

## **Appendix C1**

**Transition between inpatient mental health settings and community and care home settings**

**Economic evidence tables and critical appraisal tables**

# **Transition between inpatient mental health settings and community and care home settings**

## **Appendix C1 Evidence tables, economic evaluations**

### Review Question 5: Discharge from inpatient mental health settings

What is the effectiveness or impact of interventions, components of care packages and approaches designed to improve discharge from inpatient mental health settings?

## Population: Inpatients (excluding those with substance misuse)

### Intervention model type: Peer support services + usual care on discharge vs Usual care

Simpson A, Flood C, Rowe J, Quigley J, Henry S, Hall C, Evans R, Sherman P, Bowers L (2014) Results of a pilot randomised controlled trial to measure the clinical and cost effectiveness of peer support in increasing hope and quality of life in mental health patients discharged from hospital in the UK. BMC Psychiatry, 14(30)

Country, study type, intervention details	Study population, design & data sources	Outcomes, resource use	Results: cost-effectiveness, costs	Summary
<p><b>Country:</b> England 4 mental health wards from inner-city London</p> <p><b>Date:</b> Unclear</p> <p><b>Internal/external validity:</b> (-/+)</p> <p><b>Follow-up period:</b> One and 3 months post-discharge from hospital</p> <p><b>Study type:</b> Cost-</p>	<p><b>Population:</b> Patients discharged from inpatient mental health settings aged 18-64</p> <p>Characteristics</p> <ul style="list-style-type: none"> <li>- 50% with admissions in past year</li> <li>- 60% informally admitted</li> <li>- 30% Female</li> <li>- Mean age: 23–34</li> <li>- Age range: 20–55</li> </ul> <p><u>Exclusions:</u></p> <ul style="list-style-type: none"> <li>- Primary diagnosis of substance abuse or</li> <li>- Drug &amp; alcohol</li> </ul>	<p><b>Outcomes:</b></p> <ol style="list-style-type: none"> <li>1. <u>20-item Beck Hopelessness Scale (BHS)</u> <ul style="list-style-type: none"> <li>• Measuring negative attitudes about the future based on 3 dimensions of hopelessness</li> <li>• Higher scores on the BHS denote higher levels of hopelessness.</li> </ul> </li> <li>2. <u>UCLA Loneliness Scale (V3)</u> <ul style="list-style-type: none"> <li>• Assesses subjective feelings of loneliness or social isolation</li> <li>• Higher scores on the UCLA denote higher levels of loneliness.</li> </ul> </li> <li>3. <u>EuroQol (EQ-5D) Quality of</u></li> </ol>	<p><b>Findings on cost-effectiveness</b></p> <p>From the public sector perspective (NHS, social care, and criminal justice sectors) and using the outcome:</p> <p>1) <u>Based on Becks Hopelessness Scale (BHS)</u>, probability of peer support being cost-effective given different thresholds for expenditure is around 55%. The ICER was £12,555 for 1 unit of improvement in BHS. This translates to a modest improvement (0.02 increase) for an additional cost of £231.</p> <p>2) <u>Based on EQ-5D scale</u>, the</p>	<p><b>Applicability:</b> Very limited applicability</p> <p><b>Quality:</b> Appropriate economic methods</p> <p><b>Summary:</b> The evaluation has very limited applicability to the guideline because there are very serious limitations in study design. The interpretation of</p>

<p>effectiveness and cost–utility analysis</p> <p><b>Intervention:</b> Peer support services for up to 4 weeks post-discharge and initial contact while patients were in acute care (with expected discharge within 2–3 weeks) plus ‘care as usual’</p> <p><b>Control:</b> Care as usual – ‘arrangements from community mental health services’ (p.4)</p>	<p>dependency</p> <ul style="list-style-type: none"> <li>– Serious personality disorder</li> <li>– Pregnant or caring for children</li> <li>– Those at risk to others.</li> </ul> <p><u>Use of screening or targeting:</u> Pilot study, not described</p> <p><b>Study design:</b> RCT N=46 recruited, I =23, C=23 (represents 6.3% of the total number of discharges (n = 734) and 34.3% of the 134 patients approached following prior exclusion of those that did not meet inclusion criteria)</p> <p>Follow-up at 1 month n= 26, I=14, C=12</p> <p>Follow-up at 3 months n=15, I=6, C=9</p> <p><b>Data sources:</b> Trial data</p> <p><b>Sources of effectiveness data:</b></p>	<p><u>Life Questionnaire Non-disease-specific instrument for describing and valuing health-related quality of life, scale of 1–3 (no, some, severe problems) to judge difficulties in: mobility, self-care, usual activities, pain/discomfort &amp; anxiety/depression</u></p> <p>4. <u>EQ VAS (visual analogue scale)</u> records self-rated health on a vertical, visual analogue scale; endpoints are labelled ‘Best’ and ‘Worst’ ‘imaginable health state’</p> <p><b>Resource use:</b> <u>Primary care:</u> total drugs used, visits to GPs, dentists and physiotherapy <u>Mental health care (community &amp; acute):</u> multidisciplinary staff from community, home treatment crisis resolution and assertive outreach teams, housing support worker, care coordinator, telephone crisis line calls, psychiatric admission, peer support worker input <u>Secondary care:</u> A&amp;E for non-psychiatric care <u>Criminal justice system:</u> police contact, police doctor</p>	<p>probability of peer support being cost-effective is approximately 35% between thresholds of £0 and £50,000. This translates to decision makers paying £231 for a utility loss of -0.20.</p> <p><b>Sensitivity analyses:</b></p> <p>Conducted on cost of peer support worker across 4 scenarios, all of which did not change results in terms of costs or cost-effectiveness.</p> <p>Initial costing of peer support worker seems to be based on covering expenses of peer support workers as they arose.</p> <p>Sensitivity analysis considers</p> <ol style="list-style-type: none"> <li>1) A scenario where cost of PSW was constrained by an overall budget amount that was higher than initial cost estimate</li> <li>2) Using average hours but unclear unit cost approach</li> <li>3) Minimum wage, £5.80/hr</li> <li>4) Using top of the band NHS agenda for change band 3 as a proxy for unqualified staff costs</li> </ol> <p><b>Costs:</b></p> <p><u>Price year:</u> 2010</p>	<p>the results will be flawed because the analysis is based on a very small sample size (n=15). The cost-effectiveness analysis is calculated based on 6 and 9 individuals in the intervention and control group arms respectively at the end of the 3-month follow-up. This represents an attrition rate of 32% from an initial sample size of n=46 at randomisation. The authors suggest that more research is needed.</p> <p>However, given the results at present, the findings can be used to inform discussions about likely cost-effectiveness of</p>
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	<p>Trial data</p> <p><b>Sources of resource use data:</b> Trial data using Client Service Receipt Inventory (CSRI), clinical records, and peer support activities diary (to measure interaction with the peer support worker and activities undertaken)</p> <p><b>Sources of unit cost data:</b> Not clearly reported 'derived from routine sources locally and from national unit sources judged representative of local costs'</p>	<p><b>RESULTS</b></p> <p><b>Primary outcomes:</b> No statistically significant differences for</p> <p>(1) Beck Hopelessness Scale (p=0.055) when measured from baseline to 3 months follow-up and no difference from baseline until 1 month follow-up (p=0.494);</p> <p>(2) Loneliness Scale was not different from baseline to 1-month follow-up (p=0.432) and not different at 3 months (p-value not provided)</p> <p>(3) EQ-5D was not statistically different between groups</p> <p>(4) Health status using EQ VAS were also not statistically different between groups. However some evidence of trending towards lower levels of hopelessness and loneliness in the intervention group.</p> <p>There was a significant improvement in self-rated health <u>favoring the control group</u></p>	<p><u>Total costs per person (H&amp;SC and criminal justice system)</u> I= £2,154 (SD = £4,919) C= £1,922 (SD=£3,046) p-value=0.87 (not statistically significant)</p> <p>However these total costs were calculated on the assumption of zero cost for missing data. When mean values were imputed costs were still not statistically significantly different and total cost per person was, I= £5,103 vs. C=£3,221 (SD not provided, p-value not provided).</p> <p><u>Health and social care services costs per person</u> No significant differences (p=0.87) I=£2,136 (SD=£4,919) C=£1,922 (SD= £3,046)</p> <p><u>Primary care costs per person</u> Higher use of physiotherapist services in the control group (p=0.00) however overall no significant differences in cost (p=0.11) only trending toward significance because of higher use of drugs at baseline I=£126 (SD = £703) C=£317 (SD= £423)</p> <p><u>Secondary care (A&amp;E outpatient) costs per person</u></p>	<p>services. There are some other limitations but these may be minor, for instance, the lack of clarity regarding unit costs and whether these are nationally representative or representative of local costs. The follow-up period might be sufficient to test important changes in first-time to readmission, and would be an important driver of cost-effectiveness, however, small samples sizes limit statistical power of results. One strength of the analysis is the wide perspective, including health, social care, and criminal justice. A limitation is that</p>
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		<p><b>Resource use:</b> Results are based on n=6 in the intervention group and n=9 in the control group. No significant differences between groups across health, social care and criminal justice system.</p>	<p>No significant differences in cost (p=0.34). I=£5 (SD = £22) C=£0 (SD= £0)</p> <p><u>Mental health services cost per person</u> No significant differences in cost (p=0.77). I=£2,005 (SD = £4,930) C=£1,622 (SD= £3,016)</p> <p><u>Criminal justice system costs per person</u> No significant differences in cost (p=0.22). I=£18 (SD = £60) C=£0 (SD= £0)</p>	<p>nothing is known about how the intervention impacts carers. However, the authors do measure several relevant outcomes to service users, including loneliness, hope, self-rated health, and health-related quality of life.</p>
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## Population: All discharged psychiatric inpatients

## Intervention model type: Transitional case management

Chiverton P, Tortoretti D, LaForest M, Walker PH (1999) Bridging the gap between psychiatric hospitalization and community care: cost and quality outcomes. Journal Of The American Psychiatric Nurses Association 5: 46–53

Country, study type, intervention details	Study population, design & data sources.	Outcomes, resource use	Results: cost-effectiveness, costs	Summary
<p><b>Country:</b> USA</p> <p><b>Date:</b> Pre-1999</p> <p><b>Internal/external validity:</b> (+/+)</p> <p><b>Follow-up period:</b> end of case management, which varies from individual to individual (average time on case management was also not presented)</p> <p><b>Study type:</b> Cost-consequence</p>	<p><b>Population:</b> All discharged inpatients, mean age 56, range 19–95. Majority male (68%).</p> <p>Diagnoses</p> <ul style="list-style-type: none"> <li>– 65% affective</li> <li>– 18% schizophrenia</li> <li>– 6% dementia</li> <li>– 6% not specified</li> <li>– 3% organic mood disorder</li> <li>– 2% other</li> </ul> <p><b>Study design:</b> RCT I, n=121 C, n=122</p>	<p><b>Outcomes:</b></p> <ol style="list-style-type: none"> <li>1. Beck Depression Inventory (BDI)</li> <li>2. Mini mental state examination (MMSE)</li> <li>3. Satisfaction (only for intervention group)</li> </ol> <p><b>Resource use:</b> Only measured use of acute care services (emergency visits and length of stay in hospital)</p> <p><b>RESULTS</b></p> <p><b>Outcomes:</b> <u>OUTCOMES ARE POORLY REPORTED (SEE BELOW)</u></p> <ol style="list-style-type: none"> <li>1. BDI improved favoring intervention group as measured from discharge from hospital and discharge from case management programme</li> </ol>	<p><b>Findings on cost-effectiveness:</b></p> <p>The intervention generates improvements in Beck Depression Inventory (however this is poorly reported as scores are not reported, only p-values are reported) and uses less acute care resources and including intervention costs, net costs are lower, compared to usual care group.</p> <p><b>Sensitivity analyses:</b> None performed</p> <p><b>Costs:</b> <u>Price year:</u> Unclear</p>	<p><b>Applicability:</b> Partially applicable</p> <p><b>Quality:</b> Very serious limitations</p> <p><b>Summary:</b> This study has partial applicability and very serious limitations given the lack of reporting of statistical analysis on resource use in addition to unclear choice of time horizon for measuring changes in acute care services which does not seem to be in line with the time horizon used for effects on individuals (which is also vaguely reported as time between</p>

<p>analysis</p> <p><b>Intervention:</b> Transitional case management provided by (trained) inpatient psychiatric nurses to people discharged from the unit for up to 3 months post-discharge</p> <p><b>Control:</b> 'Routine outpatient care upon discharge'</p>	<p><b>Data sources:</b> RCT</p> <p><b>Sources of effectiveness data:</b> Trial data</p> <p><b>Sources of resource use data:</b> Trial data (medical records)</p> <p><b>Sources of unit cost data:</b> Charges</p>	<p>(<math>p &lt; 0.0001</math>) but authors do not provide figures for intervention and control groups.</p> <p>2. MMSE not statistically different between groups but authors do not provide figures for intervention and control groups.</p> <p>3. Satisfaction (only measured intervention group). Low return rate (27% completed, but this figure includes patients and carers), among service users who completed the survey, 96% were very pleased, 3% somewhat, 1% not satisfied; among carers who completed the intervention, 95% very pleased, 5% somewhat.</p> <p><b>Resource use:</b> <u>RESOURCE USE IS POORLY REPORTED (SEE BELOW).</u></p> <p><u>TIME HORIZON: 10 weeks post-discharge</u> No statistical tests of significance are reported on either costs or resource use Reporting is limited to descriptive statistics</p> <p><u>Emergency department visits</u> Control (n=122): 18 admitted, 20</p>	<p><u>Total costs per person (acute care services)</u> I= \$153,679 C= \$329,054 P-value= not provided</p> <p><u>Costs of case management per person</u> \$234</p> <p><u>Cost savings (including intervention costs):</u> \$175, 375</p>	<p>discharge from inpatient psychiatric care to discharge from case management, whose average time on case management was also not presented). The study takes a limited perspective, focusing on the impact of the intervention on reducing readmissions and length of stay and use of A&amp;E services. However, due to the poor level of reporting of effects, the overall quality of the study raises questions about reliability of overall findings.</p>
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		visits, \$9000 total charges  Intervention (n=121): 1 admitted, 1 visit, \$450 in total charges  <u>Hospital readmissions</u> Control (n=122): 16 admitted, 408 days, \$320,054 total charges  Intervention (n=121): 9 admitted, 181 days, \$124,915 in total charges		
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# **Transition between inpatient mental health settings and community and care home settings**

## **Appendix C1 Evidence tables, economic evaluations**

### Review Question 6: Preventing readmissions to inpatient mental health settings

What is the effectiveness or impact of interventions and approaches delivered as part of discharge and admission processes in reducing or preventing readmissions to inpatient mental health settings?

**Population:** History of admissions, 75% schizophrenia, 25% affective

**Intervention model type:** Joint crisis plans to reduce readmission

Barrett B, Waheed W, Farrelly S, Birchwood M, Dunn G, Flach C, Henderson C, Leese M, Lester H, Marshall M, Rose D, Sutherby K, Szmukler G, Thornicroft G, and Byford S (2013) Randomised controlled trial of joint crisis plans to reduce compulsory treatment for people with psychosis: economic outcomes. PLOS One, November 8(11) e74210

Country, study type & intervention details.	Study population, design & data sources	Outcomes, resource use	Results: cost-effectiveness, costs	Summary
<p><b>Country:</b> UK</p> <ul style="list-style-type: none"> <li>- Birmingham</li> <li>- Lancashire</li> <li>- Manchester</li> <li>- South</li> <li>- London</li> </ul> <p><b>Internal/external validity:</b> (+/++)</p> <p><b>Date:</b> August 2008– March 2010</p> <p><b>Follow-up:</b> 18 months after randomisation</p>	<p><b>Population:</b></p> <p><u>Eligibility:</u></p> <ul style="list-style-type: none"> <li>- History of relapsing psychotic illness</li> <li>- Over 16 years old</li> <li>- 1+ admissions in past 2 years</li> <li>- Registered on Enhanced Care Programme Approach (i.e., had complex needs)</li> </ul> <p><u>Exclusions:</u></p> <ul style="list-style-type: none"> <li>- Subject to a section of the MHA (to reduce likelihood of perceived pressure to participate)</li> </ul> <p><u>Demographics:</u></p> <ul style="list-style-type: none"> <li>- Female: 50%,</li> <li>- Mean age=40,</li> </ul>	<p><b>Primary outcomes:</b></p> <ol style="list-style-type: none"> <li>1. Proportion of participants admitted to hospital under a compulsory section</li> </ol> <p><b>Secondary outcomes</b> (Higher scores indicate worse outcomes)</p> <ol style="list-style-type: none"> <li>2. Proportion admitted to psychiatric unit</li> <li>3. Length of stay</li> <li>4. Self-rated perceived coercion</li> <li>5. Self-rated therapeutic relationships</li> <li>6. Clinician-rated therapeutic relationships</li> <li>7. Clinician-related patient engagement</li> </ol> <p><b>Resource use:</b></p>	<p><b>Findings on cost-effectiveness:</b></p> <p>Cost-effectiveness across the whole sample masks wide differences between ethnicities.</p> <p><u>Price year:</u> 2009/10</p> <p><u>WHOLE SAMPLE ANALYSIS:</u></p> <ul style="list-style-type: none"> <li>- <u>From a public sector perspective</u> (NHS, social care, criminal justice), the intervention has an 80% probability of being cost-effective for every value that the decision-maker is willing to pay.</li> <li>- <u>From a societal perspective</u> (public sector + productivity</li> </ul>	<p><b>Applicable:</b> Applicable with minor limitations</p> <p><b>Quality:</b> Appropriate economic methods</p> <p><b>Summary:</b> The study is applicable with very minor limitations. The study captures a wide range of individuals in relation to ethnicity and age (16+). The strengths of this study are its relatively recent</p>

<p><b>Study type:</b> Cost-effectiveness analysis</p> <p><b>Intervention</b> Joint-crisis planning.</p> <p>'The JCP is a negotiated statement by a patient of treatment preferences for any future psychiatric emergency, when he or she might be unable to express clear views'</p> <p><b>Control:</b> Usual care</p>	<ul style="list-style-type: none"> <li>- Lives alone=44%</li> <li>- Ethnicity: White, 62%, Black, 22%, Asian, 10%</li> <li>- No formal education: 27%</li> </ul> <p><u>Diagnoses:</u></p> <ul style="list-style-type: none"> <li>- Schizophrenia spectrum disorders (74%),</li> <li>- Affective disorders (26%)</li> </ul> <p><u>History of inpatient use:</u></p> <ul style="list-style-type: none"> <li>- 1.5 mean admissions, past 2 years</li> <li>- 59 days median length of stay</li> </ul> <p><u>Recruitment:</u> Recruited from generic and specialist community mental health teams within three geographical areas in 4 English mental health trusts</p> <p><b>Study design:</b> RCT n=569 and 64 mental health teams Intervention, n=285 Control, n=284</p> <p><b>Data sources:</b></p>	<p>Public sector perspective (health, social care, and criminal justice) and societal perspective (lost productivity and criminal activity).</p> <p><b>RESULTS</b></p> <p><u>Summary for whole group:</u> Non-statistically significant difference across all primary and secondary outcomes with the exception of one secondary outcome, 'self-rated therapeutic relationships', which favoured the intervention, but was not statistically significant (p=0.07).</p> <p><u>Sub-group analysis for white ethnicity:</u> There was no difference in outcomes between intervention and control groups, compulsory admissions were not statistically different.</p> <p><u>Sub-group analysis for black ethnicity:</u> Demonstrated a trend towards statistically significant reductions in compulsory admissions (p=0.10) and compulsory or voluntary admissions (p=0.20) and median length of stay (p=0.17) for the</p>	<p>losses and crime), the intervention has a 44% probability of being cost-effective, and rises to 50% if the decision maker is willing to pay £9,000+.</p> <p><u>SUBGROUP ANALYSIS:</u></p> <ul style="list-style-type: none"> <li>- WHITE ETHNICITY</li> <li>- <u>From a societal perspective</u>, costs were higher for the intervention group and no difference in effects. There was a 20–30% chance that intervention is cost-effective (i.e. 70%+ chance that control group is cost-effective).</li> <li>- <u>From a public sector perspective</u>, there was a 30% chance that the intervention is cost-effective over any value of willingness to pay (data obtained by personal communication with authors).</li> <li>- BLACK ETHNICITY</li> <li>- <u>From a societal perspective</u>, costs were lower for the intervention group and effects were better; 90% probability that intervention is cost-effective.</li> <li>- <u>From a public sector</u></li> </ul>	<p>date of research (2008–10) and that it covers four geographical sites (Lancashire, South London, Manchester, and Birmingham). Another strength of the analysis is the broad perspective, including all relevant sectors (health, social care, criminal justice, and productivity) and that it is measured over an adequately long enough time horizon (18 months). While not a major limitation, some limitations to applicability are the lack of the use of QALY measures or other measures of wellbeing or physical and mental health symptoms; however, the authors justify this as they did not believe that the</p>
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	<p><b>Sources of effectiveness data:</b> Trial data</p> <p><b>Sources of resource use data:</b> Trial data.</p> <p>Self-report via 'Adult Service Use Schedule' based on previous studies used in mental health populations.</p> <p>Measured 3-months prior to randomisation and at 18 months follow-up.</p> <p>Resource use data were supplemented using computerised hospital records for psychiatric inpatient admissions and community mental health services.</p> <p><b>Sources of unit cost data:</b> Financial year 2009/10.</p> <p>NHS hospital costs were taken from NHS Reference costs and community and social care costs were taken</p>	<p>intervention group compared to the control group.</p> <p><u>Subgroup analysis for Asian ethnicity:</u> For Asians, there were more compulsory admissions than the control group (worse outcomes).</p> <p><b>RESULTS (WHOLE SAMPLE)</b></p> <p><b>Primary outcomes:</b></p> <ol style="list-style-type: none"> <li><u>Compulsory admission</u> Intervention: 49 patients (18%) Control: 56 patients (20%) Odds ratio=0.90, 95% CI (0.59 to 1.38, p=0.63)</li> </ol> <p><b>Secondary outcomes:</b></p> <ol style="list-style-type: none"> <li><u>Proportion admitted to psychiatric unit (compulsory or voluntary)</u> Intervention, 29% (n=77), Control, 29% (n=81), p=0.63</li> <li><u>Median length of stay (days) (compulsory or voluntary)</u> Intervention, 29.5 (SD=75.7) Control, 26.4 (SD=76.2), p=0.64</li> <li><u>Self-rated perceived coercion</u> Intervention, 2.33 (SD=1.68)</li> </ol>	<p><u>perspective</u>, there was a 95% chance that the intervention is cost-effective over any value of willingness to pay (data obtained by personal communication with authors).</p> <ul style="list-style-type: none"> <li>- ASIAN ETHNICITY</li> <li>- <u>From a societal perspective</u>, there is a less than 10% chance that the intervention is cost-effective</li> <li>- <u>From a public sector perspective</u>, there was a less than 20% chance that the intervention is cost-effective over any value of willingness to pay (data obtained by personal communication with authors).</li> </ul> <p><b>TOTAL COSTS PER PERSON, 18 MONTHS</b></p> <p><b><u>For the whole sample:</u></b> No statistically significant differences in costs using public sector and societal perspective.</p> <p><u>Public sector perspective:</u> <u>Mean (standard deviation)</u> Intervention: £17,233 (£21,013) Control: £19,217 (£28,133) p=0.414</p>	<p>intervention would affect QALYs but would primarily attempt to improve the admission process and reduce readmissions in the future. However, authors do measure other outcomes considered to be important to service users, such as: self-rated perceived coercion, self-rated therapeutic relationships, and also considered impact on clinicians via clinician-rated therapeutic relationships and clinician-related patient engagement. Another important consideration is the exclusion criteria, excluding those subject to the Mental Health Act, which may exclude an important group, however, authors justify this on ethical</p>
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<p>from national publications.</p> <p>Cost of medications was taken from British National Formulary.</p> <p>Criminal justice unit costs were calculated using national publications.</p> <p>Productivity losses were costed using human capital approach (days off from work multiplied by the individual's salary).</p> <p>Cost of the intervention used a bottom-up micro costing approach, which includes capital overheads and indirect costs (administrative and managerial support).</p>	<p>Control, 2.10 (SD=1.76), P=0.16</p> <p>5. <u>Self-rated therapeutic relationships</u> Intervention, 17.3 (SD=7.6) Control, 16 (SD=7.1), p=0.07</p> <p>6. <u>Clinician-rated therapeutic relationships</u> Intervention, 17.5 (SD=5.1) Control, 17.1 (SD=5.2), p=0.37</p> <p>7. <u>Clinician-related patient engagement</u> Intervention, 9.74 (SD=7.26) Control, 10.05 (SD=7.15), p=0.65</p> <p><b>RESULTS (SUB-GROUPS)</b></p> <p><u>1. Compulsory admissions</u></p> <p>WHITE ETHNICITY Intervention: n=26/164 (26%) Control: n=28/178 (16%) Odds ratio: 0.952 (95% CI=0.532 to 1.706) P=0.166</p> <p>BLACK ETHNICITY Intervention: n=13/66 (20%) Control: n=23/72 (32%) Odds ratio: 0.553 (95% CI=0.249 to 1.226) P=0.256</p>	<p><u>Societal perspective</u> Intervention: £22,501 (£28,103) Control: £22,851 (£34,532) p=0.902</p> <p>(1) Sensitivity analysis when productivity costs are £0 lowers total costs to Intervention: £22,485 (£28,112) Control: £22,757 (£34,563) p=0.878 Difference of -£272 btwn groups.</p> <p>(2) Sensitivity analysis when costs of the intervention are lowered assuming a greater number of JCPs carried out as experience increases over time (increasing from 2 to 4 meetings per week). Intervention: £22,430 (£28,105) Control: £22,851 (£34,532) p=0.878 Difference of -£421 btwn groups.</p> <p><b>INTERVENTION COSTS</b> <u>(Joint crisis planning)</u> £224 (£367) per person</p> <p><b>SECTOR-LEVEL COSTS</b> (Inclusive of intervention costs)</p>	<p>grounds that including them may put perceived pressure to participate. Therefore, one must consider this when attempting to generalise to this group.</p> <p>The study has high reporting quality and measures data at all-important points (baseline and follow-up) over adequately long time horizons (18 months post-randomisation). The collection of resource use was adequate using a self-report survey that had been previously used in mental health populations and were supplemented with data from clinical databases. Appropriate approaches were</p>
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		<p><b>ASIAN ETHNICITY</b>  Intervention: n=9/32 (27%)  Control: n=3/24(14%)  Odds ratio: 7.5 (95% CI=0.867 to 65.520)  p=0.139</p>	<p><u>Health and social care:</u>  Intervention, £13,756 (£17,953)  Control, £15,744 (£25,578)  p-value=not provided</p> <p><u>Accommodation:</u>  Intervention, £2,892 (£9,249)  Control, £2,946 (£9,006)  p-value=not provided</p> <p><u>Criminal justice sector:</u>  Intervention, £351 (£3,033)  Control, £527 (£4,586)  p-value=not provided</p> <p><u>Societal cost of crime:</u>  Intervention, £5,262 (£17,220)  Control, £3,540 (£13,684)  p-value=not provided</p> <p><u>Societal cost of lost productivity (employment losses):</u>  Intervention, £16 (£135)  Control, £94 (£103)  p-value=not provided</p>	<p>used to calculate unit costs and costs of the intervention (using bottom-up micro-costing approach). The authors also undertook appropriate statistical analyses and sensitivity analyses to account for uncertainties. In particular, they consider where productivity losses are costed at zero because of the possibility that workers can be replaced from a pool of unemployed people. Appropriate sensitivity analyses were also carried out when assuming that a greater number of joint-crisis plans could be facilitated (from 2 to 4 per week) as experience increases.</p>
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**Population:** Early stage bipolar (first, second or third inpatient admission)

**Intervention model type:** Specialised outpatient mood disorder clinic + staged group psycho-education or cognitive behavioural therapy + guideline-based pharmaceutical prescribing + psychosocial intervention for relatives of patients vs generic outpatient treatment

Kessing LV, Hansen HV, Hvenegaard A, Christensen EM, Dam H, Gluud C, Wetterslev J, and The Early Intervention Affective Disorders (EIA) Trial Group (2013) Treatment in a specialised out-patient mood disorder clinic v. standard out-patient treatment in the early course of bipolar disorder: randomised clinical trial. British Journal of Psychiatry 202: 212–19

Country, study type & intervention details.	Study population, design & data sources	Outcomes, resource use	Results: cost-effectiveness, costs	Summary
<p><b>Country:</b> Denmark</p> <p><b>Date:</b> December 2005 to 2009</p> <p><b>Internal/external validity:</b> +/-</p> <p><b>Follow-up period:</b> After discharge, between 0 and 6 years with an average follow-up of 2.5 years (sd=1.7)</p> <p><b>Study type:</b> Economic evaluation</p> <p><b>Intervention:</b> 2 yrs duration,</p>	<p><b>Population:</b></p> <p><u>Diagnosis:</u> Patients discharged from acute care for the first, second, or third time with a diagnosis of single manic episode or bipolar disorder as the primary diagnosis.</p> <p>Majority had bipolar 1 disorder</p> <p><u>Age:</u> Median (quartile) = 37.6</p>	<p><b>Primary outcomes:</b></p> <ol style="list-style-type: none"> <li>1. First admission to psychiatric ward</li> </ol> <p><b>Secondary outcomes:</b></p> <p>Measured in first and second years</p> <ol style="list-style-type: none"> <li>2. Major Depression Inventory (MDI) to identify relapse of a depressive episode (score of 21 or more)</li> <li>3. Mood Disorder Questionnaire (MDQ) to monitor relapse of hypomanic/manic episodes (score of 7 or more)</li> </ol> <p><b>Tertiary outcome</b></p>	<p><b>Findings on cost-effectiveness:</b></p> <p>The economic analysis was conducted using only the direct treatment costs and does not include the costs that may have arisen to other health services, local authority, or society.</p> <p>From such a perspective, the intervention costs</p>	<p><b>Applicable:</b> Limited applicability</p> <p><b>Quality:</b> Economic analysis was conducted from a very limited perspective (direct treatment costs only)</p> <p><b>Summary:</b> The evaluation has limited</p>

<p>protocol-based treatment</p> <p>‘Treatment in a specialised mood disorder clinic, combining pharmacological treatment with group psychoeducation early in the course of illness among patients discharged from one of their first admissions to hospital for bipolar disorder’ (p212).</p> <p>‘Upon discharge, individuals receive treatment with the aim of moving to the next set when they are partially remitted from symptoms (&lt;14 for mania and depression on the Hamilton Depression Score and the Young Mania Rating Scale). Individuals are usually in this group for a few months up to half a year. The focus of this treatment is to discuss ‘current clinical status, beliefs, and experiences in relation to the recent hospitalization’ (Kessing et al. 2013, p4).</p> <p>The next stage in treatment is either group psychoeducation or group cognitive behavioural therapy, decided in</p>	<p>years (27-48)</p> <p><u>Employment status:</u> Most individuals were employed (70% intervention group, 50% control group)</p> <p><u>Education:</u> Most had more 11+ years of education (76% intervention, 62% control group)</p> <p><u>Exclusions:</u></p> <ul style="list-style-type: none"> <li>• Patients with moderate or severe dementia,</li> <li>• Poor understanding of Danish</li> <li>• Under any kind of commitment (e.g. compulsory hospitalisation or treatment)</li> </ul> <p><b>Study design:</b> RCT (ITT), n= 158 Intervention, n= 72 Control, n= 86</p> <p><b>Sources of effectiveness data:</b></p>	<p>Measured in first and second years</p> <p>4. Satisfaction with treatment as measured by Verona Service Satisfaction Scale adjusted for patients with affective disorder, the Verona Service Satisfaction Scale – Affective Disorder (VSSS-A).</p> <p><b>Resource use:</b> <u>Included</u> ‘only direct health-related costs resulting from psychiatric outpatient treatment and subsequent inpatient care’ (p214). <u>Excluded:</u> ‘costs to local authorities, health services in general or indirect cost for society such as transferred income or decline in work capacity and productivity’ (p214)</p> <p><b>RESULTS</b></p> <p><b>1. Primary outcome:</b> <b>*Time to first readmission</b> Longer time to first admission (p=0.043)</p> <ul style="list-style-type: none"> <li>• Hazard ratio=0.60</li> <li>• 95% CI 0.37–0.98</li> </ul> <p><b>Total patients readmitted</b></p> <ul style="list-style-type: none"> <li>• Intervention: 36.1% (n=26)</li> <li>• Control: 54.7% (n=47)</li> </ul> <p><b>Length of stay of first readmission</b></p>	<p>less and provides greater time in the community before first readmission and lower total duration in inpatient care. There were no differences in symptoms, either depressive or manic but results may be flawed due to low response rates. Satisfaction with treatment was also better for the intervention and there was higher use of medications (statistically significant greater use of antipsychotics (p=0.02) and mood stabilisers (p=0.004) but no difference in use of antidepressants (p=0.8)).</p> <p><b>Costs</b></p> <p><b>Two-year treatment mean costs per patient (euros)</b></p>	<p>applicability to the guideline because there are potentially serious limitations in study design. First, generalisability of results to the UK is unclear due to differences in institutional factors and that unit costs are different. Second, the economic analysis was conducted taking the perspective of direct treatment costs only and does not include the costs that may have arisen to other health services, local authority or society.</p>
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<p>collaboration by patient and clinician. Sessions last 12 weeks for 1.5 hours each week. In both groups, 'focus is on knowledge and acceptance of suffering from an affective disorder identifying affective symptoms from normal reactions, personal identity in relation to suffering from an affective disorder, risk situations, stress management, the need for sustained pharmacological maintenance treatment, adverse events due to treatment, and identification of individual prior early warning signs of upcoming affective episodes' (p4). In cognitive behavioral therapy, focus was on 'inter-individual conflicts and cognitive distortions in identity and behavior' (p4).</p> <p>The final stage in treatment was a 3–6-month training discharge group prepared the individual for 're-referral to the initially referring physician with the aim of identifying individual early warning signals prospectively in practice and training of how to change</p>	<p>RCT</p> <p><b>Sources of resource use data:</b> RCT, Based only on direct treatment costs (p.214)</p> <p><b>Sources of unit cost data:</b> Estimates from national reference costs or from published data (p.214)</p>	<p>Not statistically different (<math>p=0.30</math>)</p> <ul style="list-style-type: none"> <li>Intervention vs. control, median (quartiles):</li> <li>12 (3.0–46.5) days vs 22 (4.8–54.8)</li> </ul> <p><b>Total number of readmissions following randomisation</b></p> <p>Not statistically different (<math>p=0.11</math>)</p> <ul style="list-style-type: none"> <li>Intervention vs control, mean:</li> <li>0.97 (SD=1.74) vs 1.58 (SD=2.57)</li> </ul> <p><b>Cumulated duration of all admissions following randomisation:</b> Statistically shorter (<math>p=0.01</math>)</p> <ul style="list-style-type: none"> <li>Intervention vs Control, median (quartiles)</li> <li>33 (10.5–133.5) days vs 49 (21–127.5)</li> </ul> <p><b>2. Secondary outcome:</b></p> <p>Statistically different completion rate (<math>p=0.001</math>), 79.2% Int., 53.5% Cont.</p> <ul style="list-style-type: none"> <li>Therefore results were adjusted for covariates.</li> <li>However, results are flawed</li> </ul> <p><b>Depressive episode:</b></p> <ul style="list-style-type: none"> <li>Non-statistically significant reduction</li> <li>Proportion of intervention patients relapsing into a depressive episode (<math>n=25</math>, 35.1%) vs control</li> </ul>	<p><u>Price year:</u> 2012</p> <p><u>Direct treatment, mean cost per patient</u></p> <p>Intervention, €9,604 Control, €6,604 (no confidence interval provided) Difference: €3,000 higher for intervention</p> <p><u>Inpatient costs</u></p> <p>Intervention, €14,487 Control, €21,511 (no confidence interval provided) Difference: €7,024 higher for control</p> <p><u>Medicine</u></p> <p>Intervention, €1,862 Control, €1,032 (no confidence interval provided) Difference: €830 higher for intervention</p> <p><u>Net cost:</u></p> <p>Intervention, €25,953 Control, €29,147 (no confidence interval provided) Difference: €3,194 lower for intervention</p>	
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<p>upcoming personal conflicts and cognitive distortions' (p4).</p> <p>Furthermore, 'relatives to patients with bipolar disorder were offered a manual based psycho-educative group course consisting of 2-hours sessions weekly for six weeks' (p4).</p> <p><b>Control:</b> Standard care</p> <p>'Treatment with a GP, a private psychiatrist, at the local community mental health centre or a local psychiatrist associated with the discharging ward.'</p> <p>'Psychopharmacological treatment ... was more likely to be based on the preferences of the individual physician than on national and international guidelines.'</p> <p>'Psychosocial treatment elements such as group psycho-education or systematic individual psycho-education was not offered'</p> <p>'...contact w. family was provided more infrequently and in a less intensive, non-</p>		<p>group (n=37, 43.5%) (adjusted p=0.4).</p> <p><b>Anxiety episode:</b></p> <ul style="list-style-type: none"> <li>• Non-statistically significant reduction</li> <li>• Proportion of intervention patients relapsing into a hypomaniac or manic episode (n=45, 62.9%), control group (n=49, 57.1%) (adjusted p=0.6)</li> </ul> <p><b>3. Tertiary outcome:</b></p> <p><b>Satisfaction with treatment:</b> Statistically better for intervention group VSSS-A total score, Adjusted, p=0.01</p> <ul style="list-style-type: none"> <li>• Intervention, 132.2 (SD = 16.9)</li> <li>• Control, 114.9 (SD = 31.6)</li> </ul> <p><b>Sub-scale – use of medication:</b> Completion rates for use of medication was higher than response rate for symptoms: '77.8% for antipsychotics, 80.4% for antidepressants and 92.4% for mood stabilisers (lithium or anticonvulsant' (p216)</p> <p>Statistically significant greater use of antipsychotics (p=0.02) and mood stabilisers (p=0.004) but no difference in use of anti-depressants (p=0.8).</p>	<p><b>Sensitivity analysis</b></p> <ul style="list-style-type: none"> <li>• One-way sensitivity analysis conducted.</li> <li>• Direct treatment costs could be 33% higher before it becomes more expensive.</li> <li>• Impact of the intervention on inpatient reduction could be a maximum of less than 9 days (18% reduction) before it becomes more expensive (p216)</li> </ul>	
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<p>systematic way compared with the mood disorder clinic' (p214).</p>		<p><u>Antipsychotic</u>  Int=59.5%, n=43;  Cont=34.9%, n=30  <u>Mood stabiliser:</u>  Int=59%, n=42;  Cont= 32.4%, n=28  <u>Anti-depressant:</u>  Int=42.9%, n=31;  Cont= 37.2%, n=32</p>		
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# **Transition between inpatient mental health settings and community and care home settings**

## **Appendix C1 Methodology checklists, economic evaluations**

### Review Question 5: Discharge from inpatient mental health settings

What is the effectiveness or impact of interventions, components of care packages and approaches designed to improve discharge from inpatient mental health settings?

## APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

<b>Study identification:</b> Simpson A, Flood C, Rowe J, Quigley J, Henry S, Hall C, Evans R, Sherman P, Bowers L (2014) Results of a pilot randomised controlled trial to measure the clinical and cost effectiveness of peer support in increasing hope and quality of life in mental health patients discharged from hospital in the UK. BMC Psychiatry 14(30)	
<b>Guideline topic:</b> Transition between inpatient mental health settings and community and care home settings	
<b>Economic priority area:</b> Discharge from inpatient mental health settings Preventing readmissions to inpatient mental health settings	<b>Q:</b> 5, 6
<b>Checklist: Section 1</b>	
Yes/No/Partly/Not applicable	Detail
<b>1.1 Is the study population appropriate for the review question?</b>	
Yes	Patients discharged from inpatient mental health settings aged 18–64. Excluded patients with primary diagnosis of substance abuse or a drug and alcohol dependency, serious personality disorder, pregnant or caring for children and those considered a serious risk to others.
<b>1.2 Are the interventions appropriate for the review question?</b>	
Yes	Peer support services for a maximum of 4 weeks post-discharge and initial contact while patients were in acute care (with expected discharge within 2–3 weeks) plus 'care as usual', only described as 'arrangements from community mental health services' (p4).
<b>1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?</b>	
Yes	Inner London, England – 4 mental health wards.
<b>1.4 Are the perspectives clearly stated and what are they?</b>	
Partially	Not clearly stated but based on reporting available it appears to be from public sector health and social care perspective.
<b>1.5 Are all direct effects on individuals included?</b>	
Partially	Does not measure social care-related outcomes or impact on carers. The evaluation captures outcomes that are important in mental health, including a measure of negative attitudes and dimensions of hopelessness using the 20-item Beck Hopelessness Scale (BHS) and a subjective measure of loneliness or social isolation using the UCLA loneliness scale (version 3). The evaluation also measures health-related quality of life using the EQ-5D and self-rated health using the EQ-VAS. However, no other social care related outcomes were measured.
<b>1.6 Are all future costs and outcomes discounted appropriately?</b>	
NA	Not necessary as the evaluation is less than 1 year.
<b>1.7 How is the value of effects expressed?</b>	
Mixed	Results for changes in effects are presented in natural units and changes in resource use are presented in monetary units (costs) and for specific outcomes (Beck Hopelessness Scale and EQ-5D) results are presented in terms of ICERs.
<b>1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?</b>	
Partially	Criminal justice system is measured in terms contacts with police and police doctors. Impact on carers is not measured. Impact on employment or housing was not measured.
<b>General conclusion</b>	

The study has very limited applicability as an economic evaluation because it was a pilot study with very small sample size at recruitment and large dropout rates which meant very small individuals remained at 1 and 3 months follow-up, therefore making the study underpowered to detect effects. Moderate reporting quality (unit costs are not presented and service utilisation is presented in terms of costs rather than also being presented in natural units). Good quality in terms of the comprehensiveness of collecting resource use (health, social care, criminal justice system).

**Section 2: Study limitations (the level of methodological quality)**

This checklist should be used once it has been decided that the study is sufficiently applicable to the context of the social care guidance [a]

**2.1 Does the model structure adequately reflect the nature of the topic under evaluation?**

Not a model. | This is a cost-effectiveness analysis.

**2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?**

Partially. | Three months follow-up post-randomisation.

**2.3 Are all important and relevant outcomes included?**

Partially. | See Section 1.5.

**2.4 Are the estimates of baseline outcomes from the best available source?**

Yes | From the RCT

**2.5 Are the estimates of relative intervention effects from the best available source?**

Yes | From the RCT

**2.6 Are all important and relevant costs included?**

Yes | See Sections 1.4 and 1.8

**2.7 Are the estimates of resource use from the best available source?**

Yes | RCT using Client Service Receipt Inventory (CSRI), clinical records, and Peer Support Activities Diary (to measure interaction with the PSW).

**2.8 Are the unit costs of resources from the best available source?**

Partially | Authors write that unit costs were 'derived from routine sources locally and from national unit costs judged representative of local costs'. It is unclear whether national unit costs were actually used.

**2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?**

Yes | Incremental analysis is presented with bootstrapping to provide the joint-probability of cost-effectiveness.

**2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?**

Yes | Costs of the intervention, in relation to peer support workers, are subject to sensitivity analyses, with no apparent changes in results. Sensitivity analysis considers 1) A scenario where cost of PSW was constrained by an overall budget amount that was higher than initial cost estimate; 2) using average hours but unclear unit cost approach; 3) minimum wage, £5.80/hr; 4) using top of the band NHS agenda for change band 3 as a proxy for unqualified staff costs.

**2.11 Is there any potential conflict of interest?**

No

**2.12 Overall assessment**

The evaluation has very limited applicability to the guideline because there are very serious limitations in study design. The interpretation of the results will be flawed because the analysis is based on a very small sample size. The cost-effectiveness is calculated based on 6 and 9 individuals in the intervention and control group arms respectively at the end of the 3-month follow-up period. This represents an attrition rate of 32% from an initial sample size of n=46 at randomisation. The authors suggest that more research is needed. However, given the results at present, the findings can be used to inform discussions about likely cost-effectiveness of services. There are some other limitations but these may be minor, for instance, the lack of clarity regarding unit costs and whether



these are nationally representative or representative of local costs. The follow-up period might be sufficient to test important changes in first-time to readmission, and would be an important driver of cost-effectiveness, however, small samples sizes limit statistical power of results. One strength of the analysis is the wide perspective, including health, social care and criminal justice. However, a limitation is that nothing is known about how the intervention impacts on carers. However, the authors do measure several relevant outcomes, including loneliness, hope, self-rated health, and health-related quality of life.

## APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

<b>Study identification:</b>	
Chiverton P, Tortoretti D, LaForest M, Hinton-Walker P (1999) Bridging the gap between psychiatric hospitalisation and community care: cost and quality outcomes. <i>Journal of the American Psychiatric Nurses Association</i> 5(2): 46–53	
<b>Guideline topic:</b> Transition between inpatient mental health settings and community and care home settings	
<b>Economic priority area:</b> Preventing re-admissions to inpatient mental health settings	<b>Q:</b> 5, 6
<b>Checklist: Section 1</b>	
Yes/No/Partly/Not applicable	Detail
<b>1.1 Is the study population appropriate for the review question?</b>	
Yes	All discharged inpatients.
<b>1.2 Are the interventions appropriate for the review question?</b>	
Yes	Transitional case management performed by inpatient nurses.
<b>1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?</b>	
Unclear	US study.
<b>1.4 Are the perspectives clearly stated and what are they?</b>	
Partially	Not clearly stated but measures acute care services only, limited to emergency visits, hospital admissions and length of stay.
<b>1.5 Are all direct effects on individuals included?</b>	
Partially	Beck Depression Inventory, Mini Mental State examination (both of which were not reported, only p-values were reported). Satisfaction was measured but this was only provided to the intervention group, not the control group.
<b>1.6 Are all future costs and outcomes discounted appropriately?</b>	
Not necessary	N/A
<b>1.7 How is the value of effects expressed?</b>	
Mixed	Natural units for acute care service use (number of people admitted, A&E visits, length of stay) and costs for use of acute care services. Effects on individuals were not reported.
<b>1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?</b>	
No.	
<b>General conclusion</b>	
Partially applicable due to poor reporting of effects on outcomes and that statistical methods appear not to have been carried out on resource use (acute care services) nor was statistical analysis conducted on differences in costs. Descriptive differences were provided. However, the population and intervention are applicable to the review question.	

### **Section 2: Study limitations (the level of methodological quality)**

This checklist should be used once it has been decided that the study is sufficiently applicable to the context of the social care guidance [a]

<b>2.1 Does the model structure adequately reflect the nature of the topic under evaluation?</b>	
Not a model	Cost-consequence analysis.
<b>2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?</b>	
Partially	Study captures changes in acute care service use from discharge to 10 weeks. However, it appears that this may be inconsistent use of time horizon given that effects on individuals were measured from discharge to the point of discharge from case management. The authors do not provide information on the average length of case management, only that it was provided for up to 3 months post-discharge from inpatient psychiatric care. It is unclear why the 10-week time horizon is chosen.
<b>2.3 Are all important and relevant outcomes included?</b>	
Partially	Mental health outcomes (Beck Depression Inventory and Mini Mental State examination) and satisfaction. Does not measure social care related outcomes or QALYs.
<b>2.4 Are the estimates of baseline outcomes from the best available source?</b>	
No	Trial data, however, these are not reported.
<b>2.5 Are the estimates of relative intervention effects from the best available source?</b>	
No	Trial data, however, these are not reported.
<b>2.6 Are all important and relevant costs included?</b>	
Partially	Costs relate to use of acute care services derived from patients' medical records. Does not include community or social care services. Acute care services include readmission rates, length of stay, and emergency department visits.
<b>2.7 Are the estimates of resource use from the best available source?</b>	
Yes	Trial data using patients' medical records.
<b>2.8 Are the unit costs of resources from the best available source?</b>	
Unclear	Charges.
<b>2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?</b>	
Not presented but can be calculated.	
<b>2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?</b>	
N/A	
<b>2.11 Is there any potential conflict of interest?</b>	
Unclear	Not reported.
<b>2.12 Overall assessment</b>	
<p>The study has significant limitations given the lack of reporting of statistical analysis on resource use in addition to unclear choice of time horizon for measuring changes in acute care services which does not seem to be in line with the time horizon used for effects on individuals (which is also vaguely reported as time between discharge from inpatient psychiatric care to discharge from case management, whose average time on case management was also not presented). The study takes a limited perspective, focusing on the impact of the intervention on reducing readmissions and length of stay and use of A&amp;E services. However, due to the poor level of reporting of effects, the overall quality of the study raises questions about reliability of overall findings.</p>	

# **Transition between inpatient mental health settings and community and care home settings**

## **Appendix C1 Methodology checklists, economic evaluations**

### Review Question 6: Preventing readmissions to inpatient mental health settings

What is the effectiveness or impact of interventions and approaches delivered as part of discharge and admission processes in reducing or preventing readmissions to inpatient mental health settings?

## APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

<b>Study identification:</b> Barrett B, Waheed W, Farrelly S, Birchwood M, Dunn G, Flach C, Henderson C, Leese M, Lester H, Marshall M, Rose D, Sutherby K, Szmukler G, Thornicroft G, Byford S (2013) Randomised controlled trial of joint crisis plans to reduce compulsory treatment for people with psychosis: economic outcomes. PLOS One, November 8(11): e74210	
<b>Guideline topic:</b> Transition between inpatient mental health settings and community and care home settings	
<b>Economic priority area:</b> Discharge from inpatient mental health settings Preventing readmissions to inpatient mental health settings	<b>Q:</b> 5, 6
<b>Checklist: Section 1</b>	
Yes/No/Partly/ Not applicable	Detail
<b>1.3 Is the study population appropriate for the review question?</b>	
Yes	<u>Eligibility criteria:</u> History of relapsing psychotic illness, Over 16 years old, 1+ admissions in past 2 years, registered on Enhanced Care Programme Approach (i.e. had complex needs). <u>Exclusion criteria:</u> Subject to a section of the MHA (to reduce likelihood of perceived pressure to participate).
<b>1.4 Are the interventions appropriate for the review question?</b>	
Yes	The intervention, 'joint-crisis planning' is a statement patient preferences for treatment for any future psychiatric emergency admission.
<b>1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?</b>	
Yes	Patients recruited from 2008 to 2010. Covered 4 areas in England: Birmingham, Lancashire, Manchester, South London.
<b>1.4 Are the perspectives clearly stated and what are they?</b>	
Yes	Authors state that the evaluation took a 'service' (public sector) perspective, which included health and social care services, criminal justice sector, in addition to a societal perspective (cost of criminal activity and productivity losses, defined as days off work due to illness).
<b>1.5 Are all direct effects on individuals included?</b>	
Partially	Authors write that quality of life outcome measures were excluded, as they did not expect the intervention to have an impact. They believed primary impact would be on the proportion and rate of compulsory admissions (primary outcome measure). Authors measure secondary outcomes, including proportion admitted to psychiatric unit, length of stay, self-rated perceived coercion, self-rated and clinician-rated therapeutic relationships and clinician-rated patient engagement. Impact on carers was not measured.
<b>1.6 Are all future costs and outcomes discounted appropriately?</b>	
Partially	Costs falling between the 12th and 18th months are not discounted. Authors report this was a result of resource use being measured retrospectively at 18-months post-randomisation and could not be disaggregated.
<b>1.7 How is the value of effects expressed?</b>	
Natural units	
<b>1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?</b>	
Partially	Societal impact captured through criminal justice system and personal productivity losses (see Section 1.4). However, any impact on carers time was not measured.
<b>General conclusion</b>	
The study is applicable with very minor limitations. The study captures a wide range of individuals in relation to ethnicity and age (16+). The strengths of this study are its relatively recent date of research (2008–10) and that it covers 4 geographical sites (Lancashire, South London, Manchester and Birmingham).	

Another strength of the analysis is the broad perspective, including all relevant sectors (health, social care, criminal justice, and productivity) and that it is measured over an adequately long enough time horizon (18 months). While not a major limitation, some limitations to applicability are the lack of the use of QALY measures or other measures of wellbeing or physical and mental health symptoms; however, the authors justify this as they did not believe that the intervention would affect QALYs but would primarily attempt to improve the admission process and reduce readmissions in the future. However, authors do measure other outcomes considered to be important to service users, such as: self-rated perceived coercion, self-rated therapeutic relationships and also considered impact on clinicians via clinician-rated therapeutic relationships and clinician-related patient engagement. Another important consideration is the exclusion criteria, excluding those currently subject to the Mental Health Act, however, authors justify this on ethical grounds that including them may put perceived pressure on them to participate.

## **Section 2: Study limitations (the level of methodological quality)**

This checklist should be used once it has been decided that the study is sufficiently applicable to the context of the social care guidance [a]

### **2.1 Does the model structure adequately reflect the nature of the topic under evaluation?**

Yes | Model is a cost-effectiveness analysis measured in change in proportion of the sample with compulsory admissions.

### **2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?**

Partially | 18-month follow-up from randomisation.

### **2.3 Are all important and relevant outcomes included?**

Partially | See Section 1.5.

### **2.4 Are the estimates of baseline outcomes from the best available source?**

Yes | Trial data. Baseline resource use measured 3-months prior to randomisation.

### **2.5 Are the estimates of relative intervention effects from the best available source?**

Yes | Trial data.

### **2.6 Are all important and relevant costs included?**

Yes | See Section 1.4

### **2.7 Are the estimates of resource use from the best available source?**

Yes | Trial data using self-report using the 'Adult Service Use Schedule' that has been based on previous studies of service use in mental health populations. This was measured 3 months prior to randomisation and at 18 months follow-up. Resource use data were supplemented using computerised hospital records for psychiatric inpatient admissions and community mental health services.

### **2.8 Are the unit costs of resources from the best available source?**

Yes | Financial year 2009/10. NHS hospital costs were taken from NHS reference costs and community and social care costs were taken from national publications. Cost of medications was taken from British National Formulary. Criminal justice unit costs were calculated using national publications. Productivity losses were costed using human capital approach (days off from work multiplied by the individual's salary). Cost of the intervention used a bottom-up micro costing approach, which includes capital overheads and indirect costs (administrative and managerial support).

### **2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?**

Yes | Cost-effectiveness analysis presented alongside summary of uncertainty using non-parametric bootstrapping was used to create joint distribution of costs and outcomes and presenting results using cost-effectiveness acceptability curves over a range of willingness-to-pay thresholds.

### **2.10 Are all-important parameters whose values are uncertain subjected to appropriate sensitivity analysis?**

Yes | Standard statistical analyses were carried out (analyses adjusted for site and baseline costs) and analyses relied on complete-case analysis approach. Sensitivity analyses were carried out on intervention cost (possible changes in working practice) in addition to sensitivity analyses on

	estimating productivity losses based on individual salary.
<b>2.11 Is there any potential conflict of interest?</b>	
No	Authors declare no conflicts of interest.
<b>2.12 Overall assessment</b>	
<p>The study has high reporting quality and includes data measurement at important points (baseline and follow-up) over adequately long time horizons (18 months post-randomisation). The collection of resource use was adequate using a self-report survey that had been previously used in mental health populations and were supplemented with data from clinical databases. Appropriate approaches were used to calculate unit costs and costs of the intervention (using bottom-up micro-costing approach). The authors undertook appropriate statistical analyses and sensitivity analyses to account for uncertainties. In particular, they consider where productivity losses are costed at zero because of the possibility that workers can be replaced from a pool of unemployed people. Appropriate sensitivity analyses were also carried out when assuming that a greater number of joint-crisis plans could be facilitated (from 2 to 4 per week) as experience increases.</p>	

## APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

<b>Study identification:</b>	
Kessing LV, Hansen HV, Hvenegaard A, Christensen EM, Dam H, Gluud C, Wetterslev J and The Early Intervention Affective Disorders (EIA) Trial Group. (2013) Treatment in a specialised out-patient mood disorder clinic v. standard out-patient treatment in the early course of bipolar disorder: randomised clinical trial. British Journal of Psychiatry 202: 212–19	
<b>Guideline topic:</b> Transition between inpatient mental health settings and community and care home settings	
<b>Economic priority area:</b> Discharge from inpatient mental health settings Preventing readmissions to inpatient mental health settings	<b>Q:</b> 5, 6
<b>Checklist: Section 1</b>	
Yes/No/Partly/ Not applicable	Detail
<b>1.5 Is the study population appropriate for the review question?</b>	
Yes	Yes, trial is pragmatic, with few exclusion criteria to enhance generalisability. In particular, inclusion criteria were patients discharged from acute care for the first, second or third time with a diagnosis of single manic episode or bipolar disorder as the primary diagnosis. Majority had bipolar 1 disorder. Median and quartile age range = 37.6 years (27.3–48.2 years). Most individuals were employed (70% intervention group, 50% control group) and most had more than 11 years of education (76% intervention, 62% control group).
<b>1.6 Are the interventions appropriate for the review question?</b>	
Yes	This is an intervention delivered after patients have been discharged from acute care. In particular, it is a 'treatment in a specialised mood disorder clinic, combining pharmacological treatment with group psychoeducation early in the course of illness among patients discharged from one of their first admissions to hospital for bipolar disorder' (p212).
<b>1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?</b>	
Unclear.	
<b>1.4 Are the perspectives clearly stated and what are they?</b>	
Yes	Analysis only considers direct treatment costs. It does not consider potential changes in services in health and social care nor societal perspective.
<b>1.5 Are all direct effects on individuals included?</b>	
Yes	Primary outcome is time to first readmission (and also includes inpatient stay and proportion readmitted since randomisation), secondary outcomes include depressive and mania symptoms; and the tertiary outcome is satisfaction with services that includes the sub-scale that measures adherence to medications.
<b>1.6 Are all future costs and outcomes discounted appropriately?</b>	
Unclear/No	Authors do not report whether or not future costs and outcomes are reported. It is unclear but likely that this did not occur given that on all other description of costing this was not mentioned.
<b>1.7 How is the value of effects expressed?</b>	
See right →	Outcomes are expressed in natural units and resource use is expressed in monetary units only (some items are expressed in natural units).
<b>1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?</b>	
No	Societal outcomes due to individual productivity gains were not measured (which could have been measured given the high proportion of the sample employed). Carer outcomes were not measured. Social care-related outcomes were not measured. Health-related quality of life outcomes were not measured.
<b>General conclusion</b>	

The study has limited applicability to the guideline and further analysis is needed to determine transferability of results to UK context. However, the results are partially useful in informing discussions around impacts on resource use and outcomes.

- The study is applicable with respect to the population, intervention and outcomes measured. In particular, the RCT is pragmatic to enhance generalisability, in particular few exclusion criteria (dementia or unable to communicate) and broad inclusion criteria regarding the definition of 'early' phases of bipolar disorder (first, second or third admission due to bipolar disorder).
- A weakness of the study is its limited perspective for the economic analysis. It only considers direct treatment costs and changes in inpatient stay. It does not consider the impact on other health or social care services. Further limitations include the lack of measuring health-related quality of life and social care-related quality of life outcomes, individual's productivity (as majority of the sample were employed) and impact on carers. While they did measure symptoms (depressive and mania) there were low response rates that flaw interpretation of the results.

<b>Section 2: Study limitations (the level of methodological quality)</b>	
This checklist should be used once it has been decided that the study is sufficiently applicable to the context of the social care guidance [a]	
<b>2.1 Does the model structure adequately reflect the nature of the topic under evaluation?</b>	
Not a model	This is an economic analysis alongside an RCT.
<b>2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?</b>	
Yes	Follow-up period is an average of 2.5 years.
<b>2.3 Are all important and relevant outcomes included?</b>	
Yes	See Section 1.5.
<b>2.4 Are the estimates of baseline outcomes from the best available source?</b>	
Partially	Baseline outcomes regarding readmissions were available from the RCT. However, depressive and mania symptoms were not measured at baseline. The tertiary outcome, satisfaction with services, was not measured at baseline.
<b>2.5 Are the estimates of relative intervention effects from the best available source?</b>	
Yes	From the RCT.
<b>2.6 Are all important and relevant costs included?</b>	
No	See Section 1.4.
<b>2.7 Are the estimates of resource use from the best available source?</b>	
Partially/ Unclear	Mix of individual patient level data and estimates and assumptions. However, some issues regarding reporting, as there is sometimes insufficient detail. <ul style="list-style-type: none"> <li>• Resource use associated with the direct treatment costs of the intervention is not clearly reported. It is unclear whether the actual patient contacts were used as the basis of costs or whether the study authors assumed mean contacts as the basis of costs. It is only reported that the assumed caseload for the clinician was 20:1, which they say is the same as a representative local community mental health centre (p214).</li> <li>• Resource use associated with the control group is based on 'estimates from the model used in the Danish Health Technology Assessment report on preventive out-patient treatment in affective disorders' (p214).</li> <li>• Resource use associated with inpatient care are based on individual patient level data.</li> </ul>
<b>2.8 Are the unit costs of resources from the best available source?</b>	
Partially/ Unclear	Reporting is not always sufficiently clear, especially in relation to costing of the intervention. <ul style="list-style-type: none"> <li>• Unit costs of inpatient care are based on national costs.</li> </ul>



	<ul style="list-style-type: none"> <li>Control and intervention groups use of services and associated unit costs are presented but the quality and source of information is not justified or presented clearly (i.e. is it national unit costs).</li> <li>It is unclear whether unit costs include a full costing approach.</li> </ul>
<b>2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?</b>	
Yes	An incremental analysis is not presented but it could be calculated from the data.
<b>2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?</b>	
Partially	Deterministic sensitivity analysis and threshold analysis were conducted (on readmissions) and on increasing the cost of the intervention. However, probabilistic sensitivity analysis was not conducted.
<b>2.11 Is there any potential conflict of interest?</b>	
Unclear	<ul style="list-style-type: none"> <li>'The study is supported by the Lundbeck Foundation and by the Research Foundation of the Hovedstadens Sygehusfællesskab (The Capital Hospital Corporation)' (p218).</li> <li>'L.V.K. has been a consultant for Bristol-Myers Squibb, Eli Lilly, Lundbeck, AstraZeneca, Pfizer, Wyeth, Servier, and Janssen-Cilag' (p212).</li> </ul>
<b>2.12 Overall assessment</b>	
<p>The study is an economic evaluation conducted alongside an RCT with a sufficiently long enough time horizon (average of 2.5 years). The evaluation has limited applicability to the guideline because there are potentially serious limitations in study design. First, generalisability of results to the UK is unclear due to differences in institutional factors and the fact that unit costs are different. Second, the economic analysis was conducted taking the perspective of direct treatment costs only and does not include the costs that may have arisen to other health services, local authority or society. However, the results are partially useful in informing discussions around impacts on resource use and outcomes.</p>	