Social Care of older people with complex needs and multiple long term conditions

Research questions 2.1.1

Completed methodology checklists: economic evaluations

What are the effects (benefits and harms) of different types of assessment and planning of personalised care on outcomes for older people with multiple long-term conditions and their carers?

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Keeler EB, Robalino DA, Frank JC, Hirsch SH, Maly RC and Reuben DB. (1999). Cost-Effectiveness of Outpatient Geriatric Assessment with an Intervention to Increase Adherence. Medical Care, Vol. 37, No. 12 (Dec), pp. 1199-1206 Reuben DB, Frank JC, Hirsch SH, McGuigan KA, Maly RC. (1999). A randomized clinical trial of outpatient comprehensive geriatric assessment coupled with an intervention to increase adherence to recommendations. J Am Geriatr Soc. 47:269-276.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment & Care planning approaches	**Q:** 2.1.1
Checklist: Section 1	
Yes/No/Partly/Not applicable	Detail
1.1 Is the study population appropriate for the review question?	
Partially	Not clear whether individuals have multiple long-term conditions although they are community dwelling and frail elderly people who have common geriatric conditions (as indicated by screening for falls, incontinence, depressive symptoms, or functional impairment). It is not reported whether these individuals have social care needs as the use of informal or formal home care services was not reported. However, due to their restrictions in activities of daily living it is possible they might fall into this category.
1.2 Are the interventions appropriate for the review question?	
Yes	It is an intervention aimed at improving the health care planning process through the use of an outpatient one-time health and social care multidisciplinary team (outpatient geriatric multidisciplinary team) to assist the patient's GP in the healthcare assessment & care planning.
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Unclear	Study was conducted in USA.
1.4 Are the perspectives clearly stated and what are they?	
Partially	Publicly funded, third party payer (Medicare). Health care perspective, although some of the resources measured (use of physical and occupational therapists) may be, in the English context, funded by social care services.
1.5 Are all direct effects on individuals included	
Partially	Main outcome measures include some of the main outcomes of interest as indicated in the guideline scope: Primary outcome measure: Medical outcomes study, short-form 36 physical functioning 10-item survey (MOS SF-36, PF-10) Secondary outcome measures: Patient health-related quality of life as measured by the Medical outcomes study, short-form 36 (MOS SF-36), summary scales for physical and mental health (using the MOS SF-36), and functioning, measured by restricted activity days and any bed days, and measures of physical performance as measured by the Physical Performance Test and the NIA Battery (National Institute of Ageing) measuring lower extremity functioning for older persons. Patient satisfaction in general, patient satisfaction with their GP, and a measure of patient self-efficacy in interacting with their GP (PEPPI: perceived efficacy in the physician-patient interaction scale) (Reuben 1999, pp.273-274). Resource use is also measured although these are constrained to acute healthcare service use and some community health care service

	use (GP, psychologist, physical therapist, A&E, hospital admissions) (Keeler et al 1999, p.1203). The use of social care resources are not measured, although in the English context the use of a physical therapist may be covered under social care budgets.
1.6 Are all future costs and outcomes discounted appropriately?	
Partially	Study time horizon is 15-month period.
1.7 How is the value of effects expressed?	
Natural units	
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Informal care not included.
General conclusion	
The study is applicable with some minor limitations.	

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?	
Partially	The economic model is based on US unit costs and therefore the results in its current format are not transferrable to the English context. For the purposes of the critical appraisal, this study is being treated as a cost-consequence analysis.
2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?	
Potentially yes.	The authors do not mention any limitations with the time horizon, therefore it is assumed that it is sufficiently long to reflect all important differences.
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 for non-resource use outcomes, partially for resource-use.	Baseline outcomes (not resource use) were measured by the research assistant (Reuben et al 1999, p.271). Resource use was not measured at baseline (Keeler et al 1999, p.1201).
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes for non-resource use outcomes, partially for resource-use.	Effects on non-resource use outcomes: Research assistants measured outcomes at follow-up. Effects on resource use: Study participants measured resource use using a postcard diary. Individuals were asked over the 64-week period after the intervention to record "for each day weekly whether they had seen a doctor in an office, a doctor in an emergency room, a psychologist or counselor, a physical or occupational therapist, or if they were hospitalized overnight, and whether they had restricted activity, or stayed in bed for health reasons" (Keeler et al 1999, p.1201).
2.6 Are all important and relevant costs included?	

Partially	See section 1.5
2.7 Are the estimates of resource use from the best available source?	
Partially	See section 2.5
2.8 Are the unit costs of resources from the best available source?	
Unclear	National fee schedules
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
N/A	See section 2.1. It could be calculated with data presented in the analysis.
2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
N/A	See section 2.1. It could be calculated with data presented in the analysis.
2.11 Is there any potential conflict of interest?	
Unclear	No information available.
2.12 Overall assessment	
Moderate quality. From an economics perspective, the study would require further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. However, in relation to overall conclusions, the study can be used to inform recommendations with caution. However, due to the age of the study, findings may be out-dated.	

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Challis DJ, Clarkson P, Williamson J, Hughes J, Venables D, Burns AS, and Weinberg A (2004). The value of specialist clinical assessment of older people prior to entry to care homes. Age and Ageing, 33, 25-34.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment and care planning approaches	**Q:** 2.1.1
Checklist: Section 1	
Yes/No/Partly/Not applicable	Detail
1.1 Is the study population appropriate for the review question?	
Partially	Partially applicable, it is unclear whether individuals have multiple long-term conditions but individuals do have at least one long-term condition. Individuals are referred to social services for assessment or re-assessment of social care needs.
1.2 Are the interventions appropriate for the review question?	
Yes	The intervention provides an additional healthcare assessment to support the social care manager in social care planning.
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Yes	The study was conducted in two cities in England however due to the age of the study it is unclear whether results are representative for current context
1.4 Are the perspectives clearly stated and what are they?	
Yes	NHS, Social services, private
1.5 Are all direct effects on individuals included	
Partially	Outcomes include those for service users and carers and are applicable as defined in the guideline scope.
1.6 Are all future costs and outcomes discounted appropriately?	
Not necessary	Study was followed up over a 6-month time horizon.
1.7 How is the value of effects expressed?	
Natural units	Effects are expressed in natural units for both resource use and non-resource use outcomes.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
Unclear / Partially.	There was inadequate reporting of how informal care costs were measured and valued. Authors write that “costs were comprehensively measured according to a well-developed methodology” (p.27). Monetary values were provided for informal care but it is unclear how these estimates were obtained.
General conclusion	
The study is applicable to the review question with very minor limitations.	

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.

2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	Not an economic model. The study presents results in the form of a cost-consequence analysis.
2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	
Potentially yes	The authors do not mention that the time horizon is a limitation of the study so it is assumed that the time horizon is sufficiently long enough to reflect all important differences in costs and outcomes.
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	Baseline outcomes are measured from the RCT.
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Yes, from the RCT.
2.6 Are all important and relevant costs included?	
Yes	Yes, NHS and social services costs are included and transparently reported. Private costs were included but the valuation of informal care was not adequately reported.
2.7 Are the estimates of resource use from the best available source?	
Yes	Yes, from the RCT.
2.8 Are the unit costs of resources from the best available source?	
Yes	National unit costs from PSSRU.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Partially	Incremental analysis is not presented but it can be calculated using reported data.
2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	Standard statistical analyses on outcomes and resource use.
2.11 Is there any potential conflict of interest?	
Unclear	The study authors receive funding from the Department of Health. This particular study was funded by the Community Health Services Research Initiative.
2.12 Overall assessment	
The study has very minor limitations and is applicable. The study can be used to inform recommendations about assessment and care planning for community dwelling older adults. However, due to the age of the study, findings may be out-dated. It is unclear whether patterns of service use are representative.	

Social Care of older people with complex needs and multiple long term conditions

Research questions 2.1.1 and 2.1.2

Completed methodology checklists: economic evaluations

What are the effects (benefits and harms) of different types of assessment and planning of personalised care on outcomes for older people with multiple long-term conditions and their carers?

What are the existing frameworks, models and components of care packages for managing multiple long-term conditions and what outcomes do they deliver?

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Sommers LS, Marton KI, Barbaccia JC, Randolph J. (2000). Physician, nurse, and social worker collaboration in primary care for chronically ill seniors. Arch Intern Med. 160: 1825-33.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment, care planning, and service delivery frameworks	**Q:** 2.1.1, 2.1.2
Checklist: Section 1	
Yes/No/Partly/Not applicable	Detail
1.1 Is the study population appropriate for the review question?	
Yes	These were older adults over age 65 living in the community with no restrictions in activities of daily living (with exception of bathing and dressing) and at least one restriction in at least one instrumental activity of daily living. Individuals had at least two chronic conditions. Some individuals were receiving "support services" (for example home delivered meals).
1.2 Are the interventions appropriate for the review question?	
Yes	It is a GP-based intervention with collaboration with a social worker and nurse who provide health and social care assessment to guide health and social care planning.
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Partially	The study is conducted in the USA.
1.4 Are the perspectives clearly stated and what are they?	
Partially	Third party payer perspective, however, it is unclear whether acute and community care costs are included in the analysis. This information is poorly reported and not presented transparently.
1.5 Are all direct effects on individuals included	
Partially	Outcomes include some of those covered in the guideline scope. Functional status (Health Activities Questionnaire), Social activities count, total symptom count, Nutrition checklist, Depression score (Geriatric Depression Scale), Medication count, Self-rated health status (Medical Outcomes Study 36-Item Short Form Health Survey). Health care utilization covers major acute and community care service use and admission to nursing home facilities. Social care resource use is not reported.
1.6 Are all future costs and outcomes discounted appropriately?	
Unclear	Costs are not reported transparently. This is not clear.
1.7 How is the value of effects expressed?	
Natural units	Effects are expressed in natural units for both healthcare utilization and for patient outcomes.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Any use of informal care or use of "support services" (as described in the study, which would be the equivalent of social care services in the English context) is not measured after baseline.

General conclusion
The study is applicable and is useful in providing recommendations for the review question on assessment, care planning, and service delivery frameworks.

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.	
2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	Not an economic model. This is a cost-consequence analysis.
2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	
Partially	The authors note that the first twelve months of the intervention the health and social care professionals and patients were primarily building relationships and testing modes of communication suitable for the service users. The authors note that the differences between groups become apparent in the last 6 months of the intervention. Therefore, the authors seem to suggest that a longer time horizon may have been more appropriate.
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 study.
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	From the study.
2.6 Are all important and relevant costs included?	
Unclear	Unclear reporting of costs.
2.7 Are the estimates of resource use from the best available source?	
Yes	From the study.
2.8 Are the unit costs of resources from the best available source?	
Unclear	Unclear reporting of costs.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Partially	Incremental analysis was not presented but it could be calculated from the data.
2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	Statistical analyses were carried out on both healthcare utilisation and on effects. “Analyses of hospitalization and office visit counts used a Poisson data model with a log link function. Office visit counts were first log transformed, adding 1 to deal with zero-visit cases, since models on the untransformed counts failed to converge. Analyses of binary outcomes (eg, ≥1 emergency department visits) used a binomial data model with a logit link function. Analyses for continuous variables (eg, depression score) used a model for normally distributed data.”

	"Baseline differences between the intervention and control groups were analyzed by means of the 2-way χ2 test, Fisher exact test, Mann-Whitney tests for ordinal data, and independent group *t* tests for continuous data". "P-values less than 0.05 are statistically significant in comparisons between groups; group differences with P values less than 0.10 are reported as trends."
2.11 Is there any potential conflict of interest?	
Unclear	The authors report that the study was funded by a grant from the John A Hartford Foundation, New York, New York (as a part of the Generalist Physician Initiative Program) to the California Pacific Medical Centre, San Francisco, and with support from Alta Bates Medical Center, Berkeley, California, and Marin General Hospital, Corte Madera, California.
2.12 Overall assessment	
Moderate quality. From an economics perspective, the study would require further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. However, in relation to overall conclusions, the study can be used to inform recommendations with caution.	

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Battersby M., Harvey P., Mills D., KalucyE., Pols R.G., Frith P., McDonald P., Esterman A., Tsourtos G., Donato R., Pearce R., McGowan C. (2007). "SA HealthPlus: A Controlled Trial of a statewide application of a generic model of chronic illness care." The Milbank Quarterly, Vol. 85, No. 1, 2007 (pp. 37–67) Battersby, M.W. 2005. Health Reform through Coordinated Care: SA HealthPlus. British Medical Journal 330(7492):662–65.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment and Care planning and service delivery frameworks	**Q:** 2.1.1 and 2.1.2
Checklist: Section 1	
Yes/No/Partly/Not applicable	Detail
1.3 Is the study population appropriate for the review question?	
Yes	Older adults living in the community with at least one chronic condition (this was a multi-site trial, some sites had multiple chronic conditions). It is unclear what proportion of individuals were accessing social care services although this information was reportedly collected in the study, indicating some individuals might have accessed services.
1.4 Are the interventions appropriate for the review question?	
Yes	The intervention aims to "coordinate the care of people with multiple service needs" and is a generic model of disease care as opposed to disease-specific. The intervention also has a different funding structure, moves away from fee-for-service to a pooled fund for an individual's care needs to achieve particular health outcomes for a 12-month period. The assessment process is both patient-led (individual's problems and goals) and provider-led assessments and both inform healthcare planning. Disease self-management is also provided.
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Partially	The study is conducted in Australia.
1.4 Are the perspectives clearly stated and what are they?	
Partially	Government funded health and social care perspective.
1.5 Are all direct effects on individuals included	
Partially	Health and wellbeing measures – Self-assessed health status (measured by the Short-Form 36-item survey, (SF-36)) "was used as a generic measure of self-reported health and well-being" (p.45) – The Work and Social Adjustment Scale (WSAS) "was used as a measure of disabilities and handicaps. The scale asks the client's perception of the impact of his/her main problem in five areas of daily life: home management, work, social leisure, private leisure, and family and relationships" (p.45) Resource use Included: "Medical visits/services, medications, hospital admissions (public and private), metropolitan domiciliary services (allied health daily living support home care), and metropolitan home nursing care" (p.46)

	Incomplete data: "Outpatient hospital data (outpatient, allied health, A&E) were usually not available owing to multiple incompatible information systems, complicated by the large number of hospitals involved" (p.46) Hospital outpatient and 'other' services were not 100% complete for all trial sites with the exception of the Southern sub-trial (p.55). Not included: "Data on private allied health and community services also were not available" (p.46) No information was provided on admissions to institutional nursing or care homes (or if so, not clear reporting).
1.6 Are all future costs and outcomes discounted appropriately?	
Partially	Not clear, not reported. Follow-up is measured over a 19-27 month period (due to attrition).
1.7 How is the value of effects expressed?	
Monetary & natural units	Natural units for patient health and wellbeing outcomes. Health care resource use measured mainly as monetary units or as "number of services" for main categories of: MBS (medical services), PBS (medications), Veterans Hospital, inpatient Hospital, Hospital outpatient (A&E and ambulatory attendances), Other (community allied health services and home nursing services) (p.55).
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Unpaid care not measured.
General conclusion	
Study is applicable with some limitations in relation to measurement of health and social care utilisation and problems with study attrition.	

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.	
2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	Not an economic model. It is a cost-consequence analysis.
2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?	
Partially	The authors believe that the time horizon was not long enough to capture improvements in patient's health that may lead to longer-term reductions in hospital use (Battersby 2007, p.60). The authors also believe that the intervention was not fully implemented in the early stages of the study period, for example, GPs needed to be reminded to order services as prescribed in the care plan (p.62).
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	Baseline outcomes taken from the trial and using health and social care providers' information systems databases.
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Results are taken from the trial, however there issues related to high attrition rates at 12 months follow-up.
2.6 Are all important and relevant costs included?	

Partially	See section 1.5 Major health and social care services are measured although due to issues of combining different providers' databases, some health care services are not completely measured. Furthermore, no information was provided on admissions to institutional nursing or care homes (or if so, not clear reporting).
2.7 Are the estimates of resource use from the best available source?	
Yes	Health and social care providers' information databases
2.8 Are the unit costs of resources from the best available source?	
Unclear	Not explicitly stated.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Partially	Incremental analysis is not presented but it could be calculated.
2.10 Are all-important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Partially	Some statistical adjustments were made in estimating effects of the intervention on resource use and on wellbeing outcomes. Unclear statistical methods used in estimating treatment effects of SF-36 (poor reporting).
2.11 Is there any potential conflict of interest?	
Unclear	"The trial was funded by the South Australian Health Commission and the Commonwealth Department of Health and Aged Care" (p.67, Battersby et al 2007)
2.12 Overall assessment	
Moderate quality. From an economics perspective, the study would require further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. However, in relation to overall conclusions, the study can be used to inform recommendations with caution.	

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Glendinning C, Challis D, Fernández J et al. (2008) Evaluation of the Individual Budgets Pilot Programme: Final Report. York: Social Policy Research Unit, University of York	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment & Care planning approaches, Service delivery frameworks	**Q:** 3.1.1 and 3.1.2
Checklist: Section 1	
Yes/No/Partly/Not applicable	Detail
1.1 Is the study population appropriate for the review question?	
Partially	The study covered four client groups, which receive publicly funded social care depending on their identified primary need or vulnerability. One group focuses on community dwelling older people over the age of 65. Most findings (but not all) were presented by client groups; it is possible that there were individuals >65yrs in other client groups besides the 'older people' group. Characteristics of older people in sample showed significant differences from national averages: needs – measured through abilities of daily livings (ADL) and mobility - were significantly greater in the study population and a higher proportion used home care more intensively (higher proportion of people using more than 10hrs/wk.). It is also unclear whether these individuals have multiple chronic conditions as this was not recorded.
1.2 Are the interventions appropriate for the review question?	
Yes	The intervention focuses on a different approach to social care assessment and care planning and service delivery. The intervention referred to providing to individuals with a choice for an individual budget but individuals in the intervention group could also opt for direct payments or conventional care (in the same way as the comparison group). In this paper this was considered in the analysis and in the presentation of findings for the subgroup which decided to take up individual budgets. Problematically, this group included individuals who did not always have a support plan in place by the time outcomes were measured.
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Partially	The study was a large UK study of fairly recent date covering a wide range of localities. However, the study was concerned with the evaluation of a pilot and related to a time when individual budgets were introduced and tested. Since then the infrastructure for individual (personal) budgets has developed and some of the barriers of implementing individual (personal) budgets might have reduced. In addition, increasing financial pressures have led to stricter eligibility criteria and greater number of people who need to think about self-funded options.
1.4 Are the perspectives clearly stated and what are they?	
Partly	The perspective was not specifically stated but it was clear that a government perspective had been taken. A distinction was made between health and social care budgets. Costs to individuals (including carers) were not considered.
1.5 Are all direct effects on individuals included	

Partially	Health and wellbeing outcomes for individuals were captured comprehensively. Limitations were: First, the intervention group experienced delays in the assessment, resource allocation and support planning and a large number did not have an IB agreed, or their new support arrangements in place, by the time their six-month outcome interview was carried out. Of those who did, some had only had an IB in place for a short period. In short, the time horizon was not sufficient to capture all effects. Second, outcome tools were only applied at six months and not at baseline so that it was not possible to assess the change over time and the analysis assumed no baseline differences in outcomes (which is justifiable because of the randomisation but still presented a limitation). Third, outcomes to unpaid carers were not measured.
1.6 Are all future costs and outcomes discounted appropriately?	
Yes	Discounting was not applied because of short-term perspective (six months for outcomes; 12 months for costs).
1.7 How is the value of effects expressed?	
Natural units	Natural units: Self-perceived health, GHQ-12, ASCOT, satisfaction.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
Partially	Government perspective (health and social care) was taken; the costs of unpaid care and out-of-pocket expenditure was not included; it is not clear whether all voluntary services were included (no distinction between public and third sector provided services). Outcomes to carers were not captured in this analysis.
General conclusion	
Applicability is restricted because not all findings on costs and cost-effectiveness were presented specifically for the group of older people; the design of the study and implementation challenges meant that the evidence on outcomes referred to people who did not use individual budgets; the study was an evaluation of a national pilot that faced implementation challenges and this influenced the applicability of findings.	
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.	
2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	This was a cost effectiveness study alongside a randomised trial.
2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	
No	The time horizon was insufficient because individual budgets had not been implemented for all service users at the six month interview so that not all important differences in costs and effects could be captured.
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?	
No	Baseline outcomes were not measured.
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Estimates of effects were derived from RCT data.
2.6 Are all important and relevant costs included?	
Partially`	Study took a government perspective and included the costs of health and social care services. However, there were likely to be important costs to individual (such as unpaid care and out-of-pocket expenditure) which were not considered.

2.7 Are the estimates of resource use from the best available source?	
Yes	A range of tools were applied to collect information on resource use comprehensively including from support plan records held by local authorities and self-reported questionnaires sent out to individuals asking about their service use over the past six months.
2.8 Are the unit costs of resources from the best available source?	
Yes	Unit costs for care planning are provided by local authority data and unit costs for other social and health care are taken from recommended national statistics of Personal Social Services and PSSRU compendium for unit costs in health and social care.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Yes	Incremental analysis was presented for two outcomes: GHQ and ASCOT.
2.10 Are all-important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	Confidence intervals and bootstrapping.
2.11 Is there any potential conflict of interest?	
No	Although this study was funded by the Department of Health and was a national evaluation of a government programme, the researchers were independent (from different university-based research departments) so that it was overall unlikely that the findings were compromised by conflict of interest.
2.12 Overall assessment	
Minor limitations: The study was an overall relatively robust large study based on a RCT design and had an overall relatively high reporting quality.	

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Landi F., Lattanzio F., Gambassi G., Zuccala G., Sgadari A., Panfilo M., Ruffilli MP, Bernabei R. (1999b). "A model for integrated home care of frail older patients: the Silver Network project. SILVERNET-HC Study Group." *Aging* (Milano). Aug 11(44):262-72.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment & Care planning approaches, Service delivery frameworks	**Q:** 2.1.1, 2.1.2
Checklist: Section 1	
Yes/No/Partly/ Not applicable	Detail
1.1 Is the study population appropriate for the review question?	
Yes	Individuals are living in the community and have on average four chronic conditions and had at least some limitations in activities of daily living and were eligible for social care services. It is unclear whether these individuals were already in receipt of social care services, this was not reported.
1.2 Are the interventions appropriate for the review question?	
Yes	The study aimed to provide an intervention that integrated health and social care professional input into the assessment and care planning process and in the delivery of health and social care services. It is important to note that there was no targeting or screening involved in patient selection.
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Unclear	Italian study, conducted 1997-1998.
1.4 Are the perspectives clearly stated and what are they?	
Yes	Perspective of acute care sector (impacts of the intervention on changes in acute care services).
1.5 Are all direct effects on individuals included	
No	This study was a cost-minimization analysis. Outcomes relating to the patient's health and social care outcomes were not measured. The primary outcomes are acute care service use. The authors do not report impacts on community health or social care service use.
1.6 Are all future costs and outcomes discounted appropriately?	
Not necessary.	The study was followed-up over a 6-month period.
1.7 How is the value of effects expressed?	
Natural units	Acute care service outcomes are measured in natural units (admissions, length of stay).
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Intensity of informal care was not measured although the proportion of individuals receiving informal care was recorded. Carer's outcomes were not measured.
General conclusion	
The study is applicable although there are several limitations. First, the perspective of the analysis is limited (acute care perspective), with no information on patient-related health or social care outcomes and community	

health and social care resource use. Second, the study design (before and after study) limits the conclusions that can be drawn about the effects of the intervention. Third, the time horizon of the study (6 months before implementation and 6 months after) may include regression of the mean phenomena.

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.	
2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	Not an economic model. This was a quasi-experimental (before and after study) that collected information on health care resource use and costs of the intervention.
2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	
No	The time horizon of the study (6 months before implementing the intervention and 6 months after the intervention) may not be long enough to account for potential regression of the mean phenomena, especially as this study was a before & after design.
2.3 Are all important and relevant outcomes included?	
No	See section 1.5
2.4 Are the estimates of baseline outcomes from the best available source?	
Yes	Yes, collected in the study using hospital records.
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Estimates of effects (acute care services) were derived from the study using hospital records.
2.6 Are all important and relevant costs included?	
No	See section 1.5
2.7 Are the estimates of resource use from the best available source?	
Yes	Information was collected from hospital records.
2.8 Are the unit costs of resources from the best available source?	
Partially	Acute care costs are taken as charges from hospitals. Due to poor reporting, is unclear whether unit costs are different between hospitals. Costs for home care services were taken from the best available source, the local Health Services Department.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Yes	No, incremental analysis was not presented.
2.10 Are all-important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	No, no sensitivity analyses were carried out apart from standard statistical analyses on the results.
2.11 Is there any potential conflict of interest?	
Unclear	The authors do not disclose whether there are or are not conflicts of interest. Private sector employees (Pfizer Italy) are acknowledged for providing technical and scientific support but it is unclear whether these would present conflicts of interest without clear reporting.
2.12 Overall assessment	
The study has major limitations as described in the general conclusions of section 1. The study should not be used to inform recommendations.	

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Bernabei, R., Landi, F., Gambassi, G., Sgadari, J., Zuccala, G., Mor, V., et al. (1998). Randomised trial of impact of model of integrated care and case management for older people living in the community. BMJ, 316(7141), 1348-1351.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment & Care planning approaches, Service delivery frameworks	**Q:** 2.1.1 and 2.1.2
Checklist: Section 1	
Yes/No/Partly/ Not applicable	Detail
1.1 Is the study population appropriate for the review question?	
Yes	It focuses on a population of older people over the age of 65 with multiple geriatric and medical conditions (for example, dementia, incontinence, immobility, stroke deficits) who were already in receipt of home health services or home assistance programs (i.e. individuals had health and social care needs).
1.2 Are the interventions appropriate for the review question?	
Yes	The study aimed to provide an intervention that integrated health and social care professional input into the assessment and care planning process and in the delivery of health and social care services. It is important to note that there was no targeting or screening involved in patient selection.
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Partially	Italian setting in the city of Rovereto, northern Italy, population of 35, 000.
1.4 Are the perspectives clearly stated and what are they?	
Partially	Not explicitly stated. Based on the descriptions it appears that social care and health care resource use are measured using the public sector perspective. It is clearly stated that informal care costs (direct and opportunity costs) are excluded.
1.5 Are all direct effects on individuals included	
Partially	Main outcome measures include some of the main outcomes of interest (as indicated in the guideline scope): patient health (depression, cognitive function, function (activities of daily living and instrumental activities of daily living) along with resource use (institutional and community health and social services).
1.6 Are all future costs and outcomes discounted appropriately?	
Not necessary	12 month time horizon
1.7 How is the value of effects expressed?	
Mixed.	Some are expressed in natural units and some as costs.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Excludes cost and outcomes of informal care.
General conclusion	
Applicable. The study has some minor limitations but is 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.	
2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	Not an economic model. This was a RCT that collected information on resource use and costs (including costs of the intervention).
2.2 Is the time horizon sufficiently long to reflect all important differences in costs and outcomes?	
Potentially yes.	The study was measured over a 12-month time horizon. The authors do not mention that there are any limitations due to the time horizon.
2.3 Are all important and relevant outcomes included?	
No	See section 1.5
2.4 Are the estimates of baseline outcomes from the best available source?	
Yes	Yes, collected by the research assistant every 2 months.
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Estimates of effects were derived from the study collected by the research assistant every 2 months.
2.6 Are all important and relevant costs included?	
Unclear.	There is a lack of transparency in reporting all of the health and social care resources in estimating of total costs. Total costs are presented for the categories of acute and community health care and nursing home care. It is not clear whether social care services are included, but these may have been poorly reported and might have been included in community healthcare costs. Unit costs are not transparently provided in the study.
2.7 Are the estimates of resource use from the best available source?	
Yes	Yes, collected by the research assistant every 2 months.
2.8 Are the unit costs of resources from the best available source?	
Yes	Yes, from the national official statistics.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Yes	No, incremental analysis was not presented.
2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	Effects were expressed as adjusted means to account for baseline measures (p.1350).
2.11 Is there any potential conflict of interest?	
Unclear	The authors report no conflict of interest. The study was funded by: Progetto Finalizzato Invecchiamento, National Research Council.
2.12 Overall assessment	
Moderate quality. From an economics perspective, the study would require further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. However, in relation to overall conclusions, the study can be used to inform recommendations with caution. There is poor reporting of all health and social care resources used in the analysis. Some resources are reported but it is unclear whether these were the only resources measured and it is unclear (due to poor reporting) which resources were included in calculation of total costs. Another limitation is the study's age and findings may be out-dated.	

Study identification: Boult C, Boult LB, Morishita L, Dowd B, Kane RL, Urdangarin CF. (2001). A randomized clinical trial of outpatient geriatric evaluation and management. J Am Geriatr Soc. 49:351-9 Boult C, Boult L, Morishita L et al (1998). Outpatient geriatric evaluation and management (GEM). J Am Geriatr Soc; 46:296–302. Morishita L., Boult C., Boult L., Smith S., Pacala JT. (1998). "Satisfaction with outpatient geriatric evaluation and management (GEM)." *The Gerontologist*. 38:3: 303-308. Weuve JL., Boult C., Morishita L. (2000). "The Effects of Outpatient Geriatric Evaluation and Management on Caregiver Burden." *The Gerontologist*. 40(4): 429–436.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment, care planning, and service delivery frameworks	**Q:** 2.1.1 and 2.1.2
Checklist: Section 1	
Yes/No/Partly/ Not applicable	Detail
1.1 Is the study population appropriate for the review question?	
Partially	These were community dwelling older adults aged 70 years and older with very minor limitations in basic and instrumental activities of daily living (ADL & IADL) (0.5 restrictions out of 6 ADLs, 1.4 restrictions out of 7 IADLs) (Boult et al 1998). Individuals' use of home (social services) support is unclear. The mean number of chronic conditions is unclear but baseline characteristics indicate at least one chronic condition.
1.2 Are the interventions appropriate for the review question?	
Yes	It is a targeted (average duration 6 months) outpatient geriatric evaluation and management unit that provides health and social care assessment to inform the healthcare planning process (unclear if referrals are made to social care services, although authors describe that "the team… made referrals to other health professionals and community services as needed" (p.353)).
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Partially	USA
1.4 Are the perspectives clearly stated and what are they?	
Yes	Government payer, healthcare system perspective
1.5 Are all direct effects on individuals included	
Partially	Main outcomes measured include function (several measures, 45-item Sickness Impact Profile physical functioning dimension, Depressive symptoms (30-item Geriatric Depression Scale), self-rated health (unclear measurement tool), satisfaction (Patient Satisfaction Questionnaire), and mortality.
1.6 Are all future costs and outcomes discounted appropriately?	

Unclear	Not reported. Total costs reported for the study duration of 18 months.
1.7 How is the value of effects expressed?	
Monetary & natural units	Resource was not presented in monetary units. Non-healthcare utilization measured in natural units.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
Partially	Cost of informal care were measured but not valued or included in the analysis (Weuve et al 2000). Caregiver burden was measured (Morishita et al 1998).
General conclusion	
The study is applicable with some limitations in relation to lack of measurement of social care resource use.	

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.	
2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	Not an economic model.
2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?	
Potentially yes.	The authors do not mention any limitations with the time horizon; therefore it is assumed that it is sufficiently long to reflect all-important differences.
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, administered by research assistants prior to randomisation via telephone
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Trial data, interview at 6, 12, and 18 months.
2.6 Are all important and relevant costs included?	
Partially	Perspective of the analysis is government health care expenditure.
2.7 Are the estimates of resource use from the best available source?	
Yes	**"**Health Care Financing Administration records (Standard Analytical Files) of its payments for participants' Medicare-covered health care during the 12 months before and the 18 months after randomization" (p.353)
2.8 Are the unit costs of resources from the best available source?	
Unclear	Charges to Medicare.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Partially	It is not presented but it can be calculated from the data.

2.10 Are all-important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	Authors report statistical differences at baseline for functional ability, depression 'caseness' (as measured by the Geriatric Depression Scale), and self-rated health. The authors use "logistic adjustment for the possible confounding effects of participants' baseline functional and affective status" (p.355). Appropriate statistical adjustments were made in estimating differences in costs for both groups taking into account differences at baseline and healthcare expenditure in the year prior to randomisation (p.354).
2.11 Is there any potential conflict of interest?	
Unclear	Authors do not state whether there are or are not conflicts of interest.
2.12 Overall assessment	
Moderate quality. From an economics perspective, the study would require further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. However, in relation to overall conclusions, the study can be used to inform recommendations with caution. One limitation is the study's age and findings may be out-dated.	

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Counsell SR, Callahan CM, Clark DO, TU W, Buttar AB, Stump TE, et al. (2007). Geriatric care management for low-income seniors. JAMA. 298(22): 2623–33. Counsell SR, Callahan CM, Tu W, Stump TE, Arling W. (2009). Cost analysis of the geriatric resources for assessment and care of elders care management intervention. J Am Geriatr Soc. 57(8): 1420–26.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment, care planning, and service delivery frameworks	**Q:** 2.1.1 and 2.1.2
Checklist: Section 1	
Yes/No/Partly/Not applicable	Detail
1.3 Is the study population appropriate for the review question?	
Yes	This focuses on community dwelling older adults over the age of 65 years old. It is unclear whether individuals are in receipt of social care services however 25% of the sample reported having a carer who helps at home. Individuals had multiple chronic conditions, but the mean number of chronic conditions varied depending on the subgroup, which was defined by patterns of acute care service use (relatively high or low hospital admissions).
1.4 Are the interventions appropriate for the review question?	
Yes	The intervention is a "2-year home-based care management by a nurse practitioner and social worker who collaborated with the primary care physician and a geriatrics interdisciplinary team and were guided by 12 care protocols for common geriatric conditions" (p.2623)
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Unclear	The study was conducted in the USA.
1.4 Are the perspectives clearly stated and what are they?	
Partially	Third party payer, healthcare system.
1.5 Are all direct effects on individuals included	
Partially	Main outcomes included the Patient health-related quality of life was assessed using the 8 SF-36 scales (physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health) which were aggregated into a Physical Component Summary (PCS) and a Mental Component Summary (MCS) and the second main outcome measure was functional status (basic and instrumental activities of daily living). Both these outcomes are relevant as indicated in guidance scope but this is not a comprehensive list of outcomes that could be measured (as defined by guidance scope). Healthcare utilization is measured but social care service use is not with the exception of a self-report survey with information on the use of privately paid home aides and nursing home use (2009, p.6).
1.6 Are all future costs and outcomes discounted appropriately?	
Unclear	Authors do not report explicitly whether discounting was used. The follow-up was over duration of 36 months.
1.7 How is the value of effects expressed?	
Natural and	Resource use for acute care services were expressed in natural units for the two-year period. In the third year, acute care service use was

moentary units	presented in monetary units. Community healthcare service use presented in monetary units for all three years (2009).
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Informal care not valued, informal care outcomes not measured.
General conclusion	
The study is applicable with some limitations with respect to lack of information on social care resource use. However, the population is considered to be applicable on the basis of restrictions in activities of daily living (basic and instrumental) and that some of the sample were having some support at home, which suggests this sample may have social care needs.	

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.	
2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	Not an economic model.
2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?	
Potentially yes	The authors do not mention any limitations with the time horizon; therefore it is assumed that it is sufficiently long to reflect all-important differences.
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, conducted by telephone interviewers who were blinded to the patient's randomization status and were not part of the recruitment or intervention process.
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Trial data, conducted by telephone interviewers who were blinded to the patient's randomization status and were not part of the recruitment or intervention process at 6, 12, 18, and 24 months.
2.6 Are all important and relevant costs included?	
Partially	Major healthcare utilization included. However, social care resource use not measured (for example, home care support or adult day care or admissions to nursing or residential care not measured).
2.7 Are the estimates of resource use from the best available source?	
Yes	Trial data, regional health information exchange for acute care services (2007, p.2626) and Medical Record System for community health care services (2009, p.3).
2.8 Are the unit costs of resources from the best available source?	
Partially	Presented as charges.
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	

Partially	Incremental analysis is not presented but it could be calculated from the data.
2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Partially	Authors report mainly the use of multiple outcome measures may result in false positives and use Bonferroni correction and find that p-values still remained significant at the p<0.05 level (2009, p.6) but as reported in the 2007 paper the authors conduct the same Bonferroni corrections and find changes to some of the results, in particular, A&E visits were not significant (for the whole sample, p = 0.42) but that SF-36 scales of vitality (P = .006), mental health (P = .03), and the Mental Component Summary (P = .008) remained significant (for the whole sample) (2007, p.2623). Therefore there are some issues related to reporting in the 2007 and 2009 papers.
2.11 Is there any potential conflict of interest?	
No	As reported in the study: ***(2007)*** ***"Financial Disclosures:*** *The authors may copyright the GRACE Protocols and Training Manual and sell materials to interested health plans for use in geriatric patient care management, but have no specific plans at this time.* ***Funding/Support:*** *This work was supported by grant R01 AG20175 from the National Institute on Aging, National Institutes of Health. Support for the GRACE intervention team was provided by the Nina Mason Pulliam Charitable Trust and Wishard Health Services, Indianapolis, Indiana.* ***Role of the Sponsor:*** *The sponsors provided financial support for the study only and had no role in the de- sign and conduct of the study; the collection, management, analysis, and interpretation of the study; or in the preparation, review, or approval of the manuscript" (2007, p.2632)* ***(2009)*** *"The editor in chief has reviewed the conflict of interest checklist provided by the authors and has determined that the authors have no financial or any other kind of personal conflicts with this paper. The authors may copyright the GRACE protocols and Training Manual and sell materials to interested health plans for use in geriatric patient care management but have no specific plans at this time"*
2.12 Overall assessment	
Moderate quality. From an economics perspective, the study would require further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. However, in relation to overall conclusions, the study can be used to inform recommendations with caution.	

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Toseland RW, O'Donnell JC, Engelhardt JB et al (1996). Outpatient geriatric evaluation and management: Results of randomized trial. Med Care; 34:624–640. Engelhardt JB, Toseland RW, O'Donnell JC, et al. (1996). The effectiveness and efficiency of outpatient geriatric evaluation and management. J Am Geriatr Soc; 44:847– 856. Toseland RW, O'Donnell JC, Englehardt JB et al. (1997). Outpatient Geriatric Evaluation and Management: Is There an Investment Effect? Gerontologist. 37:324-332.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions, Older people living in the community	
Economic priority area: Assessment, care planning, and service delivery frameworks	**Q:** 2.1.1 and 2.1.2
Checklist: Section 1	
Yes/No/Partly/Not applicable	Detail
1.5 Is the study population appropriate for the review question?	
Yes	Individuals are community dwelling older male veterans over the age of 55 with at least two restrictions in basic (ADL) or instrumental activities of daily living (IADL). The mean restrictions in ADL and IADLs were 2 and 4, respectively (1997, p.325). Mean number of diagnoses per person were 2.5 per person although it is not clear whether these are chronic conditions. However there are a list of chronic conditions and while mean number of conditions are not explicitly listed, it is likely that individuals have at least one chronic condition (1996, p.629).
1.6 Are the interventions appropriate for the review question?	
Yes	It is an outpatient geriatric evaluation and management by the geriatric team composed of a geriatrician, nurse practitioner, and social worker. Most direct medical care provided by nurse and social workers' main responsibilities were case management and helping patients and caregivers with psychosocial problems. The intervention provides a comprehensive assessment and development of a care plan and referrals and coordination with other health and social care services.
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Unclear	The study was conducted in the USA
1.4 Are the perspectives clearly stated and what are they?	
Yes	Government payer (Veterans Association).
1.5 Are all direct effects on individuals included	
Partially	Main outcome measures include some of the main outcomes of interest as indicated in the guideline scope: Health status, functional status, and mortality were the main outcomes of interest. All major health and social care service use was recorded and captured as costs (these were measured throughout the 24 month study period). However there were some service/process-outcomes measured at 8 and 16 months (Toseland 1996, Engelhardt 1996) but were no longer

	reported at 24 months in the 1997 publication (it is unclear whether these outcomes were no longer being measured or were simply not reported). These additional outcomes at 8 and 16 months include “quality of health and social care” (as measured by the Support Services Questionnaire, SSQ, the Financial Benefits Questionnaire, FBQ, the Pressing Problem Index, PPI, and the Patient Satisfaction Questionnaire), Psychosocial wellbeing (as measured by the geriatric depression scale, the Brief Symptom Inventory Somatization and Anxiety subscales), and Continuity of care (as measured by the continuity of care index).
1.6 Are all future costs and outcomes discounted appropriately?	
Unclear	Authors do not explicitly state whether discounting is used.
1.7 How is the value of effects expressed?	
Natural and monetary units	Some components of health care utilization were presented in natural units, however, not every resource use included in the cost analysis was presented in natural units (for example, social care services). Non-resource use outcomes are presented in natural units.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Informal care not measured (in terms of costs or outcomes).
General conclusion	
The study is 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.	
2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	Not an economic model. This is a cost-consequence analysis.
2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?	
Partially	The authors hypothesize that a longer follow-up would be beneficial in clarifying the long-term effects of the intervention (p.638) because they believe that cost savings could have been accrued. They point out that the intervention’s higher use of inpatient and outpatient services in the initial 8-month period is reflective of increased case finding and use of preventative services. They hypothesize that the higher initial use of resources are investment effects and believe that over time the use of services would continue to be lower compared to standard GP care.
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, interview (1997, p.328)
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Trial data, personal interview, from computerized medical records, and by medical chart reviews (1996, p.628). “Personal interviews were conducted following randomization and again at 8,16, and 24 months by an interviewer blind to condition assignment” (1997, p.328). Mortality was measured in three 8-month increments (1997, p.328).

2.6 Are all important and relevant costs included?	
Yes	All major health and social care service use are included, which includes (1) total outpatient cost, (2) total inpatient cost, and (3) nursing home cost. Total outpatient services include community health and social care services (clinic visits, diagnostic services, substance abuse clinics, dental, ancillary, psychiatry, rehabilitation, medications, home care equipment, prosthetics, ambulatory surgery, home care, and adult day health care). Total inpatient cost includes (hospital overhead, attending medical staff, inpatient diagnostics, medications, surgical procedures, and inpatient rehabilitation). Total nursing home cost includes (stays in both veterans provided nursing homes and externally (non-veterans) contracted nursing homes. (1997, p.328).
2.7 Are the estimates of resource use from the best available source?	
Yes	Trial data, personal interview, from computerized medical records, and by medical chart reviews (1996, p.628). Utilization and cost data were collected in three 8-month increments (1997, p.328).
2.8 Are the unit costs of resources from the best available source?	
Partially	Unit costs from Veteran's provided services are based on national costs which use full cost approach however for Veteran contracted services, resource use is based on charges (1997, p.328)
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Partially	An incremental analysis is not presented but it can be calculated from the data.
2.10 Are all important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	(1) Health and social care utilisation was measured using Veteran's provided or contracted services meaning there is a possibility that non-Veterans resource use would not be captured in the study. The authors account for this by measuring non-Veteran healthcare use in the 8 months prior to the study and find that this use was less than 1% for acute care, A&E, and ambulatory care and this was similar for both intervention and control group patients (1997, p.328).
2.11 Is there any potential conflict of interest?	
Unclear	No information is provided in any of the publications (Toseland 1996, Engelhardt 1996, or Toseland 1997).
2.12 Overall assessment	
Moderate quality. From an economics perspective, the study would require further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. However, in relation to overall conclusions, the study can be used to inform recommendations with caution. Another limitation is the study's age and findings may be out-dated. There are some concerns with the lack of transparency in reporting of service and process outcomes at 8 and 16 months (in their respective publication, Toseland 1996 and Engelhardt 1996), and why these outcomes were not present in the Toseland (1997) publication.	

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Beland F, Bergman H, Lebel P, Dallaire L, Fletcher J, Contandriopoulos AP, Tousignant P. (2006). Integrated services for frail elders (SIPA): A trial of a model for Canada. Canadian Journal on Aging, 25(1):5-42.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Assessment, care planning, and service delivery frameworks	**Q:** 2.1.1 and 2.1.2
Checklist: Section 1	
Yes/No/Partly/ Not applicable	Detail
1.7 Is the study population appropriate for the review question?	
Yes	Designed for community dwelling frail older people with health and social care needs. Aimed at individuals with "one or more problems in the following areas or involving the following health conditions: activities of daily living (ADL), instrumental activities of daily living (IADL), incontinence, physical mobility, communication, and mental function". Individuals had multiple long-term conditions.
1.8 Are the interventions appropriate for the review question?	
Yes	1) Screening to target those with functional disabilities and complex mixture of service needs. 2) Integrated health and social care on a geographic basis. Involves multidisciplinary care, capitated budgets, and regional monitoring with collaboration across disciplines (health and social, acute and long-term, and community and institutional, including acute care hospitals and nursing homes). Individuals received case management and care was governed by the use of clinical guidelines and there were also organizational guidelines for specific processes and to ensure coordination (p.27)
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Yes	Canadian study. Institutional context is similar to the UK with respect to fragmented health and social care services (in the control group). Authors report that institutional services used more frequently than community based services (and one aim of the study was to test the potential to increased use of community care services to substitute and reduce use of institutional care.
1.4 Are the perspectives clearly stated and what are they?	
Yes	Government health and social care payer perspective
1.5 Are all direct effects on individuals included	
Partially	Institutional services included hospital emergency room visits, short- and long-term hospital stays, rehabilitation hospital stays, institutionalization, and palliative care. Community-based services included prescription medication purchased at pharmacies, visits to general practitioners and specialists, home care services, housing in sheltered housing, technical aids provided in the home, day hospitalizations, and day centres. Does not include clinical outcomes or social care outcomes or carers' outcomes.
1.6 Are all future costs and outcomes discounted appropriately?	
Unclear	22-month study but not explicitly stated whether discounting was used.
1.7 How is the value of effects expressed?	

Natural & monetary units	Some major categories of health and social care utilization were presented in natural units although most were presented as costs.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Unpaid care not included and carer outcomes not included.
General conclusion	
Applicable with some limitations in relation to the lack of clinical or health and social care related outcomes.	

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.	
2.1 Does the model structure adequately reflect the nature of the topic under evaluation?	
Not applicable	Not an economic model.
2.2 Is the time horizon sufficiently long to reflect all-important differences in costs and outcomes?	
Potentially yes	The authors do not mention any limitations with the time horizon so it is assumed that it is sufficiently long to reflect all important differences.
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?	
No	Baseline data not measured
2.5 Are the estimates of relative intervention effects from the best available source?	
Yes	Administrative records from the local government's information systems for both health and social care services and other data from patient's records (p.28)
2.6 Are all important and relevant costs included?	
Yes	See section 1.5
2.7 Are the estimates of resource use from the best available source?	
Yes	See section 2.5
2.8 Are the unit costs of resources from the best available source?	
Yes	Fee schedules in combination with additional calculations by the researchers to include direct, overheads, and indirect costs (p.29)
2.9 Is an appropriate incremental analysis presented or can it be calculated from the data?	
Partially	Not presented but can be calculated from the data
2.10 Are all-important parameters whose values are uncertain subjected to appropriate sensitivity analysis?	
Yes	Appropriate statistical measures used in estimating treatment effects.
2.11 Is there any potential conflict of interest?	
Unclear	No information provided.

2.12 Overall assessment
Moderate quality. From an economics perspective, the study would require further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. However, in relation to overall conclusions, the study can be used to inform recommendations with caution.

Social Care of older people with complex needs and multiple long term conditions

Research questions 2.1.5

Completed methodology checklists: economic evaluations

How effective are different types of support for older people to enable them to self-manage (aspects of) their own conditions?

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Kennedy, A. Reeves, D. Bower, P. Lee, V. Middleton, E. Richardson, G. Gardner, C. Gately, C. Rogers, A. (2007). "The effectiveness and cost effectiveness of a national lay-led self care support programme for patients with long-term conditions: a pragmatic randomised controlled trial." *Journal of Epidemiology and Community Health*. 61:254-261.	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions	
Economic priority area: Self-management of long-term conditions	**Q:** 2.1.5
Checklist: Section 1	
Yes/No/Partly/Not applicable	Detail
1.1 Is the study population appropriate for the review question?	
No	It is targeted at a general population with at least one long-term chronic condition with unclear social care needs.
1.2 Are the interventions appropriate for the review question?	
Partially	The intervention is aimed at improving self-management of a single long-term chronic disease
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Yes	English study
1.4 Are the perspectives clearly stated and what are they?	
Yes	Individual and NHS payer perspective
1.5 Are all direct effects on individuals included	
Partially	Includes some outcomes as listed in the Scope, i.e. health related quality of life as measured by EuroQoL. Resource use includes NHS services and private expenditures related to the intervention. However no measurement of acute care service use other than A&E visits.
1.6 Are all future costs and outcomes discounted appropriately?	
Not necessary	6 month follow-up period
1.7 How is the value of effects expressed?	
Mixed	Natural units, probability of cost-effectiveness, and net benefit
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
No	Unpaid care not measured
General conclusion	
The population does not seem relevant to the review question and therefore using results from this study would not be appropriate in making recommendations from an economics point of view.	

Social Care of older people with complex needs and multiple long term conditions

Research questions 3.2

How should services work with and support carers of older people with multiple long-term conditions (who may have long-term conditions themselves)?

APPENDIX C: COMPLETED METHODOLOGY CHECKLISTS: ECONOMIC EVALUATIONS

Study identification: Mason, A. Weatherly, H. Spilsbury, K. Arksey, H. Golder, S. Adamson, J. Drummond, M. Glendinning, C. (2007). "A systematic review of the effectiveness and cost-effectiveness of different models of community-based respite care for frail older people and their carers." Health technology assessment. 11 (15).	
Guideline topic: Social Care of older people with complex needs and multiple long term conditions, Older people living in the community	
Economic priority area:	**Q:** 2.1.1
Checklist: Section 1	
Yes/No/Partly/Not applicable	Detail
1.1 Is the study population appropriate for the review question?	
Partially	This was a systematic review focusing on frail older people living in the community and their carers.
1.2 Are the interventions appropriate for the review question?	
Partially.	The systematic review identified 5 economic evaluations on respite care, all of which compared day care to usual care.
1.3 Is the current social care system in which the study was conducted sufficiently similar to the current UK social care context?	
Unclear, Partially	One economic evaluation was conducted in the UK. Remainders were international studies.
1.4 Are the perspectives clearly stated and what are they?	
NA	See evidence tables for more detail and general conclusion for more detail.
1.5 Are all direct effects on individuals included	
NA	See evidence tables for more detail and general conclusion for more detail.
1.6 Are all future costs and outcomes discounted appropriately?	
NA	See evidence tables for more detail and general conclusion for more detail.
1.7 How is the value of effects expressed?	
NA	See evidence tables for more detail and general conclusion for more detail.
1.8 Are costs and outcomes from other sectors (including the value of unpaid care, where relevant) fully and appropriately measured and valued?	
NA	See evidence tables for more detail and general conclusion for more detail.
General conclusion	
The authors of the systematic review conclude that the economic evaluations do not report enough information in order to explore whether findings are applicable in the UK setting. Therefore the author's overall conclusions are that there is a lack of UK research and the literature reviewed is unable to support UK policy and practice. The authors recommend that more research is needed in this field in general, i.e., that clarification is needed of the objectives of respite services and consider appropriate outcome measures for research. This means that measured outcomes need to take into account that carers will have joint and separate interests to the people they care for. The authors also recommend that further research on effectiveness and cost-effectiveness should explore differences in older person's needs, for example, physical frailty or cognitive impairment, and differences among types of carers, for example, adult children or partner.	

Social Care of older people with complex needs and multiple long term conditions

Research questions 2.1.1

Economic evidence table

What are the effects (benefits and harms) of different types of assessment and planning of personalised care on outcomes for older people with multiple long-term conditions and their carers?

Intervention model type:
Health & social care assessment to guide health care planning

Keeler EB, Robalino DA, Frank JC, Hirsch SH, Maly RC and Reuben DB. (1999). Cost-Effectiveness of Outpatient Geriatric Assessment with an Intervention to Increase Adherence. Medical Care, Vol. 37, No. 12 (Dec), pp. 1199-1206

Reuben DB, Frank JC, Hirsch SH, McGuigan KA, Maly RC. (1999). A randomized clinical trial of outpatient comprehensive geriatric assessment coupled with an intervention to increase adherence to recommendations. J Am Geriatr Soc. 47:269-276

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**

Country: USA
 	
Date: Unclear, pre-1999
 	
Follow-up period: 15 months
 	
Study type: Cost-consequence analysis
 	
Intervention: One-time geriatric evaluation from the outpatient geriatric team (geriatrician, geriatric nurse, social worker, physical therapist) to provide recommendations to the GP for healthcare planning.
 	
GPs received
	Population: Community dwelling older adults over age 65. Individuals have restrictions in activities of daily living.
	
	Use of screening or targeting: screened in the community from community-based sites where older people congregate (not via case finding or referrals) for four common geriatric conditions (incontinence, falls, depression, and functional impairment).
	
	Mean chronic conditions: Unclear
		Outcomes: description and values
		Using intention to treat analysis
		Mean (95% confidence interval values)
		
		Primary outcome
		Physical functioning (MOS SF-36, PF-10)
		(Medical Outcomes Study, Short-Form 36, Physical functioning 10-item survey)
		- Improvement favoring intervention group, 5.73 points (95% CI, 1.59 - 9.87) p=0.007
		
		Secondary outcomes
		Mortality
		- Reduction in mortality (p=0.06)
		Health-related quality of life (MOS-SF 36) subscales:
		- Role functioning/physical
		  - Favoring intervention group, improvement of 10.77 (95% CI, 0.85 to 20.69) p=0.034
		- Role functioning/emotional
		  - Favoring intervention group, improvement of 7.57 (95% CI, -1.08 to 16.22) p=0.086
		- Emotional wellbeing
		  - Favoring intervention group, improvement
			Results are presented as a cost-consequence analysis (the authors conduct a cost-utility analysis but we do not refer to them as they are not transferrable to the English context without further analysis due to differences in patterns of resource use and in unit costs).
			
			Costs: description and values
			Intervention costs per person: $237 (76% assessment costs, 22%
				Applicability: Applicable.
				
				Quality: Moderate
				
				Summary: From an economics perspective, the study requires further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs.
				
				Overall, however, the study can be used to inform recommendations relating to the review question with some caution. There are

recommendations via telephone call from the geriatric team and copies of the assessment.
 	
The patient also receives a list of the health care recommendations along with a patient adherence booklet "how to talk to your GP" in addition to a phone call from a health educator two weeks after the assessment to ensure the individual understood the recommendations, answer questions, and improve the individual's self-efficacy during their GP appointment to discuss the recommendations.
 	
Control: Usual primary care from GPs
	<u>Receiving social care services</u>
	It unclear whether individuals are in receipt of social care services.
	
	Study design: RCT (N=351)
	
	Data sources: RCT
	
	Sources of effectiveness data: RCT collected by the research assistant
	
	Sources of resource use data: Postcard diary completed by the individual over the next 64 weeks after implementing the intervention
	
	Sources of unit cost data: Medicare fee Schedule
		of 4.75 (95% CI, 0.88 to 8.61) p<0.016
		- Energy/fatigue
		  - Favoring intervention group, improvement of 7.92 (95% CI, 3.81 to 12.04) p=0.001
		- Social functioning
		  - Favoring intervention group, improvement of 9.40 (95% CI, 3.50 to 15.29) p=0.002
		- Pain
		  - Favoring intervention group, improvement of 5.80 (95% CI, 0.17 to 11.4) p=0.043
		- General health
		  - Favoring intervention group, improvement of 3.19 (95% CI, -0.26 to 6.63) p=0.070
		- Mental health (Not presented)
		
		<u>Summary scales, physical health (MOS SF-36)</u>
		- Improvements favoring intervention group, 2.98 (95% CI, 0.88 – 5.10) p=0.005
		<u>Summary scales, mental health (MOS SF-36)</u>
		- Improvements favoring intervention group, 3.55 (95% CI, 1.05 – 6.06) p=0.034
		<u>Restricted activity days</u>
		- Favoring intervention group, -2.84 days (95% CI, -0.75 to -4.93) p=0.006
		<u>Any bed days</u>
		- No different, -0.35 (95% CI, -0.77 to -1.47) p=0.553
		<u>Physical performance (Physical Performance Test, PTT)</u>
		- 1.58 (95% CI, -0.12 to 2.98) p=0.066
		<u>Physical performance of lower extremity function (NIA Battery (National Institute of Ageing)</u>
		- No different, 0.14 (95% CI, -0.45 to 0.72) p=0.634
		<u>Patient satisfaction in general</u>
		- No differences
		<u>Patient satisfaction with their GP</u>
		- No differences
		<u>Patient self-efficacy in interacting with GP</u> <u>(PEPPI:</u>
			adherence intervention; 2% screening)
			
			<u>Total healthcare costs</u> = additional $184 (*intervention – control group costs)*
			- First 32 weeks, additional $137;
			- Second 32 weeks, additional $47
				some limitations due to the age of the study.
				
				The intervention is associated with increases in costs for improvements in outcomes.
				
				The authors hypothesize that the effects of the intervention are in part due to effective targeting and screening of individuals that might benefit from a more comprehensive assessment due to under-diagnosed common geriatric conditions and other medical and social problems for which there were recommendations that could offer benefit. In particular the anticipated benefits were the prevented of further decline in function (rather than restoring and increasing function). The authors also hypothesize that the intervention may have been effective due to the manner in which

		<u>perceived efficacy in the physician-patient interaction scale)</u> - No differences **Resource use:** <u>Community healthcare:</u> - In first 32 weeks, one extra visit to the GP (not statistically significant), psychologist, & physical therapist (both statistically significant at p=0.01) (versus control group utilisation of 8, 2, and 3 visits respectively). - In second 32 weeks, differences between intervention and control are not statistically significant (Keeler et al 1999, p.1203). <u>A&E and hospital costs</u>: - Throughout 15 months, emergency room and hospital admissions were not statistically significant.		GP and patients were engaged: i.e. the adherence intervention via health education and booklet to empower the patient. The authors also point to high rates of implementation. 59% of GP-initiated recommendations were implemented within 3 months of the assessment. Patient adherence to physician-initiated and self-care recommendations in the 15 months after the initial assessment was high (67% and 61% respectively).

Intervention model type:
Healthcare assessment to guide social care planning

Challis DJ, Clarkson P, Williamson J, Hughes J, Venables D, Burns AS, and Weinberg A (2004). The value of specialist clinical assessment of older people prior to entry to care homes. Age and Ageing, 33, 25-34.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: England, two cities: City of Manchester and in part of the Macclesfield borough of Cheshire. **Follow-up period:** 6 months **Study type**: Cost-consequence analysis **Intervention:** Social worker receives a health assessment at home from an old age psychiatrist or geriatrician to support social care planning.	**Population**: Older adults over age 65 living in the community. <u>Use of screening or targeting:</u> No <u>Receiving social care services</u> Eligible individuals were referred to social services for assessment or re-assessment for substantial levels of care and consideration for residential or nursing home placement. <u>Mean chronic conditions:</u> Not clear although individuals had at least one long-term condition **Study design:** Two-site RCT (N=256)	**Outcomes: description and values** <u>Service users</u> 1. Cognitive function (Standardised Mini Mental State) 2. Depression (Geriatric Depression Scale) 3. Physical functioning (Barthel) 4. Behaviour (CAPE Behaviour Rating Scale) 5. Quality of care (Need Shortfall Rating), 6. Health & functioning (SF 36 – Short Form) 7. Social networks (Lubben) 8. Service satisfaction (CSQ-8) 9. Quality of life (Life Experiences Checklist) <u>Informal carers of the older people</u> 10. Social Behaviour Assessment Schedule (SBAS) modified for use with the carers of older people 11. General Health Questionnaire (GHQ-12) 12. Satisfaction scale (CSQ-8) **<u>Results, service users</u>** <u>(6-months follow up)</u> <u>Mean (standard deviation)</u> – <u>Improvements favoring intervention group</u> 3. Physical functioning: intervention declined less than control group Intervention, -2.52 (13.11)	For similar costs the intervention provides better outcomes for patients and their carers. There is a slight reduction in costs to the NHS and no differences in cost to social services or in private costs to individuals. <u>Regression analysis on sub-groups indicated that…</u> For frailest individuals, assessment led to increased NHS and social service costs but reduction in private costs. For those with severe cognitive impairment, assessment led to reduced NHS and social service costs but raising	**Applicability:** Applicable. **Quality**: Very good quality. **Summary:** From an economics perspective, the study can be used to inform recommendations relating to the review question. There may be some limitations due to the age of the study and the representativeness of service use patterns. <u>Authors' comments</u> The authors note that the study was acceptable to all health and social care professionals involved.

The patient's GP is also given a copy of the assessment. **Control:** Standard GP and social care services.	**Data sources:** From the RCT **Sources of effectiveness data:** From the RCT **Sources of resource use data:** From the RCT **Sources of unit cost data:** PSSRU unit costs	Control, -6.43 (14.2), p=0.04 7. Social network score: Intervention 0.43 points (7.35) Control, -1.91 (8.72), p=0.05 – <u>No differences between groups (p-values were greater than 0.05)</u> 1. Cognitive function 2. Depression 4. Behavior 5. Quality of care 6. Pain (SF-36) & perception change of health (SF-36) 8. Service satisfaction 9. Quality of life **<u>Results, carers</u>** <u>Mean (standard deviation)</u> – <u>Improvements favoring intervention group</u> 10. Social Behaviour Assessment Schedule (SBAS) subscales: Relief associated with social services Intervention: 0.44 (0.94) Control: -0.54 (0.88), p<0.001 Care tasks distress, supervision, Intervention: -0.44 (0.97) Control: -0.13 (0.82), p=0.02 Problematic behavior frequency: Aches & pains Intervention: -0.22 (0.74) Control: +0.20 (1.24), p=0.03 Indecisiveness Intervention: -0.31 (0.69) Control: +0.20 (1.07), p=0.002 Problematic behaviour distress total: Intervention: -2.81 (6.50) Control: +0.26 (6.51), p=0.03 – <u>No differences between groups (p-values were greater than 0.05)</u>	private costs.	Social care managers reported that the assessment was useful in social care planning decisions. The findings also indicate improvements in identifying medical conditions, for example cognitive impairments. The authors note that further research should focus on whether specialist assessment should be targeted to most appropriate groups where there is the greatest potential for health and social are gains, in both morbidity as well as unnecessary and inappropriate care home admissions.

		10. Social Behaviour Assessment Schedule (SBAS) subscales for: carer burden total carer burden distress frequency of social services support 11. General Health Questionnaire (GHQ-12) 12. Satisfaction scale (CSQ-8) **Costs: description and values** **<u>Resource use measured includes</u>**: NHS (acute and community) and Social services (community and institutional) <u>Results, mean contacts (standard deviation)</u>: - Statistically significant reduction in use of: <u>A&E visits per person (p=0.02)</u> Intervention: N=9, mean contact = 1 Control: N=8, mean contacts = 5 <u>Social services nursing home admissions (p=0.05)</u> Intervention: N=11, mean days = 58 Control: N=16, mean days = 96 - No statistical differences (p-value is > 0.05): <u>NHS services</u>: GP, home nursing, inpatient care, day hospital, hospital outpatient, community therapists, dentist/optician, psychiatrist home visit <u>Social services</u>: residential care admissions, respite care, day care centre, home care, shopping service, care manager, meals on wheels, community occupational therapist, sheltered housing warden **<u>Costs (per week alive)</u>** <u>Total Costs</u>: Intervention, £359, Control, £368, P-value, Not significant (NS)		

		NHS: Intervention, £73 Control, £83, P=0.03 Social services: Intervention, £175, Control, £190, P-value, NS Private costs: Intervention, £110, Control, £95, P-value, NS		

Social Care of older people with complex needs and multiple long term conditions

Research questions 2.1.1 and 2.1.2

Economic evidence table

What are the effects (benefits and harms) of different types of assessment and planning of personalised care on outcomes for older people with multiple long-term conditions and their carers?

What are the existing frameworks, models and components of care packages for managing multiple long-term conditions and what outcomes do they deliver?

Intervention model type:
GP-based collaboration with nurse and social workers

Sommers LS, Marton KI, Barbaccia JC, Randolph J. (2000). Physician, nurse, and social worker collaboration in primary care for chronically ill seniors. Arch Intern Med. 160: 1825-33.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: USA **Date:** 1992 – 1994 **Time horizon:** 18 months **Study type**: Cost-consequence analysis **Intervention:** "Close collaboration among a PCP, a registered nurse with geriatrics training, and a master's-prepared clinical social worker experienced in	**Population**: Older adults over age 65 living in the community with no restrictions in activities of daily living (with exception of bathing and dressing) and at least one restriction in at least one instrumental activity of daily living. Use of screening or targeting: Yes, living in the community but with difficulties in living independently and with at least 2 chronic conditions (stable or unstable). Use of social care services: Some individuals were receiving "support services"	**Outcomes: description and values** Functional status (Health Activities Questionnaire), Social activities count, total symptom count, Nutrition checklist, Depression score (Geriatric Depression Scale), Medication count, Self-rated health status (Medical Outcomes Study 36-Item Short Form Health Survey) Results Improvements favoring intervention group (baseline to follow-up): – Social activities count Intervention, +0.2, Control, -0.3, p-value = 0.04 – Symptom scale Intervention, -0.50, Control, +1.0, p-value = 0.08 – SF-36 self rated health (higher score indicates poorer health) Intervention, 0.0, Control, +0.10, p-value = 0.08	The authors do not report cost estimates transparently. However the main findings are that the intervention delivers improvements in some outcomes with reductions in the use of acute care services and use of GP services. Sensitivity analyses 1. The authors undertook sensitivity analysis and found a dose-response relationship between	**Applicability:** Applicable. **Quality**: Moderate. **Summary:** From an economics perspective, the study requires further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. Overall, however, the study can be used to

working with seniors and their emotional health concerns" Patients also received coaching from nurse and social worker on self-managing of chronic conditions. **Control:** Standard GP care	(for example home delivered meals). Mean of 2.5 support services. <u>Mean chronic conditions</u>: At least 2 or more **Study design:** controlled cohort study **Data sources:** CCT (N=543) **Sources of effectiveness data:** RCT, Patient-reported health status (mailed questionnaires) **Sources of resource use data:** Health Care Financing Administration's (HCFA's) National Claims History Database and equivalent administrative databases of Aetna and the QualMed Medicare HMOs (third-party payers) **Sources of unit cost data:** Unclear	<u>No differences</u> Health activities questionnaire, Nutrition checklist, Depression score, Medication count **Healthcare utilisation**: <u>Acute care</u> Hospital admissions and proportion of patients with 1+ hospital readmissions within 60 days and 1+ A&E visits <u>Community health care</u> Mean office visits to all GPs, specialists, and other non–primary care, non–medical specialty GPs (surgeons, orthopaedists, ophthalmologists, dermatologists, psychiatrists, and physiatrists) Proportion of patients with 1+ home care visits <u>Institutionalisation</u> Proportion of patients with 1+ nursing home placements <u>Results</u> <u>Acute care</u> Total lower use, favouring intervention: - Hospital admissions per patient per year (p=0.03) - Hospital readmissions within 60 days (p=0.03) No differences for: - A&E visits (p=0.77)	patient contacts with professionals and patient outcomes (hospitalisation, p=0.02, all physician visits, p=0.003, function, p=0.005, social activities count, p=0.02, symptoms, p=0.08). 2. Sensitivity analyses comparing levels of satisfaction with working relationships amongst GPs, nurses, and social workers found a statistically significant impact on patient's hospitalisations (better relationships and associated lower use of hospital services)	inform recommendations relating to the review question with some caution. There is some limitation with the age of the study & representativeness of service use. The authors note that differences between groups arose in the last six months, reflecting the time it takes to develop relationships amongst the team and between the team and the patients, and also to test communication modes suitable for the patients. They draw on evidence from interviews to support this hypothesis.

		<u>Community health care</u> Total lower use, favouring intervention: - other primary care services (p=0.003), - medical specialist visits (p=0.061) - mean total office visits (p=0.003) No differences for: - GP office visits (p=0.5) - Home care visits (p=0.81) <u>Institutionalisation</u> No differences for: - Skilled nursing facility admissions (p=0.59) **Costs: description and values** <u>Intervention costs</u> $118,950 “including salaries and benefits of nurses and social workers, plus overhead and training costs” <u>Total healthcare costs</u> Unit costs and acute and community health care costs are poorly reported. It appears that net cost savings are calculated on the basis of acute care costs only and authors say this underestimates net cost savings due to lower use of community healthcare services. Authors report an estimated savings of $90 per person but do not provide estimates of statistical significance.		

Battersby M., Harvey P., Mills D., KalucyE., Pols R.G., Frith P., McDonald P., Esterman A., Tsourtos G., Donato R., Pearce R., McGowan C. (2007). "SA HealthPlus: A Controlled Trial of a statewide application of a generic model of chronic illness care." The Milbank Quarterly, Vol. 85, No. 1, 2007 (pp. 37–67)

Battersby, M.W. 2005. Health Reform through Coordinated Care: SA HealthPlus. British Medical Journal 330(7492):662–65.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: Australia **Date:** 1998 **Follow-up period:** 19-27 months after enrolment **Study type**: Cost-consequence analysis **Intervention:** Service coordinators were added to GP practices, acting like case managers. These posts were usually filled by nurses but also included social workers & allied health professionals. Service coordinators went through training and accreditation (p.43) The initial assessment of needs used the "problems and goals" (P&G) tool as a first step in disease self-	**Population**: Older adults living in the community. <u>Screening</u>: Eligibility criteria included at least one hospital admission, 8+ GP visits, and 4+ A&E visits in 12 months prior to enrolment. Patients were recruited from GP lists. <u>Mean chronic conditions</u>: At least one chronic condition, varied by site **Study design:** Multi-site RCT & matched geographic control (Total of n=295 GPs and n=4,603 patients).	**Outcomes: description and values** - Self-assessed health status (measured by the Short-Form 36-item survey, (SF-36)) "was used as a generic measure of self-reported health and well-being" (p.45) - The Work and Social Adjustment Scale (WSAS) "was used as a measure of disabilities and handicaps. The scale asks the client's perception of the impact of his/her main problem in five areas of daily life: home management, work, social leisure, private leisure, and family and relationships" (p.45) **<u>Results</u>**: - High attrition rates (I=39%, C=43%) at 12 months (p.48) <u>SF-36 scores</u> - SF-36 could not be conducted using ITT (p.49). - Various improvements relative to control group across sites. - Two sites showed statistically significant improvements in mental health domains, four sites showed statistically significant improvements in physical and mental health domains	The authors report increases in net costs and some improvements in some of the scales of the patient health and wellbeing outcomes (SF-36 and WSAS). "Savings in admissions were not sufficient to pay for service coordination and additional community services. Coordination costs were high, with all patients receiving service coordination throughout the trial. However, service coordinator roles in trial development, data collection, and provider education were not separated from trial costs." (Battersby 2005, p.664) **<u>Net cost difference ($AUD)</u>** (Battersby 2005, p.664)	**Applicability:** Applicable. **Quality**: Moderate quality with some limitations. **Summary:** From an economics perspective, the study would require further analysis to support recommendations for the English context. However, in relation to overall conclusions, the study can be used to inform recommendations with caution. <u>The authors report several limitations of the study</u>: - ***The authors believe a longer time horizon*** is needed given the amount of changes introduced and suggest a follow-up period of five to ten years to assess the

management. The approach uses a patient-defined list, rather that a provider-list of goals. The hypothesis that is more motivational and could stimulate behavioural change. This tool has been used in the mental health field (p.41). The healthcare planning form was standardized across all providers to aid in communication. It is a 12-month overview of planned care, including the P&G. It was used alongside the GP's more detailed management plan (p.41). Healthcare planning was based on evidence-based guidelines, for both preventative (complications and hospital admissions) & curative services (p.41). Disease self-management was involved. The service coordinator monitored the healthcare plan and P&G and to access and coordinate community and education services. Review of progress was made to the	Central (intervention/control [I/C] n=271/138), Southern ([I/C] n=887/427) subtrials were randomized by patient, and Eyre ([I/C] n=1353/513) and western subtrials ([I/C] n=604/410) used geographic controls. **Data sources:** Trial data **Sources of effectiveness data:** Trial data. Mail-based survey for control group and administered by service coordinators in the intervention group **Sources of resource use data:** Health and social care providers' information databases (p.46) **Sources of unit cost data:** not clear, not explicated stated	compared to controls (Battersby 2005, p.663). Authors do not provide p-values. <u>Work & social adjustment scale (WSAS)</u> - Unclear method of estimating differences (ITT or other). - Significance at $p<0.05$ - Significant improvements across various domains across sites (p.51) **Costs: description and values** **Resource use** <u>Included:</u> "Medical visits/services, medications, hospital admissions (public and private), metropolitan domiciliary services (allied health daily living support home care), and metropolitan home nursing care" (p.46) <u>Incomplete data</u>: "Outpatient hospital data (outpatient, allied health, A&E) were usually not available owing to multiple incompatible information systems, complicated by the large number of hospitals involved" (p.46) <u>Not included:</u> "Data on private allied health and community services also were not available" (p.46) **<u>Results</u>** Mixed results across sites with respect to acute care service use. (Battersby 2005, p.664) - "The southern and central regions showed no significant change." - "In the Eyre Peninsula chronic and complex project, compared with the	***<u>Whole sample (all sites)</u>*:** <u>Utilisation (mean, % variation)</u> Hospital inpatient: $252,584 (2.7%) Medical benefits schedule: -$2,755 (-0.1%) Pharmaceutical benefits schedule: -$107,499 (-3.8%) Other community services: -$212,991 (% variation not provided) <u>Program costs,</u> including cost of recruitment, care planning, and coordination: $3,772,236 <u>Net cost difference (deficit)</u>: -$4,842,898 (-28.6%) ***<u>Subgroup (all sites)</u>*:** A sub-group analysis of patients with higher risk of hospital admission, (defined as being likely to have at least one admission in the next 12 months) <u>Utilisation</u> Hospital inpatient: $958,470 (12.2%) Medical benefits schedule: $60,229 (2.7%) Pharmaceutical benefits schedule: -$57,001 (-	effects of service substitution on costs (Battersby 2005, p.665) - ***Improvements in targeting*** patients with most ability to benefit (the study recruited patients with a lower risk of hospitalization to fulfil recruitment targets, this meant that only 58% of enrolled patients were at risk of at least 1 hospital admission (p.54). Authors note that those who benefitted most were "not linked with services, lacked knowledge of their condition, were depressed, lacked motivation to change behaviour, and had lifestyle risk factors or poorly controlled conditions" (Battersby 2005, p.664) and that "some patients had minimal benefit, needing coordination for a short time or being already well coordinated" (Battersby 2005, p.664)

GP every 3 months (minimally) and patient contact on average of once a month (p.43). There were case reviews for complex cases and continual learning as organized by the project leaders (p.43) **Control:** Usual GP care (p.52)		control group, fewer admissions in the intervention group were accounted for by an increase in emergency admissions." – "In the Western projects, an increase in admissions in the intervention group was due to an increase in elective admissions." – "Use of medical services or drugs did not differ significantly between intervention and control patients." – "Intervention patients used more domiciliary services."	3.4%) Other community services: -$117,186 (% variation not provided) <u>Program costs,</u> including cost of recruitment, care planning, and coordination: $2,567,274 <u>Net cost difference (deficit)</u>: -$1,722,764 (-13.9%)	

Intervention model type:
Outpatient-based multidisciplinary health & social care evaluation and management with some degree of collaboration with GPs *plus* case-management

Landi F, Gambassi G, Pola R, et al. (1999). Impact of integrated home care services on hospital use. J Am Geriatr Soc; 47:1430–1434.
Landi F., Lattanzio F., Gambassi G., Zuccala G., Sgadari A., Panfilo M., Ruffilli MP, Bernabei R. (1999b). "A model for integrated home care of frail older patients: the Silver Network project. SILVERNET-HC Study Group." *Aging* (Milano). Aug 11(44):262-72.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: Italy, Vittorio Veneto, Northern Italy, population of 50,000 **Date:** 1996 - 1998 **Follow-up period**: 6 months **Study type**: Cost minimization analysis **Intervention:** Community geriatric evaluation unit composed of health and social care	**Population**: Frail older adults living in the community. Individuals had some restrictions in activities of daily living. <u>Use of screening or targeting:</u> Individuals were referred from GPs (79%), families (19%), and hospitals (9%). No screening or targeting was used. <u>Mean medical conditions</u>: 3.7 **Study design:** Quasi experimental (N=115) (Pre/Post study design)	**Outcomes: description and values** Acute hospital service use (6 months pre and 6 months post intervention) • At least one hospitalisation: ○ (Pre) 56%; ○ (Post) 46% (p<0.001) • LOS, per user: ○ (Pre) 28.7±23 days ○ (Post) 18.3±15 days (p<0.01) • LOS, per admission: ○ (Pre) 16.1±12 days ○ (Post) 12 ±8 days (p<0.01) **Costs: description and values** (1) Direct program costs + (2) Acute care service use	The authors report findings using a cost minimisation analysis. From the perspective of the acute care sector, reduced hospital use offset intervention costs, resulting in net cost savings. Incremental analysis was not carried out.	**Applicability:** Applicable. **Quality**: Low quality, major limitations. **Summary:** The study should not be used to inform recommendations due to poor quality (study design and time horizon) and poor reporting (does not include costs of community health and social care services in the analysis nor information on patient-related health and social care outcomes). From an economics perspective, the study

professionals plus case management to guide the assessment, care planning, and service delivery for health and social care needs **Control:** Pre/Post study design; 6 months prior to implementation. It is not clear what percentage of patients were already receiving social care services and the intensity of services.	**Data sources:** From the study **Sources of effectiveness data:** Hospital records and from the study **Sources of resource use data:** Hospital records and from the study **Sources of unit cost data:** Hospital charges taken from the hospitals; home care expenditures from Health Services Department	Costs were not transparently reported <u>Direct program costs</u> • $670 per patient, 60% healthcare, 40% social care (poor reporting of the costs of the intervention). <u>Costs:</u> • 6 months pre-implementation mean costs = $4,365 per patient • 6 months post-implementation mean costs = $2,435 per patient • Overall poor reporting of the costs of acute care services (no unit costs reported) <u>Estimated cost savings</u>: $2,435 - $670 = $1,260 per patient, these estimates are provided by the authors but there are serious limitations in the calculation of the results (see results section)		requires further analysis to support recommendations for the English context.

Bernabei, R., Landi, F., Gambassi, G., Sgadari, J., Zuccala, G., Mor, V., et al. (1998). Randomised trial of impact of model of integrated care and case management for older people living in the community. BMJ, 316(7141), 1348-1351.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: Italy, Rovereto (northern Italy) population of 35,000 **Date:** 1995 **Follow-up period**: 12 months **Study type**: Cost-consequence analysis **Intervention:** Community geriatric evaluation unit composed of health and social care professionals plus case management to guide the assessment, care planning, and service delivery for health and social care needs **Control:** Standard services included hospital geriatric evaluation unit, skilled	**Population**: All older people in the town receiving community care services (these individuals were not screened or targeted). All individuals in receipt of home health or care services were eligible for the study. <u>Mean medical conditions</u>: 4.7-4.8 (intervention, control group) **Study design:** RCT (N=226). **Data sources:** RCT **Sources of effectiveness data:** Collected by the research assistant every 2 months. **Sources of resource use data:** Collected by the research assistant every 2	**Outcomes: description and values** Social care and health care services, Mortality, Functional status: Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADLs), Cognitive function (Short portable mental status questionnaire (SPMSQ), Depression (Geriatric depression scale, GDS) Mean results are adjusted for baseline measures (p.1350). Results reported as: Mean (standard deviation, SD) <u>Results for mortality:</u> No differences (hazard ratio 0.99, 95% confidence interval 0.89 to 1.09) <u>Results for ADLs</u>: Improvements favouring intervention group ($p<0.001$), Intervention= 2.0 (0.1); Control = 2.6 (0.1) <u>Results for IADLs</u>: Improvements favouring intervention group ($p<0.05$) Intervention = 4.1 (0.1), Control = 4.4 (0.1) <u>Results for Cognitive Impairment (measured by the SPMSQ)</u>: Improvements favouring intervention group ($p<0.05$)	Results were reported in terms of a cost-consequence analysis. There were no adverse affects. There were improvements in most outcomes and no differences in two outcomes (admission to nursing home and mortality). Impacts on net costs are less clear due to poor reporting. **Costs of the intervention:** Reported to be £1,125 per person although there is poor reporting of the types of costs included in the calculation. **Total costs (changes in resource use)** <u>Nursing home costs</u>: Intervention: £644 Control: £1,244 Statistical significance figures not provided	**Applicability:** Applicable. **Quality**: Some limitations due to poor reporting of community and social care resource use. **Summary:** From an economics perspective, the study requires further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. Overall, however, the study can be used to inform recommendations relating to the review question with some caution. There is some limitation with the age of the study & representativeness of service use. The authors report that both groups had similar use of home support services but the intervention group had statistically better outcomes

nursing facility, and home health agency. Social services was not coordinated or integrated with other services in the municipality (p.1348). Standard services also included primary and community health and social care but these services were fragmented (p.1348).	months. **Sources of unit cost data:** National official statistics	Intervention = 2.8 (0.2), Control = 3.4 (0.2) <u>Results for Depression (measured by the GDS)</u>: Improvements favouring intervention group ($p<0.05$) Intervention = 10.9 (0.5), Control = 12.8 (0.5) <u>Results for nursing home admission</u>: No differences ($p=0.3$) Intervention = 10/99 admissions, Control = 15/100 admissions Hazard ratio = 0.81 (95% CI, 0.57 - 1.16) <u>Cumulative days in nursing home</u>: Intervention = 1,087 days Control = 2,121 days (Statistical significance not provided) <u>Results for acute hospital admission</u>: Favouring intervention group ($p<0.05$) Intervention = 36/99 admissions Control = 51/100 admissions Hazard ratio = 0.74 (95% CI, 0.56 – 0.97) <u>Cumulative days in hospital</u>: Intervention = 894 days Control = 1,376 days (Statistical significance not provided) <u>Results for A&E visits</u>: Favouring intervention group ($p<0.025$) Intervention = 6/99 admissions Control = 17/100 admissions Hazard ratio = 0.64 (95% CI, 0.48 to 0.85) <u>Results for composite score of nursing</u>	<u>Social care costs</u>: Not clearly reported although these services may have been included under community healthcare expenditures based on the way community health and social care resource use was presented. <u>Community healthcare service costs:</u> Intervention: £1,763 Control: £2,688 Statistical significance figures not provided <u>Acute care service costs</u>: Intervention: £744 Control: £919 Statistical significance figures not provided	(less physical & cognitive decline & better mental health). The authors believe that the intensive training of case managers along with the close collaboration (as opposed to fragmentation and lack of coordination in the control group) between the geriatric evaluation unit, GPs, and case managers, contributed to the intervention's effectiveness.

		home or hospital: Favouring intervention group (p<0.01) Intervention = 38/99 admissions Control = 58/100 admissions Hazard ratio = 0.69 (95% CI, 0.53 to 0.91) **Costs: description and values** Social care resources measured include: - Community: home support hours, nursing care hours, and meals on wheels - Institutional: nursing home (see above) Health care resources measured include: - Community health care expenditures were calculated in estimating total costs but use of resources were not presented in natural units (p.1350) - Acute care resources included A&E visits, acute admissions (see above for results) Results for social care services: No differences (although figures of statistical significance were not provided) Home support Intervention = 120 (20) Control = 154 (29) hours/patient/year Nursing care Intervention = 13 (3) Control = 12 (3) hours/patient/year Meals on wheels Intervention = 54 (12) Control = 39 (10) meals/patient/year Results for community health care services: (Only GP home visits were reported in		

		natural units) <u>GP home visits</u>: Intervention = 10.2 (1.1) Control = 13.1 (0.8) GP home visits per person per year (p=0.04)		

Boult C, Boult LB, Morishita L, Dowd B, Kane RL, Urdangarin CF. (2001). A randomized clinical trial of outpatient geriatric evaluation and management. J Am Geriatr Soc. 49:351-9

Boult C, Boult L, Morishita L et al (1998). Outpatient geriatric evaluation and management (GEM). J Am Geriatr Soc; 46:296–302.

Morishita L., Boult C., Boult L., Smith S., Pacala JT. (1998). "Satisfaction with outpatient geriatric evaluation and management (GEM)." *The Gerontologist*. 38:3: 303-308.

Weuve JL., Boult C., Morishita L. (2000). "The Effects of Outpatient Geriatric Evaluation and Management on Caregiver Burden." *The Gerontologist*. 40(4): 429–436.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: USA, Ramsey County, Minnesota **Date:** 1999 **Follow-up period**: 18 months in total (6 months average intervention duration, *plus* 12 months post-intervention follow-up). **Study type**: Cost-consequence analysis **Intervention:** A targeted and short-term intervention (average duration 6 months) per patient (Boult et al 1998). It is an outpatient "Comprehensive geriatric assessment (CGA) performed by an interdisciplinary team of healthcare professionals who	**Population**: Community dwelling older adults aged 70 years and older with very minor limitations in basic and instrumental activities of daily living (ADL & IADL) (0.5 restrictions out of 6 ADLs, 1.4 restrictions out of 7 IADLs) (Boult et al 1998). 24% and 30% in intervention and control groups had caregivers, respectively (Weuve et al 2000, p.430). 82% and 95% of caregivers participated, and provided a baseline of 5 days of care per week of around 17 hours per week (p.432) Screening: Mailed surveys, screening Medicare beneficiaries at	**Outcomes: description and values** ***Patient*** Functional ability −45-item Sick-ness Impact Profile: Physical Functioning Dimension25 (SIP:PFD) −Bed disability days (BDDs) −Restricted activity days (RADs) Depressive symptoms −30-item Geriatric Depression Scale Mortality Patient Satisfaction Questionnaire ("18-item instrument with 7 subscales (measuring general satisfaction, technical quality, interpersonal manner, time with physician, communication, accessibility, and financial aspects of care)" (Morishita et al 1998) Acceptability (intervention only, Likert responses) (Morishita et al 1998) ***GP*** GP's satisfaction (intervention only, Likert responses) (Morishita et al 1998), 4-item	The intervention is associated with improvements with no statistically significant differences in costs and evidence of reduced caregiver burden for participating caregivers. **Program costs**: USD $1350 per patient treated (Boult et al 2001) **Health care costs**: (18 months following randomization) Mean (standard deviation) I = $11,354 ($18,753)	**Applicability:** Applicable. **Quality**: Moderate quality. **Summary:** From an economics perspective, the study requires further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. Overall, however, the study can be used to inform recommendations relating to the review question with some caution. There is some limitation with the age of the study &

assess an older person's medical, functional, psycho-social, nutritional, and environmental needs; the team then creates a comprehensive plan of care that it communicates to the person's GP" (p.351). The interdisciplinary team is composed of a geriatrician, gerontological nurse practitioner, nurse and social worker with a caseload of 45 to 52 patients. The team provided primary care and case management to patients (Boult et al 1998). Social worker initiated assessment at home followed by two clinic visits for evaluation by the nurse practitioner and in the second visit, by the entire team to develop a healthcare plan, which may include educational information, referrals to other agencies, assistance with advance directives (Morishita et al 1998, p.304). Patients were in touch with the interdisciplinary team weekly by telephone (Boult et al 1998).	risk for use of medications & institutional services (hospital, A&E, nursing homes) with a probability of repeated hospital admission >40% <u>Mean chronic conditions</u>: At least one (when looking at baseline characteristics). Authors report mean (SD) number of medications at I=4.4 (0.9), C=4.8 (0.9). **Study design:** RCT, I=274, C-294 **Data sources:** Trial data **Sources of effectiveness data:** Trial data using interview at 6, 12, and 18 months (p.355) **Sources of resource use data: "**Health Care Financing Administration records (Standard Analytical Files) of its payments for participants' Medicare-covered health care during the 12 months before and the 18 months after randomization" (p.353)	questionnaire asking for "agreement or disagreement with four statements: that the intervention had been appropriate, helpful to the patient, and helpful in the physician's continuing care of the patient, and that he or she would refer other frail elderly patients to the intervention program" (Morishita et al 1998, p.305) ***Patient's caregivers*** <u>Total burden score</u> (TBS, range = 22-110), composite of objective & subjective burden. Measured using a "previously developed inventory (Montgomery et al., 1985) that consists of 22 equally weighted statements about perception of burden" (Weuve et al 2000, p.431) <u>Impact of the intervention in</u>: "Changes in the amount of time caregivers devoted to specific tasks, changes in the recipient's depressive symptoms, change in the recipient's function, and the addition of paid caregiving assistance during the follow-up year" (Weuve et al 2000, p.433) **<u>Results</u>** (Intention-to-treat analysis) <u>Functional ability, depressive symptoms, health-related restrictions in daily activities</u> "Intervention participants were significantly less likely than the controls to lose functional ability (adjusted odds ratio (aOR) = 0.67, 95% confidence interval (CI) = 0.47– 0.99), to experience increased health-related restrictions in their daily	C = $11,786 ($19,218)	representativeness of service use.

Patients were discharged from the program once problems were resolved or if the team was not needed in continuing the care plan (Morishita et al 1998, p.304). Informal caregivers in the intervention did not receive a standard intervention, but "they were referred to other providers and resources like adult day care centers, community services, and support groups (e.g., Services for the Blind and the Alzhei mer's Association), as needed" (Weuve et al 2000, p.431) **Control:** Usual GP care	**Sources of unit cost data:** Medicare charges	activities (aOR = 0.60, 95% CI = 0.37–0.96), to have possible depression (aOR = 0.44, 95% CI = 0.20–0.94) in the 12 to 18 months after randomization" (p.351). <u>Mortality</u> No significant difference between the groups' rates of mortality (P=0.88) <u>Patient Satisfaction Questionnaire</u> High response rate (I=91.7%, C=96.6%) Mean satisfaction score higher for intervention group by 8% (4.31 vs. 3.96, p<0.001) (p.305) and this remained significant after adjustment for baseline differences (p.306). <u>Acceptability</u> Participants were asked to agree with affirmative responses to following statements: "GEM had helped the participant by giving the person a better understanding of health (93%), improving how the participant felt (91%), decreasing the participant's worries (82%), reducing discomfort (79%), helping the participant to do more *{77%),* making medications easier to take (74%), helping the participant to exercise more (70%), providing new information about food (64%), and helping the participant to have more energy (64%)." (p.306) ***<u>GP's satisfaction</u>*** 67.2% response rate. "On average, the physicians agreed that the GEM care of their patients had been		

		appropriate (mean ± *SD* = 4.04 ± 0.*77),* helpful to their patients (3.73 ± 0.96), and helpful to them (the physicians) in the continuing care of their patients (3.36 ± 1.06). They also agreed (3.54 ± 1.15) that, "If this program were available without cost, I would refer frail elderly patients to it in the future." (Morishita et al 1999, p.306) ***<u>Caregiver burden</u>*** 82% and 95% of participating caregivers completed 12 month interview (I, n=36/44, C, n=52/55) (Weuve et al 2000, p.430) <u>Total burden, 12 month follow-up</u> *Subjective burden lower in intervention* (I = -0.22, C=1.29, p=0.068) *Objective burden not different* *Total burden decreased in the intervention* (I = -1.75, C=0.56, p=0.086) (Weuve et al 2000, p.433) **Costs: description and values** <u>Medicare payments</u> - Total 18-month Medicare expenditures, no significant difference (p=0.93) (p.356) including resource categories (inpatient hospital care, GP care, outpatient facilities, nursing home care, home health care, durable medical equipment, hospice care) (Table 4) - Subgroup analysis: “Statistically significant increase in payments only for intervention participants in the lowest quartile of total expenditures”		

		(p.356) Self-reported use of home health care, intervention “were less likely to use any home care during the 18-month follow-up period, with the difference reaching statistical significance 12 months after randomization” (aOR = 0.60, 95% CI = 0.37–0.98) (p.356) Self-reported use of nursing homes = no differences between groups (p.356)		

Counsell SR, Callahan CM, Clark DO, TU W, Buttar AB, Stump TE, et al. (2007). Geriatric care management for low-income seniors. JAMA. 298(22): 2623–33.

Counsell SR, Callahan CM, Tu W, Stump TE, Arling W. (2009). Cost analysis of the geriatric resources for assessment and care of elders care management intervention. J Am Geriatr Soc. 57(8): 1420–26.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: USA **Date:** January 2002 - August 2004 **Study type**: Cost-consequence analysis **Follow-up period**: 36 months in total: 2 years with the intervention *plus* 3rd post-intervention year **Intervention** "2 years of home-based care management by a nurse practitioner and social worker who collaborated with the primary care physician and a geriatrics interdisciplinary team and were	**Population**: Community dwelling older adults over age 65 years old. 50% black and all were economically disadvantaged. Unclear social care needs or use of social care services, however, it is reported that 25% of the total sample had some support at home. **Study design:** – Total sample size (I=474, C=477) – Mean chronic conditions, C=2.3, I=2.4 – ADL & IADL (needs help with 1+) I = (17%, 35%) C = (13%, 38%) – Subgroup, high acute care service use (I=112, C=114)	**Outcomes: description and values** Patient health-related quality of life (8 SF-36 scales (physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health, which were aggregated into a Physical Component Summary (PCS) and a Mental Component Summary (MCS)) Functional status (basic and instrumental activities of daily living using the Assets and Health Dynamics of the Oldest-Old (AHEAD) survey). Mortality Satisfaction with care **Results** **For the full sample** Patient health-related quality of life Mental Component Summary (I=+2.1, C=-0.3, P<0.001). Physical Component Summary (I=-1.1, C=-1.6, p=0.38) Functional status, Satisfaction with care, Mortality *No differences* **For the subgroup with relatively high risk of acute care service use** Patient health-related quality of life (Obtained via email communication)	For the whole sample, the intervention was associated with improvements in some domains of the health-related quality of life with no differences in function, mortality, or satisfaction. For the full sample, the mean two-year net costs for intervention not significantly different from the control group ($14,348 vs. $11,834; P=0.20) and were not different in the third, post-intervention year. For the subgroup with relatively high risk of acute care service use, the increased use of community health care services were offset by reductions in acute care costs (I=$17,713 vs.	**Applicability:** Applicable **Quality**: Moderate **Summary:** From an economics perspective, the study requires further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. Overall, however, the study can be used to inform recommendations relating to the review question with some caution. The authors hypothesize that the lack of statistically

guided by 12 care protocols for common geriatric conditions" (p.2623) **Control:** Usual GP care	- Mean chronic conditions, C=3.7, I=3.5 - ADL & IADL (needs help with 1+) I = (31%, 49%) C = (23%, 46%) - <u>Subgroup, low acute care service use</u>, (I=362, C=363) - Mean chronic conditions, C=2.3, I=2.4 - IADL and ADL (needs help with 1+) I = (13%, 32%) C = (10.5%, 35.5%) **Data sources:** Trial data **Sources of effectiveness data:** Trial data, conducted by telephone interviewers who were blinded to the patient's randomization status and were not part of the recruitment or intervention process at 6, 12, 18, and 24 months.	Significant improvements in Mental Component Summary (I=+2.9, C=-1.5, p=0.01) No differences in Physical Component Summary (I=-1.0, C=-0.60 P=0.72) **<u>For the subgroup with relatively low risk of acute care service use</u>** *Not reported in the study* **Costs: description and values** **Program costs per person per year**: $1,260 per year (for the entire sample) $1,432 per year (subgroup w. relatively high relative acute care service use) $1,207 per year (subgroup w. relatively low acute care service use) **Resource use** *<u>Health care utilisation</u>*: <u>Includes</u> Acute and outpatient, including rehabilitation and mental healthcare and diagnostics. <u>Excludes</u> Externally provided outpatient services but authors state this is likely to have a small impact because the intervention encouraged use of internal outpatient services (implying potential for higher recording of intervention costs while potentially downplaying control group costs). **<u>Net costs (includes cost of program)</u>** **<u>Total sample (N=951)</u>** **Year 1**, I= $7,917 ($10,457), C= $6,163 ($10,044), p=0.004 **Year 2,** I= $6,685 ($9,397), C=$5,881 ($10,900), p=0.01 (I, n=474, C, n=477) **Year 3**, I=$5,045 ($9,684), C=$4,732 ($10,012),	$18,776), p=0.38) and net costs were statistically significantly lower in the third, post-intervention year. <u>For the subgroup with relatively low risk of acute care service use</u>, mean 2-year total costs higher in the intervention group relative to the control group ($13,307 vs. $9,654; P=0.01) as a result of higher use of community health care services (p<0.001) that were not offset by acute care reductions (acute care service use was similar for both intervention and control groups (p=0.66). In the third, post-intervention year, total net costs were still higher for the intervention group (p=0.05). **Sensitivity analyses** Authors report mainly the use of multiple outcome measures may result in false positives and use Bonferroni correction and find that p-values still remained significant at the p<0.05 level (2009,	significant improvements in functioning may be because they did not target individuals with functional impairment for enrolment and that most individuals at baseline and at follow-up were independent in basic and instrumental activities of daily living.

	Sources of resource use data: Regional health information exchange for acute care services (2007, p.2626) and Medical Record System for community health care services (2009, p.3) **Sources of unit cost data:** Charges	p=0.97 (I, n=436, C, n=440) **<u>Subgroup, relatively high acute care service use</u>** **<u>Total sample (N=226)</u>** **Year 1**, I= $10,719 ($13,493), C= $10,455 ($14,104), p=0.49 **Year 2,** I= $7,460 ($9,381), C=$9,034 ($14,074), p=0.82 (I, n=112, C, n=114) **Year 3**, I=$5,088 ($7,481), C=$6,575 ($9,030) (I, n=100, C, n=96), p<0.001 **<u>Subgroup, relatively low acute care service use</u>** **<u>Total sample (N=725)</u>** **Year 1**, I= $7,050 ($9,171), C= $4,814 ($7,933), p<0.001 **Year 2,** I= $6,453 ($9,402), C=$4,949 ($9,593), p<0.001 (I, n=362, C, n=363) **Year 3**, I=$5,032 ($10,258), C=$4,217 ($10,222), p=0.05 (I, n=336, C, n=344) **<u>Results (where resource use are presented in natural units)</u>** **<u>Total sample (N=951)</u>** **<u>(Counsell et al 2007, p. 2628-2629)</u>** (A&E visits & hospitalization per 1,000) **Year 1** Hospitalization, I = 384, n = 474; C = 358, n =477, p=0.66 Hospital days I= 2076, n=474, C=1983, n =477, p=0.85	p.6) but as reported in the 2007 paper the authors conduct the same Bonferroni corrections and find changes to some of the results, in particular, A&E visits were not significant (for the whole sample, p = 0.42) but that SF-36 scales of vitality (P = 0.006), mental health (P = 0.03), and the Mental Component Summary (P = 0.008) remained significant (for the whole sample) (2007, p.2623). Therefore there are some issues related to reporting in the 2007 and 2009 papers.	

		A&E I= 823, n=474, C=937, n =477, p=0.22 **Year 2** Hospitalization I = 325, n = 459; C = 396, n =460, p=0.22 Hospital days I= 1739, n=45, C=2163, n =460, p=0.37 A&E I= 643, n=459, C=841, n =460, p=0.01 **Year 3** *Not presented in natural units* **<u>Subgroup of relatively high acute care service use (N=226) (Counsell et al 2007, p. 2629, Counsell et al 2009, p.6)</u>** (A&E visits & hospitalization per 1,000) **Year 1:** A&E, I=1,098, C=1,149; P =0.79 Hospitalization, I=705 vs C=798; P=0.60 **Year 2:** A&E, I=848, C=1,314; P =0.03 Hospitalization, I=396, C=705; P =0.03 **Year 3:** A&E, I=1,010, C=1,281; P =0.24 Hospitalization, I=370, C=615; P =0.049 ***<u>Subgroup of relatively low acute care service use (N=752)</u>*** **Year 1,2,3:** A&E, *not provided separately* Hospitalization, *not provided separately*		

Toseland RW, O'Donnell JC, Engelhardt JB et al (1996). Outpatient geriatric evaluation and management: Results of randomized trial. Med Care; 34:624–640.

Engelhardt JB, Toseland RW, O'Donnell JC, et al. (1996). The effectiveness and efficiency of outpatient geriatric evaluation and management. J Am Geriatr Soc; 44:847– 856.

Toseland RW, O'Donnell JC, Englehardt JB et al. (1997). Outpatient Geriatric Evaluation and Management: Is There an Investment Effect? Gerontologist. 37:324-332.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: USA **Date:** 1993 **Follow-up period** 24 months **Study type**: Cost-consequence analysis **Intervention:** Outpatient geriatric evaluation and management by the geriatric team composed of a geriatrician, nurse practitioner, and social worker. Most direct medical care provided by nurse and social workers' main responsibilities were case	**Population**: Community dwelling older male veterans over the age of 55 with at least two restrictions in basic (ADL) or instrumental activities of daily living (IADL) The mean restrictions in ADL and IADLs were 2 and 4, respectively (1997, p.325). Mean number of diagnoses per person was 2.5 but it is not clear how "diagnoses" are defined. There is a list of chronic conditions but the mean number per person is not explicitly reported (1996, p.629). **Study design:** RCT (N=160) **Data sources:** Trial data **Sources of effectiveness data:** Trial data, personal	**Outcomes: description and values** **(Measured over the 24 month period)** Health status (measured by the Medical Outcomes Study Short-Form Health Survey (SF-20). (The measure assesses six dimensions of health: health perceptions, pain, physical functioning, role functioning, social functioning, and mental health) (1997, p.328) Survival (1997, p.328) Functional status (measured by the 18-item Functional Independence Measure (FIM)) (1997, p.328) **(Measured over the 16 month period)** Psychosocial wellbeing (as measured by the geriatric depression scale, the Brief Symptom Inventory Somatization and Anxiety subscales; social support, Lubben Social network scale, LSNS; Satisfaction with support scale, developed for the study but adapted from the Health and Daily living form to assess for perceived support in the community like family, friends, religious community, clubs, etc)	Results are presented as cost-consequence analysis **Effectiveness** The intervention resulted in no differences for health and functional status. Survival also not different between groups however a small subgroup of individuals reporting no pain found significant reductions in mortality favouring the intervention group. **Net costs** There were no significant differences in net costs between intervention and control groups at the end of the 24-month period. The intervention accrued	**Applicability:** Applicable **Quality**: Moderate **Summary:** From an economics perspective, the study requires further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. Overall, however, the study can be used to inform recommendations relating to the review question with some caution. There is some limitation with the age of the study & representativeness of service use.

management and helping patients and caregivers with psychosocial problems. The intervention provides a comprehensive assessment and development of a care plan and referrals and coordination with other health and social care services. **Control:** Usual primary care	interview, medical chart reviews (1996, p.628). Interviews conducted following randomization and at 8,16, and 24 months (1997, p.328) Mortality was measured in three 8-month increments (1997, p.328). **Sources of resource use data:** Trial data, personal interview, from computerized medical records, and by medical chart reviews (1996, p.628). Utilization and cost data were collected in three 8-month increments (1997, p.328). **Sources of unit cost data:** Unit costs from Veteran's provided services are based on national costs which use full cost approach however for Veteran contracted services, resource use is based on charges (1997, p.328)	<u>Quality of health and social care</u> (Measured by the Support Services Questionnaire, SSQ; the Financial Benefits Questionnaire, FBQ; the Pressing Problem Index, PPI; and the Patient Satisfaction Questionnaire, PSQ; Continuity of care, continuity of care index, COC). **<u>Results</u>** <u>Health status, SF-20:</u> *no statistically significant differences* (p-values for all subscales > 0.05) <u>Functional status (FIM)</u>: *no statistically significant differences* (p-values for all subscales > 0.05) <u>Mortality:</u> - *At 8 months,* short term survival advantage for intervention group (p=0.02) but not at 16 months or 24 months (p-values for all subscales > 0.05) (Engelhardt et al 1996, p.851) - *At 24 months,* subgroup analysis indicates survival advantage for patients who reported no pain on the SF-20 pain subscale (I, n=15, C, n=17), (X^2= 3.81, p=0.051) (1997, p.329) <u>Psychosocial wellbeing</u> *No significant differences between groups for any of the variables (over 16 month period)* <u>Quality of health and social care</u> *Some statistically significant improvements across variety of <u>sub-scales</u> across various measurement tools throughout the 16 month period (SSQ FBQ, PPI, PSQ, COC)*	more costs for outpatient and inpatient services than the control group in the first 16 months which meant that the intervention's cost savings accrued due to lower use of acute care services between the 16 and 24 months of the study ended up netting out to a cost-neutral effect for the entire 24 month period. Intervention net costs were $2,067,520 and the control group patients' net costs were $1,999,600.	The authors hypothesize that a longer follow-up would be beneficial in clarifying the long-term effects of the intervention (p.638) because they believe that cost savings could have been accrued. They point out that the intervention's higher use of inpatient and outpatient services in the initial 8-month period is reflective of increased case finding and use of preventative services. They hypothesize that the higher initial use of resources are investment effects and believe that over time the use of services would continue to be lower compared to standard GP care.

		(Toseland et al 1996, Engelhardt et al 1996) **Costs: description and values** **Resource Use:** All major health and social care service use are included (that are provided or contracted by Veterans Association) (1) Total outpatient services include community health and social care services (clinic visits, diagnostic services, substance abuse clinics, dental, ancillary, psychiatry, rehabilitation, medications, home care equipment, prosthetics, ambulatory surgery, home care, and adult day health care). (2) Total inpatient cost includes (hospital overhead, attending medical staff, inpatient diagnostics, medications, surgical procedures, and inpatient rehabilitation). (3) Total nursing home cost includes (stays in both veterans provided nursing homes and externally (non-veterans) contracted nursing homes (1997, p.328) **Results, resource use** Hospital days Intervention group increased by an average of 0.37 days over the 24-month period while the control group increased by 11.85 days. Over the 16 to 24 month period inpatient days increased for the control group and declined for the intervention group ($p<0.05$). (1997, Table 2, p.327, 329) Hospital admissions Hospital admissions rose slightly for patients in both groups over the 8 to 24 months but		

		were not statistically different between groups (1997, Table 2, p.327, 329) <u>A&E</u> Intervention group used less A&E services than control group although both groups demonstrated decline in A&E use throughout the study ($p<0.05$). (1997, Table 2, p.327, 329) <u>Outpatient healthcare services</u> Intervention group had more total outpatient clinic services than the control group, but over time, use of services declined for both groups over the study period (GP visits, $p<0.05$, medicine clinic visits, $p<0.001$, surgery clinics, $p<0.05$). (1997, Table 2, p.327, 329). (All other categories were not presented separately).		

Beland F, Bergman H, Lebel P, Dallaire L, Fletcher J, Contandriopoulos AP, Tousignant P. (2006). Integrated services for frail elders (SIPA): A trial of a model for Canada. Canadian Journal on Aging, 25(1):5-42.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: Canada **Date:** June 1, 1999 – March 31, 2001 **Follow up period** 22 months **Study type**: Cost-minimization analysis **Intervention:** Integrated health & social care assessment and care planning and service delivery (on a geographic basis). Involves multidisciplinary care, capitated budgets, and regional monitoring with collaboration across disciplines (health and social, acute and long-term, and community and institutional, including acute care hospitals and nursing homes). Individuals received case	**Population**: Community dwelling frail older adults aged over 65 years old with health and social care needs and in receipt of social care services Screening: It is aimed at individuals with 1+ problems in: physical mobility, incontinence, communication, mental function, instrumental and basic activities of daily living (IADL, ADLs) Multiple long-term conditions: Average of 5 chronic conditions **Study design:** RCT (N=1,270) **Data sources:** trial data **Sources of effectiveness data:** Effects measured as resource use only	**Outcomes: description and values** Effects measured as resource use only. Institutional health and social care services included hospital emergency room visits, short- and long-term hospital stays, rehabilitation hospital stays, institutionalization, and palliative care. Community health and social care services included prescription medication purchased at pharmacies, visits to general practitioners and specialists, home care services, housing in sheltered housing, technical aids provided in the home, day hospitalizations, and day centres. **Costs: description and values** **Community health & social care services** Access, no differences: specialists & medication Access, favouring intervention: Intervention had higher access rates to home care services (social care & nursing) and GP services (p=0.05) Intensity, no differences: specialists Intensity, favouring intervention: Intervention had higher hours for home health care, home social care, and visits to GP" (p=0.05) **Institutional health and social care services**: Access, No differences: Acute care and emergency room were not different. Access, favouring intervention: Intervention	**Cost minimization analysis** The net costs for each intervention & control groups were not different. There is evidence that the intervention substituted use of institutional services through increased community services but this did not result in cost savings. There are differential impacts on subgroups. **Total Health & Social Service Cost per person:** Intervention: $36,420 Control: $36,615 ***Community services***: Intervention: $12,695 Control: $9,301 ($3,394 higher) ***Institutional Services***: Intervention: $23,544 Control: $27,314	**Applicability:** Applicable **Quality**: Moderate **Summary:** From an economics perspective, the study requires further analysis to support recommendations for the English context. This is due to differences in institutional context and different unit costs. Overall, however, the study can be used to inform recommendations relating to the review question with some caution.

management and care was governed by the use of clinical guidelines and there were also organizational guidelines for specific processes and to ensure coordination (p.27) **Control:** Usual health and social care although they had less intense provision of home services (both health and social care)	**Sources of resource use data:** administrative records from the local government's information systems for both health and social care services and other data from patient's records (p.28) **Sources of unit cost data:** fee schedules in combination with additional calculations by the researchers to include direct, overheads, and indirect costs (p.29)	patients had lower long-term hospital stays (p=0.05) (5% intervention; 10% control group). **Subgroup analysis**: Patients with 5+ chronic conditions had $2,500 greater home care service costs (vs control). Those with 4 or less had $500 higher costs (vs. control). Those with 5+ chronic conditions, nursing home costs were $500 less; for those with 4 or less, nursing home costs were $9,600 lower. For those living alone, reduction in institutionalization costs of $14,500. For those with restrictions in ADLs, reduction in short term hospitalization costs by $4,000 to $5,800 (compared to controls).		

Glendinning C, Challis D, Fernández J et al. (2008) Evaluation of the Individual Budgets Pilot Programme: Final Report. York: Social Policy Research Unit, University of York

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values.** **Outcomes: description and values.**	**Results: Cost-effectiveness.**	**Summary.**
Country: United Kingdom. **Study type:** Cost-effectiveness analysis. **Intervention:** Choice of individual budgets (IB). **Control:** Standard care (including direct payments).	**Population:** People eligible for adult social care; four groups: people with mental health problems, with physical disability, with learning disability, older people. Mean age of older people: 81 years; 66% female; 5% black and ethnic minority groups. **Study design:** Multi-method including multi-site RCT design (N=1,336; older people N=263). **Source of effectiveness data:** RCT at 6 months. **Source of resource use data:** RCT (N=139); data from local authorities at baseline, self-reported data at 6 months. **Source of unit cost data:** Local authority and national unit costs.	**Outcomes: description and values** N=263 older people completed interviews at 6 months The following outcome tools were applied: • 12-item version of the General Health Questionnaire (GHQ; Goldberg 1992) to capture the psychological wellbeing of service users. • A single quality-of-life question using a seven-point scale (Bowling, 1995). • Adult Social Care Outcomes Tool (ASCOT; PSSRU) to measure social care related quality-of-life. • Questions on satisfaction. <u>GHQ</u> (higher scores indicate worse health): GHQ-12 mean score: IG (n=129) 14.63; p< 0.05, CG (n=107) 13.24% scoring above 4+ on GHQ-12: IG 45% (sd=58) and CG 29% (sd=31); statistically significant but p-value was not reported. <u>ASCOT</u> (higher scores indicate higher level of needs): IG 3.53 (n=126), CG 3.57 (n=97), not significant, p–value was not reported. <u>Self-perceived health</u> (higher scores indicate worse self-perceived health): IG 3.20 (n=141), CG 3.01 (n=120), not significant, p–value was not reported. <u>Satisfaction</u> All groups: 47 (49) per cent were extremely or very satisfied with the support planning process (financial	Across all groups (including older people): IB marginally less cost-effective than control; cost per incremental change in ASCOT (-£61), cost per incremental change in GHQ (-£12). No dominance of IB for ASCOT, QoL, or self-perceived health. **Uncertainty measurement:** Confidence intervals and bootstrapping.	**Applicability:** Broadly applicable with some limitations. **Quality:** Overall relatively high, with some limitations in relation to the time horizon of the study not being long enough for the intervention to be implemented for the intervention group. **Summary:** This study did not confirm that IB was more cost-effective than other forms of care. Findings need to be considered with caution.

Country, study type and intervention details.	Study population, design and data sources.	Costs: description and values. Outcomes: description and values.	Results: Cost-effectiveness.	Summary.
		arrangements and help they received). Older people were more likely than other groups to express higher satisfaction (significance not reported) but significantly less likely to report that the process had changed their view on what they could achieve in their lives. **Costs: description and values** Weekly mean cost for care management across all groups was £18 for IG and £11 in the comparison group (CG). Weekly mean *social care* cost for older people: IG (n=73) £228, CG £227 (n=66). • Home care (IG £57, CG £90). • Personal assistance (IG £66, CG £31). • Integrated community equipment (IG £29, CG £26). • Social worker/care manager (IG £16, CG £10). • Meals service (IG £2, CG £2). • Supporting people (IG £1, CG £1). Weekly mean *health care* cost for older people in IG+CG (n=139): £107 (only reported for IG and CG together); this included: • Inpatient hospital £51. • Day hospital £14. • Nurse £36. • Therapist £2. • GP £5. Weekly mean health costs *all groups* IG £83 CG £59; p<0.05. Yearly mean IB for older people (n=81) £7,860 (n=81); SD £6,030; minimum (maximum) costs £224 (£27,410).		

Country, study type and intervention details.	Study population, design and data sources.	Costs: description and values. Outcomes: description and values.	Results: Cost-effectiveness.	Summary.
		• 53% (n=44) for mainstream services: mean £5,970, SD £5,350. • 41% (n=33) for personal assistance: mean £7,590, SD £6,680. • 15% (n=12) for leisure activities: mean £1,800, SD £2,770.		

Intervention model type:
Consumer-directed social care assessment and care planning

Glendinning C, Challis D, Fernández J et al. (2008) Evaluation of the Individual Budgets Pilot Programme: Final Report. York: Social Policy Research Unit, University of York

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values.** **Outcomes: description and values.**	**Results: Cost-effectiveness.**	**Summary.**
Country: United Kingdom. **Study type:** Cost-effectiveness analysis. **Intervention:** Choice of individual budgets (IB). **Control:** Standard care (including direct payments).	**Population:** People eligible for adult social care; four groups: people with mental health problems, with physical disability, with learning disability, older people. Mean age of older people: 81 years; 66% female; 5% black and ethnic minority groups. **Study design:** Multi-method including multi-site RCT design (N=1,336; older people N=263). **Source of effectiveness data:** RCT at 6 months. **Source of resource use data:** RCT (N=139); data from local authorities at baseline, self-reported data at 6 months. **Source of unit cost data:** Local authority and national	**Outcomes: description and values** N=263 older people completed interviews at 6 months The following outcome tools were applied: • 12-item version of the General Health Questionnaire (GHQ; Goldberg 1992) to capture the psychological wellbeing of service users. • A single quality-of-life question using a seven-point scale (Bowling, 1995). • Adult Social Care Outcomes Tool (ASCOT; PSSRU) to measure social care related quality-of-life. • Questions on satisfaction. GHQ (higher scores indicate worse health): GHQ-12 mean score: IG (n=129) 14.63; p< 0.05, CG (n=107) 13.24% scoring above 4+ on GHQ-12: IG 45% (sd=58) and CG 29% (sd=31); statistically significant but p-value was not reported. ASCOT (higher scores indicate higher level of needs): IG 3.53 (n=126), CG 3.57 (n=97), not significant, p–value was not reported. Self-perceived health (higher scores indicate worse self-perceived health):	Across all groups (including older people): IB marginally less cost-effective than control; cost per incremental change in ASCOT (-£61), cost per incremental change in GHQ (-£12). No dominance of IB for ASCOT, QoL, or self-perceived health. **Uncertainty measurement:** Confidence intervals and bootstrapping.	**Applicability:** Broadly applicable with some limitations. **Quality:** Overall relatively high, with some limitations. **Summary:** This study did not confirm that IB were more cost-effective than other forms of care; the data suggested that when older people were given a choice of IB they were more likely to replace home care with personal assistants. Findings need to be considered with caution.

Country, study type and intervention details.	Study population, design and data sources.	Costs: description and values. Outcomes: description and values.	Results: Cost-effectiveness.	Summary.
	unit costs.	IG 3.20 (n=141), CG 3.01 (n=120), not significant, p–value was not reported. Satisfaction All groups: 47 (49) per cent were extremely or very satisfied with the support planning process (financial arrangements and help they received). Older people were more likely than other groups to express higher satisfaction (significance not reported) but significantly less likely to report that the process had changed their view on what they could achieve in their lives. **Costs: description and values** Weekly mean cost for care management across all groups was £18 for IG and £11 in the comparison group (CG). Weekly mean *social care* cost for older people: IG (n=73) £228, CG £227 (n=66). • Home care (IG £57, CG £90). • Personal assistance (IG £66, CG £31). • Integrated community equipment (IG £29, CG £26). • Social worker/care manager (IG £16, CG £10). • Meals service (IG £2, CG £2). • Supporting people (IG £1, CG £1). Weekly mean *health care* cost for older people in IG+CG (n=139): £107 (only reported for IG and CG together); this included: • Inpatient hospital £51. • Day hospital £14. • Nurse £36. • Therapist £2. • GP £5.		

Country, study type and intervention details.	Study population, design and data sources.	Costs: description and values. Outcomes: description and values.	Results: Cost-effectiveness.	Summary.
		Weekly mean health costs *all groups* IG £83 CG £59; p<0.05. Yearly mean IB for older people (n=81) £7,860 (n=81); SD £6,030; minimum (maximum) costs £224 (£27,410). • 53% (n=44) for mainstream services: mean £5,970, SD £5,350. • 41% (n=33) for personal assistance: mean £7,590, SD £6,680. • 15% (n=12) for leisure activities: mean £1,800, SD £2,770.		

Social Care of older people with complex needs and multiple long term conditions

Research questions 2.1.5

Economic evidence tables

Completed methodology checklists: economic evaluations

How effective are different types of support for older people to enable them to self-manage (aspects of) their own conditions?

Kennedy, A. Reeves, P. Bower, P. Lee, V. Middleton, E. Richardson, G. Gardner, C. Gately, C. Rogers, A. (2007) "The effectiveness and cost effectiveness of a national lay-led self care support programme for patients with long-term conditions: a pragmatic randomised controlled trial." *Journal of Epidemiology and Community Health*. 61: 254-261.

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: England **Date:** **Follow-up period** 6 months **Study type**: Cost-utility analysis, net benefit analysis **Intervention:** "Expert Patients Programme" A self-care support program delivered in six 2.5 hour group sessions led by a trained layperson with experience of a long-term condition (LTC). Groups of 8-12 people in non-NHS setting and program conducted according to a written manual. Includes sessions on relaxation, diet,	**Population**: Community dwelling adults with a mean age of 55 years old with at least one self-defined chronic condition. Unclear whether individuals have functional limitations or are in receipt of social care services. 20% of individuals in intervention and control groups were still in paid work. **Study design:** Pragmatic RCT **Data sources:** Trial data, N=629 **Sources of effectiveness data:** Trial data collected at baseline and at 6 months **Sources of resource use data:** Trial data collected at baseline and at 6 months **Sources of unit cost data:** Unclear not reported clearly, authors report main findings in this publication and refer to	**Outcomes: description and values** (Mean, (95% confidence interval)) <u>Primary outcomes</u> Self-efficacy Energy levels (EuroQoL, 5-item survey) Healthcare utilisation – Included: Routine healthcare (GP consultations, practice nurse appointments, accident and emergency attendances and outpatient visits. – Excluded: inpatient stays and medication <u>Secondary outcomes</u> Health status (EuroQoL) Self-care behaviour **Costs: description and values** 1) Direct program costs – Includes staff salaries & expenses, travel expenses, assessment & quality assurance, venue hire, consumables & other materials (p.259) – The direct costs of the program are estimated at £250 per person (estimated by Department of Health). 2) Self reported health service utilisation – (see above) 3) Unclear which components of costs were	The authors report that the intervention had improvement of 0.02 QALYs (95% CI, 0.007 to 0.034, adjusted for baseline characteristics). The authors do not provide a cost per QALY. The authors report that there is considerable uncertainty around the estimates of costs and QALYs. With a willingness to pay threshold of £20,000 per QALY, there is a 70% probability that the intervention is cost-effective. **Sensitivity analyses** The authors report that the full details and sensitivity analyses are presented elsewhere (p.259) but again no specific publication is referenced and cannot be followed-up for critical appraisal.	**Applicability:** Not applicable. **Quality**: Moderate **Summary:** The population does not seem relevant to the review question and therefore using results from this study would not be appropriate in making recommendations from an economics point of view.

exercise, fatigue, breaking the 'symptom cycle', managing pain and medication, and communication. Trainers are meant to act as 'role models'. Participants are supposed to set goals and create a plan of action, which is intended to increase self-efficacy. **Control:** Wait list	details in other publications but make no reference to a specific publication (therefore the publication was not identified to supplement this evidence table).	included in the analysis because only main findings were included in this publication. The authors refer to another publication for full details but there is no specific reference. Therefore there is a lack of clarity surrounding types of costs included in the analysis. ***Results*** **Primary outcome measures, 6 months** Self-efficacy Intervention improved, statistically significant, +8.9 (95% CI, 6.2 - 11.5) (p=0.000) Energy levels (EuroQol, 5-item) Intervention improved, statistically significant, +3.7 (95% CI, 1.2 to 6.3) (p=0.004) **Secondary outcome measures** **Low scores indicate favourable outcome.* **1. Health status (EuroQoL)** **Social role limitations* – Favours intervention, significant improvement -5.6 (95% CI, -9.2 to -2.0) (p=0.002) *Psychological well-being* – Favours intervention, significant improvement +5.1 (95% CI, 2.7 to 7.6) (p=0.000) **Health distress* – Favours intervention, significant improvement -5.1 (95% CI, -8.4 to -1.7) (p=0.003)		

		General health* – No difference, non-significant improvement favouring intervention -0.10 (95% CI, -0.22 to 0.01) (p=0.083) **Pain* – No difference (non-significant improvement favouring intervention) -2.4 (95% CI, -5.4 to 0.7) (p=0.129) **2. Self care behaviour *Stretching & aerobic exercise (6-item)* – Favours intervention, significant improvement +18.8 (95% CI, 0.3 to 37.3) (p=0.047) *Relaxation (1-item)* – Favours intervention, significant improvement +0.11 (95% CI, 0.02 to 0.21) (p=0.018) **Partnership w. clinicians (4-item)* – Favours intervention, significant improvement -5.7 (95% CI, -9.5 to -1.9) (p=0.003) *Diet (1-item)* – No difference +0.08 (95% CI, -0.02 to 0.17) (p=0.126) *Complementary medicine (2-item)* – No difference -0.03 (95% CI, -0.12 to 0.07) (p=0.562) *Information seeking (1-item)* – No difference		

		+0.09 (95% CI, -0.02 to 0.19) (p=0.096)		

Social Care of older people with complex needs and multiple long term conditions

Research questions 3.2

Economic evidence tables

How should services work with and support carers of older people with multiple long-term conditions (who may have long-term conditions themselves)?

Mason, A. Weatherly, H. Spilsbury, K. Arksey, H. Golder, S. Adamson, J. Drummond, M. Glendinning, C. (2007). "A systematic review of the effectiveness and cost-effectiveness of different models of community-based respite care for frail older people and their carers." Health technology assessment. 11 (15).

Country, study type and intervention details.	**Study population, design and data sources.**	**Costs: description and values** **Outcomes: description and values**	**Results: Cost, Effectiveness**	**Summary**
Country: NA **Date:** Varied **Study type**: Systematic review **Intervention:** 5 economic evaluations were identified and all of the respite care interventions focused on day care **Control:** "Usual care" – which the authors explain to be poorly defined in the identified economic evaluations	**Population**: Carers of frail older people in the community **Study design:** The 5 economic evaluations identified in the systematic review were based on 2 randomised and 3 quasi-experimental studies **Data sources:** NA **Sources of effectiveness data:** NA **Sources of resource use data:** NA **Sources of unit cost data:** NA	**Outcomes: description and values** See results and summary **Costs: description and values** See results and summary	The authors report that day care tended to be associated with higher costs and either similar or some increase in benefits in comparison to usual care. However, the authors report that the studies do not report enough information in order to explore whether findings are applicable in the UK setting. Therefore the author's overall conclusions are that there is a lack of UK research and the literature reviewed is unable to support UK policy and practice.	**Applicability:** Partially applicable. **Quality**: These findings should not be used to inform recommendations from an economics perspective. However, research recommendations should be considered (in the summary below). **Summary:** The authors recommend that more research is needed in this field in general, i.e., that clarification is needed of the objectives of respite services and consider appropriate outcome measures for research. This means that measured outcomes need to take into account that carers will have joint and separate interests to the people they care for. The authors also recommend that both effectiveness and cost-effectiveness explore how differences in older person's needs, for example, physical frailty or cognitive impairment, and differences among types of carers, for example, adult children or partner.