to obtain housing/treatment from another source; a minimum of 3 months remaining on sentence; willing to participate MH treatment: Participants in this group were matched on 8 pre-identified factors found to be important predictors of recidivism; released from prison between 1996 and 2000.	Level 3 sex offender
Coid et al., 2007 ⁶³	Patients admitted to a medium-secure forensic hospital; psychiatry services provided by 7/14 pre-reorganization Regional Health Authorities in England and Wales 1989–1993	Not reported
Chandler and Spicer, 2006 ⁶⁴	Current SMI and current substance abuse disorder; not sentenced to prison, not on parole, and not a resident of another county; not currently enrolled in another Alameda County treatment program; Global Assessment of Functioning score of ≤ 50 ; fluent in English or Spanish; and at least 2 jail episodes in the 2 years prior to the index admission or spent 90 days in jail in the past 2 years	Not reported
Van Stelle and Moberg, 2004 ⁶⁵	Male prisoners who committed a felony and had a severe and persistent mental illness and substance abuse diagnoses were included. The control group was made up of similar individuals who were being released in less than 18 months and so were not entered into the therapeutic community.	Not reported
Solomon and Draine, 1995 ⁶⁶	Inmates of a large urban city jail expected to be released in 4–6 weeks with a major mental illness (schizophrenia, affective, or personality disorder) according to the DSM-III-R; Global Assessment of Functioning score ≤ 40 if older than age 35 years or ≤ 60 if 35 years of age or younger; recent extended MH treatment including community hospitalization, outpatient treatment, or State hospitalization; and did not have housing upon release	Refused to consent

DSM-III-R = Diagnostic and Statistical Manual of Mental Disorders, third edition, revised; MH = mental health; MIOCTP = Mentally Ill Offender Community Transition Program; SMI = serious mental illness

Table 14 lists the outcomes reported for each of the studies that addressed Key Question 2. In both Wenzlow et al. and Theurer and Lovell, only subjects with a major mental disorder who required ongoing assistance were enrolled. Wenzlow et al. excluded individuals requiring 24-hour monitoring and Theurer and Lovell excluded Level III sex offenders.

As per the inclusion criteria for this report, all of the studies reported at least one mental health outcome (including mental health service use), and five out of six reported at least one criminal justice outcome as well. One trial each reported function and quality of life. None of the trials reported treatment-related adverse events.

Table 14. Included studies and outcomes for Key Question 2

Reference	Psychiatric Symptoms	Hospitalization for SMI	Time to Rehospitalization	Substance- or Alcohol Use	New Mental Health dx	Completed Suicide	Suicide Attempt	Time to Relapse	Independent Functioning	Quality of Life	Time Incarcerated	Dangerousness to Others	Infractions of Prison Code	Recidivism	Reincarceration	Adverse Events	Mental Health Service Use*	Adherence to Treatment*
Wenzlow et al., 2011 ⁶²																	✓	
Theurer and Lovell, 2008 ⁶¹														✓			✓	
Coid et al., 2007 ⁶³		✓				✓								✓				
Chandler and Spicer, 2006 ⁶⁴	✓	✓												✓			✓	
Van Stelle and Moberg, 2004 ⁶⁵		✓		✓					✓				✓	✓	✓		✓	✓
Solomon and Draine, 1995 ⁶⁶	✓			✓				✓		✓					✓			

* Intermediate outcomes
dx = Diagnosis

The included studies that reported on increases in psychiatric symptoms and rehospitalization used either administrative records or the BPRS, a 1-page 16–18 item scale measuring self-report and patient observation affect and psychotic symptoms.⁵⁷ The single study that reported patient function and medication adherence used agent report data. Substance abuse was reported by two studies; one used urinalysis and the other, the alcohol scale of the Addiction Severity Index. The Addiction Severity Index is a semistructured interview with seven parts, one of which is alcohol use. It covers the past 30 days as well as lifetime use.⁶⁷ Service use, suicide, infractions, and criminal justice outcomes were measured using administrative data.

The single study to report quality of life measured that outcome with the Lehman’s Quality of Life Interview. The Lehman’s Quality of Life Interview is a measure developed for people with severe and persistent mental illness. It is a structured interview that requires administration by a trained interviewer. Quality of life is assessed across eight domains including living

situation, daily activities and functioning, family relations, social relations, finances, work and school, legal and safety, and health.⁶⁸

Risk-of-Bias Assessment

Our risk-of-bias assessments for the studies that address Key Question 2 appear in Table 21 of Appendix D. All six trials were categorized as Moderate risk of bias for all reported outcomes. The most common reasons for the Moderate risk of bias for these studies were lack of randomization (4 trials), use of subjective outcome measures (psychiatric symptoms, substance abuse, quality of life), lack of blinding of outcome assessors (either not performed or not reported, all 6 trials), poor treatment fidelity (3 trials), lack of reporting of ancillary treatment or large differences by treatment group (5 trials), and high attrition (3 trials).

Discharge Planning With Benefit-Application Assistance

Description of Studies

Two trials, Wenzlow et al. and Theurer and Lovell, described a treatment that included a discharge planning component in which subjects received assistance with applying for benefits.^{61,62} The Wenzlow et al. study described that discharge planning managers employed by the State mental health agency to work in correctional facilities assisted prison inmates with applying for Federal disability benefits and Medicaid benefits 4 and 2 months before their scheduled release date, respectively. In the other three trial arms assessed by Wenzlow et al., inmates did not receive application assistance, just treatment as usual in the community upon release. Subjects in the Wenzlow et al. trial were followed for a total of 3 months after release.

The Theurer and Lovell trial describes that subjects in the MIOCTP received assistance with the entitlement application process while in prison, besides other services including postrelease case management, individual and group therapy, housing assistance, co-occurring disorders treatment, and increased monitoring by community corrections officers. The subjects in the comparison arm of the Theurer and Lovell trial resided in a mental health program while in prison and received treatment as usual upon release. Theurer and Lovell trial subjects were followed in the community for 2 years.

A minority of subjects in the Wenzlow et al. trial received ancillary treatment with the Reentry Intensive Care Coordination Team (RICCT). Wenzlow reports that, because the focus of RICCT is not on application assistance, receipt of this service did not affect mental health service use after release. Theurer and Lovell did not report that subjects in their study received ancillary treatment. In both trials, treatment fidelity was noted to be poor. See Table 28 and Table 29 in Appendix E for more information on this and other treatment characteristics.

Subjects in both of these trials tended to be young men, approximately half of which were Caucasian. Over half of the subjects in the Wenzlow et al. trial had basic literacy skills and between 70 percent and 80 percent had a prior or current felony conviction. The Theurer and Lovell publication did not report the literacy level or rate of felony convictions of its participants.

Approximately 27 percent of subjects in the Wenzlow et al. trial had a prior or current felony conviction versus 37 percent of those in the MIOCTP arm of the Theurer and Lovell study. Twenty-two percent of subjects in Wenzlow et al. were incarcerated for 5 years or more. Theurer and Lovell did not report length of conviction. About 5 percent of the Wenzlow study subjects were enrolled in Medicaid at study entry; Theurer and Lovell did not report this participant characteristic. See Table 30 and Table 31 in Appendix E for more detail.

All subjects in Wenzlow et al. trial were described by study authors as having a primary diagnosis of major depression, bipolar disorder, or a psychotic illness, without further detail. In the Theurer and Lovell trial, 56 percent of MIOCTP subjects had a psychotic disorder, 20 percent had depression, and 20 percent, bipolar disorder. Three percent of subjects had another diagnosis, not further defined. All participants in Wenzlow et al. met C1 mental health service classification, indicating a serious mental illness. Wenzlow et al. did not report any other diagnoses of its participants. A mental health risk assessment specialist diagnosed the mental health conditions in the participants in the Theurer and Lovell trial; 89 percent of its subjects had a co-occurring chemical dependence or abuse diagnosis and just over half had a co-occurring personality disorder. See Table 30 and Table 31 in Appendix E for more information.

Findings

Mental health service use upon release from incarceration was reported by both of the discharge planning with application assistance studies.^{61,62} Both the Wenzlow et al. and Theurer and Lovell trials found discharge planning including application assistance led to more mental health service use than no application assistance. Specifically, Wenzlow et al. reported application assistance to be associated with a 16 percent increase in any Medicaid mental health service, a 14 percent increase in outpatient Medicaid mental health services, and a 10 percent increase in prescription drug Medicaid mental health services within 90 days of release from incarceration. Theurer and Lovell made comparisons between MIOCTP participants and a larger, and therefore, unmatched, control group, but they also found that those receiving application assistance used more services and received them sooner upon release from incarceration. MIOCTP subjects received 92 hours of service within the first 90 days after release compared with just 5.5 hours for control subjects. Likewise, MIOCTP subjects received services sooner upon release (2.3 days vs. 185 days). See Table 51 in Appendix F for further detail.

Table 15. Strength-of-evidence grade for studies assessing discharge planning with benefit-application assistance

Comparison	Outcome	Number of Studies (number of patients)	Overall Risk of Bias	Consistency	Directness	Precision	Evidence Favors	SOE Grade
Discharge planning with benefit-application assistance	MH service use upon release	2 (824)	Moderate	Consistent	Indirect	Imprecise	Discharge planning with benefit-application assistance	Low

MH = Mental health; SOE = Strength of evidence

Applicability

In both of the discharge planning with benefit-application assistance studies, the population was made up of young men with an SMI, about half of whom were Caucasian. About one-third had a prior or current conviction for violent crime. These are the only participant characteristics that were reported by both trials. The findings presented here may be applicable only to this subset of inmates. It is important to note that 89 percent of subjects in the Theurer and Lovell study also had a co-occurring chemical dependence or abuse diagnosis and just over half had a

co-occurring personality disorder. These characteristics were not reported by Wenzlow et al. See Table 30 and Table 31 in Appendix E for more detail.

Intensive Dual Diagnosis Treatments

Description of Studies

Three studies describe treatments for individuals with dual diagnoses versus treatment as usual in the community.^{61,64,65}

The Van Stelle and Moberg study described a mentally ill chemical abuser (MICA) therapeutic community that was started in prison and continued in the community upon release. The in-prison program included daily group and individual mental health and substance abuse counseling sessions, sessions to deal with issues that arose in the community living setting, structured social activities, and classes on topics such as anger management and improving one's physical health. Upon release, prisoners continued to meet monthly with specially trained staff members, were closely monitored for medication adherence, and received assistance in obtaining community services. In the other trial arm, subjects received treatment as usual in the community. Followup lasted for 1 year and treatment fidelity was not reported.

In the second trial to assess dual diagnosis treatment, Chandler and Spicer described that jail inmates in both trial arms received intensive assessment, medication, discharge planning, counseling, and crisis intervention while in custody. Upon release, one group of subjects received high-fidelity IDDT in the community while other subjects received treatment as usual in the community, supplemented by housing assistance and up to 60 days of case management. Subjects in the Chandler and Spicer trial were followed for a maximum of 2.5 years and treatment fidelity was rated as high.

A third trial, Theurer and Lovell, described that subjects in the MIOCTP received assistance with the entitlement application process while in prison besides other services including postrelease case management, individual and group therapy, housing assistance, co-occurring disorders treatment, and increased monitoring by community corrections officers. The subjects in the comparison arm of the Theurer and Lovell trial resided in a mental health program while in prison and received treatment as usual upon release. Theurer and Lovell trial subjects were followed in the community for 2 years. Treatment fidelity was noted to be poor in this trial. None of these trials reported that subjects received ancillary treatments. See Table 28 and Table 29 in Appendix E for these and other treatment characteristics.

Participants in the Van Stelle and Moberg and Chandler and Spicer trials had to have a co-occurring substance abuse diagnosis and to have committed either a felony or been arrested two times in the 2 years preceding the index offense or to have spent a minimum of 90 days in jail, respectively, to be enrolled. The Theurer and Lovell study did not require subjects to have a dual diagnosis, but 89 percent of its participants did. The study enrolled subjects with a major mental illness and a criminal history believed to have been affected by that mental illness and who were judged to be poor candidates for successful community reintegration without ongoing assistance.

Two dual diagnosis treatment trials, Van Stelle and Moberg and Theurer and Lovell, enrolled subjects who were, on average, 36 years of age. A majority of Chandler and Spicer subjects were between 36 and 50 years of age. Van Stelle and Moberg and Theurer and Lovell study participants were more likely to be Caucasian than those enrolled in the Chandler and Spicer trial (43 percent, 51 percent, and 21 percent, respectively) and all three trials enrolled subjects that were predominantly male. The mean Test of Adult Basic Education score in Van Stelle and

Moberg subjects was 6.6, indicating a sixth grade reading level. Neither Theurer and Lovell nor Chandler and Spicer reported a measure of basic literacy.

All subjects in Van Stelle and Moberg had a current or prior felony conviction (more than 40 percent for crimes of violence). A little more than a third of subjects in the Theurer and Lovell trial had a prior or current conviction for violent crime. Chandler and Spicer study subjects had two or more jail episodes within the past 2 years or spent at least 90 days in jail, suggesting more criminality in the Van Stelle and Moberg sample than in the other two trials. MICA participants were incarcerated 7.6 years, on average. Length of incarceration was not reported by the other two studies. None of these trials reported the percentage of clients with Medicaid at study entry. See Table 29 in Appendix E for more information.

All three dual diagnosis treatment studies used trained clinical staff members to diagnose SMI in their respective samples. The clinical staff members in the Chandler and Spicer study were aided in their diagnostic assessment by use of the Psychiatric Research Interview for Substance and Mental Disorders (PRISM); clinicians in the Van Stelle and Moberg study used a variety of tools to determine the primary diagnosis. Van Stelle and Moberg enrolled 21 percent of subjects with diagnoses that did not meet this report's definition of SMI including: no Axis 1 (4 percent), drug-related psychotic disorder (11 percent), anxiety/mood disorders (1 percent), and other (5 percent).

A majority of subjects in the Van Stelle and Moberg and Chandler and Spicer investigations had an alcohol or substance diagnosis. Theurer and Lovell reported that 89 percent of subjects had co-occurring chemical dependence or abuse, although that was not a requirement for enrollment. None of the subjects in the MICA therapeutic community arm of the Van Stelle and Moberg trial had a co-occurring personality disorder and the posttraumatic stress disorder rate was not reported. Eight percent of the total sample of the Chandler and Spicer study had either co-occurring posttraumatic stress disorder or another anxiety disorder while half of the subjects in the Theurer and Lovell trial had a co-occurring personality disorder. See Table 30 in Appendix E for more detail.

Findings

One dual diagnosis treatment trial reported change in psychiatric symptoms.⁶⁴ Chandler and Spicer reported the mean number of crisis visits per treatment group as well as the percentage of participants who experienced a crisis during the study followup period. The mean number of crisis visits was significantly lower among participants receiving high-fidelity IDDT compared with the treatment-as-usual group (2.10 [4.59] vs. 3.32 [6.95], $p=0.004$), and there was a lower percentage of patients experiencing any crisis, although this did not reach statistical significance. See Table 41 in Appendix F for more information.

Chandler and Spicer also reported on psychiatric hospitalizations and found that those receiving high-fidelity IDDT experienced fewer days in a psychiatric hospital than those in the treatment-as-usual group. Van Stelle and Moberg also reported psychiatric hospitalizations, operationalized as a documented institutional transfer to a mental health facility in the case files. They found that participation in the MICA therapeutic community led to fewer hospitalizations than treatment as usual (20.77 percent vs. 43.00 percent, $p=0.000$). See Table 42 in Appendix F for more information.

Only one trial, Van Stelle and Moberg, reported level of function as measured by appropriate housing, existence of an adequate social support system, and observation that the individual appeared "stable," all based on agent reports. MICA therapeutic community clients were more

often rated as having adequate housing (83 percent vs. 79 percent) and as stable (58 percent vs. 44 percent) and the same as treatment-as-usual clients on presence of a social support system (76 percent vs. 76 percent), although none of these differences reached statistical significance. See Table 43 in Appendix F for more detail.

The Van Stelle and Moberg study was also the only trial to report medication adherence. Clients in MICA therapeutic community were more likely than participants in the treatment-as-usual arm to take their medications consistently, based on agent reports (58 percent vs. 34 percent, $p=0.005$). See Table 44 in Appendix F for more detail.

Van Stelle and Moberg reported substance abuse based on self-reported, 3-month abstinence rates (63.0 percent vs. 49.0 percent) and positive urinalysis rates (12 percent and 15 percent), both of which favored the MICA therapeutic community group over treatment as usual, but not to a level of statistical significance. See Table 45 in Appendix F for more information.

Mental health service use upon release from incarceration was reported by Theurer and Lovell and Chandler and Spicer. Theurer and Lovell found more mental health service use among clients in MIOCTP than clients receiving treatment as usual. However, as this comparison was to a larger control group than the original matched sample, no calculations were performed.

Chandler and Spicer found high-fidelity IDDT to increase service use more than treatment as usual. Seventy-seven percent of clients in IDDT received services within 60 days of release versus 18 percent of clients given treatment as usual ($p=0.000$). A similar result was found for outpatient medication service, with 83 percent of clients in IDDT and 62 percent of clients in the treatment-as-usual group receiving these services ($p=0.01$). See Table 51 in Appendix F for more detail.

Theurer and Lovell also reported that clients in MIOCTP received 20 hours of service while in prison compared with 0.7 hours in the comparison group. No calculation of a difference in effect size is presented, however, because this outcome was not based on the matched control group, but a larger “control” cohort. In the Van Stelle and Moberg trial, 45 percent of clients in a MICA therapeutic community versus 29 percent of the treatment-as-usual group accessed institutional mental health services while in prison ($p=0.03$). No difference by group membership was evident in terms of in prison medication monitoring (96.2 percent and 94.0 percent, $p=0.39$). See Table 48 in Appendix F for more information.

The Van Stelle and Moberg study was the only trial to report institutional infractions. The investigators measured infractions in six different ways: percentage in segregation, average days in segregation, percentage with a minor conduct disorder, average number of subjects with a minor conduct report, percentage with major conduct reports, and average number of major conduct reports. Because no measure of variance was presented for average days in segregation or average number of major or minor conduct reports, no effect size could be calculated for these three measures. However, for the remaining three measures (percentage in segregation, percentage with a minor conduct disorder, and percentage with a major conduct disorder) a trend was evident for clients in a MICA therapeutic community to have fewer institutional infractions than clients receiving treatment as usual, although not all differences reached statistical significance. See Table 49 in Appendix F for more information.

Table 16. Strength-of-evidence grade for studies assessing interventions for dual diagnosis

Comparison	Outcome	Number of Studies (Patients)	Overall Risk of Bias	Consistency	Directness	Precision	Evidence Favors	SOE Grade
Intensive jail treatment followed by high-fidelity IDDT vs. intensive jail treatment followed by treatment as usual	Psychiatric symptoms (crisis visits)	1 (182)	Moderate	Unknown (1 study)	Direct	Precise	High-fidelity IDDT	Insufficient
Intensive dual disorder treatment vs. treatment as usual in the community	Psychiatric hospitalization (administrative records)	2 (460)	Moderate	Consistent	Direct	Precise	Intensive dual disorder treatment (MICA and high-fidelity IDDT)	Low
MICA vs. treatment as usual	Function (correctional facility agent reports)	1 (278)	Moderate	Unknown (1 study)	Direct	Imprecise	MICA	Insufficient
MICA vs. treatment as usual	Medication adherence (correctional facility agent reports)	1 (278)	Moderate	Unknown (1 study)	Indirect	Precise	MICA	Insufficient
MICA vs. treatment as usual	Substance use (urinalysis)	1 (278)	Moderate	Unknown (1 study)	Direct	Imprecise	MICA	Insufficient
Intensive dual disorder treatment vs. treatment as usual in the community	Mental health service use upon release (administrative records)	2 (320)	Moderate	Consistent	Indirect	Imprecise	Intensive dual disorder treatment (MIOCTP and high-fidelity IDDT)	Low
Intensive dual diagnosis treatment vs. treatment as usual	Mental health service use during incarceration (administrative records)	2 (416)	Moderate	Consistent	Indirect	Imprecise	Intensive dual diagnosis treatment (MIOCTP and MICA)	Low

Comparison	Outcome	Number of Studies (Patients)	Overall Risk of Bias	Consistency	Directness	Precision	Evidence Favors	SOE Grade
MICA vs. treatment as usual	Institutional infractions (time in segregation, conduct reports)	1 (278)	Moderate	Unknown (1 study)	Direct	Imprecise	MICA	Insufficient

IDDT = Integrated dual disorders treatment; MICA = mentally ill chemical abuser; MIOCTP = Mentally Ill Offender Community Transition Program; SOE = strength of evidence

Applicability

On the whole, the three studies that enrolled patients with dual diagnoses to test the efficacy of comprehensive co-occurring disorders treatment enrolled non-Caucasian, middle-aged men, between 36 and 50 years of age. In two of the three trials, about 40 percent had a current or prior violent conviction. In the third trial, Chandler and Spicer, participants seem to have had less criminal justice involvement because the inclusion criteria required only that subjects had two or more jail episodes in the past 2 years or 90 days in jail. The rate of co-occurring personality disorders was variable from study to study. Thus, the findings presented here may be applicable only to this subset of inmates. See Table 30 and Table 31 in Appendix E for more detail.

Specialist Versus Generalist Treatments

Description of Studies

The last two trials, Coid et al. and Solomon and Draine, describe treatments administered by specialists compared with treatments administered by general mental health staff.^{63,66} All subjects in the Coid et al. trial received standard-of-care treatment in a medium-secure unit of a psychiatric hospital. Upon release, individuals received either forensic specialist psychiatric care or mental health generalist care in the community for an average of a little more than 6 years.

In the Solomon and Draine trial, subjects were assigned to one of three conditions: mental health service in jail and ACT upon release, forensic specialist services in jail and after release, or mental health service in jail followed by intensive case management brokered services. Subjects in the ACT treatment arm had case management services available 24 hour per day, 7 days a week, if needed. They also received assistance with housing, daily living and coping skills, locating resources, and supportive services for their family members. Participants in the Solomon and Draine study were followed for 1 year.

No ancillary treatments were reported by either of these studies. Treatment fidelity was noted to be poor in the Solomon and Draine study. Coid et al. did not comment on treatment fidelity. See Table 28 and Table 29 in Appendix E for these and other treatment characteristics.

Subjects in the Solomon and Draine study were jail inmates due to be released in 4–6 weeks with a major mental illness, functional limitations, no housing upon release, and recent mental health service use. Participants in the Coid et al. trial were in a medium-secure forensic psychiatric service at the time of enrollment. No other details were provided. See Table 13 for more information.

The two trials enrolled subjects in their late 20s to early 30s. Coid et al. did not report the ethnic breakdown of study participants, but 30 percent of those enrolled in Solomon and Draine were Caucasian. Between 14 percent and 27 percent of the sample was female. Education levels in the Solomon and Draine study were low, with two-thirds of participants not completing high school. Coid et al. did not report a measure of literacy or education level attained.

Solomon and Draine did not report on the percentage of participants with convictions for violent crimes. However, their study subjects were serving an average of 9.5 year terms during the study period. Approximately 50 percent of those in the Coid et al. trial had a history or current violent-crime conviction. Neither study reported on felony conviction status or Medicaid enrollment upon study entry. See Table 30 and Table 31 in Appendix E for more detail.

Participants in the specialist-versus-generalist trials, Coid et al. and Solomon and Draine, had disease diagnoses based on clinical files using ICD-10 and DSM III-R criteria, respectively. The

majority of participants in each trial had a diagnosis of schizophrenia or schizoaffective disorder. Based on clinical charts, a little more than half of subjects in the Solomon and Draine study had substance use involvement while about 25 percent of Coid et al. study participants had alcohol dependence or substance dependence. It is unclear to what extent these groups overlapped. Solomon and Draine did not report rates of co-occurring personality disorder, but 16 percent of Coid’s sample had a co-occurring antisocial personality disorder. See Table 31 in Appendix E for further detail.

Findings

Solomon and Draine measured change in psychiatric symptoms, substance abuse, and quality of life. Coid et al. did not report these outcomes. Solomon and Draine note that these outcome variables were dropped from the discriminant analysis because they did not add to the model’s predictive power. See Table 41, Table 45, and Table 46 in Appendix F for more information.

Coid et al. reported psychiatric hospitalizations and was the sole study to present findings on completed suicides. For psychiatric hospital readmissions, the authors found no difference between treatment groups for this outcome once potential confounders were controlled for. See Table 42 in Appendix F for more detail. Coid et al. also found no difference between participants treated by forensic specialists and those treated by mental health generalists in completed suicide rates (10/409 (2.4%) vs. 20/652 (3.1%), $p=0.55$). See Table 48 of Appendix F for additional detail.

Table 17. Strength-of-evidence grade for studies assessing specialist versus generalist treatment

Comparison	Outcome	Number of Studies (number of patients)	Overall Risk of Bias	Consistency	Directness	Precision	Evidence Favors	SOE Grade
ACT vs. forensic specialist vs. treatment as usual	Psychiatric symptoms	1 (176)	Moderate	Unknown (1 study)	Direct	Imprecise	—	Insufficient
Forensic specialist vs. general MH services	Psychiatric hospitalizations	1 (1061)	Moderate	Unknown (1 study)	Direct	Imprecise	Forensic specialist	Insufficient
ACT vs. forensic specialist vs. treatment as usual	Substance abuse	1 (176)	Moderate	Unknown (1 study)	Direct	Imprecise	—	Insufficient
ACT vs. forensic specialist vs. treatment as usual	Quality of life	1 (176)	Moderate	Unknown (1 study)	Direct	Imprecise	—	Insufficient
Forensic specialist vs. general MH services	Completed suicide	1 (1061)	Moderate	Unknown (1 study)	Direct	Imprecise	Forensic specialist	Insufficient

ACT = Assertive community treatment; MH = mental health; SOE = strength of evidence

Applicability

The two trials that compared treatment provided by a specialist versus treatment by a generalist enrolled mostly males with an SMI in their early to mid-30s. In the Coid et al. trial, more than 40 percent had a prior violent criminal history. Participants in the Solomon and Draine trial were incarcerated, on average, 9.5 years, suggesting they, too, had a significant criminal history. Between 25 percent and 50 percent of enrollees in these trials had a substance abuse disorder and about 10 percent of the subjects in the Coid et al. study had a co-occurring diagnosis of antisocial personality disorder. Solomon and Draine did not report that patient characteristic. The findings presented here may be applicable only to this subset of inmates. See Table 30 and Table 31 in Appendix E for more detail.

Discussion

Key Findings and Strength of Evidence

This review covered the treatment of offenders with SMI. This is a population that has trouble coping with prison life and is more likely to return to incarceration following release than offenders without SMI.

Two studies (low strength of evidence) suggest that providing inmates with discharge planning which includes Medicaid application assistance is likely to increase their use of mental health services upon release. Theoretically, increased mental health service use will lead to better control of their mental health symptoms, which, in turn, may lessen future contacts with the criminal justice system.

This findings of this review also suggest that providing offenders who have dual diagnoses with a comprehensive, integrated, and intensive dual diagnosis treatment intervention increases mental health service use both during and after release from incarceration and may reduce psychiatric hospitalizations better than standard of care. This review did not gather information on the financial costs of implementing either of these potentially promising treatments. See Table 18 below for more detail.

Table 18. Summary of Findings

Key Question	Comparison	Outcome	SOE Grade
Key Question 1 – incarceration setting	Clozapine vs. other antipsychotics	Psychiatric symptoms; independent functioning	Insufficient
	Risperidone vs. other antipsychotics	Psychiatric symptoms; institutional infractions	Insufficient
	High dose chlorpromazine vs. standard dose	Psychiatric symptoms	Insufficient
	Cognitive problem solving group (R & R) vs. treatment as usual	Psychiatric symptoms	Insufficient
	Cognitive group therapy vs. individual supportive therapy	Psychiatric symptoms	Insufficient
	Modified therapeutic community vs. intensive outpatient	Psychiatric symptoms; substance abuse; criminal justice outcomes	Insufficient
	Modified therapeutic community vs. standard mental health treatment	Psychiatric symptoms; substance abuse; criminal justice outcomes	Insufficient
Key Question 2 – incarceration-to-community transition setting	Discharge planning with benefit-application assistance vs. no application assistance	Mental health service use upon release ^a	Low in favor of discharge planning with benefit-application assistance
	Intensive jail treatment followed by high-fidelity integrated dual diagnosis treatment vs. intensive jail treatment followed by treatment as usual	Psychiatric symptoms (crisis visits)	Insufficient
	Intensive dual disorder treatment vs. treatment as usual in the community	Psychiatric hospitalization (administrative records)	Low in favor of intensive dual disorder treatment
	Mentally ill chemical abuser treatment vs. treatment as usual	Function (correctional facility agent reports)	Insufficient
	Mentally ill chemical abuser treatment vs. treatment as usual	Medication adherence (correctional facility agent reports)	Insufficient
	Mentally ill chemical abuser treatment vs. treatment as usual	Substance use (urinalysis)	Insufficient
	Intensive dual disorder treatment vs. treatment as usual in the community	Mental health service use upon release (administrative records) ^a	Low in favor of intensive dual disorder treatment
	Intensive dual diagnosis treatment vs. treatment as usual	Mental health service use during incarceration (administrative records) ^a	Low in favor of intensive dual disorder treatment
	Mentally ill chemical abuser vs. treatment as usual	Institutional infractions (time in segregation, conduct reports)	Insufficient

Findings in Relationship to What is Already Known

Overall, our searches identified nine previous systematic reviews on some of the treatments assessed under Key Question 1 of this review. Two comprehensive systematic reviews have been conducted on interventions for offenders with SMI; however, neither review described the interventions assessed in their included studies and both conducted meta-analyses based on single treatment components (e.g., presence or absence of a homework component).^{18,19} An important goal of our CER is to describe incarceration-based and incarceration-to-community interventions in a manner that would allow treatment providers to replicate effective treatments and to identify gaps in the scientific literature for future research in the field.

Two of these previous systematic reviews examined the effectiveness of pharmacotherapy for the treatment of offenders with mental illness. Griffiths et al. found that using more than one psychotropic medication simultaneously was a common practice in prison, as was prescribing medication at doses above the recommended maximum daily amount.²⁰

Huband et al. examined the effectiveness of antiepileptic pharmacotherapy on prisoners with personality disorders, as well as variety of other individuals requiring treatment for recurrent aggression. These researchers identified one study which demonstrated that high-dose diphenylhydantoin was superior to low-dose diphenylhydantoin at reducing the intensity and frequency of aggressive outbursts.²¹ In our review, the evidence was insufficient to determine comparative effectiveness of one medication versus another. In the one study that assessed high-dose versus low-dose pharmacotherapy (chlorpromazine), investigators found more side effects among patients on the higher dose.

Another systematic review examined the effectiveness of psychological interventions on reoffending behavior in a variety of male offender populations. Nagi and Davies performed a qualitative synthesis of the evidence and concluded that cognitive behavioral therapy was the most effective treatment and the most commonly offered treatment in low secure forensic settings.²² Our review did not find cognitive therapy to be more effective than more standard psychological treatment, but as previously indicated, more research is needed.

A final systematic review examined the effectiveness of modified therapeutic community compared with standard of care. However, this review, by Sacks et al., only included studies conducted by the author's own research team. Sacks reported that, based on a qualitative synthesis, modified therapeutic community was superior to standard of care at improving both mental health and criminal justice outcomes.²³ Our review identified too much heterogeneity in the study populations of these trials to feel comfortable combining them in an analysis.

For Key Question 2, the incarceration-to-community transition setting, there was limited evidence that discharge planning with benefit application assistance increased the use of mental health services upon release from incarceration. There was also limited evidence that intensive dual diagnosis treatments were more effective than standard treatments at reducing psychiatric hospitalizations and increasing mental health service use both during and upon release from incarceration. None of the identified previous systematic reviews reported on these treatments.

Two studies assessed the efficacy of treatments provided by forensic specialists versus mental health generalists. However, as only one trial reported any outcome of interest, the evidence was insufficient to draw a conclusion. More research is needed to better assess the impact of provider type on treatment outcomes. However, one ongoing trial is testing the efficacy of forensic assertive community treatment (FACT) with enhanced outpatient treatment for individuals with a psychotic disorder who are facing criminal charges but who have not yet been sentenced. This trial is due to be completed in May, 2013. Perhaps once the findings of this

trial are published, we may be able to draw a conclusion about the effectiveness of forensic specialist provided treatments.

Implications for Clinical and Policy Decisionmaking

Our conclusions that discharge planning with benefit application assistance and intensive dual disorders treatments upon community reentry improves outcomes among offenders with SMI were based on a low strength of evidence. Also, this review did not gather information on the cost of administering either of these treatments versus the standard of care. As such, mental health care providers and correctional facility administrators need to consider whether to implement either of these two treatments in incarceration-to-community settings or wait until more evidence becomes available about their comparative effectiveness.

Limitations of the Comparative Effectiveness Review Process

This report considered treatments for offenders with SMI. Variability exists in definitions of what constitutes SMI. For instance, according to State Mental Health Parity laws, only Diagnostic and Statistical Manual of Mental Disorders, fourth edition, Axis I diagnoses characterized by psychosis or an affective element (e.g., schizophrenia, major depressive disorder) are considered to be an SMI. Other, more clinically-based definitions emphasize a combination of diagnosis, duration of illness, and degree of functional disability.^{69,70} For this report, we limited the definition to schizophrenia, schizoaffective disorder, bipolar disorder, and major depression. Some trials were eliminated from inclusion because we were unable to determine whether the study population had SMI or investigators relied on self-reported mental illness as the basis for enrolling patients into the trial.

We also limited our evidence base to studies that reported at least one mental health outcome. A handful of studies identified in our literature search were excluded for failure to report a mental health outcome.

Another difficulty encountered in conducting this review was the tendency of study authors to describe the intervention of interest in detail while poorly describing the treatment comparator. This was particularly pronounced when the comparator was treatment as usual. Some of the included trials also reported more outcomes for the treatment of interest than for the comparator treatment. In some instances, it seems that the authors had more information about participants who received the treatment of interest. This may have been due to our inclusion of retrospectively conducted comparative trials.

Finally, noncomparative trials were the more common study design identified in our literature searches, but as this is a comparative effectiveness review we were unable to use data from those reports. As previously stated, more comparative trials are needed on this topic.

Limitations of the Evidence Base

Overall, comparative trials assessing interventions for offenders with SMI in an incarceration or incarceration-to-community setting are few. Female offenders and offenders with bipolar disorder or major depression were underrepresented in the included trials that made up our evidence base. None of the treatments evaluated for Key Question 1, the incarceration setting, took place in jail, which houses inmates for shorter stays who have committed less serious offenses. Only three types of interventions were identified for each of the two key questions addressed by this report, although we know from our searches that other treatments, like

telepsychiatry and telepsychology, are gaining popularity in these settings. Treatment fidelity was noted to be poor in most of the trials that reported this. The comparator treatment in many of the trials assessed was not described in as much detail as was the treatment of interest, making it difficult to assess if the comparator tested was the best comparator available. For Key Question 2, in particular, there was a lack of patient oriented outcome reporting. Therefore, for most outcomes, the strength of evidence was graded as insufficient for both the incarceration and incarceration-to-community settings.

For Key Question 1 specifically, all of the included trials had a moderate risk of bias and did report patient-oriented (or direct) outcomes. The main problem with the evidence base for Key Question 1 was the limited number of trials assessing the same intervention. Therefore, the strength of evidence for Key Question 1 was graded as insufficient for all reported outcomes.

For Key Question 2, all of the included trials also had a moderate risk of bias, but again, there were simply too few studies assessing the same intervention. For instance, the largest evidence base (three trials) assessed dual diagnosis treatments, but as only two of the three trials reported the same outcome, we assessed the strength of evidence as low.

Research Gaps

Methodological Considerations

Few comparative trials were available that assessed treatments for offenders with SMI. Much of the research in this field uses a case series design, assessing the same patients before and after treatment. Unfortunately, because most mental illness symptoms tend to wax and wane over time, this is not the preferred study design for this particular population. Other comparative trials compared one active treatment with subjects not receiving any treatment. Treatment comparators should be the best comparator available, which may be the standard of care. As standard of care may vary from one setting to another, a good description of the treatment provided is important.

Treatment fidelity was not consistently reported by study authors, and when it was reported, it was often found to be inadequate. Going forward, researchers may attempt to closely monitor and maintain fidelity throughout the trial, so the treatments' maximum benefit potentials can be determined. Once a program is established, researchers can attempt to implement it with some variations to see if the treatment effect remains constant.

As expected with vulnerable populations, attrition was high in some of the included trials. In one trial, 1-year followup data could not be assessed because more than 50 percent of the sample had dropped out by that point. Intention-to-treat analysis could be employed to help overcome this shortcoming.

Substantive Gaps

Overall, few trials with active comparators were identified that assessed the impact of treatments for offenders with SMI on mental health. Below we outline specific research gaps based on the PICOS (population, intervention, comparator, outcome, setting) framework.

Female and Mood-Disordered Incarcerated Research Participants

For treatments administered in the incarceration setting, we noted that all but one of the included trials enrolled male offenders. One study of modified therapeutic community was the exception. We also found that most of the included trials, including all of the pharmacotherapy

trials, enrolled patients with schizophrenia and/or schizoaffective disorder. The all-female modified therapeutic community intervention was also the only trial to enroll offenders with bipolar disorder, although they made up less than a third of its participants.

Offenders with depression were also underrepresented in the included studies for Key Question 1. Approximately 60% of the all-female modified therapeutic community intervention had a diagnosis of depression and 100% of those in the study assessing group cognitive therapy were depressed. Future researchers should consider studying the effectiveness of pharmacotherapy, cognitive therapy, and modified therapeutic community interventions on female offenders and those with primary mood disorders.

Comparative Trials of Other Commonly Used Interventions

Future researchers should also attempt to study the effectiveness of other interventions for which we were unable to identify trials directly comparing interventions. For example, one systematic review by Khalifa et al. reported that videoconferencing appears to be an effective treatment in incarceration settings, but that review did not limit itself to comparative trials.²⁴

For treatments administered in the incarceration-to-community setting, we noted that the included studies were fairly representative of offenders regardless of their sex, ethnicity, or SMI diagnosis. However, very few treatments were studied in the incarceration-to-community setting. For example, no trials of medication initiated in incarceration and continued in the community were identified.

Balanced Reporting of All Interventions Assessed

The included trials which addressed Key Question 1 tended to describe the treatment of interest in detail but provided very little information about the comparator treatment. In one of the clozapine trials, the study author did not provide any more detail than that clozapine was being compared to other antipsychotics. Neither of the clozapine trials reported the dosage of the antipsychotic comparator. More detailed information about comparators is needed so future researchers can replicate existing studies and to insure that studies are using the best comparator available.

As with Key Question 1, the included trials which addressed Key Question 2 tended to describe the treatment of interest in detail but provided very little information about the comparator treatment, the education level of its provider and whether ancillary treatments were also received by study participants. Future research may benefit from providing a more balanced description of both trial arms.

Standardization of Assessment Tools

Future researchers might also want to standardize which outcomes they report and how these outcomes are measured. Investigators used different assessment tools for measuring the same outcome. More standardization, including the use of validated assessment instruments, is needed.

Comparative Trials in the Jail Setting

None of the trials that addressed Key Question 1 was conducted in a jail setting. More research is needed on the effectiveness of pharmacotherapy, cognitive therapy, and modified therapeutic community for offenders with SMI who experience longer stays in a jail setting. It is not clear whether the findings from other settings (e.g., prison) would also apply to longer stay jail inmates.

Patient-oriented Outcome Reporting

Future researchers might also consider reporting more downstream, patient-oriented outcomes. Some of our main findings for Key Question 2 relate to treatments that improve mental health service use. However, based on the available evidence, we cannot determine if increased service use led to improved patient outcomes, like a decrease in psychiatric symptoms.

All settings of interest were represented among the trials that addressed Key Question 2.

Ongoing Clinical Trials

Four ongoing comparative trials, all RCTs, were identified through the National Clinical Trials database, ClinicalTrials.gov. Two trials are sponsored by the National Institute on Drug Abuse, one is a university-sponsored trial, and the fourth is industry sponsored. The trials are testing the following interventions: (1) MTC versus standard case management for prisoners with dual diagnoses, (2) interpersonal psychotherapy in female prisoners with dual diagnoses, (3) FACT with enhanced outpatient followup without judicial monitoring in psychotic offenders, and (4) monthly paliperidone palmitate injection compared with oral antipsychotic treatments in delaying time to treatment failure for incarcerated individuals with schizophrenia. The trials are due to be completed between June 2011 and October 2013. Their expected enrollment ranges from 70 to 442 subjects. Once published, the additional evidence on MTC may allow a more robust conclusion in systematic reviews. See Table 54 in Appendix I for more detail.

Conclusions

Few comparative trials assessing interventions for offenders with SMI in an incarceration or incarceration-to-community setting were identified. Therefore, the body of evidence was graded as low to insufficient for both the incarceration and incarceration-to-community settings. Results are presented below for interventions that were tested in a minimum of two trials that reported the same outcome.

For treatment in the incarceration setting, the two trials that compared clozapine with other antipsychotics failed to demonstrate a difference in effectiveness. However, clozapine was associated with a high rate of adverse events. Cognitive therapy was compared with other psychological treatment in two trials. One trial found clients treated with cognitive therapy improved more than clients treated with standard psychological treatment but the other did not find a difference by treatment group.

Two trials that evaluated MTC versus standard treatment, one in a female group and the other in a male population, found no between-group differences in psychiatric symptoms. Both trials reported substance abuse, with one favoring MTC and the other finding no difference by treatment arm. These trials also assessed several measures of recidivism but had conflicting results, with one favoring MTC and the other trial finding no difference between MTC and standard treatment.

For the incarceration-to-community setting, a minimum of two trials in all three intervention categories reported on at least one outcome of interest. Both trials that specified study participants received assistance with their benefit applications as part of the discharge planning process, whether alone or in combination with other interventions, found this to be an effective treatment for increasing service use. Unfortunately, discharge planning was combined with additional treatment components, so it is unclear what role those additional components may have had on service use upon release from incarceration.

Two studies clearly fell into the intensive dual diagnosis treatment category and a third study, by Theurer and Lovell, was classified in that category as well, given its high rate of study participants with dual diagnoses and the fact that substance abuse counseling was one component in the comprehensive MIOCTP program these authors evaluated. Two dual-diagnosis trials reported that psychiatric hospitalizations were reduced and that service use, both during incarceration and upon release, was increased among clients who received intensive dual diagnosis treatment compared with other, nondual-diagnosis treatments.

One trial compared treatment provided by a forensic specialist to treatment as usual and to ACT. A second trial compared treatment by a forensic specialist with treatment provided by a mental health generalist. Insufficient evidence exists to draw a conclusion about the comparative effectiveness of treatments administered by a forensic specialist over a mental health generalist for psychiatric symptomology, psychiatric hospitalization, substance abuse, quality of life, and completed suicide because only one trial reported each of these outcomes.

In sum, correctional facilities may want to consider adding discharge planning with benefit-application assistance and intensive dual diagnosis therapy to the treatments they currently provide to offenders with SMI reentering the community. Correctional facility administrators, clinicians and other interested parties may also want to use the information concerning research gaps identified in this report to encourage investigators to focus their efforts in the future on addressing those gaps.

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