Appendix S: Health economic evidence – evidence tables

Contents

Abbreviations

A&E	accident and emergency
BPRS	Brief Psychiatric Rating Scale
CAMI	Community Attitudes toward Mental Illness Scale
CBT	cognitive behavioural therapy
CSI	Colorado Symptom Index Scale
FACT	Forensic Assertive Community Treatment
GP	general practitioner
HCV	hepatitis C virus
MHC	Mental Health Court
MSU	medium secure unit
N	number of participants
OR	odds ratio
RCT	randomised controlled trial
SA	substance abuse
SC	standard care
SD	standard deviation
SDS	Social Distance Scale
SE	Standard error
SF-12	12-Item Short Form Health Survey
SMI	serious mental illness
TAU	treatment as usual
TC	therapeutic community
WSAS	Work and Social Adjustment Scale

S.1 Support, training and education, and supervision programmes for health, social care or criminal justice practitioners

S.1.1 Training for criminal justice practitioners

S.1.1.1 Reference to included study

1. Krameddine YI, DeMarco D, Hassel R, Silverstone PH. A novel training program for police officers that improves interactions with mentally ill individuals and is cost-effective. Frontiers in Psychiatry 2013; 4-9.

Study **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Krameddine and colleagues (2013) Canada Cost consequence analysis	Interventions: One day training for police officers (scripted role-play training, which involved police officers interacting with highly trained actors during 6 realistic scenarios) with the aim of improving empathy, communication skills, and the ability of officers to de-escalate potentially difficult situations when dealing with people with	Police officers Observational pre-post study (N = 663) Source of clinical effectiveness data: observational pre-post study Source of resource use data: observational pre-post study Source of unit costs: unclear	Costs: programme provision (staff time, actors' training and attendance) Mean programme cost: $120 per officer Measures of outcome: measures of attitude total CAMI scale score, total SDS scores; measurement of knowledge (mental illness recognition scale, mental illness knowledge), process outcomes. No significant changes in: • CAMI scale scores • SDS scale scores • Mental illness knowledge scores Mean scores on the mental illness	One day police officer training results in a cost increase. However, these costs should be offset by improvements in process outcomes such as the reduced time spent per mental health call.	Perspective: service provider (intervention costs only) Currency: CAD Cost year: likely 2012 Time horizon: 7 months Discounting: NA Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
	mental health problems No intervention		recognition scale: • Baseline: 1.9 (SD2.8) • Follow-up: 1.3 (SD 2.9) • Difference: -0.6, p = 0.011 Supervising officer survey ratings: Ability to communicate with public • Baseline: 3.49 (SD 0.86) • Follow-up: 3.73 (SD 0.77) • Difference: 0.24, p = 0.001 Ability to verbally de-escalate situation • Baseline: 3.39 (SD 0.87) • Follow-up: 3.65 (SD 0.79) • Difference: 0.26, p < 0.001 Level of empathy with public • Baseline: 3.51 (SD 0.73) • Follow-up: 3.73 (SD 0.73) • Difference: 0.22, p = 0.003 There was also an improvement in the process outcomes: police officers were better equipped to identify a call as being due to mental health issue, spent less time on each mental health call, there was reduction in the use of police force.		

S.2 Interventions for adults with mental health problems in contact with the criminal justice system

S.2.1 Psychosocial interventions

S.2.1.1 References to included studies

1. Daley M, Love CT, Shepard DS, Petersen CB, White KL, Hall FB. Cost-Effectiveness of Connecticut's In-Prison Substance Abuse Treatment. Journal of Offender Rehabilitation. 2004;39:69-92.

S.2.1.2 References to excluded studies

1. Benton C, Roy A. The first three years of a community forensic service for people with a learning disability. The British Journal of Forensic Practice. 2008;10:4-12. (Not sufficient detail provided on the costings).

2. French MT, Fang H, Fretz R. Economic evaluation of a prerelease substance abuse treatment program for repeat criminal offenders. Journal of Substance Abuse Treatment. 2010;38:31-41. (Part of the programme was delivered in a residential substance abuse treatment facility – outside the scope).

3. McCollister KE, Scott CK, Dennis ML, Freitas DM, French MT, Funk RR. Economic costs of a postrelease intervention for incarcerated female substance abusers: recovery management checkups for women offenders (RMC-WO). Journal of Offender Rehabilitation. 2014;53:543–61. (Intervention cost only reported).

4. Needham M, Gummerum M, Mandeville-Norden R, Rakestrow-Dickens J, Mewse A, Barnes A, et al. Association Between Three Different Cognitive Behavioral Alcohol Treatment Programs and Recidivism Rates Among Male Offenders: Findings from the United Kingdom. Alcoholism: Clinical and Experimental Research. 2015;39:1100-07. (Intervention cost only reported).

5. Singh NN, Lancioni GE, Winton ASW, Singh AN, Adkins AD, Singh J. Clinical and benefit-cost outcomes of teaching a mindfulness-based procedure to adult offenders with intellectual disabilities. Behavior Modification. 2008;32:622-37. (Forensic inpatient mental health facility – outside the scope).

6. Zarkin GA, Cowell AJ, Hicks KA, Mills MJ, Belenko S, Dunlap LJ, et al. Benefits and costs of substance abuse treatment programs for state prison inmates: results from a lifetime simulation model. Health Economics. 2012;21:633-52. (Study population comprises a mix of non-abusers, substance abusers not in treatment, and in treatment).

7. Zhang SX, Roberts RE, McCollister KE. An economic analysis of the in-prison therapeutic community model on prison management costs. Journal of Criminal Justice. 2009;37:388-95. (Prison management costs only).

Study **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Daley and colleagues (2004) US Cost effectiveness analysis	Interventions: In-prison SA treatment (Connecticut). Four tiers of SA treatment assessed. Tier 1: one per week session of drug/alcohol education (up to six sessions in total) Tier 2: 30 outpatient group sessions 3 days a week for 10 weeks Tier 3: intensive day treatment program, consisting of 4 sessions a week for 4 months or a total of 64 sessions Tier 4: a residential treatment program consisting of full-time daily treatment	Incarcerated adult offenders with a SA problem Observational cohort study (N=831) Source of clinical and resource use data: observational study (including administrative records and databases, accounting data), and authors' assumptions Source of unit cost data: unclear	Costs: SA and mental health treatment Mean cost per participant: • No intervention: $0 • Tier 1: $189 • Tier 2: $672 • Tier 3: $2,677 • Tier 4: $5,699 Primary measure of outcome: reduction in the likelihood of re-arrest Adjusted probability for re-arrest with one year post-release: • No intervention: 45.9% • Tier 1: 49.3% • Tier 2: 37.4% • Tier 3: 27.2% • Tier 4: 23.5%	Tier 1 intervention is dominated by no intervention Cost per re-arrest avoided: • Tier 2 (vs. no intervention): $7,906 • Tier 3 (vs. Tier 2): $19,657 • Tier 4 (vs. Tier 3): $81,676	Perspective: healthcare payer Currency: USD Cost year: likely 2003 Time horizon: 1 year Discounting: NA Applicability: partially applicable Quality: potentially serious limitations Outcomes were adjusted for race, age, drug need score, security risk, prior arrests and other programmes attended Significance levels not reported

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
	for 6 months in a separate housing unit Tiers were compared to each other and also to no intervention alternative				

S.2.2 Pharmacological interventions

S.2.2.1 References to included studies

1. Gisev N, Shanahan M, Weatherburn DJ, Mattick RP, Larney S, Burns L, et al. A cost-effectiveness analysis of opioid substitution therapy upon prison release in reducing mortality among people with a history of opioid dependence. Addiction. 2015: 110(12):1975-84.

2. Warren E, Viney R, Shearer J, Shanahan M, Wodak A, Dolan K. Value for money in drug treatment: economic evaluation of prison methadone. Drug and Alcohol Dependence. 2006;84:160-66.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Gisev and colleagues (2015) AUS Cost effectiveness	Interventions: Opioid substitution therapy (OST) upon prison release No OST treatment	Adult offenders with SA problems eligible for release Retrospective matched-control study (N=13,468) Source of clinical and	Costs: treatment, criminal justice system (court, penalties, prison), and the social costs of crime such as physical injury, psychological trauma, a feeling of vulnerability and a fear of crime. Mean bootstrapped cost per	Intervention is dominant The probability that OST post-release is cost-effective is 96.7% at a willingness to pay of $500 per life saved.	Perspective: public sector (healthcare and criminal justice system) Currency: AUD Cost year: 2012 Time horizon: 6 months

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
analysis		resource use data: retrospective observational matched-control study Source of unit cost data: national and local sources	participant at 6 months: • OST treatment: $7,206 • No OST treatment: $14,356 • Difference: -$6,353 (95% CI:–$7,568; -$5,139) Primary measure of outcome: mortality rate Bootstrapped mortality rate at 6 months: • OST treatment: 0.3% • No OST treatment: 0.7% • Difference: -0.4%	The results of the sensitivity analyses showed that the findings were robust to the assumptions pertaining to the criminal justice system costs (e.g. all 6-month costs attributed to crime, and excluding prison costs)	Discounting: NA Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Warren and colleagues (2006) Australia Cost effectiveness analysis	Interventions: Prison-based methadone programme (New South Wales) No prison-based methadone programme Prison methadone treatment was	Adults prisoners with SA problem Economic modelling (mostly informed by an RCT) Source of clinical effectiveness data: RCT (N=405) Source of resource	Costs: programme costs including enrolment of prisoners on the program, provision of daily methadone and associated treatment, and referral of prisoners who exit the program to other services Mean cost per participant at 12 months: • Intervention: $3,234 • No intervention: $0	ICERs associated with the intervention: • $38 per additional heroin free day • $458,074 per additional death avoided • $40,428 per additional HCV case avoided Sensitivity analyses: The costs were robust to	Perspective: prison service provider Currency: AUD Cost year: 2003 Time horizon: 1 year Discounting: NA Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
	provided in the context of other prison health services, including counselling and related non-pharmacotherapy treatment services	use data: RCT, administrative databases, other published studies, and assumptions Source of unit cost data: unclear	• Difference: $3,234 Primary measures of outcome: days of heroin use, deaths prevented due to SA, HCV cases avoided/delayed Number of days of heroin use in a year: • Intervention: 15 • No intervention: 100 • Difference: -85 Annual mortality difference: -0.71% Difference in HCV cases: -0.08	the changes in the estimates of staff time associated with the intervention.	

S.3 Interventions for adults with a paraphilic disorder in contact with the criminal justice system

S.3.1 Psychological interventions

S.3.1.1 Reference to included study

1. Shanahan M, Donato R. Counting the cost: Estimating the economic benefit of pedophile treatment programs. Child Abuse and Neglect. 2001;25:541-55. AND Donato R, Shanahan M. The economics of child sex-offender rehabilitation programs: beyond Prentky & Burgess. Am J Orthopsychiatry. 2001;71:131-9; discussion 40-1.

S.3.1.2 References to excluded studies

1. Adi Y, Ashcroft D, Browne K, Beech A, Fry-Smith A, Hyde C. Clinical effectiveness and cost-consequences of selective serotonin reuptake inhibitors in the treatment of sex offenders. Health Technology Assessment. 2002;6. (Data were insufficient to perform economic analysis).
2. Omori MK, Turner SF. Assessing the cost of electronically monitoring high-risk sex offenders. Crime & Delinquency. 2015;61:873-94. (Intervention not relevant).

Study **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Shanahan & Donato (2001) AND Donato & Shanahan (2001) Australia Cost-benefit analysis	Intervention: Intensive prison-based CBT (South Australia) Comparator: no treatment	Incarcerated male adults with paedophilia Economic modelling Source of clinical effectiveness data (programme efficacy and recidivism rates): published sources and authors' assumptions Source of resource use data: published international, federal and state sources, and authors' assumptions Source of unit cost data: national and local sources	Costs: programme provision The total cost of programme provision: $10,000 per treated prisoner Tangible benefits (or costs avoided): expenditure by the State Government; the Federal Government including judiciary (Family Court and High Court, Federal Police, the Federal Attorney General's Office including elements of Family Services programmes [such as, counselling, mediation, child contact services, domestic violence prevention programmes, etc.], child focused health services under the jurisdiction of the Commonwealth government; pharmaceuticals used for therapy and the cost of medical services not under the jurisdiction of hospitals (such as private psychiatrists, GPs, etc.); and	The economic benefits range from an expected net loss of $6,850 to an expected net benefit of $39,870 per treated prisoner[1] Sensitivity analysis: Assuming two victims per re-offence the economic benefits of a treatment programme range from an Expected net loss of $6,850 to expected net benefit of $76,710 per treated prisoner[1]	Perspective: public sector (healthcare, social care, and out of pocket expenses) Currency: AUD Cost year: 1998 Time horizon: lifetime Discounting: none Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
			private, “out-of-pocket” expenditures by victims and their families) Intangible benefits: economic worth of avoiding pain and suffering Total programme provision cost: $10,000 per treated prisoner Tangible benefits associated with preventing a case of re-offense $157,290 Intangible benefits associated with preventing a case of re-offense vary from $0 to $198,900[1]		

1. Depending on the monetary valuation placed upon intangible benefits and the efficacy of the treatment programme

S.4 Interventions for adults with a personality disorder in contact with the criminal justice system

S.4.1 Psychosocial interventions

S.4.1.1 References to excluded studies

1. Barrett B, Byford S. Costs and outcomes of an intervention programme for offenders with personality disorders. British Journal of Psychiatry. 2012;200:336-41. (Setting not relevant: high secure hospital and high secure prison).

2. Barrett B, Byford S, Seivewright H, Cooper S, Duggan C, Tyrer P. The assessment of dangerous and severe personality disorder: Service use, cost, and consequences. Journal of Forensic Psychiatry and Psychology. 2009;20:120-3. (Setting not relevant: high secure hospital and high secure prison).

3. Barrett B, Byford S, Seivewright H, Cooper S, Tyrer P. Service costs for severe personality disorder at a special hospital. Criminal Behaviour and Mental Health. 2005;15:184-190. (Setting not relevant: high secure hospital).

S.5 Care plans and pathways, and organisation and structure of services for people with mental health problems in contact with the criminal justice system

S.5.1 Jail diversion programmes

S.5.1.1 References to included studies

1. Hayhurst KP, Leitner M, Davies L, Flentje R, Millar T, Jones A, et al. The effectiveness and cost-effectiveness of diversion and aftercare programmes for offenders using class a drugs: A systematic review and economic evaluation. Health Technology Assessment. 2015;19:1-198.

2. Zarkin GA, Cowell AJ, Hicks KA, Mills MJ, Belenko S, Dunlap LJ, et al. Lifetime benefits and costs of diverting substance-abusing offenders from state prison. Crime & Delinquency. 2015;48:57-62.

3. Cowell AJ, Hinde JM, Broner N, Aldridge AP. The impact on taxpayer costs of a jail diversion program for people with serious mental illness. Evaluation and Program Planning. 2013;41:31-37.

4. Hughes D, Steadman HJ, Case B, Griffin PA, Leff H. A simulation modeling approach for planning and costing jail diversion programs for persons with mental illness. Criminal Justice and Behavior. 2012;39:434-46.

5. Mitton C, Simpson L, Gardner L, Barnes F, McDougall G. Calgary Diversion Program: A community-based alternative to incarceration for mentally ill offenders. Journal of Mental Health Policy and Economics. 2007;10:145-51.

6. Cowell AJ, Broner N, Dupont R. The Cost-Effectiveness of Criminal Justice Diversion Programs for People With Serious Mental Illness Co-occurring With Substance AbuSE Four Case Studies. Journal of Contemporary Criminal Justice. 2004;20:292-315. AND Steadman HJ, Naples M. Assessing the effectiveness of jail diversion programs for persons with serious mental illness and co-occurring substance use disorders. Behavioral Sciences & the Law. 2005;23:163-70.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Hayhurst and colleagues (2015) UK Cost-utility analysis	Interventions: Diversion plus treatment and/or aftercare programme No diversion programme	Adults opiate- and/or crack-using offenders who come into contact with the CJS Economic modelling study (decision analytic model) Source of clinical effectiveness data: observational study; other published studies; and assumptions Source of resource use data: published studies Source of unit cost data: national sources; published studies	Costs: drug intervention programme, drug test, drug treatment, arrest, prison, costs associated with remaining in the community after arrest and conviction, costs associated with subsequent recorded offence Expected cost per person at 12 months: Diverted: £14,404 (95% CI: £3,116 to £37,559) Non-diverted: £14,551 (95% CI: £4,346 to £33,190) Difference: –£147 (95% CI: –£17,573 to £16,317) Primary outcome measures: quality-adjusted life-year (QALY) Expected QALYs per person over 12 months: • Diverted: 0.655 (95% CI: 0.473 to 0.871) • Non-diverted: 0.650 (95% CI: 0.437 to 0.909) • Difference: 0.005 (95% CI: –0.057 to 0.065)	Intervention dominant The CEAC suggests that if decision-makers were willing to pay up to £30,000 to gain one additional QALY for arrested drug users to receive intervention, there may be a 50% chance that intervention is cost-effective The sensitivity analysis indicated that there was substantial uncertainty. Under some set of assumptions the ICER was as high as £1,194,800/QALY.	Perspective: public sector (healthcare, social care, and criminal justice) Currency: UK£ Cost year: 2012 Time horizon: 12 months; 5 and 10 years explored in sensitivity analyses Discounting: 3.5% Applicability: directly applicable Quality: minor limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Zarkin and	Interventions:	Adult offenders with SA	Costs: crime victimisation; arrest,	Diversion is cost saving	Perspective: public

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
colleagues (2015) US Cost analysis	Two hypothetical policy scenarios diverting offenders from prison to community treatment. In Scenario 1, diversion eligible offenders have a 10% probability of being diverted from incarceration to treatment in the community; in the Scenario 2 this probability is increased to 40%. No diversion from prison or jail into the community	problems Modelling study (discrete event simulation) Source of clinical effectiveness data: transition probabilities from survey data, published studies, and other databases Source of cost data: published studies Source of unit cost data: unclear	court, and incarceration; and health care Mean lifetime costs per person: • Standard care: $308,772 • Scenario 1: $303,509 • Scenario 2: $294,737 Benefits: earnings Mean lifetime benefits per person: • Standard care: $101,754 • Scenario 1: $103,509 • Scenario 2: $107,018 Net savings per person over the lifetime: • Scenario 1 vs. baseline: $7,895 (p<0.01) • Scenario 2 vs. baseline: $20,175 (p<0.01)	under both scenarios Under one-way sensitivity analyses, the results changed little and the conclusions were robust	sector (healthcare and criminal justice) Currency: USD Cost year: likely 2014 Time horizon: life time Discounting: 3% Applicability: partially applicable Quality: minor limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Cowell and colleagues (2013) US Cost analysis	Interventions: Pre-booking component of a jail diversion programme (Bexar County, Texas) No diversion programme	Adults with indications of SMI (including major depression, bipolar disorder, schizophrenia, or schizoaffective disorder) Observational case-control study (N=468) Source of clinical effectiveness data: NA Source of resource use data: observational study Source of unit cost data: unclear	Costs: criminal justice (arrest, court, incarceration, and diversion) and healthcare (treatment provision) Mean costs over 2 years per participant: • Diverted: $8,247 (SE $1,037) • Non-diverted: $15,147 (SE $646) • Unadjusted difference: -$6,901 (SE $1,253), p < 0.01 • Adjusted difference for baseline covariates: -$2,819 (SE $824), p < 0.01	Diversion is cost saving	Perspective: public sector (healthcare and criminal justice) Currency: USD Cost year: 2007 Time horizon: 2 years Discounting: none Applicability: partially applicable Quality: potentially serious limitations Cost differences were adjusted for race, living arrangements, education, time at risk, gender, marital status, and age

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Cowell and colleagues (2004) AND	Interventions: Jail diversion programme in: Lane County,	Adults with co-occurring SMI (schizophrenia, depression, bipolar	Costs: criminal justice (court, public defenders' and prosecutors' offices, police, and jail) and healthcare (mental health, residential SA care, outpatient care [both SA and mental health],	Memphis, TN: • At 3-months: $1,236 (95% CI: $492; $17,728) per	Perspective: public sector (healthcare, social care, and criminal justice)

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Steadman and colleagues (2005) US Cost effectiveness analysis	Oregon; Memphis, Tennessee; New York City; and Tucson, Arizona. Lane County, New York City, and Tucson were post-booking programmes (diversion occurred after an individual has been arrested and booked for a criminal offense); in Memphis it was pre-booking programme (diversion occurred before arrest). No diversion programme	disorder) and SA or dependence disorders Observational cohort study Source of clinical effectiveness data: observational study participants; at Lane County, OR (N=185); Memphis, TN (N=609); New York, NY (N=231); Tucson, AZ (N=90) Source of cost data: observational study [Lane County, OR (N=129); Memphis, TN (N=609); New York, NY (N=231); Tucson, AZ (N=90)]; published literature, data from key study stakeholders, and information from other sites where diversion programmes have already been implemented	emergency room [for SA and mental health visits], mental health assessment or evaluation, and case management) Mean annual costs per participant: Lane County, OR: • Diverted: $16,164 (SD $13,245) • Non-diverted: $15,743 (SD $17,498) • Adjusted difference: $1,796 (SD $3,492), p = ns Memphis, TN: • Diverted: $8,740 (SD $14,911) • Non-diverted: $3,685 (SD $8,352) • Adjusted difference: $5,855 (SD $1,158), p ≤ 0.001 New York, NY: • Diverted: $13,366 (SD $17,114) • Non-diverted: $18,480 (SD $17,629) • Adjusted difference: -$6,260 (SD $2,594), p ≤ 0.05 Tucson, AZ: • Diverted: $11,976 (SD $15,048) • Non-diverted: $11,119 (SD $2,155) • Adjusted difference: $447 (SD $3,551), p = ns Measures of outcome: criminal behaviour (whether the person was arrested in the previous 30 days), quality of life (whether the respondent had been violently and/or non-	additional point of improvement on the CSI scale Lane County, OR: • At 12-months diversion reduced the probability of SA by 80% at no greater cost Tucson, AZ: • At 12-months: $190 per additional point of improvement on the CSI scale, p = ns New York, NY: • Diversion dominant using non-violent victimisation as an outcome (diversion reduced the OR of non-violent victimization by ~70% and resulted in cost savings) No sensitivity analyses were conducted	Currency: USD Cost year: 1996 Time horizon: costs 12 months; outcomes 3 and 12 months Discounting: NA Applicability: partially applicable Quality: potentially serious limitations Differences in costs were adjusted for age, gender, race or ethnicity, whether the individual was mentally disturbed at baseline, whether the respondent was ever arrested as a juvenile, number of past arrests, and the severity of alcohol and drug use

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
		Source of unit cost data: unclear	violently victimized in the past 3 months, housing status stability, level of physical and mental health [SF-12 & CSI], and SA (whether the respondent abused alcohol and/or drugs at any time during the past 3 months) Only significant outcomes are reported: Lane County, OR: • At 3-months increase in the odds of being arrested and being non-violently victimised, p ≤ 0.1 • At 12-months reduction in the odds of SA, p ≤ 0.05 Memphis, TN: • At 3-months improvement on the CSI scale, p ≤ 0.1 New York, NY: • At 3-months reduction in the odds of being seriously victimised, p ≤ 0.1; and non-violently victimized, p ≤ 0.05 Tucson, AZ: • At 3-months increase in the odds of being non-violently victimized, p ≤ 0.1; and improvement on the CSI scale, p ≤ 0.1 • At 12-months improvement on the CSI scale, p ≤ 0.1		

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Hughes and colleagues (2012) US Cost analysis	Interventions: Jail diversion programme (Travis County, Texas) No diversion programme	Adults with SMI Observational cohort study (N=422) and economic modelling Source of clinical effectiveness data: transition probabilities from published literature and expert opinion Source of resource use data: observational study and interlinked administrative and claims data, and expert opinion Source of unit cost data: unclear	Costs: criminal justice (police, pre-trial services, court, jail and probation) and healthcare and social care services including residential treatment, emergency services, inpatient and outpatient treatment, rehabilitation and support Mean costs per person at 12 months: • Diverted: $9,163 • Non-diverted: $8,343 • Difference: $820 Mean costs per person over 24 months: • Diverted: $12,946 • Non-diverted: $14,307 • Difference: -$1,361	Diversion is cost saving in the long term	Perspective: public sector (healthcare, social care, and criminal justice) Currency: USD Cost year: likely 2006 Time horizon: 2 years Discounting: none Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Mitton and colleagues (2007) Canada	Interventions: Post-booking diversion programme	Adults with SMI and co-occurring SA problem Observational before-after	Costs: programme provision, healthcare (hospital admissions, other inpatient visits, emergency room visits) and criminal justice	Diversion is cot saving and also leads to an improvement in outcomes	Perspective: public sector (healthcare and criminal justice) Currency: CAD

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Cost consequence analysis	(Calgary) No diversion programme	study (N=117) Source of clinical effectiveness data: before-after study participants Source of cost data: before-after study, health and police administrative data, and other published sources Source of unit cost data: unclear	(complaints, charges and court appearances) Mean cost per participant over 18 months: • Pre-diversion: $9,542 • Post-diversion: $7,820 • Difference: -$1,721, p= 0.201 Primary measures of outcome: BPRS, Wisconsin Quality of Life scale Mean BPRS scores: • Baseline: 45.78 (SD 12.03) • 3-months: 35.02 (SD 8.96) • Difference: -10.76 , p ≤ 0.001 Mean scores on Wisconsin QoL scale: • Baseline: 0.29 (SD 0.95) • 3-months: 1.06 (SD 0.84) • Difference: 0.77, p < 0.01		Cost year: likely 2006 Time horizon: 18 months for costs and 3 months for outcomes Discounting: none Applicability: partially applicable Quality: potentially serious limitations

S.5.2 Mental health courts

S.5.2.1 References to included studies

1. Kubiak S, Roddy J, Comartin E, Tillander E. Cost analysis of long-term outcomes of an urban mental health court. Evaluation and Program Planning. 2015;52:96-106.
2. Ridgely MS, Engberg J, Greenberg MD, Turner S, DeMartini C, Dembosky JW. RAND study first to document costs and fiscal impact of a mental health court. Psychiatric services (Washington, DC). 2007;58:577.

S.5.2.2 Reference to excluded study

1. Steadman HJ, Callahan L, Robbins PC, Vesselinov R, McGuire TG, Morrissey JP. Criminal justice and behavioral health care costs of mental health court participants: A six-year study. Psychiatric Services. 2014;65:1100-04. (Cost figures can't be extracted).

Study **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Kubiak and colleagues (2015) US Cost-effectiveness analysis	Interventions: MHC programme Control (no MHC programme)	Adult offenders with a diagnosis of mental illness (bipolar, depressive, schizophrenia, and other). Majority had co-occurring SA problem Observational cohort study (N=150) Source of clinical effectiveness data: observational study (N=150) Source of resource use	Costs: mental health treatment (case management, medication reviews, individual/group therapy, intensive outpatient, residential treatment, psychiatric hospitalization, crisis residential, or crisis centre, arrest and incarceration); substance abuse treatment (residential and outpatient treatment); arrests; jail; court; incarceration; victimisation Total costs per person at 12 months: • Intervention: $16,964 and $32,258 successful and unsuccessful participant,	For successful participants intervention is dominant using residential and jail days, and prison days as outcome measures For unsuccessful participants intervention is dominant using residential days and jail days as outcome measures. Using prison days as an outcome measure SC results in an ICER of $94 per additional prison day avoided.	Perspective: public sector (healthcare and criminal justice) Currency: USD Cost year: 2013 Time horizon: 12 months Discounting: NA Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
		data: observational study and published sources Source of unit cost data: national and local sources; published studies; personal communication	respectively • Control: $39,870 • Difference: -$22,906 and -$7,612 successful and unsuccessful participant, respectively, p=ns Primary measures of outcome: residential days, outpatient episodes, arrests, jail bookings, court cases, jail days, prison days, victimisations Residential days: • Intervention: 0.00 and 1.57 successful and unsuccessful participant, respectively • Control: 21.47 • Difference: -21.47 and -19.9, successful and unsuccessful participant, respectively; p < 0.001 Jail days: • Intervention: 4.73 and 23.20 successful and unsuccessful participant, respectively • Control: 49.27 • Difference: -44.54 and -26.07 successful and unsuccessful participant, respectively, p < 0.001		

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
			Prison days: • Intervention: 5.38 and 130.00 successful and unsuccessful participant, respectively • Control: 48.7 • Difference: -43.32 and 81.3, successful and unsuccessful participant, respectively p < 0.001 No significant differences were observed on other outcome measures.		

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Ridgely and colleagues (2007) US Cost analysis	Interventions: MHC programme (Allegheny County) SC was defined as normal judicial process	Adults offenders with a diagnosis of mental illness (or co-occurring mental and SA problem) Observational before-after study (N=365) Source of clinical effectiveness data: NA Source of resource use	Costs: mental health and SA treatment, arrests, incarceration, probation, and cash assistance payments MHC resulted in: • Increase in actual costs of $2,656 per participant in year 1 following MHC entry compared with hypothetical costs based on sentencing guidelines • Decrease in costs of $1,804 per participant in a pre/post	MHC programme may potentially be cost saving Sensitivity analysis (change in the actual costs compared with costs based on sentencing guidelines): • Assuming higher offending rates resulted in an increase in incremental costs	Perspective: public sector (healthcare and criminal justice, plus transfer payments) Currency: USD Cost year: likely 2006 Time horizon: 2 years Discounting: none Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
		data: before-after study, state and county information systems, claims data, other published sources, and authors' assumptions Source of unit cost data: unclear	comparison at year 1 • Decrease in costs of $9,584 per participant in a pre/post comparison over 2 years	from $2,656 to $2,824 • Assuming that in the absence of MHC programme individuals use 10% fewer mental health services resulted in an increase in the costs from $2,656 to $4,052	Significance levels not reported

S.5.3 Drug court programmes

S.5.3.1 References to included studies

1. Cheesman FL, Graves SE, Holt K, Kunkel TL, Lee CG, White MT. Drug Court Effectiveness and Efficiency: Findings for Virginia. Alcoholism Treatment Quarterly. 2016;34:143-69.
2. Carey SM, Finigan MW. A Detailed Cost Analysis in a Mature Drug Court Setting: A Cost-Benefit Evaluation of the Multnomah County Drug Court. Journal of Contemporary Criminal Justice. 2004;20:315-38.
3. Logan T, Hoyt WH, McCollister KE, French MT, Leukefeld C, Minton L. Economic evaluation of drug court: Methodology, results, and policy implications. Evaluation and Program Planning. 2004;27:381-96.
4. Shanahan M, Lancsar E, Haas M, Lind B, Weatherburn D, Chen S. Cost-effectiveness analysis of the New South Wales adult drug court program. Evaluation Review. 2004;28:3-27.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Cheesman and	Interventions:	Adult offenders with SA	Costs: drug court (assessment,	Drug court programme is	Perspective: public

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
colleagues (2016) US Cost analysis	Drug court programmes (Virginia) Standard care (combination of jail, prison, and/or probation)	problem Observational cohort study (N=1,944) Source of clinical effectiveness data: NA Source of resource use data: observational cohort study, survey, other administrative databases Source of unit cost data: unclear	staffing and court sessions, court treatment, testing, court supervision), fees, arrest, pre-trial supervision, pre-trial confinement, general district court cost, circuit court costs, misdemeanour arrest, felony arrests, jail, prison, probation, victimisation (property and person) Mean cost per participant: • Drug court: $44,249 • Non-drug court: $63,483 • Difference: -$19,234	cost saving	sector (healthcare and criminal justice) Currency: USD Cost year: 2012 Time horizon: 2 years Discounting: none Applicability: partially applicable Quality: potentially serious limitations Significance levels are not reported for costs

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Carey and colleagues (2004) US Cost analysis	Interventions: Drug court programme (Multnomah County, Oregon) No drug court programme (normal judicial process)	Adult offenders with SA problem Observational cohort study (N=1,173) Source of clinical effectiveness data: NA Source of resource use data: observational cohort	Costs: court, public defender, district attorney, law enforcement (arrests, bookings, jail and court time), treatment and probation Mean cost per participant over 30 months: • Drug court: $14,910 • Non-drug court: $18,681 • Difference: -$3,770	Drug court programme is cost saving	Perspective: public sector (healthcare, social care and criminal justice) Currency: USD Cost year: 2002 Time horizon: 30 months Discounting: none Applicability: partially applicable

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
		study, administrative databases, and claims records Source of unit cost data: unclear			Quality: potentially serious limitations Significance levels are not reported

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Logan and colleagues (2004) US Cost analysis	Interventions: Three drug court programmes (Kentucky) No drug court programme (normal judicial process)	Adults offenders with SA problem Observational cohort study and modelling (N=745) Source of clinical effectiveness data: NA Source of resource use data: observational study and interlinked state-wide and local administrative databases, and other published sources Source of unit cost data: unclear	Costs: prison, jail, parole, probation, convictions, charges, orders, inpatient and outpatient mental health, accidents, child support, and earnings Per graduate episode: • Programme cost: $5,132 • 12-month tangible benefits: $19,658 • Difference: -$14,526 Per terminator episode: • Programme cost: $1,791 • 12-month tangible benefits: $2,022 • Difference: -$231 Per participant episode: • Programme cost: $3,178	Drug court programme is cost saving	Perspective: public sector (health and social care, criminal justice, and welfare) Currency: USD Cost year: 1999 Time horizon: 1 year Discounting: NA Applicability: partially applicable Quality: potentially serious limitations Significance levels are not reported

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
			• 12-month tangible benefits: $8,624 • Difference: -$5,446		

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Shanahan and colleagues (2004) Australia Cost effectiveness analysis	Interventions: Drug court programme No drug court programme (normal judicial process)	Adult criminal offenders with SA problem RCT (Shanahan 2004) Source of clinical effectiveness data: RCT (N=468) Source of resource use data: RCT, administrative databases, and other information systems Source of unit cost data: unclear	Costs: programme provision, court, assessment and detoxification, treatment, monitoring and incarceration Mean cost per day per participant: • Intervention: $144 • SC: $152 • Difference: -$8 Primary measures of outcome: the time to the first offense and offending frequency per unit of time Mean number of days to the first drug-related offense per participant: • Intervention: 325.3 • SC: 279.0 • Difference: 46.3, p = 0.005 Mean number of drug related offenses per day:	Intervention is dominant Sensitivity analysis: Only when the proportion of sentence served exceeded 66% was the cost per day for the intervention group higher than in the SC group	Perspective: public sector (healthcare and criminal justice) Currency: AUD Cost year: 2003 Time horizon: 23 months Discounting: none Applicability: partially applicable Quality: potentially serious limitations Significance levels are not reported

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
			• Intervention: 0.009 • SC: 0.013 • Difference: -0.004, p = ns		

S.5.4 Street triage

S.5.4.1 References to included studies

1. Heslin M, Callagham L, Packwood M, Badu V, Byford S. Decision analytic model exploring the cost and cost-offset implications of street triage. BMJ Open. 2016;6:1-11. - A

2. Heslin M, Callagham L, Barrett B, Susan L, Eick S, Morgan J, et al. Costs of the police service and mental healthcare pathways experienced by individuals with enduring mental health needs. The British Journal of Psychiatry. 2016;1–8. - B

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Heslin and colleagues (2016A) UK (Sussex, South East England) Cost analysis	Interventions: Street triage model where a psychiatric nurse attended incidents with a police constable Standard care (police attendance to all mental	Adults with mental health problems who were detained under Section 136 or had contact with street triage Observational before-after study and modelling (decision analytical model)	Costs: street triage (police constable, nurse), detention in custody (officer attendance, cost of time in custody, mental health act assessment, referral to GP), detention in hospital (officer attendance, inpatient bed day, mental health act assessment), GP visits, community mental health teams, A&E attendances, social worker attendances, inpatient care The mean NHS and criminal justice sector costs per participant: • Street triage: £1,043	Street triage results in an increase in NHS costs, but a reduction in criminal justice costs. Overall, it leads to a reduction in costs. Sensitivity analyses indicated that the estimated cost savings from NHS and criminal justice sector are sensitive to the assumptions, with the	Perspective: public sector (NHS and criminal justice) Currency: UK£ Cost year: 2013/14 Time horizon: 1 day Discounting: NA Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
	health incidents)	Source of clinical effectiveness data: observational before-after study (street triage N=99,412; SC N=688,654) and assumptions Source of resource use data: observational before-after study, assumptions and other published sources Source of unit cost data: national sources	• Standard care: £1,077 • Difference: -£34 The mean NHS costs per participant: • Street triage: £574 • Standard care: £517 • Difference: £57 The mean cost from criminal justice sector perspective per participant: • Street triage: £470 • Standard care: £559 • Difference: -£89	results ranging from -£116 in favour of street triage to £48 in favour of standard care	

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Heslin and colleagues (2016B) UK (England) Cost analysis	Interventions: 3 scenarios were explored (1) street triage; (2) Mental Health Act assessments for all	Adults with mental health problems who are in contact with criminal justice system Observational cohort study and	Costs: mental healthcare (in-patient services; client contacts with mental health staff; meetings in the absence of client; and client assessments), police and other emergency services (police contacts/attendance, ambulance attendance at incident), custody services (length of stay in custody suite, Mental Health Act assessments, healthcare	Scenarios lead only to a marginal increase in costs. Sensitivity analyses indicated that the estimated costs from NHS and criminal justice	Perspective: public sector (NHS [mental health care] and criminal justice) Currency: UK£ Cost year: 2011/12 Time horizon: 1 year

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
	individuals detained under the Mental Health Act Section 136; (3) a link worker at custody suites. Standard care	modelling (decision analytic model) Source of resource use data: observational cohort study (N=55) Source of unit cost data: national sources	practitioner triage, forensic medical examiner, approved mental health practitioner, hospital attendance) and other services (transport, follow-up calls by police and escorting) Mean total cost per incident: • Standard care: £522 • Street triage: £526 • Mental Health Act assessment for all Section 136 detainees: £526 • Link worker at custody sites: £534 • All scenarios explored resulted in a cost increase of £4-12 per incident	sector are robust with the costs associated with street triage ranging from £478 to £568; the costs associated with the Mental health Act assessment for all Section 136 detainees ranged from £530 (including a forensic medical examiner in all custody sites) to £532 (forensic medical examiner contact and healthcare practitioner in all custody sites); and assuming a client contact duration of 3h with link worker rather than 1h costs increased to £557.	Discounting: NA Applicability: partially applicable Quality: potentially serious limitations

S.5.4.2 Integrated Disorders Treatment Program (IDDT)

S.5.4.3 Reference to included study

1. Chandler DW, Spicer G. Integrated treatment for jail recidivists with co-occurring psychiatric and substance use disorders. Community Mental Health Journal 2006; 42:405-25.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Chandler and Spicer (2006) US Cost-effectiveness	Interventions: Integrated dual disorders treatment programme Standard care	Jail recidivists with serious mental illness and substance use disorders RCT (Chandler 2006) Source of clinical effectiveness data: RCT (N=182) Source of resource use data: RCT (N = unclear) Source of unit cost data: local sources (Alameda County, California)	Costs: mental health services (outpatient and inpatient care, crisis visits, psychiatric medications) Mean annual mental health costs per person: • Intervention: $5,620 • Standard care: $4,828 • Difference: $792 Measures of outcome: arrests, convictions, felony convictions, jail days Annual arrests per person: • Intervention: -0.68 • SC: -0.23 • Difference: -0.45 Annual convictions per person: • Intervention: -0.10 • SC: 0.12 • Difference: -0.22 Annual felony convictions per person: • Intervention: 0.02 • SC: 0.03 • Difference: -0.01 Annual jail days per person: • Intervention: -36.03	ICER of intervention vs standard care: • $1,671 per additional arrest avoided • $3,418 per additional conviction avoided • $47 per additional jail day avoided Using felony convictions as an outcome measure standard care is the dominant option (that is, it results in lower costs and greater reduction in felony convictions) No sensitivity analyses were conducted	Perspective: healthcare payer Currency: USD Cost year: likely 2005 Time horizon: 18 months Discounting: NA Applicability: partially applicable Quality: potentially serious limitations Significance levels are not reported for differences in costs and outcomes between the groups

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
			• SC: -20.05 • Difference: -15.98		

S.5.5 Forensic assertive community treatment

S.5.5.1 Reference to included study

1. Cusack KJ, Morrissey JP, Cuddeback GS, Prins A, Williams DM. Criminal justice involvement, behavioral health service use, and costs of forensic assertive community treatment: A randomized trial. Community Mental Health Journal. 2010;46:356-63.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Cusack and colleagues (2010) US Cost-effectiveness analysis	Interventions: FACT (participants received team-based mental health and SA services, as well as support for housing, employment assistance, benefits applications and advocacy) in California TAU defined as services	Adult detainees with SMI (psychotic disorder including schizophrenia-spectrum or other psychotic disorders) in the county jail; majority also had co-occurring SA problem RCT (N=134) (Cusack 2010) Source of clinical effectiveness data: RCT Source of resource use data: RCT	Costs: healthcare (hospital admissions, psychiatric crisis contacts, and outpatient services for both mental health and SA) and criminal justice (bookings, convictions, and jail) Mean cost per participant over 24 months: • FACT: $35,041 • TAU: $31,911 • Difference: $3,130, p = ns Primary measures of outcome: bookings, jail days, and convictions Mean bookings per participant over	ICERs associated with the intervention: • $2,845 per additional booking avoided • $117 per additional jail day avoided • $11,593 per additional conviction avoided No sensitivity analyses were conducted	Perspective: public sector (healthcare and criminal justice) Currency: USD Cost year: likely 2009 Time horizon: 24 months Discounting: none Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
	routinely available in the county-operated public behavioural health system	Source of unit cost data: national sources	24 months: • FACT: 1.21 • TAU: 2.31 • Difference: -1.1, p < 0.01 Mean jail days per participant over 24 months: • FACT: 39 • TAU: 65.8 • Difference: -26.8, p - unclear Mean convictions per participant over 24 months: • FACT: 1.13 • TAU: 1.4 • Difference: -0.27, p = ns		

S.5.6 Therapeutic community treatment

S.5.6.1 References to included studies

1. McCollister KE, French MT, Inciardi JA, Butzin CA, Martin SS, Hooper RM. Post-Release Substance Abuse Treatment for Criminal Offenders: A Cost-Effectiveness Analysis. Journal of Quantitative Criminology. 2003;19:389-407. - A
2. McCollister KE, French MT, Prendergast M, Wexler H, Sacks S, Hall E. Is In-Prison Treatment Enough? A Cost-Effectiveness Analysis of Prison-Based Treatment and Aftercare Services for Substance-Abusing Offenders. Law & Policy. 2003;25:63-82. - B
3. McCollister KE, French MT, Prendergast ML, Hall E, Sacks S. Long-term cost effectiveness of addiction treatment for criminal offenders. Justice Quarterly. 2004;21:569-679.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
McCollister and colleagues (2003A) US Cost effectiveness analysis	Interventions: A work release TC and aftercare programme CREST (a coeducational, 6-month programme; aftercare runs for 6 months and involves both group and individual counselling sessions weekly) Standard care (SC) defined as standard work release programme	Adult offenders with SA problem RCT (McCollister 2003) (N=836) Source of clinical effectiveness data: RCT Source of resource use data: RCT and other published sources Source of unit costs: unclear	Costs: programme provision (personnel, program supplies and materials, contracted services, and equipment) Mean cost per participant: • CREST work release programme only: $1,604 (SD $714) • CREST plus aftercare programme: $2,539 (SD $468) • SC: $0 • Differences between all CREST groups vs. SC are statistically significant, p < 0.01 • Differences between all CREST groups vs. each other are statistically significant, p < 0.01 Primary measure of outcome: number of days incarcerated Mean number of days incarcerated per participant: • CREST work release participants only: 92 (SD 112) • CREST plus aftercare participants: 43 (SD 86) • SC: 104 (SD 128) • Differences between all CREST	CREST work release vs. SC: • $134 per day of incarceration avoided CREST plus aftercare vs. CREST work release only participants: • $19 per day of incarceration avoided	Perspective: prison service provider Currency: USD Cost year: 1997/98 Time horizon: 18 months Discounting: none Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
			groups vs. SC are statistically significant, p < 0.01 • Differences between all CREST groups vs. each other are statistically significant, p < 0.01		

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
McCollister and colleagues (2003B) US Cost effectiveness analysis	Interventions: Prison therapeutic community treatment and aftercare programme No treatment	Adult offenders with SA problem RCT (McCollister 2003) (N=715) Source of clinical effectiveness data: RCT Source of resource use data: RCT and other published sources Source of unit costs: unclear	Costs: programme provision (personnel, program supplies and materials, contracted services, and equipment) Mean cost per participant: • Therapeutic community only: $2,708 (95% CI: $2,568; $2,847) • Therapeutic community plus aftercare: $6,985 (95% CI: $6,509; $7,489) • No treatment: $0 • Statistically significant differences between all groups; p<0.001 Primary measure of outcome: number of days incarcerated Mean number of days incarcerated	Therapeutic community vs. no treatment: • $113 per day of incarceration avoided Therapeutic community plus aftercare vs. therapeutic community only: • $51 per day of incarceration avoided	Perspective: prison service provider Currency: USD Cost year: 1993 Time horizon: 1 year Discounting: none Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
			per participant: • Therapeutic community only: 118.4 (95% CI: 104; 133) • Therapeutic community plus aftercare: 34.41 (95% CI: 22; 48) • No treatment: 142.30 (95% CI: 126; 160) • Statistically significant differences between all groups; p<0.05		

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
McCollister and colleagues (2004) US Cost effectiveness analysis	Interventions: Prison-based TC and post-release community based addiction treatment (Southern California) SC defined as no prison-based addiction treatment	Adult offenders with SA problem RCT (McCollister 2004) (N=576) Source of clinical effectiveness data: RCT Source of resource use data: RCT, criminal justice records, other published studies, and reimbursement data	Costs: programme provision and treatment including hospital inpatient, prison-based residential TC, community-based residential TC, day treatment (day care rehabilitative programs), outpatient methadone maintenance, outpatient detoxification, other outpatient, private counselling, sober living, and self-help/12-step programmes Mean cost per participant over 5 years: • Prison TC only: $3,356 (95% CI: $2,702; $4,179)	Prison TC only dominated by SC Prison TC plus post-release vs. SC: • $48 per additional incarceration day avoided	Perspective: prison service provider (healthcare) Currency: USD Cost year: 2000 Time horizon: 5 years Discounting: none Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
		Source of unit cost data: unclear	• Prison TC plus post-release treatment: $15,325 (95% CI: $10,159; $21,640) • SC: $1,731 (95% CI: $1,084; $2,713) • Statistically significant differences between all TC groups vs. SC, p < 0.01 • Statistically significant differences between all TC groups compared with each other, p < 0.01 Primary measure of outcome: number of days incarcerated Mean number of days incarcerated per participant over 5 years: • Prison TC only: 634 (95% CI: 565; 690) • Prison TC plus post-release treatment: 343 (95% CI: 261; 438) • SC: 626 (95% CI: 565; 690) • Statistically significant differences between Prison TC only, Prison TC plus post-release, and SC; p<0.01 • Statistically significant difference between All TC participants and SC, p < 0.05		

S.5.7 Probation and mandated treatment

S.5.7.1 References to included studies

1. Anglin MD, Nosyk B, Jaffe A, Urada D, Evans E. Offender diversion into substance use disorder treatment: the economic impact of California's proposition 36. American journal of public health. 2013;103:1096-102.
2. Alemi F, Taxman F, Baghi H, Vang J, Thanner M, Doyon V. Costs and benefits of combining probation and substance abuse treatment. Journal of Mental Health Policy and Economics. 2006;9:57-70.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Anglin and colleagues (2013) US Cost analysis	Interventions: Mandated probation or continued parole with SA treatment SC was defined as traditional probation where treatment is left to the client's choice	Adult offenders with SA problem Observational cohort study (intervention N=47,355; control N=41,607) Source of clinical effectiveness data: NA Source of resource use data: observational study; data obtained from administrative databases, claims data and other published studies	Costs: prison, jail, probation, parole, arrests, convictions (including adjudication costs), publicly funded healthcare use, and SA treatment Unadjusted mean costs per participant at 30 months: Intervention • Pre–index conviction: $16,935 (SD $21,412) • Post–index conviction: $25,251 (SD $24,894) • Difference: -$8,316 (SD $24,712) Control • Pre–index conviction: $15,294 (SD $21,074) • Post–index conviction: $26,595 (SD $25,911) • Difference: -$11,301 (SD $24,853) Incremental costs of intervention vs. control:	Intervention is cost saving	Perspective: public sector (healthcare and criminal justice) Currency: USD Cost year: 2009 Time horizon: 30 months Discounting: none Applicability: partially applicable Quality: minor limitations Cost differences were adjusted for individual-level characteristics (age, gender and race) and/or country-level characteristics (baseline arrests per capita and change in arrests per capita)

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
		Source of unit cost data: unclear	• Unadjusted: –$2,681 (95% CI: –$3,007; –$2,354) • Adjusted difference for individual-level characteristics: –$2,845 (95% CI: –$3,173; –$2,518) • Adjusted difference for country-level characteristics: –$2,173 (95% CI: –$2,584; –$1,762) • Adjusted difference for individual-level and country-level characteristics: –$2,317 (95% CI: –$2,730; –$1,905)		

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Alemi and colleagues (2006) US Cost analysis	Interventions: Combined probation and treatment (Baltimore-Washington, DC) SC was defined as traditional probation where treatment is left to the client's choice	Adult offenders with SA problem RCT and economic modelling Source of clinical effectiveness data: probabilities of events from RCT (N=272) and published studies Source of resource use data: RCT, state and county information systems, other published	Costs: programme provision, treatment (mental health and SA), physical healthcare, arrests, re-offending, legal costs, violation, conviction and sentencing, prison, tax earnings, and shelter accommodation Expected daily mean cost per participant: • Intervention: $39 • SC: $22 • Difference: $17	Intervention leads to a cost increase Sensitivity analysis: There was no change in rate of any single adverse outcome (arrest, mental hospitalisation, incarceration), which could make intervention cheaper than traditional probation 54% reduction in all adverse outcomes (in both arms at the same	Perspective: public sector (healthcare, social care, and criminal justice) Currency: USD Cost year: 2004 Time horizon: 2.75 years Discounting: none Applicability: partially applicable Quality: potentially serious limitations

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
		sources, and authors' assumptions Source of unit cost data: national and local sources, published studies		time) rates would have made intervention cheaper than traditional probation 69% reduction in mental hospitalisation rates and incarceration rates (in both arms at the same time) would have made intervention cheaper The cost of arrest would need to increase 8-fold for intervention to become the cheapest option	

S.5.8 Services for people with personality disorders

S.5.8.1 Reference to included study

1. Fortune Z, Barrett B, Armstrong D, Coid J, Crawford M, Mudd D, et al. Clinical and economic outcomes from the UK pilot psychiatric services for personality-disordered offenders. International Review of Psychiatry. 2011;23:61-9.

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
Fortune and colleagues (2011)	Interventions: An inpatient MSU and a residential service	Personality-disordered male offenders Observational cohort study	Costs: accommodation (hostels, MSU, low secure unit, prison, high secure hospital, bed and breakfast), health and community services	Community and residential service is dominant	Perspective: public sector (healthcare, social care and criminal justice system)

Study Country Study type	Intervention details	Study population Study design Data sources	Costs: description and values Outcomes: description and values	Results: Cost-effectiveness	Comments
UK Cost effectiveness analysis	Community and residential treatment (including an inpatient MSU, a community team, and a residential service)	(N=54) Source of clinical effectiveness data: cohort study (N=42 at 6 month follow-up, N=25 at 24 month follow-up) Source of resource use data: cohort study (N=48) Source of unit costs: national sources	(inpatient stay, outpatient appointments, A&E, GP, practice nurse, key worker, psychiatric nurse, psychiatrist, psychologist, counsellor/therapist, drug and alcohol worker, dentist, occupational therapist, social worker, day centre), criminal justice services (probation, solicitor, police, police custody, court appearance) The cost per service user per year (ranges only reported): • MSU: £192,978 to £199,696 • Community and residential: £111,943 to £162,752 • Difference: £36,944 to £81,035 Measures of outcome: the mean scores on WSAS Mean WSAS scores (24 months less baseline): • MSU: -3.5, p=ns • Community and residential:-5.92, p=ns • Difference: -2.42		Currency: GB£ Cost year: 2005/6 Time horizon: 2 years Discounting: none Applicability: partially applicable Quality: very serious limitations Significance levels not reported for costs