Decision-making and mental capacity

Appendix C1: Evidence tables and methodology checklists

Economic evaluations

Review Question 1

Planning in advance, including for people who experience fluctuating capacity

1.1 What interventions, tools, aids and approaches are effective and cost-effective in supporting advance planning for decision-making for people who may lack mental capacity in the future?

1.2 What are the views and experiences of people who may lack mental capacity, their families and carers, practitioners and others interested in their welfare, on the acceptability of interventions, tools, aids and approaches to support planning in advance for decision-making?

Intervention Advanced care planning (ACP) doe people reaching end-of-life

Study details, country, study type, service description	**Study population, design & data sources**	**Outcomes, Resource use, Costs**	**Results Cost-effectiveness**	**Summary**
Study details Dixon et al (2015) **Study design** Systematic review of economic studies. **Country** 12 US, 1 Canada, 1 Singapore, 2 UK **Date** Included studies published between 1990–2014 **External & internal validity of the systematic review** (+/++) **Follow-up period** Varies: last year or last week of life or unrelated to death (1 year post-intervention) (1 study) (p.881) **Study type** Systematic review of economic evaluations; however, no cost-effectiveness studies identified. Most were cost-savings studies.	**POPULATION** Excluded: psychiatric patients, children (<18 years old) • 3 studies = nationally representative data from US Health and Retirement study of older people (p.872). • 1 study = random sample of Medicare beneficiaries (p.878) • 1 study = patients admitted to an inpatient oncology unit in a US hospital (p.878) • 1 study = high-cost and low-income Medicare beneficiaries (p.878) • 7 studies focus on hospital-based samples (p.878) • The remaining 5 studies are not described in summary although population description is provided for each study in the tables. **DATA SOURCES** **Sources of effectiveness data** In total, 18 studies included. • 5 RCTs • 3 non-randomised controlled designs • 10 natural experiments using statistical methods to control for confounding	Individual health or wellbeing outcomes not measured, focus is on cost-savings and health service use **RESULTS** Cost-savings ranged from USD 64,827 for the terminal hospital stay to USD 56,700 for total healthcare costs over the past 6 months for people with dementia and USD 1,041 in hospital costs over the last week of life for those with cancer However, because of differences in methodologies, results are not comparable between studies. **Resource use** 11/18 studies with positive results found the source of cost-savings to vary, but mainly due to reductions in hospital	**Price year** Varies **Findings** Authors conclude that impact on economic implications is limited and equivocal but there is no evidence suggesting that ACP is more costly (p.882). 5 better-designed non-UK studies found a significant relationship between ACP and healthcare savings. • People living in nursing homes • People with high support needs and low income • Individuals living with dementia in community • Individuals living in high health-care spending region **Sensitivity analyses** Considers whether there are differences in findings depending on 'general ACP' study or	**Applicability** Sufficiently applicable (+) **Quality** Good quality with some limitations (++) **Summary** This systematic review covered economic studies on ACP. The findings of the review suggest that ACP might reduce the costs for hospital care. Individual studies only captured costs and did not capture the effectiveness of ACP in terms of potential health and wellbeing benefits to persons at end of life and their families and carers.

Intervention ACP as a part of a wider intervention or in the absence of a wider intervention as long as ACP was substantial component; excluded were studies of interventions that were solely about medical orders or about advance decisions in regards to power of attorney 8 studies were non-intervention studies. • They were "exploring the impact of ACP in general" – all but 1 rely on secondary sources of data (p.878) **Comparison** Care as usual	Sample size ranges from n=50 to n=3,000+ **Sources of resource use data** Varied, 10 focused on hospital-based service use/costs, 8 include hospital and community healthcare costs (p.880). **Sources of unit cost data** Varied (p.779) • 6 studies = Medicare charges • 1 study = Medicare charges and co-payments • 1 study = Medicare and Medicaid charges • 3 studies = direct charges to patients or insurers • 7 studies = accounting costs reflecting different accounting systems	admissions and/or ICU use.	'intervention evaluation', study design, sample size, and setting. In all but 1 of the comparisons, results show mixed findings, with approximately 50% of studies finding positive impact and remaining finding no difference. The exceptions are 2 studies of nursing homes where both studies find positive results.	Generally, studies had a limited cost perspective, with a focus on hospital care. The impact on community health and social care as well as on unpaid care remained unknown. The review was of overall good quality with some limitations, which means that findings need to be interpreted with some level of caution.

Methodological quality checklist for systematic review		
Study identification: Dixon et al (2015)		
Guideline topic: Decision-making and mental capacity		
Economic priority area: 1		**Q:** 1
1. Study relevance to review question		
1.1 Does the study's research question match the review question?		
Yes	"To review and summarise economic evidence on advance care planning"	
1.2 Has the study dealt appropriately with any ethical concerns?		

N/A	Not needed as this was a systematic review and there was no primary data collection involved.
1.3 Were service users involved in the study?	
N/A	This was a systematic review.
2. Study relevance to scope	
2.1 Is there a clear focus on the guideline topic?	
Yes	Advance care planning
2.2 Is the study population the same as at least one of the groups covered by the guideline?	
Yes	People at risk of losing mental capacity towards the end of life
2.3 Is the study setting the same as at least one of the settings covered by the guideline?	
Yes	The review includes two UK studies and covers a range of settings such as hospital, care home, home, hospice
2.4 Does the study relate to at least one of the activities covered by the guideline?	
Yes	Advance care planning
2.5 (For effectiveness questions) Are the study outcomes relevant to the guideline?	
Partly	Does not include individual health and wellbeing outcomes, does not include impact on carers/family.
2.6 (For views questions) Are the views and experiences reported relevant to the guideline?	
N/A	
2.7 Does the study have a UK perspective?	
Sufficient; 2 UK studies identified; most are from USA (12); other studies from Canada (1), Singapore (1)	
3. Overall assessment of external validity (- , +, ++)	
(+)	Downgraded quality due to limited number of UK studies (2), cost perspective only; however, the review is applicable to the overarching Guideline review question.
Internal validity	
1. Appropriate and clearly focused question?	
Partly	The aim of the study was to review and summarise economic evidence on advance care planning; there is no specific research question clarifying the purpose
2. Inclusion of relevant individual studies?	
Partly	Authors state that there were difficulties in developing an adequate search strategy due to the diversity of the literature; two studies were thus identified outside of the main search and authors state that it was possible that some relevant studies were missed
3. Rigorous literature search?	
Yes	A wide range of relevant database were searched including one economic one (EconLit)
4. Study quality assessed and reported?	
Partly	Study quality assessed using tools for effectiveness studies but no quality assessment tools relevant for economic studies were used

5. Adequate description of methodology?	
Yes	Search strategy and review process is explained in sufficient detail and presented in graphical form.
6. Do conclusions match findings?	
Partly	Conclusions summarize the main findings and limitations; however some conclusions about sub groups were drawn by generalising inappropriately from single studies that had substantial limitations and were heterogenous
7. Overall assessment of internal validity (- , +, ++)	
(++)	This was an overall good quality study with some minor limitations.

Country, study type, service description	**Study population, design & data sources**	**Outcomes, Resource use**	**Results Cost-effectiveness**	**Summary**
Study details Klingler et al (2016) **Study design** Systematic review of economic studies **Country** 6 US, 1 Canada **Date** Included studies published between 1994–2010 **External & internal validity of the systematic review** (+/+) **Follow-up period** Time frames varied widely from 1 week before death to 18 months after implementing the intervention **Study type**	**POPULATION** All patient groups but excluded were: children; psychiatric patients Settings • 3 studies = hospital setting • 1 study = nursing home setting • 3 studies = home care settings Medical conditions • 1 study = advanced cancer • 1 study = chronic obstructive pulmonary disease (COPD) and congestive heart failure (CHF) • 1 study = COPD, CHF, cancer • 1 study = life threatening disease • 1 study = heart failure, severe diabetes • 2 studies = no restrictions in regards to diseases, most common ones were malignant neoplasm, respiratory diseases, cardiopulmonary diseases	Studies that assessed healthcare costs or cost-effectiveness as primary or secondary outcome measure; excluded were studies that investigated other endpoints like hospitalization rates or days spent in the intensive care unit (ICU) **RESULTS** Except for one study (cluster RCT) all studies found reduced costs Cost reductions were significant ($p < 0.05$) in n=3 studies; n=2 studies did not report significance and n=1 found non-significant effect Cost-savings ranged from USD 1,041 to USD 64,827 per patient; relative cost reductions ranged from 5% to 68%	**Price year** Not reported **Findings** Authors conclude that limited data indicate net cost savings may be realised with ACP Findings are discussed in the context of previously published findings from studies that investigated advance directives (ADs) - defined as presence of signed legal documents - and which do not find cost reductions; authors conclude that this might suggest that ACP is more likely to lead to cost savings if it is implemented comprehensively The authors also explain that for the study that did not find cost reductions, the	**Applicability** Sufficiently applicable (+) **Quality** Overall good quality with some limitations (+) **Summary** The systematic review of economic studies found that ACP decreased life prolonging treatments, increase the use of hospice and palliative care and reduce hospitalisations.

Systematic review of economic evaluations; however, no cost-effectiveness studies were identified; most were cost-savings studies. **Intervention** Included: Any intervention containing a communication process facilitated by a professional caregiver involving the patient and/or legal proxy about the patient's preferences for future medical care In studies, interventions were often not described in sufficient detail in terms of contents, length and style of conversations. Some studies did not use the term ACP but talked about end-of-life (EOL) discussions, Advance Directives (AD), EOL counselling 1 study = comprehensive ACP programme 4 studies = ACP part of a more comprehensive intervention to improve EOL care	**DATA SOURCES** **Sources of effectiveness data** In total, 7 studies included. • 4 RCTs (including 2 cluster RCTs) • 1 Before-after study • 2 Cohort studies (1 retrospective, 1 prospective) Sample size ranges from n=43 to n=3,000+ **Sources of resource use data** *Note that information on the sources resource use were not reported; information were provided on the types of costs collected:* 1 study = cost data on inpatient, outpatient, nursing home, inpatient hospice, diagnostic services, overheads 1 study = costs for hospitalization, hospice care, life-sustaining procedures 1 study = costs of inpatient and outpatient care (costs for medication not included) 1 study = Medicare cost before hospice enrollment 1 study = costs of hospital inpatient care, costs of drugs in nursing home (but no other nursing home costs), costs of programme 2 studies = costs of hospital inpatient care **Sources of unit cost data**	Only n=3 studies reported the costs of implementing ACP; costs were CAD 113, USD 452 and USD 1,968 Because of differences in methodologies, results were not comparable between studies **Resource use** Studies investigated different costs to the public sector with a focus on hospital costs **Other effects** n=6 studies measured effects in addition to cost savings 2 studies = improved patient satisfaction, 1 study no effect on patient or family satisfaction; 1 study = no effect on physician's awareness of patients' preferences; 1 study = less physical distress (but no reduction in psychological distress or quality of death) 1 study = more ADs completed; 1 study = no effect on incidence or timing of written DNR order 2 studies = reduction in hospital days (one reports p=0.0019); 1 study = no effect on ICU, coma or receiving medical ventilation; 1 study = reduced use of	intervention was also ineffective in meeting its primary goals suggesting challenges of effectively implementing ACP **Sensitivity analyses** No sensitivity analyses was carried out; however, it is reported that that the two highest cost reductions were achieved for studies which had populations of very sick patients, who used considerable amount of hospital care; in the n=3 studies that included costs of implementing ACP net savings were USD 11,239, CAD 1,748 and USD 4,172	It is concluded that the challenge of defining ACP makes it difficult to come to final conclusions. In regards to different types of ACP, the study concluded that comprehensive ACP was more likely to increase compliance with end of life wishes. The review was of overall good quality with some limitations, which means that findings need to be interpreted with some level of caution.

Comparison Any intervention	• Insurance claims, hospital charges	ventilations, resuscitation, ICU admission 2 studies – no effect on death (survival) rates; 1 study = no effect on pain 1 study = no effect on hospice admission or length of stay; 1 study = more outpatient hospice care and longer stays in outpatient hospice (but no effect on inpatient hospice No services utilized)		

Methodological quality checklist for systematic review		
Study identification: Klingler et al (2016)		
Guideline topic: Decision-making and mental capacity		
Economic priority area: 1		**Q:** 1
1. Study relevance to review question		
1.1 Does the study's research question match the review question?		
Yes	It is stated that the aim of the study was to systematically review the evidence on the cost implications of comprehensive ACP programmes and to analyse findings in the context of ethical considerations	
1.2 Has the study dealt appropriately with any ethical concerns?		
Yes	The study discussed ethical tensions and implications of findings about cost savings	
1.3 Were service users involved in the study?		
N/A	This was a systematic review	
2. Study relevance to scope		
2.1 Is there a clear focus on the guideline topic?		
Partly	Some of the interventions included in this systematic review referred to service improvement programmes towards end of life with ACP being one component only	

2.2 Is the study population the same as at least one of the groups covered by the guideline?	
Yes	People at risk of losing mental capacity towards the end of life
2.3 Is the study setting the same as at least one of the settings covered by the guideline?	
Partly	Settings include hospital, nursing home, home and hospice, which are all covered by the guideline; however, all but one study took place in the US and none of the studies was from the UK
2.4 Does the study relate to at least one of the activities covered by the guideline?	
Yes	Advance care planning although focus of some studies was on broader service improvement in end of life care thus covering a broader scope than covered in the guideline
2.5 (For effectiveness questions) Are the study outcomes relevant to the guideline?	
Yes	Includes cost and service outcomes as well as effects on individuals and families in form of health and wellbeing outcomes
2.6 (For views questions) Are the views and experiences reported relevant to the guideline?	
N/A	
2.7 Does the study have a UK perspective?	
No	None of the included studies was from the UK
3. Overall assessment of external validity (- , +, ++)	
(+)	Downgraded quality due to lack of UK studies. However, the review is sufficiently applicable to the overarching Guideline review question.
Internal validity	
1. Appropriate and clearly focused question?	
Partly	Overall there were thus some inconsistencies in the research question(s); for example it is stated in the introduction section that the authors sought to investigate the cost implications of ACP defined as professionally facilitated communication process as well as consider ethical implications; in the method section it is stated that the study sought to investigate ACP defined as facilitated communication process as well as its systematic implementation but that the latter was not possible
2. Inclusion of relevant individual studies? (Yes, somewhat relevant, no, unclear, N/A)	
Partly	As stated by the authors it was not feasible to answer the research question they had set out because there were no studies that looked at ACP as what the authors call a facilitated communication process and systematic implementation; they thus broadened the inclusion criteria retrospectively; however it is not clear which studies that then allowed to include that beforehand were excluded; generally it was not clear what they authors were investigating and how this differed from the previously published review by Dixon et al (2015)
3. Rigorous literature search? (yes, partly, no, unclear)	
Partly	It is not clear why 2010 was chosen as cut off year (considering the study was published in 2016); a number of relevant studies were published thereafter and thus including a later cut-off year would have been very beneficial; the authors also state that they might have missed relevant studies
4. Study quality assessed and reported?	
Partly	It is referred to the study design but no further detail on how the quality of studies was assessed

5. Adequate description of methodology?	
Partly	Systematic review stated that it followed the Preferred Reporting Items for Systematic reviews and Meta-Analysis Statement. However, there were also some limitations in the method description; for example, the search terms used were not presented and it was not clear how information on costs were extracted; some information was missing, for example about the price year of studies
6. Do conclusions match findings?	
Yes	Conclusions were generally appropriately matching findings although
7. Overall assessment of internal validity (- , +, ++)	
(+)	Overall the study was of good quality with some limitations

Study ID **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Abel et al (2013) England, UK Cost-effectiveness and saving	<u>Intervention:</u> Advance care planning (ACP) defined as discussions taking place about place of death; 'Planning Ahead' document includes general treatment preferences as well as advance decisions <u>Control:</u> No ACP *Both groups*: Both groups received specialist palliative care provided in hospice, which includes inpatient and outpatient services, visits from specialist palliative care	<u>Population:</u> All patients who were known to the hospice who died between 01 January 2009 and 30 June 2011 <u>Study design:</u> Retrospective cohort study over 2.5-year period <u>Setting:</u> Hospice in the South West of England <u>Statistical analysis</u>: T-tests (two-sided) to compare means; logistic regression <u>Source of effectiveness data:</u> From electronic patient records; Secondary User	**1. Outcomes** <u>1a. Description</u> *Primary outcomes measures*: Place of death (including whether person died in their preferred place of death for those who had expressed a preference/ were part of ACP group) <u>1b. Values</u> *ACP group* • N=14 (75%) achieved their choice of place of death; • For those who chose home, n=34 (11.3%) died in hospital; • For those who chose a care home n=2 (1.7%) died in hospital; • For those who chose a hospice n=14 (11.2%) died in hospital; • For those who chose to die in hospital n=6 (86%) did so.	Those who used ACP spent less time in hospital in their last year. ACP was associated with a reduction in the number of days in hospital in the last year of life with less hospital costs.	<u>Applicability</u>: Sufficiently applicable (+) <u>Quality</u>: (+) <u>Perspective</u>: Hospital costs only <u>Discounting</u>: No <u>Price year</u>: 2009-11, £ <u>Summary:</u> This England based cohort study examined some of the costs and outcomes of ACP

	community nurses at home and a day care centre	Services database for matching patient information to number of days in hospital <u>Source of resource use data:</u> From electronic patient records; Secondary User Services database for matching patient information to number of days in hospital <u>Source of unit cost data:</u> From hospice; data adjusted for length of stay and complexity of care, as per national agreement <u>Sensitivity analysis:</u> N/A	*Non ACP group* • 112 (26.5%) died in hospital. **2. Costs** <u>2a. Description</u> Cost figures were actual costs adjusted for length of stay and complexity of care <u>2b. Values</u> • Significantly lower mean number of days in hospital in the last year of life in IG 18.1 vs. CG 26.5 ($p<0.001$); • Non-significantly ($p=0.3$) lower mean number of emergency admissions in IG 1.61 (95% CI 1.4 to 1.8) vs. CG 1.75 (95% CI 1.6 to 1.9) • Non-significantly ($p=0.4$) lower mean costs of emergency admissions in IG £5,260 (95% CI 4,586 to 5,934) vs. CG £5, 691 (95% CI 4,984 to 6,398) Cost differences were explored by looking at the group of people who died in hospital vs. those who did not die in hospital: • Mean cost of hospital treatment during the last year of life for those who died in hospital was £11,299, those dying outside of hospital £7,730; MD 3,569; $p<0.001$ • Mean number of emergency admissions for those who died		in a hospice environment; Findings suggest that ACP was linked to reduced hospital costs in the last year of life. Findings relate to a population that receives specialist palliative care.

			in hospital was 2.2 and who died elsewhere was 1.7 ($p<0.001$). **3. Sub groups** *Cancer* • Preferred place of death in IG (cancer vs. non-cancer): home 53% vs. 67%, care home 20% vs. 27%, hospice 26% vs. 6%, hospital 1% vs. 0%; • Number of people dying in hospital: IG 10% vs. 26%; $p<0.001$; • Mean number of days in hospital: IG 20.2 days. Vs. 30.6 days ($p<0.0001$). **4. Sensitivity analysis** N/A		

Study identification: Abel et al (2013)	
Guideline topic: Decision-making and mental capacity	
Economic priority area: 1	**Q: 1**
Checklist: Section 1	
Yes/No/Partly/N/A	Detail
1.1 Is the study population appropriate for the review question?	
Partly	People at the end of life who had been receiving specialist palliative care in one hospice; population thus referred to a specific population and was thus not representative of health and social care context for all people at the end of life
1.2 Are the interventions appropriate for the review question?	

Yes	The intervention was Advance Care Planning, which included discussions and choices about treatment preferences as well as advance decisions to refuse treatment regulated by the Mental Capacity Act; indicator of whether ACP had taken place was that a preferred place of death was recorded
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Yes	Study was of recent date and based on data from area south west England
1.4 Are the perspectives clearly stated and what are they?	
Partly	The perspective was not clearly stated but it was clear that it referred to hospital costs only.
1.5 Are all direct effects on individuals included	
Partly	Preferred place of death as stated in ACP is used in the intervention group and actual place of death is used in both groups; no other health or wellbeing or satisfaction outcomes are included
1.6 Are all future costs and outcomes discounted appropriately?	
N/A	The study looked at costs only at the last year in life so that discounting was not required.
1.7 How is the value of effects expressed?	
Yes	Values of effects were expressed in natural units (place of death, days in hospital, number of emergency admissions)
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Limited cost perspective
General conclusion	
This study was sufficiently applicable (+).	
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?	
N/A	This study was a cost-effectiveness analysis as part of a cohort study
2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	
Yes	Costs and outcomes were measured over the period of a year which is likely to include important differences considering the type of interventions
2.3 Are all important and relevant outcomes included?	
No	No health or wellbeing outcomes and no information on preferences or engagement
2.4 Are the estimates of baseline outcomes from the best available source?	
No	There were no significant differences between groups in regards to age and gender but no further characteristics were controlled for
2.5 Are the estimates of relative intervention effects from the best available source?	
Unclear	From cohort study
2.6 Are all important and relevant costs included?	
Unclear	From cohort study
2.7 Are the estimates of resource use from the best available source?	
Yes	
2.8 Are the unit costs of resources from the best available source?	
Partly	

2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
N/A	
2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
N/A	
2.11 Is there any potential conflict of interest?	
No	
2.12 Overall assessment	
The study was of overall good quality but had some potentially serious limitations due to the nature of the study (which was a feasibility trial with a relatively small sample size) (+).	

Intervention Joint crisis plan (JCP) for people with mental illness

Study ID **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Flood et al (2006) England, UK Cost-effectiveness	Intervention: Joint crisis plan (JP); introductory meeting with facilitator, who explains procedure to person and care coordinator; contents of the plan are discussed and completed by facilitator at second meeting attended by person, care coordinator, and psychiatrist Control: Information leaflets about Mental Health Act, complaints procedures, access to case records, treatment options	Population: Eligible patients had a clinical diagnosis of psychotic illness or non-psychotic bipolar disorder, were not currently receiving inpatient care, and had experienced an admission in the previous two years. Study design: Single blind RCT; N=160; IG: n=80; CG: n=80 Setting: Recruited from seven community mental health teams across London and one in Kent Statistical analysis: Intention-to-treat; standard t-test for costs; bootstrapping for costs (findings not reported as results similar to t-test ones); non-parametric bootstrapping for differences in costs and effects; Cost effectiveness acceptability curves were used to explore uncertainty	**1. Outcomes** 1a. Description *Primary outcomes measures*: Admission to hospital; length of time spent in hospital *Secondary outcome measure*: objective coercion (i.e. compulsory treatment under MHA 1983); service use over 15 months 1b. Values • Significant reduction in use of MHA (=compulsory admission) in IG: 13% vs. 27% (RR 0.48, 95% CI 0.24 to 0.95, P = 0.03). • Non-significant reduction in hospital admissions in IG: 30% v 44% (RR 0.69, 95% CI 0.45 to 1.04, P = 0.07) **2. Costs** 2a. Description Public sector perspective included NHS, Personal Social Services (PSS), criminal justice; societal perspective also included out-of-pocket expenditure JCO was costed on the basis of the time spent by the facilitator and clinical teams in producing the crisis plans, plus relevant administrative, managerial,	Cost effectiveness acceptability curves suggested there was a greater than 78% probability that JCP was more cost effective than standardised service information in reducing the proportion of patients admitted to hospital JCP produced a non-significant decrease in admissions and total costs. Though the cost estimates had wide confidence intervals, the associated uncertainty	Applicability: Sufficiently applicable (+) Quality: (++) Perspective: NHS, social services, criminal justice, out-of-pocket expenditure Discounting: No Price year: 2000/1, £ Summary: This England based RCT examined the cost-effectiveness of JCP versus standardised service information.

		in estimates of costs and effects, <u>Source of effectiveness data:</u> From trial; <u>Source of resource use data:</u> Client Service Receipt Inventory (CSRI); supplemented by data on hospital admission, bed days, use of MHA from computerised hospital clinical activity systems and MHS office records <u>Source of unit cost data:</u> NHS reference costs, and information provided by the South London and Maudsley NHS Trust finance department, PSSRU Unit cost book of health and social care <u>Sensitivity analysis:</u> Threshold analysis; reduction in hospital days; Unit costs for bed days were varied (+/-50%); costs of the JCP intervention	and capital overheads. The cost of CG intervention was calculated on the basis of the actual purchase cost of the information leaflets with the cost of the facilitator's time in distributing them. <u>2b. Values</u> *15 months* • Non-significantly lower mean total cost per patient in IG: £7,264 vs. £8,359 (MD £1,095; 95% CI−2814 to 5004; P = 0.57) • Nor significant differences in cost by providing sector. **3. Sub groups** None **4. Sensitivity analysis** An additional reduction of 14 days in hospital per patient in IG would be required for mean total cost per patient between the two groups to become significant (mean difference £3381, 95% confidence interval 27 to 6735, P = 0.05). No impact on the significance of the difference in mean total cost per patient even when the cost of bed days was halved (£799, − 1308 to 2906, P = 0.46) or doubled (mean difference £1688, − 5900 to 9274, P = 0.66). Increasing the cost of JCP to bias the results against the intervention, even	suggests there is a relatively high probability of the plans being more cost effective than standardised service information for people with psychotic disorders.	Findings suggest that there was a difference in compulsory admissions but no significant reduction in overall costs. Since the study was of high quality, findings can be used to inform recommendations

			with a fourfold increase in facilitator time, did not alter the results		

Study identification: Flood et al 2006	
Guideline topic: Decision-making and mental capacity	
Economic priority area: 1	**Q: 1**
Checklist: Section 1	
Yes/No/Partly/N/A	Detail
1.3 Is the study population appropriate for the review question?	
Yes	People with severe mental health problems (psychosis) at risk of compulsory admission to mental health hospital under MHA
1.4 Are the interventions appropriate for the review question?	
Yes	The intervention was Joint Crisis Planning, which includes shared decision making and planning for future treatment in case of relapse
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Partly	Study took place in England but as carried out before 2000/1; however, authors find in their recent study that there had not been changes to standard care in this area so that findings are still likely to apply (Thornicroft et al 2013)
1.4 Are the perspectives clearly stated and what are they?	
Yes	The perspectives were a public sector and a societal one.
1.5 Are all direct effects on individuals included	
No	Paper only refers to service outcomes including admission to hospital, length of time spent in hospital (primary outcome measures), and objective coercion (compulsory treatment under the MHA). Impact on individual's health and wellbeing is not reported.
1.6 Are all future costs and outcomes discounted appropriately?	
Partly	Discounting would have been required but could not be applied to months 12 to 15. However, it is unlikely that this will have any substantial impact of findings due to relatively short period this refers to (3 months) and substantive sensitivity analysis carried out by the author.
1.7 How is the value of effects expressed?	
Partly	The value was expressed in natural units of the primary outcome, which was a service use outcome (compulsory admission). No standardized measure of health-related quality of life was used.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
Partly	A wide range of costs is covered including health and social care, criminal justice, and out-of-pocket expenditure. The study did not include the costs of productivity losses and criminal activity.
General conclusion	
This study was sufficiently applicable (+).	
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?	

N/A	This study was a cost-effectiveness analysis carried out alongside a single-blind randomised controlled trial.
2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	
Yes	Costs and outcomes were measured over the period of 15 month which seems appropriate considering the nature of the intervention.
2.3 Are all important and relevant outcomes included?	
No	See 1.5
2.4 Are the estimates of baseline outcomes from the best available source?	
Unclear	Baseline characteristics and outcomes are not reported.
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Estimates were taken from a trial and appropriate statistical analysis was carried out.
2.6 Are all important and relevant costs included?	
Partly	A wide range of public sector costs was included and appropriate statistical analysis was carried out. However, it was not clear whether all of the important societal costs were included. In particular criminal activity was not included.
2.7 Are the estimates of resource use from the best available source?	
Yes	Standard tool such as the CSRI are used and different data sources are used to complement the CSRI allowing for cross-checking and higher levels of accuracy
2.8 Are the unit costs of resources from the best available source?	
Yes	Generally unit costs appeared to have been taken from the appropriate sources including national and local sources; references to sources are provided
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Yes	ICERs are derived based on changes in primary outcome and total costs; findings are presented in cost-effectiveness acceptability curves
2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	Threshold analysis was applied in addition to bootstrapping and cost effectiveness acceptability curves
2.11 Is there any potential conflict of interest?	
No	The primary funding source was the Medical Research Council; authors declare that they had no conflict of interest.
2.12 Overall assessment	
The study was of overall high quality with minor limitations (++).	

Study ID **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Barrett et al (2013) England, UK Cost-effectiveness	Intervention: Joint crisis plan (JP); introductory meeting with facilitator, who explains procedure to person and care coordinator; contents of	Population: 16yrs+, at least one psychiatric hospital admission in previous 2 years and on the Enhanced Care Programme Approach register	**1. Outcomes** 1a. Description *Primary outcomes measures (at 18 months)*: Admission to hospital under MHA; *Secondary outcome measure*: Not reported in this study but in	ICER were calculated JCP had 80% probability of cost-effectiveness from public sector	Applicability: Sufficiently applicable (+) Quality: (++)

	the plan are discussed and completed by facilitator at second meeting attended by person, care coordinator, and psychiatrist 9 months later service user in contacted by facilitator to check if he/she wanted to update the JCP <u>Control:</u> Standard care <u>Both groups</u>: current standard care from local community mental health teams which, as a part of the Care Programme Approach, includes for patients to receive written copies of their care plan including 'crisis contingency plan'	<u>Study design:</u> Multi-centre RCT; IG: n=270; CG: n=270 <u>Setting:</u> Recruited from sites in Birmingham, Lancashire/ Manchester and London <u>Statistical analysis</u>: Intention-to-treat; chi-squared tests and logistic regression for primary outcomes adjusted for site and patient-rated Working alliance Inventory (for missing data) Economic analysis on baseline costs and complete case analysis; t-test analysis for total costs with CI for MD estimated using non-parametric bootstrapping and ordinary least squares regression for adjusted analysis Cost-effectiveness through calculation of ICER and cost effectiveness acceptability curves were used to explore uncertainty in estimates of costs and effects	parent study (Thornicroft et al 2013) <u>1b. Values</u> *18-months* • No significant reduction compulsory admission: n=49 (18%) in IG vs. 56 (20%) in CG (OR 0.90, 95% CI 0.59 to 1.38, p = 0.63) • No significant treatment effects for any other admissions outcomes, although there was evidence for improved therapeutic relationships in the intervention arm, described in detail in the main paper by Thornicroft et al (2013) **2. Costs** <u>2a. Description</u> Public sector perspective included health and social care, criminal justice; societal perspective included productivity losses and criminal activity JCO was costed on the basis of the time spent by the facilitator and clinical teams in producing the crisis plans, plus relevant administrative, managerial, and capital overheads. <u>2b. Values</u>	perspective (and around 44% from a societal perspective) Results varied noticeably between ethnic groups: For White group, mean costs were higher for the JCP and no difference in effects; for the Black group, costs were lower for the JCP group and effects were better; for Asian group, costs were higher for the JCP group and effects were worse.	<u>Perspective</u>: Public sector perspective (health and social care, criminal justice) and societal perspective (criminal activity, productivity losses) <u>Discounting</u>: No <u>Price year</u>: 2009-10, £ Pound Sterling <u>Summary:</u> This England based multi-centre RCT examined the cost-effectiveness of JCP and standard care versus standardised care (both groups included crisis contingency plan). Findings suggest that there was the intervention

		Source of effectiveness data: Case notes, local Patient Administration System, MHA Office data; interviews with patients and care co-ordinators Source of resource use data: Adult Service Use Schedule (AD-SUS) completed by patients at baseline (covering service use over past 3 months) and 18-month (covering service use over past 18 months); supplemented by data on mental hospital admission and community mental health services from hospital records; JCP facilitator records for staff inputs into providing the intervention Source of unit cost data: NHS reference costs, and information provided by NHS Trusts, PSSRU Unit cost book of health and social care; British National Formulary for costs of medications Sensitivity analysis: Number of one-way sensitivity analysis; 1) productivity costed differently (from zero to maximum value under	*18 months* No significant reduction in total public sector costs (N=504): IG £17,233 (SD 21,013) vs. CG £19,217 (SD 28,133); MD -£1,994; 95% CI -5,733 to 2,248; p=0.414 No significant reduction from the societal perspective (N=504): IG £22,501 (SD 28,103) vs. CG £22,851 (SD 34,532); MD -£350; 95% CI -4,727 to 5,404; p = 0.902 **3. Sub groups** White (N=314) • *Primary outcome* (=compulsory admissions); IG (n=164) 16% vs. CG (n=178) 16%; MD 0.952; 95% CI 0.532 to 1.706; p=0.166 • *Mean public sector costs*: IG (n=147) £17,680 (SD 20,505) vs. CG (n=167) £16,013 (SD 24,435); MD £1,667; 95% CI -3,221 to 6,360; p=0.386 • *Mean societal costs:* IG (n=147) £22,469 (SD 27,611) vs. CG (n=167) £19,823 (SD 32,882); MD £2,646; 95% CI -2,987 to 9,429 Black/ Black British (N=60)		was cost-effective from a public sector perspective but this was attributed to the high cost-effectiveness in Black ethnic groups whereas cost-effectiveness for other ethnic groups (White, Asian) could not be established

		human capital value approach); 2) reduced costs of face-to-face contact by JCP coordinator to account for learning effects over time	• *Primary outcome* (=compulsory admissions); IG (n=66) 20% vs. CG (n=72) 32%; MD 0.553; 95% CI 0.249 to 1.226; p=0.256 • *Mean public sector costs*: IG (n=60) £17,628 (SD 25,163) vs. CG (n=69) £28,377 (SD 36,627); MD £10,749; 95% CI -20,387 to 536; p=0.079 • Mean societal costs: IG (n=60) £23,150 (SD 29,588) vs. CG (n=69) £32,780 (SD 41,170); MD £9,630; 95% CI -21,043 to 3,106; p=0.16 Asian/ Asian British (N=51) • *Primary outcome* (=compulsory admissions); IG (n=32) 27% vs. CG (n=24) 14%; MD 7.538; 95% CI 0.867 to 65.52; p=0.139 • *Mean public sector costs*: IG (n=29) £14,536 (SD 14,384) vs. CG (n=22) £12,018 (SD 16,761); MD £2,518; 95% CI -5,267 to 12,137; p=0.853 • *Mean societal costs:* IG (n=29) £22,779 (SD 29,672) vs. CG (n=22) £12,784 (SD 16,444); MD £9,995; 95% CI -2,115 to 24,831; p=0.135		

			4. Sensitivity analysis Productivity losses zero (N=504): IG £22,485 (SD 28,112) vs. CG £22,757 (SD 34,563); MD -£272; 95% CI -4,846 to 5,684; p=0.878 Lower cost of JCP intervention (N=504): IG £22,430 (SD 28,819) vs. CG £22,851 (SD 34,532); MD -£421; 95% CI -1,998 to 5,534; p=0.922 Missing data included via multiple imputation (N=569): IG £22,575 (SD 25,930) vs. CG £22,819 (SD 33,339), MD -£244; 95% CI -4,744 to 4,599; p=0.976		

Study identification: Barrett et al (2013)	
Guideline topic: Decision-making and mental capacity	
Economic priority area: 1	**Q: 1**
Checklist: Section 1	
Yes/No/Partly/N/A	Detail
1.5 Is the study population appropriate for the review question?	
Yes	People with severe mental health problems at risk of compulsory admission to mental health hospital under MHA
1.6 Are the interventions appropriate for the review question?	
Yes	The intervention was Joint Crisis Planning, which includes shared decision making and planning for future treatment in case of relapse
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Yes	Study was of recent date and took place in sites in three largest cities in England
1.4 Are the perspectives clearly stated and what are they?	
Yes	The perspectives were a public sector and a societal one.

1.5 Are all direct effects on individuals included	
Unclear	Primary outcome was compulsory admission to hospital and only effects for this outcome are reported. All other effects on individuals are reported elsewhere (Thornicroft et al 2013)
1.6 Are all future costs and outcomes discounted appropriately?	
Partly	Discounting would have been required but could not be applied to months 12 to 18. However, it is unlikely that this will have any substantial impact of findings due to relatively short period this refers to (6 months) and substantive sensitivity analysis carried out by the author.
1.7 How is the value of effects expressed?	
Partly	The value was expressed in natural units of the primary outcome, which was a service use outcome (compulsory admission). No standardized measure of health-related quality of life was used.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
Yes	A wide range of costs is covered including health and social care, criminal justice, accommodation, productivity losses and criminal activity. The study did not include the costs of unpaid care and out-of-pocket expenditure but it is unlikely that this would have had an impact on findings.
General conclusion	
This study was sufficiently applicable (+).	
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?	
N/A	This study was a cost-effectiveness analysis carried out alongside a multi-centre randomised controlled trial.
2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	
Yes	Costs and outcomes were measured over the period of 18 month which seems appropriate considering the nature of the intervention.
2.3 Are all important and relevant outcomes included?	
Unclear	The majority of (secondary) outcomes are reported in another paper (Thornicroft et al 2013).
2.4 Are the estimates of baseline outcomes from the best available source?	
Yes	It is reported that there were no substantial differences by randomisation arm in any of these baseline characteristics (for more details the authors refer to paper by Thornicroft et al 2013)
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Estimates were taken from a multi-centre trial and appropriate statistical analysis was carried out.
2.6 Are all important and relevant costs included?	
Yes	A wide range of costs were included (see 1.8) and appropriate statistical analysis is carried out.
2.7 Are the estimates of resource use from the best available source?	
Yes	Different data sources are used allowing for cross-checking and higher levels of accuracy
2.8 Are the unit costs of resources from the best available source?	
Partly	Generally unit costs were taken from the appropriate sources but no further detail on some of the unit costs (e.g. criminal justice and criminal activity) is provided.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Yes	ICERs are derived based on changes in primary outcome and total costs; findings are presented in cost-effectiveness acceptability curves

2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	A range of one way sensitivity analysis was applied in addition to bootstrapping and cost effectiveness acceptability curves
2.11 Is there any potential conflict of interest?	
No	The primary funding source was the Medical Research Council; authors state that funders had no role in study design, data collection or analysis, decision to publish or preparation of the manuscript.
2.12 Overall assessment	
The study was of overall high quality with minor limitations (++).	

Study ID **Country** **Study type**	**Intervention details**	**Study population** **Study design** **Data sources**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost-effectiveness**	**Comments**
Borschmann et al (2013) England, UK Cost-consequences	Intervention: Joint crisis plan (JCP); introductory meeting with facilitator, who explains procedure to person and care coordinator; contents of the plan are discussed and completed by facilitator at second meeting attended by person, care coordinator, and psychiatrist Control: Information leaflets about MHA, complaints procedures, access to case records, treatment options	Population: 18yrs+, with diagnosis of borderline personality disorder; self-harmed in past year; under the ongoing care of a community mental health team; able to give informed consent Study design: Pilot, single blind RCT; N=88; IG: n=46; CG: n=42 Setting: Community mental health teams in south east London Statistical analysis: Intention-to-treat; differences in service use only compared descriptively; total cost per participant over the 6-month follow-up was calculated and compared statistically; although costs were not	**1. Outcomes** 1a. Description *Primary outcomes measures*: Occurrence of self-harming behaviour at 6 months *Secondary outcome measure*: depression, anxiety, engagement, satisfaction with services, quality of life, wellbeing and cost-effectiveness 1b. Values There were no significant differences between the groups on any of the primary or secondary outcome measures at follow-up. QALYs are presented in online supplement: IG 0.31 (SD 0.11) vs. CG 0.30 (SD 0.15) **2. Costs** 2a. Description Public sector perspective included NHS, Personal Social Services (PSS)	Cost effectiveness was explored descriptively following a cost consequences approach In the online supplement the ICER is reported as follows: -£32,358 suggesting that JCP dominates standard care by being less costly and more effective Overall, the authors	Applicability: Sufficiently applicable (+) Quality: (++) Perspective: Health and social care Discounting: No Price year: 2009/10, £ Summary: This England based feasibility RCT examined the cost-effectiveness of JCP versus standardised care for people with borderline personality disorder. Findings

		normally distributed, analysis compared mean costs between the two randomised groups using standard parametric tests; parametric tests confirmed using bias-corrected, non-parametric bootstrapping; baseline cost and stratification variables (alcohol misuse and depression) were included as covariates; cost-effectiveness acceptability curves <u>Source of effectiveness data:</u> From trial <u>Source of resource use data:</u> Adult service Use Schedule (AD-US) completed by participants at baseline and 6-month follow up; use on all hospital and community health and social care use; data were supplemented by electronic clinical records of the local NHS trust; this data replaced self-reported contacts with other trusts <u>Source of unit cost data:</u> NHS reference costs, and information provided by the South London and Maudsley NHS Trust finance	JCP was costed on the basis of the time spent by the facilitator and clinical teams in producing the crisis plans, plus relevant administrative, managerial, and capital overheads. The cost of CG intervention was calculated on the basis of the actual purchase cost of the information leaflets with the cost of the facilitator's time in distributing them. <u>2b. Values</u> Mean cost of the intervention: £146 per participant No significant differences in mean total health and social care costs: IG £5,631 vs. CG £5,308, P = 0.20). **3. Sub groups** None **4. Sensitivity analysis** Sensitivity analyses exploring the impact of missing data and the cost of JCPs (available from the author on request) did not alter these findings.	conclude that no conclusions can be drawn due to the small sample size other than that the interventions is feasible	suggest that there was no significant difference in outcomes or costs. In the main paper cost effectiveness findings are presented following a descriptive cost consequences approach. Results of an explorative cost-utility analysis are presented in the online supplement and suggest that the JCP dominates standard care.

		department, PSSRU Unit cost book of health and social care for community health and social care; medications costed using the British National Formulary			

Study identification: Borschmann et al 2013	
Guideline topic: Decision-making and mental capacity	
Economic priority area: 1	**Q:1**
Checklist: Section 1	
Yes/No/Partly/N/A	Detail
1.7 Is the study population appropriate for the review question?	
Yes	People with severe mental health problems (borderline personality disorder) at risk of compulsory admission to mental health hospital under MHA
1.8 Are the interventions appropriate for the review question?	
Yes	The intervention was Joint Crisis Planning, which includes shared decision making and planning for future treatment in case of relapse
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Yes	Study was of recent date and took place in England
1.4 Are the perspectives clearly stated and what are they?	
Yes	The perspectives were a public sector one.
1.5 Are all direct effects on individuals included	
Yes	A wide range of health and wellbeing outcomes were included as well as satisfaction and engagement with services
1.6 Are all future costs and outcomes discounted appropriately?	
N/A	Discounting was not required as costs and outcomes were measured over a period of less than one year.
1.7 How is the value of effects expressed?	
Yes	Values of effects were expressed in natural units as well as in utility for health-related quality of life (measured with the EQ-5D)
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
Partly	Public sector costs refer to health and social care and criminal justice; societal costs such as productivity losses, criminal activity, unpaid care and out-of-pocket expenditure were not included.
General conclusion	

This study was sufficiently applicable (+).	
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?	
N/A	This study was a cost-effectiveness analysis carried out alongside a multi-centre randomised controlled trial.
2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	
No	Costs and outcomes were measured over the period of 6 months; it is not clear whether this period is sufficiently long to capture all important differences in costs and outcomes; for example a longer time period might have shown a different impact on compulsory admissions
2.3 Are all important and relevant outcomes included?	
Yes	A wide range if health and wellbeing outcomes are included in addition to service user satisfaction and engagement
2.4 Are the estimates of baseline outcomes from the best available source?	
Yes	It is reported that there were no substantial differences by randomisation arm in any of the baseline characteristics.
2.5 Are the estimates of relative intervention effects from the best available source?	
Partly	Estimates were taken from a relatively small (feasibility) trial, which meant that no final conclusions could be drawn about clinical efficacy
2.6 Are all important and relevant costs included?	
Partly	A wide range of costs was included (see 1.8) and appropriate statistical analysis was carried out. However, data were from a relatively small (feasibility) trial so that no final conclusions can be drawn about relative costs.
2.7 Are the estimates of resource use from the best available source?	
Yes	Different data sources were used allowing for cross-checking and higher levels of accuracy
2.8 Are the unit costs of resources from the best available source?	
Partly	Generally unit costs were taken from the appropriate sources but no further detail on some of the unit costs (e.g. criminal justice) was provided.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Yes	ICERs are derived based on changes in primary outcome and total costs; findings are presented in cost-effectiveness acceptability curves
2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	A range of one way sensitivity analysis was applied in addition to bootstrapping and cost effectiveness acceptability curves
2.11 Is there any potential conflict of interest?	
No	The primary funding source was the Medical Research Council; authors stated that there was no conflict of interest.
2.12 Overall assessment	
The study was of overall good quality but had some potentially serious limitations due to the nature of the study (which was a feasibility trial with a relatively small sample size) (+).	

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