National Institute for Health and Care Excellence

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Consultation

Chapter 14 Community palliative care

Emergency and acute medical care in over 16s: service delivery and organisation

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Chapter 14 Community palliative care

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14 Community palliative care

14.1 Introduction

Acute medical illness can present at the end of life and contribute to significant distress in patients, their families and their carers. Care models should be able to assess, treat and support patients with an acute medical illness at the end of life in the setting chosen by patients, which could include home, care home, hospice or hospital.

There is some uncertainty over the clinical and cost-effectiveness of different models of community based palliative care, which can support management of acute medical illnesses at the end of life outside hospices and hospitals. This is important to determine as it offers choice to patients and carers at a crucial time of life.

14.2 Review question: Does community-based palliative care improve outcomes compared with hospital care?

For full details see review protocol in Appendix A.

Table 1: PICO characteristics of review question

Population	Adults and young people (16 years and over) with a suspected or confirmed AME or at risk of an AME.

Intervention (s)	• Community based palliative care:
	  ○ Enhanced palliative care in community.
	  ○ Standard palliative care in the community.
	• Hospital-based palliative care.
	• Usual care.

Comparison(s)	• Community based palliative care versus hospital based palliative care. • Community based palliative care versus usual care. • Enhanced palliative care in community versus standard palliative care in the community.
Outcomes	• Place of death (CRITICAL) • Avoidable adverse events (CRITICAL) • Quality of life (CRITICAL) • Patient and/or carer satisfaction (CRITICAL) • Length of hospital stay (IMPORTANT) • Number of presentations to Emergency Department (IMPORTANT) • Number of admissions to hospital (IMPORTANT) • Number of GP presentations (IMPORTANT) • Readmission up to 30 days (IMPORTANT)
Study design	Systematic reviews (SRs) of RCTs, RCTs, observational studies only to be included if no relevant SRs or RCTs are identified.

14.3 Clinical evidence

Nineteen studies were included in the review: 3 Cochrane reviews[106,242,279] and 16 individual RCTs[5,18-20,35,40,110,111,132,136,147,177,210,263,280,290,291]; these are summarised in Table 2 below. Evidence from these studies is summarised in the GRADE clinical evidence profile below (Table 3 and Table 4). See also the

study selection flow chart in Appendix B, study evidence tables in Appendix D, forest plots in Appendix C, GRADE tables in Appendix F and excluded studies list in Appendix G.

We searched for randomised controlled trials comparing the effectiveness of the interventions listed in the protocol. Fifteen randomised controlled trials were identified:

- Seven studies evaluated community based palliative care with hospital based palliative care[19,35,40,111,135,147,290].
- Five studies looked at enhanced community based palliative care versus standard community based palliative care[5,18,132,177,210].
- Four studies compared community based palliative care with usual care[20,263,280,291].
- Life expectancy of patients included varied among the included studies from a few months, to as much as 2 years.
- Cancer, chronic heart failure and chronic obstructive pulmonary disease were the main diagnoses among those included.

Table 2: Summary of studies included in the review

Study	Intervention and comparison	Population	Outcomes	Comments
Community based palliative care versus hospital based palliative care				
Bakitas 2009[19] RCT	Home palliative care (physician, nurse, social worker, occupational therapist, speech and language therapist, pharmacist, dietician and Chaplin) versus usual care (could use all oncology and supportive services). Referral to institution's MD palliative care service.	Adults (n=310) with a mean age of 59 years. Diagnosis of cancer, COPD or CHF and a life expectancy of < 1 year. Hawaii and Colorado.	Quality of life, presentations to ED, length of stay and place of death.	Included in Cochrane review: Gomes 2013[106] on effectiveness and cost-effectiveness of home palliative care services for adults with advanced illness and their caregivers.
Brannstrom 2014[35] RCT	Advanced home care unit. Versus Usual care by GP or doctors and/or the nurse-led heart failure clinic.	Adults with chronic heart failure. Sweden.	Quality of life, admissions and length of stay.	
Brumley 2007[39] RCT	Home palliative care; multi-disciplinary team which included a physiotherapist, occupational therapist, speech and language therapist, dietician, social worker, bereavement co-ordinator,	Adults (n=718) with a mean age 74 years. Late-stage COPD, CHF or cancer with life-expectancy of 12 months or less. USA.	Place of death, admission, presentations to ED and patient satisfaction	Included in Cochrane reviews: Shepperd 2011[242] Home-based end of life care. Gomes 2013[106] Effectiveness and cost-effectiveness of home palliative care services for adults with

	counsellor, Chaplin, pharmacist, palliative care physician and specialist nurse. Control care followed Medicare guidelines.			advanced illness and their caregivers.
Grande 1999[110] Grande 2000[111] RCT	Community based palliative care (nurses, co-ordinators and agency staff providing 24 hour care) versus control group receiving standard care (hospital or hospice care, with input from the GP and district nurses, Marie Curie nursing, Macmillan nursing, social services and private nursing).	Adults (n=229), with a mean age of 72 years. 87% with a diagnosis of cancer, requiring terminal care.	Place of death	Included in Cochrane reviews: Shepperd 2011[242] Home-based end of life care. Gomes 2013[106] Effectiveness and cost-effectiveness of home palliative care services for adults with advanced illness and their caregivers.
Hughes 1992[135] RCT	Home palliative care (physician-led, nurse, physiotherapist, dietician, social worker and health technicians) versus control group (inpatient hospital care).	Adults (n=168) with a mean age of 64 years. 73% of patients had a diagnosis of cancer and a life expectancy of less than 6 months. USA.	Admission, length of stay and patient satisfaction.	Included in Cochrane review: Shepperd 2011[242] Home-based end of life care.
Jordhoy 2000[147] RCT	Home palliative care (multidisciplinary, involving palliative care team, community team, patients and families, specialists palliative care nurses, physiotherapists, nutrition and social care) Versus Control group (hospital/nursing home).	Adults (n=139) with a median age of 70 years. Incurable malignant disease with a life-expectancy of 2 to 9 months. Norway.	Place of death, admissions and length of stay.	Included in Cochrane reviews: Shepperd 2011[242] Home-based end of life care. Gomes 2013[106] Effectiveness and cost-effectiveness of home palliative care services for adults with advanced illness and their caregivers.
Zimmer 1985[290] RCT	Home palliative care (physician led, nurse, social work) versus usual care (including healthcare services available in community; area	Adults (n=167) with a mean age of 76 years. Chronic illness or terminally ill (mainly cancer). Life expectancy of > 3months. USA.	Place of death, admissions and carer satisfaction.	Included in Cochrane review: Gomes 2013[106] Effectiveness and cost-effectiveness of home palliative care services for adults with

	described as with well-developed long-term care services in general).			advanced illness and their caregivers.
Enhanced community based palliative care versus standard community palliative care				
Aiken 2006[5] RCT	Intensive home-based case management (provided by registered nurse case managers, in coordination with patients' existing source of medical care). Versus Usual care (provided by managed care organisations. Service delivered by telephone, in addition to occasional home visits).	Adults (n=192) with chronic obstructive pulmonary disease or chronic heart failure, who had an estimated 2-year life expectancy. Arizona.	ED visits and quality of life.	Included in Cochrane review: Wong 2012[278] Home care by outreach nursing for COPD.
Bajwah 2015[18] RCT UK	Hospital2Home intervention 1 week after randomisation – delivered by palliative care specialist nurses; case conferences conducted in patients' homes attended by patient carer, H2H nurse, GP, community matron/district nurse, respiratory nurse and community palliative care nurse, care concerns and action plans discussed, follow up phone calls to ensure action points had been met by health care professionals. Versus	n=53 patients with advanced fibrotic lung disease. Inclusion criteria: end stage advanced idiopathic fibrotic lung disease judged by either high resolution CT, composite physiologic index scores or based on clinical status, oxygen requirements and presence of severe pulmonary hypertension in patients who were too unwell to complete pulmonary function tests, >18 years, sufficient mental capacity and able to complete questionnaires in	Place of death.	Outcomes extracted at 4 weeks. Fast track group: case conference at median 23 days (12-51). Waiting list group: case conference at median 40 days (7-100).

	Hospital2Home intervention 4 weeks after randomisation. All patients received best standard care including input from interstitial lung disease physicians, interstitial lung disease clinical nurse specialist, occupational therapist, physiotherapist and oxygen assessment and treatment services; all patients able to access interstitial lung disease treatment as needed and referrals to community health professionals continued.	English. Exclusion criteria: not stated.		
Holdsworth 2015[132] stepped wedge RCT UK	Rapid response service staffed by health care assistants who were available by referral day and night at 4 hour notice to support patients dying at home or in crisis and wanting to avoid hospital admission, service supported by hospice multidisciplinary team. Versus Usual care (each hospice had an inpatient ward, an outreach service and a day hospice).	n=953 hospice patients. Inclusion criteria: those referred to the hospice during the study period who died with a recorded preferred place of death. Exclusion criteria: not stated.	Place of death.	Rapid response service was based on need; therefore not all patients in the intervention group received the service.
McCorkle 1989[177] RCT	Oncology home care group (received care from oncology home care nurses). Versus Standard home care group (received care from regular home	Adults (n=166) with stage II lung cancer. Philadelphia, USA.	Admissions and length of stay.	Included in Cochrane review: Gomes 2013[106] Effectiveness and cost-effectiveness of home palliative care services for adults with advanced illness and their caregivers.

	care nurses).			
Radwany 2014[210] RCT	Home based palliative education (biopsychosocial model). Versus Usual care (psychosocial model).	Adults (n=40) >60 years of age with congestive heart failure, COPD, diabetes (with renal disease, neuropathy, visual problems or coronary artery disease), end stage liver disease, cancer, ALS and Parkinson's disease. USA.	Presentations to ED and quality of life.	Both groups received the same level of palliative care, with one receiving a tailored education programme.
Community based palliative care versus usual care				
Bakitas 2015[20] RCT USA	ENABLE intervention after enrolment (within 30 to 60 days of advanced cancer diagnosis, cancer recurrence or progression) – in-person standardised outpatient palliative care consultation by palliative care clinician, 6 structured weekly telephone coaching sessions by an advanced practice nurse and monthly follow up calls. Versus ENABLE intervention 3 months after advanced cancer diagnosis, cancer recurrence or progression. Usual oncology care directed by a medical oncologist, consisted of anticancer and symptom control treatments and consultation with oncology and supportive care specialists, including a clinical palliative care team whenever requested.	n=207 patients with advanced cancer. Inclusion criteria: English-speaking, age ≥18 years with advanced-stage solid tumour or hematologic malignancy, oncologist determined prognosis of 6 to 24 months and able to complete baseline questionnaires. Exclusion criteria: impaired cognition (Callahan score ≤4), active axis 1 psychiatric (schizophrenia, bipolar disorder) or substance use disorder, un-correctable hearing disorder or unreliable telephone service.	Quality of life. Place of death. ED visits. Hospital and ICU days.	Outcomes extracted at 3 months.
Uitdehaag	Nurse-led follow-up –	n=138 patients with	Quality of life (not	

2014[263] RCT Netherlands	home visits from a specialist nurse with >10 years of experience in oncology care at 14 days then monthly up to 13 months or death, focussing mainly on relief of suffering and complaints, nurses had regular contact with the attending physician and patient's GP, telephone contact if necessary. Versus Conventional medical follow-up – scheduled appointments at the outpatient clinic at one month and then every two months up to 13 months or death, appointments by telephone if patients unable to attend	unresectable or recurrent upper GI cancer. Inclusion criteria: multidisciplinary panel concluded that a curative modality or disease modifying anti-tumour therapy was not or no longer possible. Exclusion criteria: admitted to a nursing home or hospice, could not be followed by a physician at the outpatient clinic, unable to understand Dutch or complete questionnaires.	extractable). Patient satisfaction.	
Wong 2016[281] RCT China	Transitional Care Palliative End Stage Heart Failure programme – weekly home visits/telephone calls in the first 4 weeks then monthly follow up provided by nurse case manager supported by a multidisciplinary team; assessed patients' environmental, psychosocial, physiological and health-related behaviour needs and intervened accordingly; goals and agreed care plan. Versus	n=84 end stage heart failure patients. Inclusion criteria: met 2 indicators identified as ESHF, Cantonese-speaking, living within the service area, contactable by phone and referral accepted by palliative care team. Exclusion criteria: discharged to institutions, inability to communicate, diagnosed with severe psychiatric disorders or	Quality of life. Hospital admissions. Readmissions.	

	Control group – 2 placebo calls consisting of light conversation topics unrelated to clinical issues.	recruited to other programmes.		
Zimmerman 2014[291] RCT Canada	Palliative care service – outpatient oncology palliative care clinic, 12 bed palliative care unit, inpatient consultation team, core intervention was outpatient clinic by a palliative care physician and nurse consisting of comprehensive assessment, routine telephone contact from a palliative care nurse, monthly outpatient palliative care follow up, 24 hour on-call service for telephone management of urgent issues, as required arrangement of home nursing, transfer of care to a home palliative care physician and admission to inpatient unit Versus Usual care – no formal intervention, palliative care referral not denied if requested.	n=461 patients with advanced cancer. Inclusion criteria: 18 years or older, stage 4 cancer (for breast or prostate cancer refractory to hormonal therapy was an additional criterion; patients with stage 3 cancer and poor clinical prognosis were included at the discretion of the oncologist), estimated survival of 6-24 months (assessed by main oncologist), Eastern Cooperative Oncology Group performance status of 0, 1 or 2 (assessed by main oncologist), completed baseline measures. Exclusion criteria: insufficient English literacy to complete questionnaires or inability to pass the cognitive screening test.	Quality of life. Patient satisfaction.	Setting: Princess Margaret Cancer Centre.

Table 3: Clinical evidence profile: Community palliative care versus hospital palliative care

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Hospital care	Risk difference with Community Palliative care (95% CI)
Place of death deaths at home	886 (5 studies)	⊕⊕⊖⊖ LOWa,b due to risk of bias, imprecision	RR 1.27 (1.11 to 1.45)	Moderate	
				500 per 1000	135 more per 1000 (from 55 more to 225 more)
Admissions to hospital number of admissions	1143 (5 studies) 6 months	⊕⊖⊖⊖ VERY LOWa,c due to risk of bias, inconsistency	RR 0.87 (0.8 to 0.93)	Moderate	
				587 per 1000	76 fewer per 1000 (from 41 fewer to 117 fewer)
Number of presentations to ED ED visits	297 (1 study) 12 months	⊕⊕⊖⊖ LOWa,b due to risk of bias, imprecision	RR 0.61 (0.41 to 0.9)	Moderate	
				329 per 1000	128 fewer per 1000 (from 33 fewer to 194 fewer)
Number of presentations to ED (continuous) Mean no. of ED visits	279 (1 study)	⊕⊕⊕⊖ MODERATEa due to risk of bias	-	-	The mean number of presentations to ED in the intervention groups was 0.23 higher (0.49 lower to 0.95 higher)
Length of stay length of hospital stay	677 (3 studies) 6 months	⊕⊕⊖⊖ LOWa,c due to risk of bias, inconsistency	-	-	The mean length of stay in the intervention groups was 1.77 lower (3.19 to 0.35 lower)
Length of stay length of hospital stay	279 (1 study)	⊕⊕⊖⊖ LOWa due to risk of bias	-	-	The mean length of stay in the intervention groups was 0.1 higher (0.03 lower to 0.23 higher)
Quality of life QoL-EQ5D (0-100 scale)	72 (1 study) 6 months	⊕⊕⊖⊖ LOWa,b due to risk of bias,	-	-	The mean quality of life in the intervention groups was 8.1 higher

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Hospital care	Risk difference with Community Palliative care (95% CI)
		imprecision			(2.03 lower to 18.23 higher)
Quality of life QoL- Functional assessment of chronic illness therapy (0-184 scale)	58 (1 study) 12 months	⨁⨁⨀⨀ LOWa,b due to risk of bias, imprecision	-	-	The mean quality of life in the intervention groups was 3 higher (3.91 lower to 9.91 higher)
Patient Satisfaction	31 (1 study) 6 months	⨁⨁⨀⨀ LOWa,b due to risk of bias, imprecision	-	-	The mean patient satisfaction in the intervention groups was 0.27 higher (0 to 0.54 higher)
Patient satisfaction	297 (1 study) 3 months	⨁⨁⨀⨀ LOWa,b due to risk of bias, imprecision	RR 1.15 (1.05 to 1.26)	Moderate	
				809 per 1000	121 more per 1000 (from 40 more to 210 more)
Carer satisfaction scale 26-130	64 (1 study) 6 months	⨁⨁⨀⨀ LOWa,b due to risk of bias, imprecision	-	-	The mean carer satisfaction in the intervention groups was 11 higher (4.32 to 17.68 higher)
Place of death In-hospital mortality	712 (3 studies) 18 months	⨁⨀⨀⨀ VERY LOWa,b,c due to risk of bias, imprecision, inconsistency	RR 0.77 (0.67 to 0.88)	Moderate	
				533 per 1000	123 fewer per 1000 (from 64 fewer to 176 fewer)

(a) Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias.

(b) Downgraded by 1 increment if the confidence interval crossed 1 MID or by 2 increments if the confidence interval crossed both MIDs.

(c) Heterogeneity, I^2=50%, p=0.04, unexplained by subgroup analysis.

Narrative findings

One study Hughes, 1992[135] reported that roughly 50% of patients in each group died in hospital. The same study also reported that at 1 month, carers in the treatment group had a greater level of satisfaction compared to carers in the control group (p=0.005). At 6 month follow-up there was no difference in satisfaction anymore.

Table 4: Clinical evidence summary: Enhanced community palliative care versus standard community palliative care

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with standard palliative care	Risk difference with Enhanced palliative care (95% CI)
Admissions Mean number of admissions	51 (1 study)	⨁⨁⨀⨀ LOW[a,b] due to risk of bias, imprecision	-	-	The mean admissions in the intervention groups was 0.2 lower (1.63 lower to 1.23 higher)
Number of presentations to ED	80 (1 study) 12 months	⨁⨁⨀⨀ LOW[b] due to imprecision	RR 1 (0.47 to 2.14)	Moderate	
				250 per 1000	0 fewer per 1000 (from 132 fewer to 285 more)
Length of stay Length of hospital stay	32 (1 study) 6 months	⨁⨀⨀⨀ VERY LOW[a,b] due to risk of bias, imprecision	-	-	The mean length of stay in the intervention groups was 0.82 higher (12.36 lower to 14 higher)
Quality of life QUAL-E End of life Scale	(1 study)	⨁⨁⨀⨀ LOW[a,b] due to risk of bias, imprecision	-	-	The mean quality of life in the intervention groups was 4.05 lower (11.49 lower to 3.38 higher)
Preferred place of death achieved	953 (1 study)	⨁⨁⨁⨀ MODERATE[a] due to risk of bias	OR 0.95 (0.78 to 1.15)	Moderate	
				619 per 1000	12 fewer per 1000 (from 60 fewer to 32 more)
Preferred place of death achieved	21 (1 study)	⨁⨁⨀⨀ LOW[a,b] due to risk of bias, imprecision	RR 1.14 (0.77 to 1.69)	Moderate	
				769 per 1000	108 more per 1000 (from 177 fewer to 531 more)

(a) Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias.
(b) Downgraded by 1 increment if the confidence interval crossed 1 MID or by 2 increments if the confidence interval crossed both MIDs.

Table 5: Clinical evidence summary: Community based palliative care versus usual care

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with usual care	Risk difference with Community palliative care (95% CI)
Quality of life Quality of life at end of life scale. Scale from: 21 to 105.	414 (2 studies) 3-4 months	⨁⨁⨁⊖ MODERATE[a] due to inconsistency	-	-	The mean quality of life in the intervention groups was 0.25 lower (1.03 lower to 0.53 higher)
Quality of life Functional assessment of chronic illness therapy spiritual well-being scale. Scale from: 0 to 184.	426 (2 studies) 3-4 months	⨁⨁⨁⊖ MODERATE[b] due to imprecision	-	-	The mean quality of life in the intervention groups was 4.63 higher (1.53 to 7.73 higher)
Patient satisfaction overall satisfaction rating. Scale from: 1 to 10.	38 (1 study) 4 months	⨁⨁⊖⊖ LOW[c] due to risk of bias	-	-	The mean patient satisfaction in the intervention groups was 1.4 higher (0.69 to 2.11 higher)
Patient satisfaction FAMCARE patient satisfaction with care scale. Scale from: 16 to 80.	274 (1 study) 4 months	⨁⨁⨁⊖ MODERATE[b] due to imprecision	-	-	The mean patient satisfaction in the intervention groups was 6 higher (3.94 to 8.06 higher)
Relatives satisfaction overall satisfaction rating. Scale from: 1 to 10.	33 (1 study) 4 months	⨁⊖⊖⊖ VERY LOW[b,c] due to risk of bias, imprecision	-	-	The mean relatives satisfaction in the intervention groups was 1.6 higher (0.19 to 3.01 higher)
Death at home	109 (1 study)	⨁⊖⊖⊖ VERY LOW[b,c] due to risk of bias, imprecision	RR 1.14 (0.79 to 1.65)	Moderate	
				475 per 1000	66 more per 1000 (from 100 fewer to 309 more)
Length of stay	109	⨁⊖⊖⊖	RR 0.73	Moderate	

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with usual care	Risk difference with Community palliative care (95% CI)
rate of hospital days	(1 study)	VERY LOW[b,c] due to risk of bias, imprecision	(0.41 to 1.3)		-
ED visits	109 (1 study)	⊕⊖⊖⊖ VERY LOW[b,c] due to risk of bias, imprecision	RR 0.73 (0.45 to 1.19)	Moderate	
rate of ED visits					-
Readmissions	84 (1 study)	⊕⊕⊖⊖ LOW[b] due to imprecision	RR 0.72 (0.34 to 1.52)	Moderate	
No. of patients readmitted within 28 days				293 per 1000	82 fewer per 1000 (from 193 fewer to 152 more)
Admissions	84 (1 study)	⊕⊕⊕⊖ MODERATE[b] due to imprecision	RR 0.53 (0.33 to 0.88)	Moderate	
No. of patients admitted within 84 days				610 per 1000	287 fewer per 1000 (from 73 fewer to 409 more)
Quality of life	84 (1 study)	⊕⊕⊖⊖ LOW[b,c] due to risk of bias, imprecision	-	-	The mean quality of life in the intervention group was 0.79 higher (0.23 to 1.25 higher)
Chronic heart failure questionnaire (higher score is better)					

(a) Heterogeneity, I^2=50%, p=0.04, unexplained by subgroup analysis.

(b) Downgraded by 1 increment if the confidence interval crossed 1 MID or by 2 increments if the confidence interval crossed both MIDs.

(c) Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias.

14.4 Economic evidence

Published literature

Two economic evaluations were identified with the relevant comparison and have been included in this review[130,227]. These are summarised in the economic evidence profile below (Table 6) and the economic evidence tables in Appendix E.

Four economic evaluations relating to this review question were excluded on the grounds of applicability, quality and the availability of more relevant evidence. The reasons summarised in Appendix H.

The economic article selection protocol and flow chart for the whole guideline can found in the guideline's Appendix 41A and Appendix 41B.

Table 6: Economic evidence profile: community-based palliative care versus usual care

Study	Applicability	Limitations	Other comments	Incremental cost	Incremental effects	Cost effectiveness	Uncertainty
Higginson 2009[130]	Partially applicable[(a)]	Minor limitations[(b)]	RCT Cost-effectiveness analysis Population: Patients who were severely affected by multiple sclerosis Two comparators: 1) Usual care 2) Multi-professional palliative care team (PCT) Time horizon: 12 weeks	**Total cost (mean per patient):** -£2,361[(c)]	**POS-8 range of 0-40 with lower scores being better (mean difference from baseline per patient):** 0.53	Palliative care cost saving but a smaller decrease in POS-8 score. Usual care cost £4,455 per 1 point decrease in POS-8 score.	Palliative care dominated in 33.8% of replications
Sahlen 2016[227]	Partially applicable[(d)]	Potentially serious limitations[(e)]	RCT Cost-utility analysis Population: Patients with chronic and severe heart failure Two comparators: 1) Usual care provided by primary care health centre 2) Palliative advanced home care and heart failure care (PREFER) Time horizon: 6 months	**Total cost (mean per patient):** -£1,509[(f)]	**QALYs (mean per patient):** 0.03	Palliative advanced home care and heart failure care (PREFER) dominates usual care, being both cost saving and more effective.	Swedish standard cost model used in place of reported resource use and unit costs. This increased the total cost of both the intervention and control group resulting in a smaller cost difference still in favour of PREFER (-£1,248).

Abbreviations: PCT: professional palliative care team; POS-8: palliative care outcome scale.

(a) Used condition specific measures for quality of life which did not create a QALY measure.

(b) RCT-based analysis so from one study by definition therefore not reflecting all evidence in area. Minimal amount of sensitivity analysis.

(c) 2005 UK pounds. Cost components incorporated: Staff costs, inpatient care and respite care.

(d) Some uncertainty regarding the applicability of resource use and unit costs from Sweden. Small cohort size.

(e) RCT-based analysis, so from one study by definition therefore not reflecting all evidence in area. Local costs used with assumptions made around timing of resource use. Uncertainty about whether time horizon is sufficient to capture all benefits and costs. No sensitivity analysis around quality of life results.

(f) 2012 Euros converted to UK pounds[195]. Cost components incorporated: hospitalisation, tests, emergency department visit and home medical equipment.

14.5 Evidence statements

Clinical

Seven studies comprising 1493 people evaluated the role of community based palliative care versus hospital based palliative care for improving outcomes in adults and young people at risk of an AME, or with a suspected or confirmed AME. The evidence suggested that community based palliative care may provide benefit in increased number of people in which home was the place of death (5 studies, low quality), decreased number of people in which hospital was the place of death (3 studies, very low quality), decreased the number of presentations to the ED (1 study, low quality) and improved patient and/or carer satisfaction (3 studies reported separately, low quality). However, the evidence suggested no difference on the number of hospital admissions (5 studies, very low quality), length of hospital stay (4 studies, low quality), mean number of ED visits (1 study, moderate quality) or quality of life (2 studies reporting different scores, low quality).

Five studies comprising 1404 people evaluated the role of enhanced community based palliative care versus standard community based palliative care for improving outcomes in adults and young people at risk of an AME, or with a suspected or confirmed AME. The evidence suggested that enhanced community based palliative care has no effect on number of hospital admissions (1 study, low quality), number of presentations to ED (1 study, low quality), length of hospital stay (1 study, very low quality) or quality of life (1 study, low quality). One study suggested there was no difference in place of death (1 study, moderate quality) while another study suggested an increase in the number of people achieving their preferred place of death (1 study, low quality).

Four studies comprising 890 people evaluated the role of community based palliative care versus usual care for improving outcomes in adults and young people at risk of an AME, or with a suspected or confirmed AME. The evidence suggested that community based palliative care may provide benefit in increased number of people in which home was the place of death (1 study, very low quality), decreased the number of presentations to the ED (1 study, very low quality), improved patient and/or carer satisfaction (3 studies reporting different scores, very low to moderate quality), reduced length of hospital stay (1 study, very low quality) and reduced number of admissions (1 study, moderate quality) and readmissions to hospital (1 study, low quality). One study suggested there was a possible improvement in quality of life (low quality) while 2 other studies looking at different scores suggested no difference (moderate quality).

Economic

One cost-utility analysis found community-based specialist palliative care to dominate usual care, reducing costs and improving health outcomes. This evidence was assessed as partially applicable with potentially serious limitations.

One cost-effectiveness analysis found community-based specialist palliative care to reduce costs, however to also reduce quality of life, measured on the POS-8 scale. This evidence was assessed as partially applicable with minor limitations.

14.6 Recommendations and link to evidence

Recommendations	**8. Provide specialist multidisciplinary community-based palliative care as an option for people in the terminal phase of an illness.**
Research recommendation	**-**
Relative values of different outcomes	The guideline committee considered the following outcomes as critical: place of death, avoidable adverse events, quality of life, and patient and/or carer satisfaction. The following outcomes were identified as important to decision making: readmission, number of admissions to hospital, number of presentations to ED, number of presentations to GP and length of hospital stay.
Trade-off between benefits and harms	The review was split into a comparison of community based palliative care versus hospital based palliative care, enhanced community based palliative care versus standard community based palliative care and community based palliative care versus usual care as defined by the studies (for example, comparators that included elements of both hospital and community care or comparators which were not well defined). A total of 16 randomised controlled trials were included in the review. **Community palliative care versus hospital palliative care** Seven studies comprising 1493 people evaluated the role of community based palliative care versus hospital based palliative care. The evidence suggested that community palliative care may provide benefit in increased number of people in which home was the place of death, decreased number of people in which hospital was the place of death, decreased number of presentations to ED and improved patient and/or carer satisfaction. The evidence suggested that there was no difference for the outcomes of number of hospital admissions, length of hospital stay, mean number of ED visits or quality of life. No evidence was found for the outcomes of avoidable adverse events, number of presentations to the GP and readmission. **Enhanced versus standard community palliative care** Five studies comprising 1404 people evaluated the role of enhanced community based palliative care versus standard community based palliative care. Enhanced palliative care is the provision of additional palliative care support care over and above the usual provision of community palliative care in the patient's local healthcare system. The evidence suggested that enhanced community based palliative care has no effect on number of hospital admissions, number of presentations to ED, length of hospital stay or quality of life. One study suggested there was no difference in place of death while another study suggested an increase in the number of people achieving their preferred place of death. No evidence was found for the outcomes patient and/or carer satisfaction, readmission, number of presentations to GP and avoidable adverse events. **Community based palliative care versus usual care** Four studies comprising 890 people evaluated the role of community based palliative care versus usual as defined by the studies (for example, comparators that included elements of both hospital and community care or comparators which were not well defined). Usual care usually consisted of telephone or outpatient clinic follow up or a combination of both. The evidence suggested that community based palliative care may provide a benefit in increased number of people for whom home was the place of death, decreased number of presentations to the ED, improved patient and/or

Recommendations	8. Provide specialist multidisciplinary community-based palliative care as an option for people in the terminal phase of an illness.
Research recommendation	-
	carer satisfaction, reduced length of hospital stay and reduced number of admissions and readmissions to hospital. One study suggested there was a possible improvement in quality of life while 2 other studies looking at different scores suggested no difference. No evidence was found for the outcomes avoidable adverse events or number of presentations to the GP. The committee emphasised that as far as possible the health system should respect patients' wishes when planning palliative care at home or in a healthcare setting. Surveys of the public have consistently shown that home is the preferred place of death, and the provision of community palliative care would facilitate this. The committee also noted, however, that there would be occasions when managing the process of dying at home could be very difficult, and therefore alternative options should be retained. The committee agreed that community palliative care should be an option for all patients as an alternative to hospital admission. The service provided should incorporate staff with appropriate competencies to allow patients to be cared for in line with their preferences (for example, symptom management). No benefit was found for enhanced community based palliative over standard community palliative care and so this was not included in the recommendation. The reasons for this lack of benefit are unclear. It could be surmised that the interventions in both groups were very similar in terms of support at home except for intensity of support. Therefore, it is possible that more intensive input would only offer marginal gains, or none.
Trade-off between net effects and costs	Two economic evaluations found community palliative care to be cost saving compared with usual care. One cost-effectiveness study found community palliative care to have a slightly poorer result on the palliative outcome-8 scale compared to usual care. However, the difference was small and not statistically significant whereas the evidence on the 'Trade-off between benefits and harms' above showed improvements in patient and/or carer satisfaction without evidence of adverse events. One cost-utility analysis found community palliative care improves health outcomes and reduces costs. The committee acknowledged the limitations, given it was conducted in a Swedish cohort and patient numbers were rather small. However, the committee noted the outcome of the study was largely in line with what was seen in other clinical studies presented in the clinical review. The evidence for patient and carer satisfaction evidence was in favour of community palliative care Although the economic evidence was not substantial it was based on data that largely coincided with the clinical evidence meaning it is unlikely that more economic evidence on this topic would change conclusions concerning cost effectiveness. The economic evidence identified would suggest there is a good chance community palliative care could reduce costs to the health service. The clinical evidence would suggest quality of life would remain unchanged or potentially improve therefore supporting the conclusion that it would be an effective use of NHS resources.
Quality of evidence	For the comparison of community palliative care versus hospital palliative care the evidence for the outcome of number of presentations to ED (mean number of presentations) was of moderate quality due to risk of bias. The evidence for place of death, number of presentations to ED (number of visits), length of stay, quality of life and patient and/or carer satisfaction was low due to risk of bias, and inconsistency

Recommendations	8. Provide specialist multidisciplinary community-based palliative care as an option for people in the terminal phase of an illness.
Research recommendation	-
	or imprecision. The evidence for number of hospital admissions was of very low quality due to risk of bias and inconsistency. For the comparison of enhanced versus standard community based palliative care, the evidence for the outcome of place of death (OR) was of moderate quality due to risk of bias. The evidence for the outcome of admissions, number of ED presentations, quality of life and place of death was of low quality due to risk of bias and imprecision. The quality of the evidence for length of stay was very low due to risk of bias and imprecision. For the comparison between community based palliative care and usual care, the evidence for quality of life and patient and/or carer satisfaction (FAMCARE scale) was of moderate quality due to inconsistency and imprecision. The evidence for patient and/or carer satisfaction (overall satisfaction) was of low quality due to risk of bias. The evidence for the outcomes of relatives' satisfaction, place of death, length of stay and ED presentations was of very low quality due to risk of bias and imprecision. One cost-effectiveness analysis was assessed as partially applicable (no QALYs) with minor limitations. The other three economic evaluations were assessed as partially applicable (not UK and/or no QALYs) but with potentially serious limitations.
Other considerations	Patient choice should always be considered in decision making, such as patient preference in terms of where they wish to die. Family and/or carer satisfaction and burden is also important when providing holistic palliative care. Ideally the service should follow the patient's wishes if possible without increasing the burden on the family or carers. It is also important that the family or carers are supported and satisfied with the care provided. Healthcare professionals who are in contact with patients in the terminal phase of their life (for example, GPs, district nurses, hospital doctors and nurses) should be trained in the early identification of patients that might benefit from community based palliative care (see Linking Evidence to recommendation [LETR] in the Advanced Care Planning chapter [15]). Many people in the terminal phase of illness will have 1 or more AMEs at some point and are also likely to have more than 1 chronic long-term condition, which therefore gives the healthcare system ample opportunity to identify these patients to ensure that the focus is on managing the patient's overall health status as well as optimising individual conditions (or their symptom management) independently. The committee noted that in the current service, the provision of community palliative care is variable and often not comprehensive. The service provided should be responsive to the patients' needs and preferences, for example, provided 24 hours a day, 7 days a week (although no evidence was identified in relation to the timing of services). However, it is likely that a significant proportion of these patients' deterioration will be out of the normal 9-5, Monday to Friday working hours. Healthcare professionals, particularly in secondary care, may be unaware of the availability of palliative care and other forms of support in the community. This could result in avoidable admission to, or delay in discharge from hospital. Early involvement of palliative care in hospital will ensure that patients receive the best balance between active treatment of underlying diseases and comorbidities while also ensuring effective symptom relief. Staff should be better trained in palliative care as current demographic changes will contribute to an increased demand for these specialised services.

Recommendations	**8. Provide specialist multidisciplinary community-based palliative care as an option for people in the terminal phase of an illness.**
Research recommendation	**-**
	Recommendations on the management of people who are near the end of life can be found in the NICE clinical guideline on End of Life Care, currently in development (https://www.nice.org.uk/guidance/indevelopment/gid-cgwave0799).

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Appendices

Appendix A: Review protocol

Table 7: Review protocol: Community base palliative care

Review question	Does community based palliative care improve outcomes compared with hospital care?
Guideline condition and its definition	Acute Medical Emergencies. Definition: a medical emergency can arise in anyone, for example, in people without a previously diagnosed medical condition, with an acute exacerbation of underlying chronic illness, after surgery or after trauma.
Objectives	To determine if wider provision of community-based intermediate care prevents people from staying in hospitals longer than necessary while not impacting on patient and carer outcomes.
Review population	Adults and young people (16 years and over) with a suspected or confirmed AME or patients at risk of AME.
	Adults (17 years and above). Young people (aged 16-17 years).
	Line of therapy not an inclusion criterion.
Interventions and comparators: generic/class; specific/drug (All interventions will be compared with each other, unless otherwise stated)	Usual Care. Community based palliative care; enhanced palliative care in community. Community based palliative care; standard palliative care in community. Hospital based palliative care.
Outcomes	- Quality of life (Continuous) CRITICAL - Length of hospital stay (Continuous) IMPORTANT - Place of death at during study period (Dichotomous) IMPORTANT - Avoidable adverse events (Dichotomous) CRITICAL - Patient and/or carer satisfaction (Dichotomous) CRITICAL - Number of presentations to Emergency Department (Dichotomous) IMPORTANT - Number of admissions to hospital (Dichotomous) CRITICAL - Number of GP presentations (Dichotomous) IMPORTANT - Readmission up to 30 days (Dichotomous) IMPORTANT
Study design	Systematic reviews (SRs) of RCTs, RCTs, observational studies only to be included if no relevant SRs or RCTs are identified.
Unit of randomisation	Patient.
Crossover study	Permitted.
Minimum duration of study	Not defined.
Population stratification	Early discharge. Admission avoidance.
Reasons for stratification	Each of them targets a separate outcome: early discharge would be primarily aimed at reducing length of stay, while admission avoidance would be primarily aimed at reducing hospital admission. Also, the population would be different as the admission avoidance group could be managed at home for the whole episode of care (they could be cared for at home from the start) while the early

Review question	Does community based palliative care improve outcomes compared with hospital care?
	discharge group needs to be “stabilised” at hospital first then discharged.
Subgroup analyses if there is heterogeneity	- Frail elderly (frail elderly; not frail elderly); different from younger population.
Search criteria	Databases: Medline, Embase, the Cochrane Library, CINAHL. Date limits for search: 2010 (update of the search for a Cochrane review[106]). Language: English language only.

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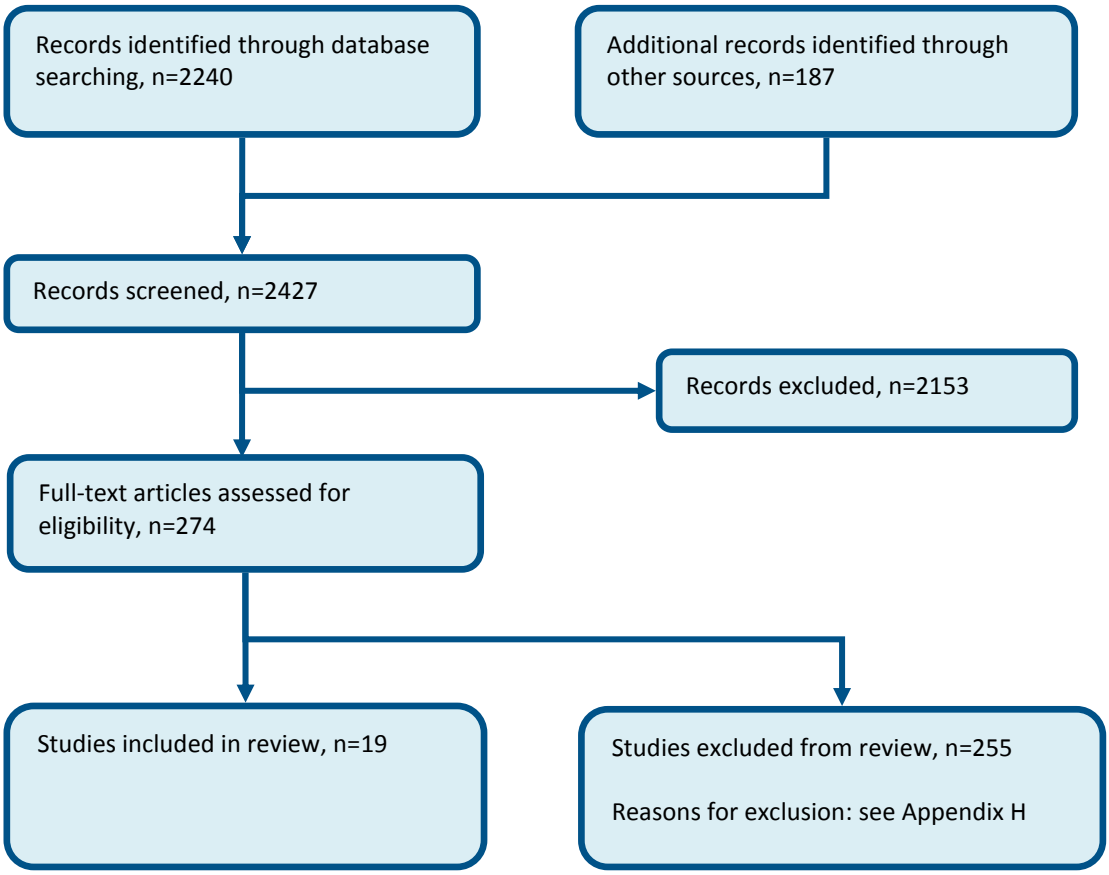
Appendix B: Clinical article selection

Figure 1: Flow chart of clinical article selection for the review of community palliative care



Appendix C: Forest plots

C.1 Community palliative care versus hospital care

Figure 1: Place of death (deaths at home)

Study or Subgroup	Community palliative care Events	Total	Hospital care Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Bakitas 2009	69	111	63	115	34.4%	1.13 [0.91, 1.41]
Brumley 2007	81	117	54	108	31.2%	1.38 [1.11, 1.73]
Grande 1999	124	186	25	43	22.6%	1.15 [0.87, 1.51]
Jordhoy 2000	22	90	11	73	6.8%	1.62 [0.84, 3.12]
Zimmer1985	20	28	7	15	5.1%	1.53 [0.85, 2.76]
Total (95% CI)		**532**		**354**	**100.0%**	**1.27 [1.11, 1.45]**
Total events	316		160			

Heterogeneity: Chi² = 3.03, df = 4 (P = 0.55); I² = 0%
Test for overall effect: Z = 3.52 (P = 0.0004)

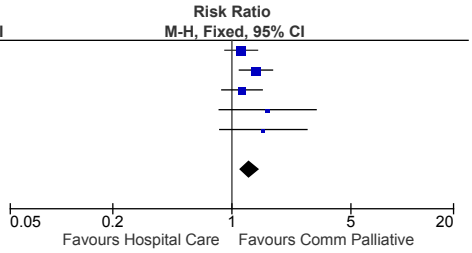


Figure 2: Admissions to hospital

Study or Subgroup	Community palliative care Events	Total	Hospital care Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Brannstrom 2014	13	36	21	36	5.2%	0.62 [0.37, 1.04]
Brumley 2007	56	155	91	155	22.6%	0.62 [0.48, 0.79]
Hughes 1992	57	86	63	85	15.7%	0.89 [0.73, 1.09]
Jordhoy 2000	218	235	186	199	50.0%	0.99 [0.94, 1.04]
Zimmer1985	24	81	25	75	6.4%	0.89 [0.56, 1.41]
Total (95% CI)		**593**		**550**	**100.0%**	**0.87 [0.80, 0.93]**
Total events	368		386			

Heterogeneity: Chi² = 36.41, df = 4 (P < 0.00001); I² = 89%
Test for overall effect: Z = 3.85 (P = 0.0001)

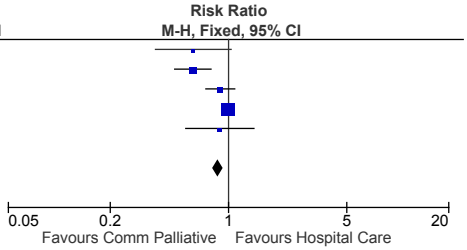


Figure 3: Number of presentations to ED

Study or Subgroup	Community palliative care Events	Total	Hospital care Events	Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Brumley 2007	29	145	50	152	100.0%	0.61 [0.41, 0.90]
Total (95% CI)		**145**		**152**	**100.0%**	**0.61 [0.41, 0.90]**
Total events	29		50			

Heterogeneity: Not applicable
Test for overall effect: Z = 2.46 (P = 0.01)

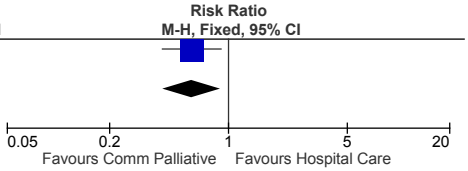


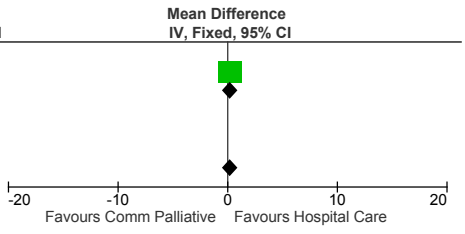
Figure 4: Number of presentations to ED (continuous)

Study or Subgroup	Community palliative care Mean	SD	Total	Hospital care Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
1.5.1 New Subgroup								
Bakitas 2009	0.86	3.05	145	0.63	3.05	134	100.0%	0.23 [-0.49, 0.95]
Subtotal (95% CI)			**145**			**134**	**100.0%**	**0.23 [-0.49, 0.95]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.63 (P = 0.53)

Total (95% CI)			**145**			**134**	**100.0%**	**0.23 [-0.49, 0.95]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.63 (P = 0.53)
Test for subgroup differences: Not applicable



Source: SDs are the same for each group because they were calculated from the p-value, mean and n in each group.

Figure 5: Length of stay

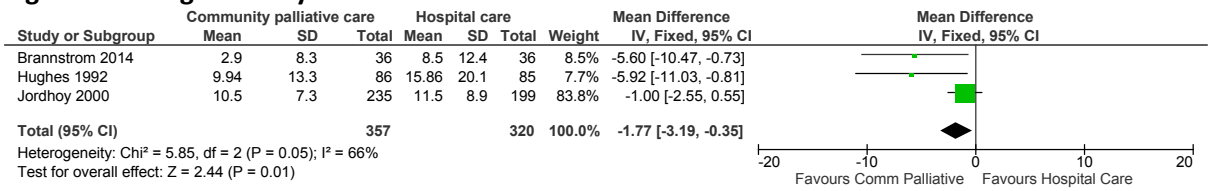


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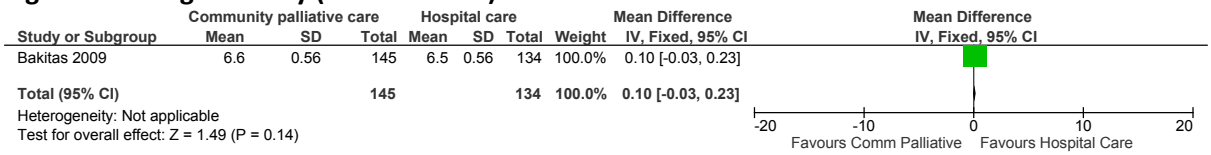
Figure 6: Length of stay (SD calculated)



Source: SDs are the same for each group because they were calculated from the p-value, mean and n in each group.

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Figure 7: Quality of Life

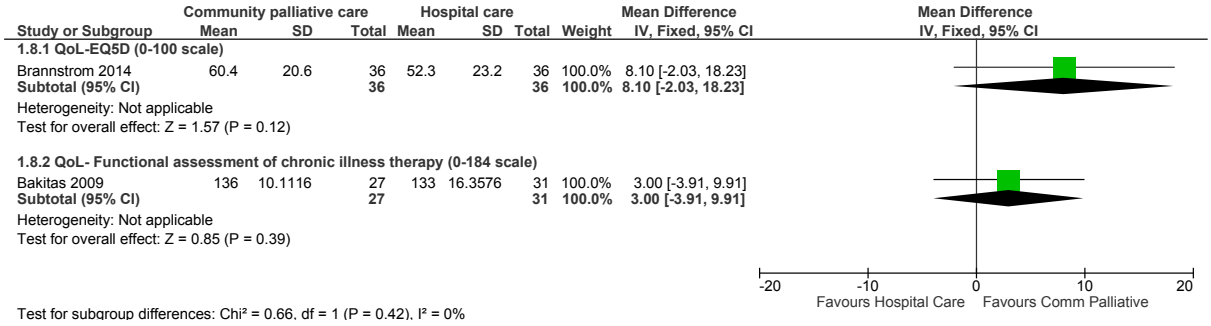

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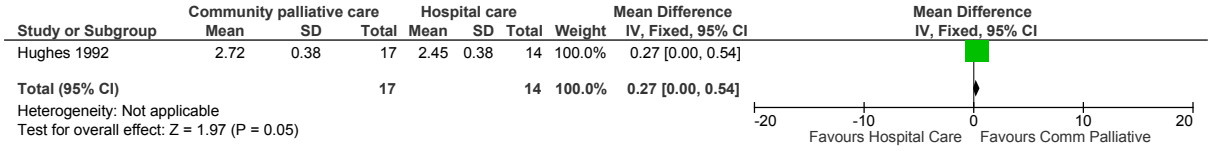
Figure 8: Patient satisfaction (continuous)



Source: SDs are the same for each group because they were calculated from the p-value, mean and n in each group.

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Figure 9: Patient satisfaction

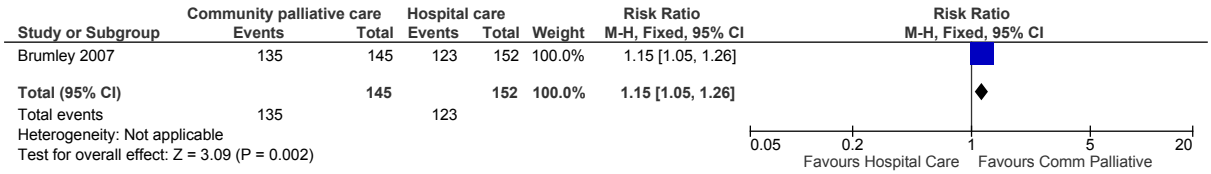

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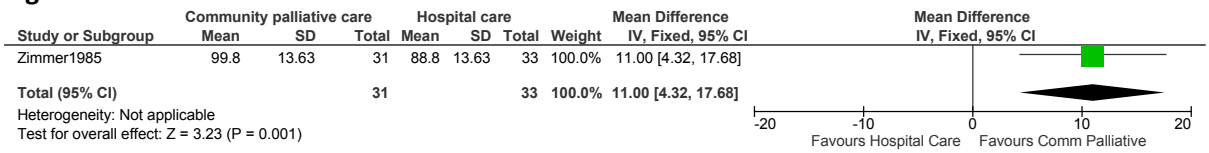
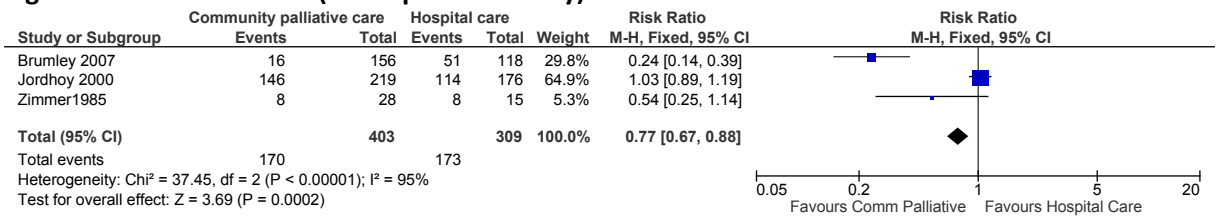
Figure 10: Carer satisfaction



Source: SDs are the same for each group because they were calculated from the p-value, mean and n in each group.

Figure 11: Place of death (in-hospital mortality)



C.2 Enhanced palliative care versus standard palliative care

Figure 12: Admissions

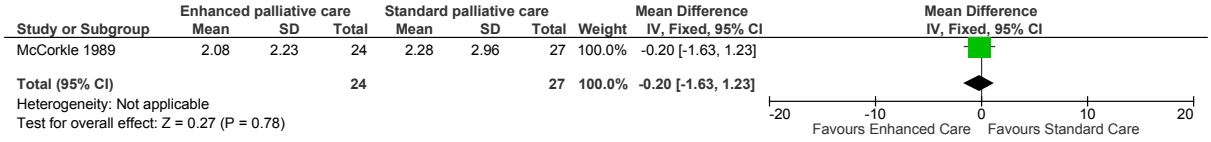


Figure 13: Number of presentations to ED

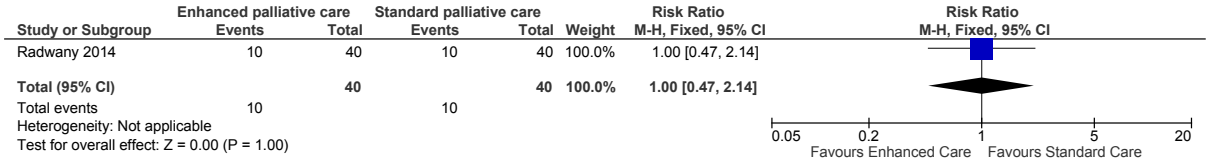


Figure 14: Length of stay

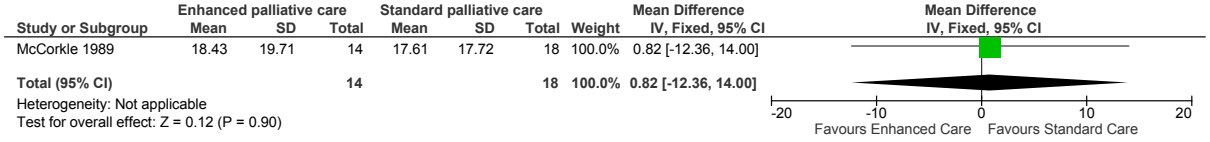


Figure 15: Quality of life (QUAL-E end of life scale)

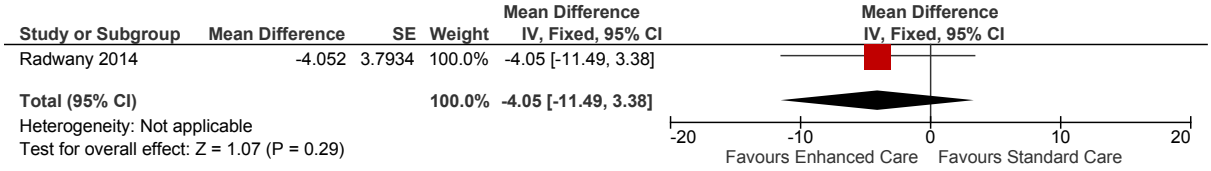


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Figure 16: Preferred place of death achieved

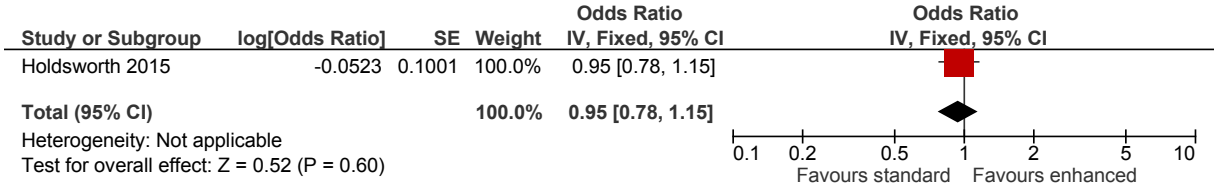

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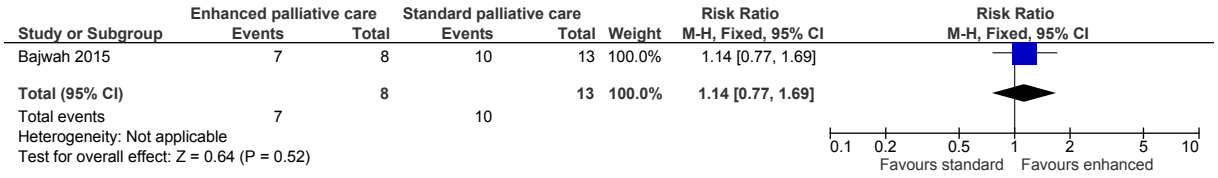
Figure 17: Preferred place of death achieved



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4 C.3 Community palliative care versus usual care

Figure 18: Quality of life (QUAL-E end of life scale)

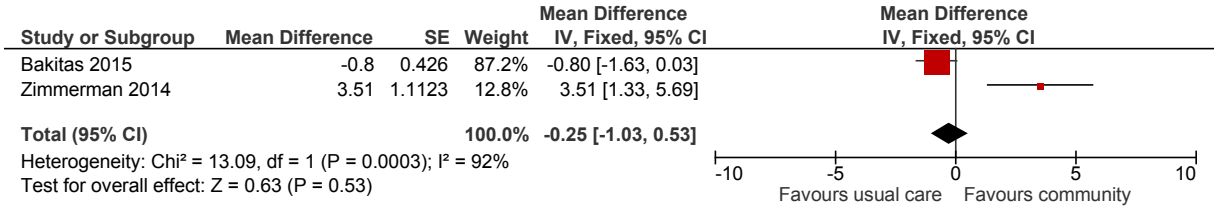

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Figure 19: Quality of life (functional assessment of chronic illness therapy spiritual wellbeing scale)

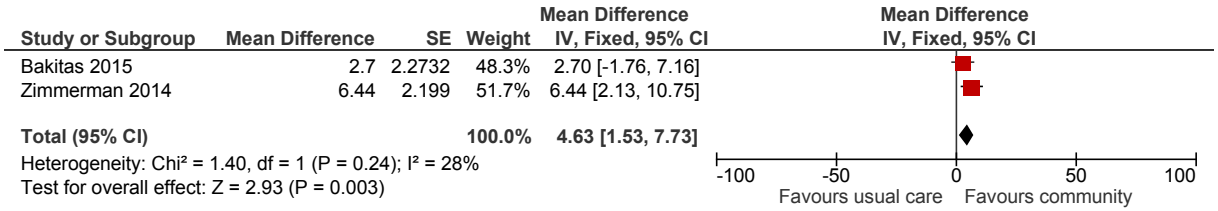

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Figure 20: Patient satisfaction (overall satisfaction 1-10)

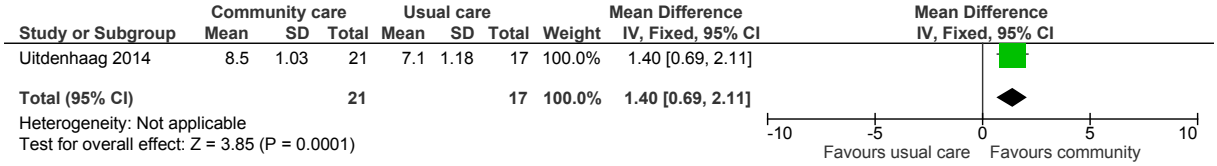

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Figure 21: Patient satisfaction (FAMCARE patient satisfaction with care scale)

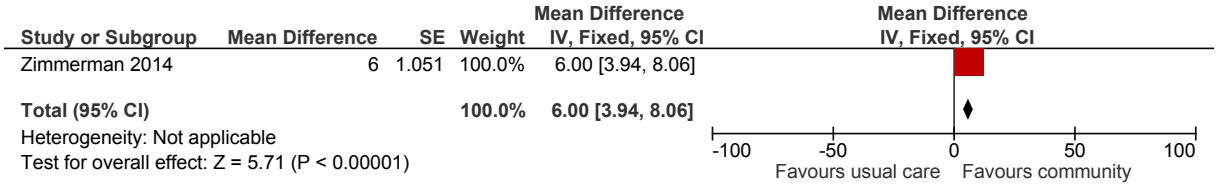

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Figure 22: Relatives satisfaction (overall satisfaction 1-10)

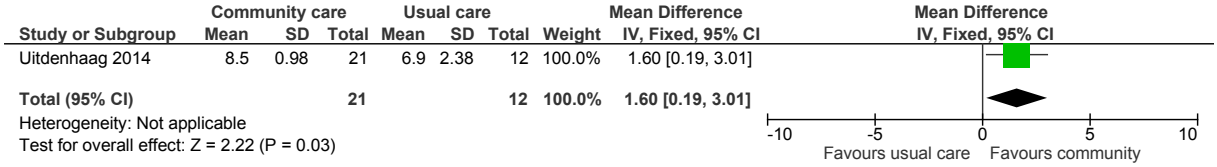

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Figure 23: Death at home

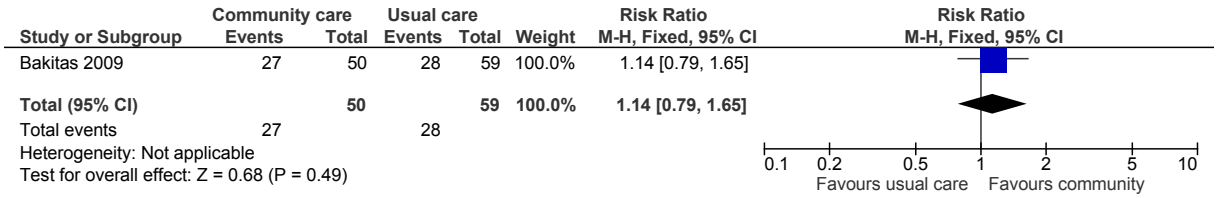

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Figure 24: Length of stay (rate of hospital days)

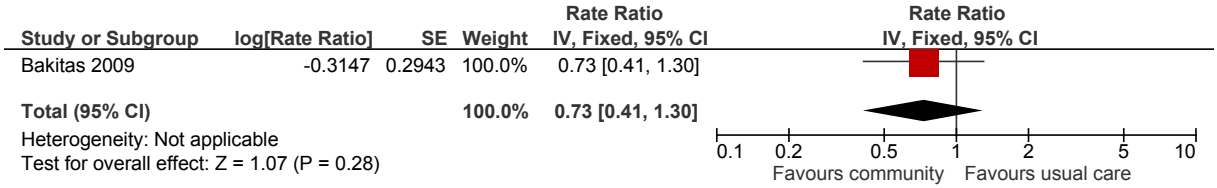

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Figure 25: ED visits (rate of ED visits)

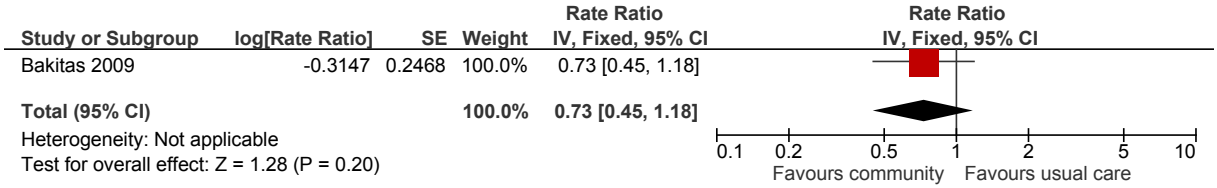

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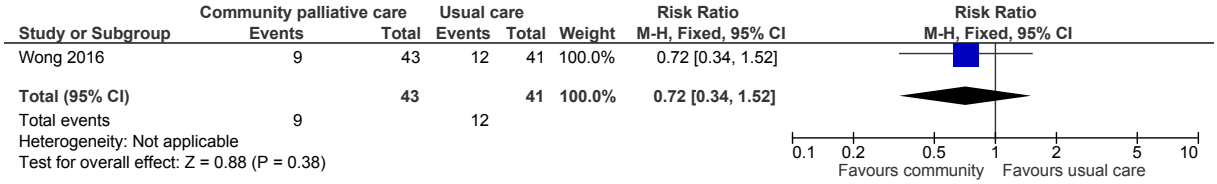
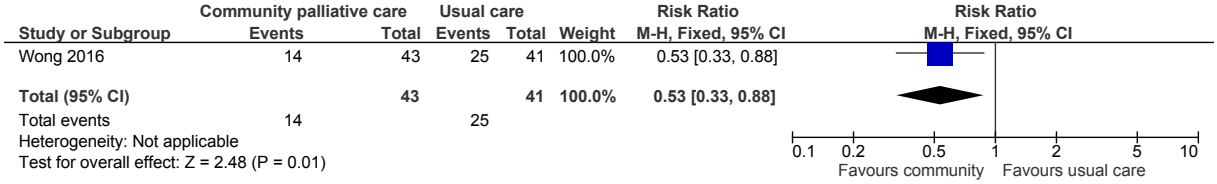
Figure 26: Readmissions (28 days)



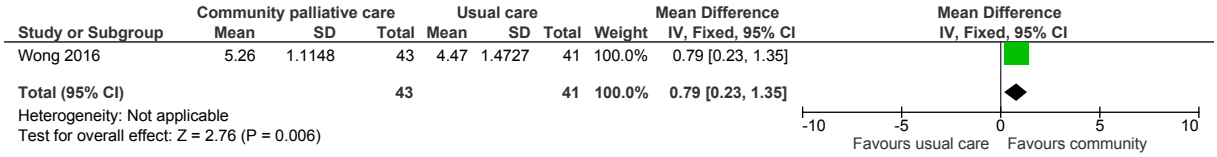
2

Figure 27: Admissions (84 days)



3

Figure 28: Quality of life (chronic heart failure questionnaire; higher score is better)



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Appendix D: Clinical evidence tables

Study	Bajwah 2015[18]
Study type	RCT (Patient randomised; parallel).
Number of studies (number of participants)	1 (n=53).
Countries and setting	Conducted in United Kingdom; setting: patients recruited from inpatient and outpatient settings in a specialist ILD centre (Royal Brompton Hospital, London).
Line of therapy	Not applicable.
Duration of study	Intervention time.
Method of assessment of guideline condition	Adequate method of assessment/diagnosis.
Stratum	Overall: n/a.
Subgroup analysis within study	Not applicable.
Inclusion criteria	Clinical diagnosis of advanced idiopathic fibrotic lung disease, end stage disease as judged by either high resolution CT, composite physiologic index scores or based on clinical signs, oxygen requirements and presence of severe pulmonary hypertension if too unwell to complete pulmonary function tests, >18 years old, sufficient mental capacity, able to complete questionnaires in English.
Exclusion criteria	Not reported.
Recruitment/selection of patients	Not reported.
Age, gender and ethnicity	Age - Mean (SD): Intervention: 67.1 (10.9), Control: 70.6 (10.3). Gender (M:F): 38:15. Ethnicity: 77% white UK, 6% black or black British, 17% Asian or Asian British.
Further population details	1. Frail elderly: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness: n/a.
Interventions	(n=26) Intervention 1: Community based palliative care - enhanced palliative care in community. Hospital2Home intervention 1 week after randomisation - delivered by palliative care specialist nurses; case conferences conducted in patients' homes attended by patient, carer, H2H nurse, GP, community matron/district nurse, respiratory nurse and community palliative care nurse, care concerns and action plans discussed, follow up phone calls to ensure action points had been met by health care professionals. Duration: 8 weeks. Concurrent medication/care: best standard care. (n=27) Intervention 2: Community based palliative care - standard palliative care in community. Hospital2Home

Study	Bajwah 2015[18]
	intervention 4 weeks after randomisation. All patients received best standard care including input from interstitial lung disease physicians, ILD clinical nurse specialist, occupational therapist, physiotherapist and oxygen assessment and ILD treatment as needed and referrals to community health professionals continued. Duration 8 weeks. Concurrent medication/care: n/a.
Funding	Other (Marie Curie and Royal Marsden and Royal Brompton Palliative Care Research Fund).
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: ENHANCED PALLIATIVE CARE IN COMMUNITY versus STANDARD PALLIATIVE CARE IN COMMUNITY. Protocol outcome 1: Place of death during study period. - Actual outcome: preferred place of death achieved at study completion; Group 1: 7/8, Group 2: 10/13; Risk of bias: All domain - High, Selection - Low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - High, Measurement - High, Crossover - Low; Indirectness of outcome	
Protocol outcomes not reported by the study	Quality of life during study period; Avoidable adverse events during study period; Patient and/or carer satisfaction during study period; Number of presentations to Emergency Department during study period; Number of admissions to hospital after 28 days of first admission; Number of GP presentations during study period; Readmission up to 30 days; Length of stay in programme during study period; Length of hospital stay during study period.

Study	ENABLE III trial: Bakitas 2015[20]
Study type	RCT (Patient randomised; Parallel).
Number of studies (number of participants)	1 (n=207).
Countries and setting	Conducted in United Kingdom; setting: patients recruited from a National Cancer Institute cancer centre, a Veterans Affairs Medical Centre and community outreach clinics, USA.
Line of therapy	Not applicable.
Duration of study	Intervention + follow up.
Method of assessment of guideline condition	Adequate method of assessment/diagnosis.
Stratum	Overall: n/a
Subgroup analysis within study	Not applicable.
Inclusion criteria	English speaking, age at least 18 years, advanced stage solid tumour or hematologic malignancy, oncologist-determined prognosis of 6 to 24 months, able to complete baseline questionnaires.
Exclusion criteria	Impaired cognition (Callahan score no greater than 4), active axis 1 psychiatric (schizophrenia, bipolar disorder) or

Study	ENABLE III trial: Bakitas 2015[20]
	substance use disorder, un-correctable hearing disorder, unreliable telephone service.
Recruitment/selection of patients	Consecutive patients meeting the inclusion criteria.
Age, gender and ethnicity	Age - Other: Intervention: mean(SD) 64.03(10.28) Control: mean(SD) 64.6(9.59). Gender (M:F): 109:98. Ethnicity: 200 white, 1 black, 5 other, 1 missing.
Further population details	1. Frail elderly: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness: n/a.
Interventions	(n=104) Intervention 1: Community based palliative care - Standard palliative care in community. ENABLE intervention after enrolment (within 30 to 60 days of advanced cancer diagnosis, cancer recurrence or progression) - in person standardised outpatient palliative care consultation by palliative care clinician, 6 structured weekly telephone coaching sessions by an advanced practice nurse and monthly follow up calls. Duration: until death or study completion. Concurrent medication/care: not reported. (n=103) Intervention 2: Usual Care. ENABLE intervention 3 months after advanced cancer diagnosis, cancer recurrence or progression. Usual oncology care directed by a medical oncologist, consisted of anticancer and symptom control treatments and consultation with oncology and supportive care specialists, including a clinical palliative care team whenever requested. Duration: until death or study completion. Concurrent medication/care: not reported.
Funding	Academic or government funding (National Institute for Nursing Research, University of Alabama, American Cancer Society).

RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: STANDARD PALLIATIVE CARE IN COMMUNITY versus USUAL CARE.

Protocol outcome 1: Quality of life during study period.
- Actual outcome: Quality of Life at End of Life at 3 months; Risk of bias: All domain - Very high, Selection - High, Blinding - High, Incomplete outcome data - High, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness; Baseline details: intervention group had less education, higher weekly alcohol use and higher clinical trial enrollment; Group 1 Number missing: 32; Group 2 Number missing: 20

Protocol outcome 2: Length of hospital stay during study period.
- Actual outcome: rate of hospital days until death; Other: relative rate 0.73 (95%CI 0.41 to 1.27); Risk of bias: All domain - Very high, Selection - High, Blinding - High, Incomplete outcome data - High, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness, Comments: NA; Baseline details: intervention group had less education, higher weekly alcohol use and higher clinical trial enrollment

Protocol outcome 3: Place of death at during study period.
- Actual outcome: Location of death at home at study completion; Group 1: 27/50, Group 2: 28/59; Risk of bias: All domain - Very high, Selection - High, Blinding - High, Incomplete outcome data - High, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness, Comments: NA; Baseline

Study	ENABLE III trial: Bakitas 2015[20]
details: intervention group had less education, higher weekly alcohol use and higher clinical trial enrollment Protocol outcome 4: Number of presentations to Emergency Department during study period. - Actual outcome: rate of ED visits until death; Other: relative rate 0.73 (95%CI 0.45 to 1.19); Risk of bias: All domain - Very high, Selection - High, Blinding - High, Incomplete outcome data - High, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness, Comments: NA; Baseline details: intervention group had less education, higher weekly alcohol use and higher clinical trial enrollment	
Protocol outcomes not reported by the study	Patient and/or carer satisfaction during study period; Number of admissions to hospital after 28 days of first admission; Number of GP presentations during study period; Readmission up to 30 days; Length of stay in programme during study period; Avoidable adverse events during study period.

Study	BRANNSTROM 2014[35]
Study type	RCT (open non-blinded design).
Number of participants	Intervention group= 36. Control group= 36 (n=72).
Countries and setting	Umea University, Sweden.
Duration of study	January 2011 – October 2012.
Stratum	Overall.
Subgroup analysis within study	None.
Inclusion criteria	Inhabitants who had their primary healthcare centre within 30km of the hospital. Patients with a confirmed diagnosis of chronic heart failure and cared for at the Department of Medicine-geriatrics or primary healthcare centres and who met the criteria of the European Society of Cardiology. NYHA functional classes III – IV symptoms and at least one of the following: At least 1 hospitalised episode of worsening heart failure that resolved with the injection/infusion of diuretics or the addition of other heart failure treatment in the preceding 6 months and regarded as being 'optimally treated' according to the responsible physician Need for frequent or continual IV support. Poor quality of life based on a visual analogue scale score <50. Signs of cardiac cachexia, defined as involuntary non-oedematous weight loss >6% of total body weight within the preceding 6-12 months Life expectancy of < 1year.

Study	BRANNSTROM 2014[35]
Exclusion criteria	Patients who did not want to participate in the study. Has severe communication problems. Had severe dementia or other serious diseases in which heart failure was of secondary importance. With other life-threatening illnesses as their primary diagnoses and an expected short survival time. Whose primary care centre responsible for their care was located >30km from the hospital. Who were already participating in another trial.
Recruitment/selection of patients	Identified 517 patients eligible for study of whom 72 were finally randomised.
Age, gender and ethnicity	Age. Mean: 81.9 years. Gender. Females: 10/36. Ethnicity. Not stated.
Further population details	-
Extra comments	-
Indirectness of population	No indirectness.
Interventions	Intervention Group: The research context was an advanced home care unit providing services Monday-Friday during the day and based in a county hospital located in northern Sweden. The home visits and phone calls varied substantially from several times per day to every other week. Patients in the intervention group were offered a multidisciplinary approach involving collaboration between specialists in palliative and heart failure care, that is, specialised nurses, palliative care nurses, cardiologists, palliative care physicians, physiotherapists and occupational therapists. The patients were also offered structured, person-centred care (PCC) at home. PCC is one of the key components and cornerstones in the **P**alliative advanced home ca**RE** and heart **F**ailur**E** ca**R**e (PREFER) model. PCC is described as a partnership between patients/carers and professional caregivers, and includes initiating, working on and documenting partnership. The starting point is the patient's narrative, which is recorded in a structured manner and from which mutual care plan is created that incorporates goals and strategies for implementation and follow up. The intervention was carried out as follows: After identifying a patient who fulfilled the inclusion criteria and had no exclusion criteria, a responsible physician and nurse were identified for each patient.

Study	BRANNSTROM 2014[35]
	The patient was then called for a thorough medical examination by the responsible physician with identification of co-morbidities and assessment of physiological, social and spiritual needs; followed by: Meeting with nurses who used a model for person-centred palliative care. The model is called the six S's and consists of the six S key words; self-image, self-determination, social relationships, symptom control, synthesis and surrender and continued through Regular meetings about the patients' conditions within the team twice a month; and finally: Between the meetings brief discussions took place out between team members at the unit and information was shared by the documentation in medical records and phone calls. Control Group: Usual care was provided mainly by general practitioners or doctors and/or the nurse-led heart failure clinic at the Medicine-Geriatrics department.
Funding	Swedish Association of Local Authorities and regions, the Swedish Heart and Lung Association, and the Ronnbaret Foundation Skelleftea Municipality.
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY PALLIATIVE CARE versus STANDARD PALLAITIVE CARE. Protocol outcome 1: Quality of Life. - Actual outcome: Euro QoL-5D: health-related quality of life at 6 months (p=0.10). Intervention group: 60.4 +/- 20.6. Control group: 52.3 +/- 23.2. Risk of bias: All domain - high, Selection - High, Blinding - High, Incomplete outcome data - low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Admissions. - Actual outcome: Mean number of hospitalisations (p=0.009). Intervention group: 0.42 +/- 0.60 (total number 15). Control group: 1.47 +/- 1.81 (total number 53). Risk of bias: All domain - high, Selection - High, Blinding - High, Incomplete outcome data - low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Length of stay. - Actual outcome: Mean number of hospital days (p=0.011). Intervention group: 2.9 +/- 8.3. Control group: 8.5 +/-12.4. Risk of bias: All domain - high, Selection - High, Blinding - High, Incomplete outcome data - low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not	Mortality, Emergency department visits, readmissions, GP presentations, avoidable adverse events, patient and/or carer satisfaction.

Study	BRANNSTROM 2014[35]
reported by the study	

Study	Holdsworth 2015[132]
Study type	Quasi-RCT.
Number of studies (number of participants)	1 (n=953).
Countries and setting	Conducted in United Kingdom; setting: region covered by one hospice organisation encompassing 3 contiguous areas each served by a hospice (each hospice had an inpatient ward with 16 beds, an outreach service and a day hospice).
Line of therapy	Not applicable.
Duration of study	Intervention time: 18 months.
Method of assessment of guideline condition	Adequate method of assessment/diagnosis.
Stratum	Overall: n/a.
Subgroup analysis within study	Not applicable: n/a.
Inclusion criteria	All patients referred to the hospice who died and had a recorded preferred place of death.
Exclusion criteria	Not reported.
Recruitment/selection of patients	Consecutive patients referred to the hospice during the study period meeting the inclusion criteria.
Age, gender and ethnicity	Age - Mean (SD): intervention: 75.09(11.52), control: 74.06(11.96). Gender (M:F): 548:405. Ethnicity: not reported.
Further population details	1. Frail elderly: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness: n/a.
Interventions	(n=688) Intervention 1: Community based palliative care - enhanced palliative care in community. rapid response service staffed by health care assistants who were available by referral day and night at 4 hour notice to support patients dying at home or in crisis and wanting to avoid hospital admission, service supported by hospice multidisciplinary team. Duration: 18 months, 12 months, 6 months. Concurrent medication/care: not reported. (n=265) Intervention 2: Community based palliative care - standard palliative care in community. Each hospice had an inpatient ward with 16 beds, an outreach service and a day hospice. Duration: 6 months, 12 months. Concurrent medication/care: not reported.
Funding	Academic or government funding (commissioned by the National Institute for Health Research, sponsored by East Kent Hospitals University NHS Foundation Trust, service funded by NHS Kent and Medway).

Study	Holdsworth 2015[132]
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: ENHANCED PALLIATIVE CARE IN COMMUNITY versus STANDARD PALLIATIVE CARE IN COMMUNITY. Protocol outcome 1: Place of death during study period. - Actual outcome: achieving preferred place of death during study period; OR 0.949 (95%CI 0.78 to 1.142) Comments: adjusted for preferred place of death, occupance status and time in the study; ; Risk of bias: All domain - High, Selection - Low, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - High, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Quality of life during study period; Avoidable adverse events during study period; Patient and/or carer satisfaction during study period; Number of presentations to Emergency Department during study period; Number of admissions to hospital after 28 days of first admission; Number of GP presentations during study period; Readmission up to 30 days; Length of stay in programme during study period; Length of hospital stay during study period.

Study	RADWANY 2014[210]
Study type	RCT.
Number of participants	Intervention group= 40. Control group= 40 (n=80).
Countries and setting	Ohio, USA.
Duration of study	-
Stratum	Overall.
Subgroup analysis within study	-
Inclusion criteria	All new PASSPORT enrolees >60 years old. Passed a mental status screening (the Mental Status Questionnaire). Had 1 of the following: congestive heart failure; chronic obstructive pulmonary disease and on home oxygen; diabetes with renal disease, neuropathy, visual problems, or coronary artery disease; end stage liver disease or cirrhosis; cancer (active, not history of) except skin cancer; renal disease and actively receiving dialysis; Parkinson's disease stage 3 and 4; or pulmonary hypertension. These criteria were established by expert consensus and were chosen so that the intervention was targeted at those whose illness severity made it more likely that they would benefit from geriatrics/palliative care intervention.
Exclusion criteria	Active alcoholics (that is, those who drink >2 drinks per day on average).

Study	RADWANY 2014[210]
	Illegal substance users were excluded. Clients who have schizophrenia or are psychotic. Consumers already enrolled in hospice. These consumers were excluded because the authors' previous care management trials have shown that these other conditions tend to dominate the person's life and detract from their ability to participate in self-management activities. Consumers who could not pass the Mental Status Questionnaire were excluded because the intervention relies heavily on chronic illness self-management and the ability of an individual to make decisions about advance acre wishes.
Recruitment/selection of patients	-
Age, gender and ethnicity	Age: Mean: 69.5 years. Gender: Females: 29/40. Ethnicity: White: 34/40.
Further population details	-
Extra comments	-
Indirectness of population	No indirectness.
Interventions	Intervention Group: Ohio's community-based, long term care Medicaid waiver programme (known as PASSPORT), based on the Promoting Effective Advance Care for Elders (PEACE); it is an in-home geriatric/palliative care interdisciplinary care management intervention for improving measures of utilisation, quality of care and quality of life. Consumers were randomly assigned to specifically trained PASSPORT care managers or to usual PASSPORT care. Within 3 weeks of enrolment into PASSPORT, consumers in the intervention group received the first of 2 in-home geriatric/palliative care biopsychosocial needs assessment. The primary care physician was informed by letter that his or her patient was in the study and asked whether the patient had few or many treatment options and whether the health care team was aware of the patients' wishes. This helped the team get a more realistic of the patients' medical status from the start. The second visit occurred within approximately 2 weeks of the first and concentrated on consumer goal setting. Within approximately 2 weeks of the second home visit, there was an interdisciplinary team meeting to review the findings of the care manager's assessment. The team developed individualise, evidence- based care plans based on standardised protocols that were developed for this study and derived from an extensive literature review. A copy of this care plan was sent to the consumer's primary care physician.

Study	RADWANY 2014[210]
	Once the care plan was agreed upon by the all, PASSPORT care manager made another home visit to implement the plan and to teach, activate and coach the consumer and or caregiver. This included teaching disease and symptom management, identifying symptom management needs, developing an emergency response plan, addressing functional needs, teaching caregivers about disease/symptom management, assisting with access to community resources, referring to a counsellor as needed for psychological support, assessing/assisting with spiritual needs, addressing unmet medical needs, reviewing medications, facilitating client/primary care physician/family communication and completing legal documents recognised by the State of Ohio (that is, Do Not Resuscitate and living will forms). Consumers were provided with written self-management materials. Caregiver's needs were also assessed, when appropriate, using informal open-ended questions, and community supports were mobilised to meet identified needs. Consumers had access to either the care manager or a hospital-based team member 24 hours per day because acute exacerbations might otherwise prompt consumers to seek help in the emergency department. The PASSPORT care manager followed up with the consumers by phone as needed, but at least monthly, for 12 months to determine whether the goals of care had changed. Control Group: Consumers randomised to the usual care received usual PASSPORT care, which follows more of a psychosocial rather than a biopsychosocial model. A letter was sent to the primary care physician informing him or her that the consumer was enrolled in the study. Consumers also received mailed palliative care educational information every month in an attempt to mask group assignment.
Funding	National Palliative Care Research Centre and the Summa Foundation.
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: ENHANCED COMMUNITY PALLIATIVE CARE versus STANDARD COMMUNITY PALLAITIVE CARE Protocol outcome 1: Emergency department visits. - Actual outcome: % with ED visits. Intervention group: 25%. Control group: 25% (p=1.0). Risk of bias: All domain - High, Selection - Low, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - low, Crossover - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Quality of Life. - Actual outcome: Quality at End of Life Scale. 12 month mean difference between groups: -3.889 (95% CI: -10.722, 2.944). Risk of bias: All domain - High, Selection - Low, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - low, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Mortality, readmissions, GP presentations, avoidable adverse events, patient and/or carer satisfaction, length of stay, admissions.

Study	Uitdehaag 2014[263]
Study type	RCT (Patient randomised; Parallel).
Number of studies (number of participants)	1 (n=138).
Countries and setting	Conducted in Netherlands; setting: patients recruited from Departments of oncology, gastroenterology and surgery of a Medical Centre in The Netherlands.
Line of therapy	Not applicable.
Duration of study	Intervention time: 13 months.
Method of assessment of guideline condition	Adequate method of assessment/diagnosis.
Stratum	Overall: n/a.
Subgroup analysis within study	Not applicable.
Inclusion criteria	Multidisciplinary panel concluded that a curative modality of disease modifying anti-tumour therapy was not or no longer possible.
Exclusion criteria	Admitted to a nursing home or hospice, could not be followed by a physician at the outpatient clinic, unable to understand Dutch or complete questionnaires.
Recruitment/selection of patients	Consecutive patients meeting the inclusion criteria during the study period.
Age, gender and ethnicity	Age - Mean (SD): intervention: 67(10.4), control: 64(12). Gender (M:F): 40:26. Ethnicity: not reported.
Further population details	1. Frail elderly: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness: n/a.
Interventions	(n=70) Intervention 1: Community based palliative care - standard palliative care in community. Nurse-led follow up - home visits from a specialist nurse with >10 years' experience in oncology care at 14 days then monthly up to 13 months or death, focusing mainly on relief of suffering and complaints, nurses had regular contact with the attending physician and patients' GP, telephone contact if necessary. Duration: 13 months or death. Concurrent medication/care: in case of symptoms and a subsequent palliative treatment, visits were frequently made to evaluate the effect of this treatment on symptom burden. (n=68) Intervention 2: Usual Care. conventional medical follow up - scheduled appointments at the outpatient clinic at one months and then every two months up to 13 months or death, appointments by telephone if patients unable to attend. Duration: 13 months or death. Concurrent medication/care: in case of symptoms and a subsequent palliative treatment, visits were frequently made to evaluate the effect of this treatment on symptom burden.
Funding	Other (Care Research Erasmus MC, Rotterdam).
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: STANDARD PALLIATIVE CARE IN COMMUNITY versus USUAL CARE.	

Study	Uitdehaag 2014[263]
Protocol outcome 1: Patient and/or carer satisfaction during study period. - Actual outcome: patient overall satisfaction at 4 months; Group 1: mean 8.5 (SD 1.03); n=21, Risk of bias: All domain - Very high, Selection - Low, Blinding - High, Incomplete outcome data - High, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness- Actual outcome: relatives overall satisfaction at 4 months; Group 1: mean 8.5 (SD 0.98); n=21, Risk of bias: All domain - Very high, Selection - Low, Blinding - High, Incomplete outcome data - High, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Quality of life during study period; Place of death during study period; Avoidable adverse events during study period; Number of presentations to Emergency Department during study period; Number of admissions to hospital after 28 days of first admission; Number of GP presentations during study period; Readmission up to 30 days; Length of stay in programme during study period; Length of hospital stay during study period.

Study	Wong 2016[280]
Study type	RCT (Patient randomised; Parallel).
Number of studies (number of participants)	1 (n=84).
Countries and setting	Conducted in China; setting: 3 hospitals in Hong Kong.
Line of therapy	Not applicable.
Duration of study	Intervention time: 12 weeks.
Method of assessment of guideline condition	Adequate method of assessment/diagnosis.
Stratum	Overall: n/a.
Subgroup analysis within study	Not applicable: n/a.
Inclusion criteria	Met 2 indicators identified as end stage heart failure, Cantonese speaking, living within the service area, contactable by phone, referral accepted by palliative care team.
Exclusion criteria	Discharged to institutions, inability to communicate, diagnosed with severe psychiatric disorder, recruited to other programmes.
Recruitment/selection of patients	not reported
Age, gender and ethnicity	Age - Mean (SD): control 78.4 (10), intervention 78.3 (16.8). Gender (M:F): 43/41. Ethnicity: not reported.
Further population details	1. Frail elderly: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness.

Study	Wong 2016[280]
Interventions	(n=43) Intervention 1: Community based palliative care - standard palliative care in community. Transitional Care Palliative End Stage Heart Failure programme - weekly home visits/telephone calls in the first 4 weeks then monthly follow up provided by nurse case manager supported by multidisciplinary team; assessed patients' environmental, psychosocial, physiological and health behaviour needs and intervened accordingly; goals and agreed care plan. Duration: 12 weeks. Concurrent medication/care: not reported. (n=41) Intervention 2: Usual Care. Control group - 2 placebo calls consisting of light conversation topics unrelated to clinical issues. Duration: 12 weeks. Concurrent medication/care: not related.
Funding	Academic or government funding (Research grants council of the Hong Kong special administrative region)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: STANDARD PALLIATIVE CARE IN COMMUNITY versus USUAL CARE. Protocol outcome 1: Number of admissions to hospital at After 28 days of first admission. - Actual outcome: Readmissions at 84 days; Group 1: 14/43, Group 2: 25/41; Risk of bias: All domain - High, Selection - Low, Blinding - High, Incomplete outcome data - High, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Readmission at 7 and 28 days. - Actual outcome: Readmissions at 28 days; Group 1: 9/43, Group 2: 12/41; Risk of bias: All domain - Low, Selection - Low, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Quality of life at 28 days. - Actual outcome: Chronic heart failure questionnaire at 28 days; Group 1: 5.26, Group 2: 4.47; Risk of bias: All domain - Low, Selection - Low, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Place of death during study period; Avoidable adverse events during study period; Patient and/or carer satisfaction during study period; Number of presentations to Emergency Department during study period; Number of GP presentations during study period; Length of stay in programme during study period; Length of hospital stay during study period.

Study	Zimmermann 2014[291]
Study type	RCT (Patient randomised; Parallel).
Number of studies (number of participants)	1 (n=461).
Countries and setting	Conducted in Canada; setting: Princess Margaret Cancer Centre, Canada.

Study	Zimmermann 2014[291]
Line of therapy	Not applicable.
Duration of study	Intervention time: 4 months.
Method of assessment of guideline condition	Adequate method of assessment/diagnosis.
Stratum	Overall: n/a.
Subgroup analysis within study	Not applicable.
Inclusion criteria	18 years or older, stage 4 cancer (for breast and prostate cancer refractory to hormonal therapy was an additional criterion; patients with stage 3 cancer and poor clinical prognosis were included at the discretion of the oncologist), estimated survival of 6-24 months (assessed my main oncologist), Eastern Cooperative Oncology Group performance status of 0, 1 or 2 (assessed by main oncologist), completed baseline measures.
Exclusion criteria	Insufficient English literacy to complete baseline questionnaires, inability to pass the cognitive screening test.
Recruitment/selection of patients	Daily screening of participating oncology clinics by research personnel to establish eligibility.
Age, gender and ethnicity	Age - Mean (SD): intervention: 61.2(12), control: 60.2(11.3). Gender (M:F): 200:261. Ethnicity: not reported.
Further population details	1. Frail elderly: Not applicable/Not stated/Unclear.
Indirectness of population	No indirectness: n/a.
Interventions	(n=228) Intervention 1: Community based palliative care - standard palliative care in community. palliative care service - outpatient oncology palliative care clinic, 12 bed palliative care unit, inpatient consultation team, core intervention was outpatient clinic by a palliative care physician and nurse consisting of a comprehensive assessment, routine telephone contact from a palliative care nurse, monthly outpatient palliative care follow up, 24 hour on call service for telephone management of urgent issues, as required arrangement of home nursing, transfer of care to a home palliative care physician and admission to inpatient unit. Duration: 4 months. Concurrent medication/care: not reported. (n=233) Intervention 2: Usual Care. Usual care - no formal intervention, palliative care referral not denied if requested. Duration: 4 months. Concurrent medication/care: not reported.
Funding	Academic or government funding (Canadian Cancer Society and Ontario Ministry of Health and Long Term Care).
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: STANDARD PALLIATIVE CARE IN COMMUNITY versus USUAL CARE. Protocol outcome 1: Quality of life during study period. - Actual outcome: Functional Assessment of Chronic Illness Therapy - Spiritual Well-Being scale at 4 months; MD; 6.44 (95%CI 2.13 to 10.76) 0-156 Top=High is good outcome, Comments: adjusted mean difference between change scores (adjusted for clustering and baseline covariates); Risk of bias: All domain - Low, Selection - Low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low;	

Study	Zimmermann 2014[291]
Indirectness of outcome: No indirectness - Actual outcome: Quality of Life at End of Life scale at 4 months; MD; 3.51 (95%CI 1.33 to 5.68) 21-105 Top=High is good outcome, Comments: adjusted mean difference (adjusted for clustering and baseline covariates); Risk of bias: All domain - Low, Selection - Low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Patient and/or carer satisfaction during study period. - Actual outcome: FAMCARE patient satisfaction with care scale at 4 months; MD; 6 (95%CI 3.94 to 8.05) 16-80 Top=High is good outcome, Comments: adjusted mean difference (adjusted for clustering and baseline covariates); Risk of bias: All domain - Low, Selection - Low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness - Actual outcome: Cancer Rehabilitation Evaluation System Medical Interaction subscale at 4 months; MD; -0.84 (95%CI -1.91 to 0.22) 0-44 Top=High is poor outcome, Comments: adjusted mean difference (adjusted for clustering and baseline covariates); Risk of bias: All domain - Low, Selection - Low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Place of death during study period; Avoidable adverse events during study period; Number of presentations to Emergency Department during study period; Number of admissions to hospital after 28 days of first admission; Number of GP presentations during study period; Readmission up to 30 days; Length of stay in programme during study period; Length of hospital stay during study period.

Appendix E: Economic evidence tables

Study	Higginson 2009[130]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: CEA (health outcome: POS-8) **Study design:** RCT **Approach to analysis:** Analysis of individual level resource use, extracted from patients through questionnaires, with unit costs applied. **Perspective:** UK NHS **Follow up:** 12 weeks **Discounting:** Costs: n/a; Outcomes: n/a	**Population:** Patients who were severely affected by multiple sclerosis **Cohort settings:** Start age: 53 Male: 31% **Intervention 1: (n=26)** Usual care with PCT offered after 3 months (outside of 12 week data collection) **Intervention 2: (n=26)** Immediate multi-professional palliative care team (PCT)	**Total costs (mean per patient):** Intervention 1: £4,853 Intervention 2: £2,429 Incremental (2−1): -£2,361 (95% CI: NR; p=NR) **Currency & cost year:** 2005 UK pounds **Cost components incorporated:** Staff costs, inpatient care, respite care	**POS-8 range of 0-40 with lower scores being better (mean difference from baseline per patient):** Intervention 1: -0.95 Intervention 2: -0.42 Incremental (2−1): 0.53 **POS pain (mean difference from baseline per patient):** Intervention 1: 0.30 Intervention 2: -0.46 Incremental (2−1): -0.76	£4,455 per 1 point decrease in POS-8 score. Intervention 2 dominates for POS pain score. The study mapped a cost-effectiveness plane for costs and POS-8. This found intervention 2 to dominate, replications being in the lower-right quadrant, 33.8% of the time.
Data sources				
Health outcomes: Patient reported POS-8 scores at baseline, six weeks and 12 weeks. Patients reported resource use for the three months prior to interventions and the 12 week treatment period. **Quality-of-life weights:** n/a. **Cost sources:** PSSRU.				
Comments				
Source of funding: Multiple Sclerosis Society (UK). **Applicability and limitations:** Used condition specific measures for quality of life which did not create a QALY measure. RCT-based analysis so from one study by definition therefore not reflecting all evidence in area. Minimal amount of sensitivity analysis.				
Overall applicability[(a)] partially applicable **Overall quality**[(b)]**:** minor limitations				

Abbreviations: CEA: cost-effectiveness analysis; 95% CI: 95% confidence interval; NR: not reported; pa: probabilistic analysis; POS: palliative care outcome scale; PSSRU: personal social services research unit; QALYs: quality-adjusted life years.

(a) Directly applicable/Partially applicable/Not applicable.

(b) Minor limitations/Potentially serious limitations/Very serious limitations.

Study	Sahlen 2016[227]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: CUA (health outcome: QALYs) **Study design:** RCT **Approach to analysis:** Analysis of individual level resource us, with unit costs applied **Perspective:** Swedish healthcare system **Follow-up**: 6 months **Discounting:** Costs: n/a; Outcomes: n/a	**Population:** Patients with chronic and severe heart failure **Cohort settings:** Start age: NR Male: NR **Intervention 1 (n=36):** Usual care provided by primary care health centre **Intervention 2 (n=36):** Palliative advanced home care and heart failure care (PREFER)	**Total costs (mean per patient):** Intervention 1: £5,239 Intervention 2: £3,730 Incremental (2−1): -£1,509 (95% CI: NR; p=NR) **Currency & cost year:** 2012 Euros (presented here as 2012 UK pounds [(a)]) **Cost components incorporated:** GP time, other primary care staff time, emergency transport, hospital care	**QALYs (mean per patient):** Intervention 1: -0.024 Intervention 2: 0.006 Incremental (2−1): 0.03	Palliative advanced home care and heart failure care (PREFER) dominates usual care, being both cost saving and more effective. Swedish standard cost model used in place of reported resource use and unit costs. This increased the total cost of both the intervention and control group resulting in a smaller cost difference still in favour of PREFER (-£1,248).
Data sources				
Health outcomes: Patient reported via EQ-5D **Quality-of-life weights:** EQ-5D **Cost sources:** 2012 accounting records of Västerbotten County				
Comments				
Source of funding: Swedish Association of Local Authorities and Regions, the Strategic Research Program in Health Care Sciences, the Swedish Heart and Lung Association. **Applicability and limitations:** Some uncertainty regarding the applicability of resource use and unit costs from Sweden. Small cohort size. RCT-based analysis, so from one study by definition therefore not reflecting all evidence in area. Local costs used with assumptions made around timing of resource use. Uncertainty about whether time horizon is sufficient to capture all benefits and costs. No sensitivity analysis around quality of life results.				
Overall applicability[(b)]: partially applicable **Overall quality[(c)]:** potentially serious limitations				

Abbreviations: CC: comparative costing analysis; 95% CI: 95% confidence interval; NR: not reported.

(a) Converted using 2012 purchasing power parities[195].

(b) Directly applicable/Partially applicable/Not applicable.

(c) Minor limitations/Potentially serious limitations/Very serious limitations.

Appendix F: GRADE tables

Table 8: Clinical evidence profile: Community palliative versus hospital care

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Community Palliative care	Hospital care	Relative (95% CI)	Absolute		
Place of death (assessed with: deaths at home)												
5	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	316/532 (59.4%)	50%	RR 1.27 (1.11 to 1.45)	135 more per 1000 (from 55 more to 225 more)	⊕⊕OO LOW	CRITICAL
Admissions to hospital (follow-up median 6 months; assessed with: number of admissions)												
5	randomised trials	very serious[1]	serious[3]	no serious indirectness	no serious imprecision	none	368/593 (62.1%)	58.7%	RR 0.87 (0.8 to 0.93)	76 fewer per 1000 (from 41 fewer to 117 fewer)	⊕OOO VERY LOW	IMPORTANT
Number of presentations to ED (follow-up 12 months; assessed with: ED visits)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	29/145 (20%)	32.9%	RR 0.61 (0.41 to 0.9)	128 fewer per 1000 (from 33 fewer to 194 fewer)	⊕⊕OO LOW	IMPORTANT
Number of presentations to ED (continuous) (measured with: ED visits; Better indicated by lower values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	145	134	-	MD 0.23 higher (0.49 lower to 0.95 higher)	⊕⊕⊕O MODERATE	IMPORTANT
Length of stay (follow-up 6 months; measured with: length of hospital stay; Better indicated by lower values)												
3	randomised trials	serious[1]	serious[3]	no serious indirectness	no serious imprecision	none	357	320	-	MD 1.77 lower (3.19 to 0.35 lower)	⊕⊕OO LOW	IMPORTANT
Length of stay (measured with: length of hospital stay; Better indicated by lower values)												

1	randomised trials	very serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	145	134	-	MD 0.1 higher (0.03 lower to 0.23 higher)	⊕⊕OO LOW	IMPORTANT
Quality of life (follow-up 6 months; measured with: QoL-EQ5D (0-100 scale); Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	36	36	-	MD 8.1 higher (2.03 lower to 18.23 higher)	⊕⊕OO LOW	CRITICAL
Quality of life (follow-up 12 months; measured with: QoL- Functional assessment of chronic illness therapy (0-184 scale); Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	27	31	-	MD 3 higher (3.91 lower to 9.91 higher)	⊕⊕OO LOW	CRITICAL
Patient Satisfaction (follow-up 6 months; Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	17	14	-	MD 0.27 higher (0 to 0.54 higher)	⊕⊕OO LOW	CRITICAL
Patient satisfaction (follow-up 3 months)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	135/145 (93.1%)	80.9%	RR 1.15 (1.05 to 1.26)	121 more per 1000 (from 40 more to 210 more)	⊕⊕OO LOW	CRITICAL
Carer satisfaction (follow-up 6 months; measured with: scale 26-130; Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	31	33	-	MD 11 higher (4.32 to 17.68 higher)	⊕⊕OO LOW	CRITICAL
In-hospital mortality (follow up mean 18 months)												
3	randomised trials	serious[1]	serious inconsistency[3]	no serious indirectness	serious[2]	none	170/403 (42.2%)	53.3%	RR 0.77 (0.67 to 0.88)	123 fewer per 1000 (from 64 fewer to 176 fewer)	⊕OOO VERY LOW	CRITICAL

[1] Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias.
[2] Downgraded by 1 increment if the confidence interval crossed 1 MID or by 2 increments if the confidence interval crossed both MIDs.
[3] Heterogeneity, I^2=50%, p=0.04, unexplained by subgroup analysis.

Table 9: Clinical evidence profile: Enhanced community palliative versus standard community palliative care

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Enhanced palliative care	standard palliative care	Relative (95% CI)	Absolute		
Admissions (Better indicated by lower values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	24	27	-	MD 0.2 lower (1.63 lower to 1.23 higher)	⊕⊕OO LOW	IMPORTANT
Number of presentations to ED (follow-up 12 months)												
1	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	10/40 (25%)	25%	RR 1 (0.47 to 2.14)	0 fewer per 1000 (from 132 fewer to 285 more)	⊕⊕OO LOW	IMPORTANT
Length of stay (follow-up 6 months; Better indicated by lower values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[2]	none	14	18	-	MD 0.82 higher (12.36 lower to 14 higher)	⊕OOO VERY LOW	IMPORTANT
Quality of life (measured with: QUAL-E End of life Scale; Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	0	-	-	MD 4.05 lower (11.49 lower to 3.38 higher)	⊕⊕OO LOW	CRITICAL
Preferred place of death achieved												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	none	429/688 (62.4%)	61.90%	OR 0.95 (0.78 to 1.15)	12 fewer per 1000 (from 60 fewer to 32 more)	⊕⊕⊕O MODERATE	CRITICAL

Preferred place of death achieved												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	7/8 (87.5%)	76.9%	RR 1.14 (0.77 to 1.69)	108 more per 1000 (from 177 fewer to 531 more)	⊕⊕OO LOW	CRITICAL

[1] Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias.
[2] Downgraded by 1 increment if the confidence interval crossed 1 MID or by 2 increments if the confidence interval crossed both MIDs.

Table 10: Clinical evidence profile: Community palliative care versus usual care

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	**Design**	**Risk of bias**	**Inconsistency**	**Indirectness**	**Imprecision**	**Other considerations**	**Community palliative care**	**usual care**	**Relative (95% CI)**	**Absolute**		
Quality of life (follow-up 3-4 months; measured with: Quality of life at end of life scale; range of scores: 21-105; Better indicated by higher values)												
2	randomised trials	no serious risk of bias	serious[1]	no serious indirectness	no serious imprecision	none	183	231	-	MD 025 lower (1.03 lower to 0.53 higher)	⊕⊕⊕O MODERATE	CRITICAL
Quality of life (follow-up 3-4 months; measured with: functional assessment of chronic illness therapy spiritual well-being scale; range of scores: 0-184; Better indicated by higher values)												
2	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[2]	none	194	232	-	MD 4.63 higher (1.53 to 7.73 higher)	⊕⊕⊕O MODERATE	CRITICAL
Patient satisfaction (follow-up 4 months; measured with: overall satisfaction rating; range of scores: 1-10; Better indicated by higher values)												
1	randomised trials	very serious[3]	no serious inconsistency	no serious indirectness	no serious imprecision	none	21	17	-	MD 1.4 higher (0.69 to 2.11 higher)	⊕⊕OO LOW	CRITICAL
Patient satisfaction (follow-up 4 months; measured with: FAMCARE patient satisfaction with care scale; range of scores: 16-80; Better indicated by higher values)												
1	randomised	no serious	no serious	no serious	serious[2]	none	121	153	-	MD 6 higher (3.94 to	⊕⊕⊕O MODERAT	CRITICAL

	trials	risk of bias	inconsistency	indirectness						8.06 higher)	E	
Relatives satisfaction (follow-up 4 months; measured with: overall satisfaction rating; range of scores: 1-10; Better indicated by lower values)												
1	randomised trials	very serious[3]	no serious inconsistency	no serious indirectness	serious[2]	none	21	12	-	MD 1.6 higher (0.19 to 3.01 higher)	⊕OOO VERY LOW	CRITICAL
Death at home												
1	randomised trials	very serious[3]	no serious inconsistency	no serious indirectness	serious[2]	none	27/50 (54%)	47.5%	RR 1.14 (0.79 to 1.65)	66 more per 1000 (from 100 fewer to 309 more)	⊕OOO VERY LOW	CRITICAL
Length of stay (assessed with: rate of hospital days)												
1	randomised trials	very serious[3]	no serious inconsistency	no serious indirectness	very serious[2]	none	0/50 (0%)	0%	RR 0.73 (0.41 to 1.3)	-	⊕OOO VERY LOW	IMPORTANT
ED visits												
1	randomised trials	very serious[3]	no serious inconsistency	no serious indirectness	serious[2]	none	0/50 (0%)	0%	RR 0.73 (0.45 to 1.19)	-	⊕OOO VERY LOW	IMPORTANT
Readmissions (28 days)												
1	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	none	9/43 (20.9%)	29.3%	RR 0.72 (0.34 to 1.52)	82 fewer per 1000 (from 193 fewer to 152 more)	⊕⊕OO LOW	IMPORTANT
Admissions (84 days)												
1	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[2]	none	14/43 (32.6%)	61%	RR 0.53 (0.33 to 0.88)	287 fewer per 1000 (from 73 fewer to 409 fewer)	⊕⊕⊕O MODERATE	IMPORTANT
Quality of life (28 days) (Chronic heart failure questionnaire; higher score is better)												

1	randomised trials	serious[3]	no serious inconsistency	no serious indirectness	serious[2]	none	43	41	-	MD 0.79 higher (0.23 to 1.35 higher)	⊕⊕OO LOW	CRITICAL

[1] Heterogeneity, I2=50%, p=0.04, unexplained by subgroup analysis.

[2] Downgraded by 1 increment if the confidence interval crossed 1 MID or by 2 increments if the confidence interval crossed both MIDs.

[3] Downgraded by 1 increment if the majority of the evidence was at high risk of bias, and downgraded by 2 increments if the majority of the evidence was at very high risk of bias.

Appendix G: Excluded clinical studies

Table 11: Studies excluded from the clinical review (all excluded for alternative to hospital care)

Reference	Reason for exclusion
Abernethy 2013[2]	Data presented 'per patient' and not overall
Addington-Hall 1992[3]	Incorrect intervention (co-ordinators did not provide "practical nursing care" or "specialist palliative care advice"; co-ordination only)
Adler 1978[4]	Not relevant: patients following elective surgery
Aimonino2000[7]	Conference abstract; later published as Ricauda 2004[213]
Aimonino 2001[6]	Patients not treated for acute medical emergency (advanced dementia patients) – please note not linked to Tibaldi 2004[259]
Alcide 2015[8]	Systematic review is not relevant to review question or unclear PICO
Allen 1999[9]	Not RCT; description of a website
Anderson 2000A[10]	Conference abstract of protocol only
Anderson 2002B[11]	Not RCT; Systematic review
Anderson 2002A[12]	No clinical outcomes; Costs only
Anonymous 1982B[1]	Not relevant comparison
Aoun 2015[13]	Incorrect intervention (caregiver assessment tool intervention)
Armstrong 2008B[14]	Not RCT; Retrospective single arm study
Aujesky 2011[15]	RCT but no community care (self- administered injections)
Bai 2013[16]	Not RCT; systematic review
Baidoobonso 2014[17]	Systematic review is not relevant to review question or unclear PICO
Bakken 2012[21]	No RCT; not relevant
Barnes 2003[22]	Not RCT; review
Beech 2004[23]	Not RCT; service evaluation
Bernhaut 2002[24]	Not RCT, service evaluation
Bethell 1990[25]	No substitute for usual care; control group received no intervention, only advice what exercises they could do by themselves
Beynon 2009[26]	Not RCT; literature review
Blackburn 2000[27]	Not RCT; not relevant; costs only
Blair 2011[28]	Not RCT; systematic review
Board 2000[29]	Not relevant; costs only
Booth 2004[30]	Not relevant; patients following bypass surgery
Boston 2001[31]	Not RCT; prospective non-randomised comparative study
Bove 2016[32]	Incorrect intervention (psychoeducative intervention)
Bowman 1998[33]	Not RCT; review
Brandt 2016[34]	Study protocol
Brooks 2002[36]	Not RCT; retrospective case study
Brooks 2003[37]	Not RCT; retrospective documentary analysis
Brown 2015[38]	Systematic review is not relevant to review question or unclear PICO
Brunner 2008[41]	Not RCT; other experimental design
Bryan 2010[42]	Not RCT; literature review
Bryant-lukosius 2015[43]	Systematic review is not relevant to review question or unclear PICO
Buus 2013[44]	Protocol only; no study data

Reference	Reason for exclusion
Campbell 2001[45]	No clinical outcomes; costs only
Caplan 2006[46]	Not RCT; service evaluation
Caplan 2012[47]	Not RCT; systematic review
Caplan 2004[48]	Comparison is not hospital-based care
Carroll 2005[49]	Not RCT; review
Cassel 2010[50]	Not RCT; review
Chan 2011[51]	Not RCT; Cochrane review, but NO included studies as none met the criteria
Chan 2013[52]	Not RCT; Cochrane review, but NO included studies as none met the criteria
Chang 2016[53]	Incorrect study design
Chappell 1993[54]	Not relevant; retrospective cost analysis
Chard 2006[55]	Not RCT; review
Chen 2012A[56]	Not relevant; costs associated with acquired brain injury
Chen 2015[57]	Incorrect study design
Chiang 2015[58]	Incorrect study design
Clark 2006[59]	Incorrect interventions (advanced cancer intervention, participants did not meet qualification for hospice or palliative services)
Coast [60]	Not relevant; majority of patients with trauma and elective surgery
Cobelli 1996[61]	Not RCT; review
Coburn 1989[62]	Not RCT; quasi-experimental; cost
Cohen 1994[63]	Not RCT; review
Colprim 2012[65]	Not RCT; quasi-experimental study
Colprim 2014[64]	Not RCT; prospective cohort study
Cowie 2014[66]	Not RCT; economic analysis
Craig 2014[67]	Not RCT; review
Crawford-Faucher 2010[68]	Not RCT; systematic review
Crotty 2002[72]	RCT but not relevant as trauma patients only (hip fracture)
Crotty 2000[70]	Not RCT; audit of trauma patients
Crotty 2000A[69]	RCT but not relevant as trauma patients only (hip fracture)
Crotty 2003[71]	RCT but not relevant as trauma patients only
Cummings 1990[73]	Incorrect interventions (home care intervention; <50% patients were terminally ill)
Cunliffe 2002[74]	Not RCT; qualitative study; abstract only
Dalal 2003[75]	Not RCT; non-randomised prospective study
Daly 2013[76]	Intervention incorrect. Set in outpatient setting
Davis 2015[77]	Systematic review is not relevant to review question or unclear PICO
Deutsch 2006[78]	Not RCT; retrospective study
Dey[79]	RCT; but unpublished data only. We have no access to paper and information in Cochrane review (Hospital at home early discharge) is insufficient to categorise the intervention
Dias 2013 [80]	RCT but not relevant (does not compare to inpatient rehabilitation)
DiMartino [81] 2014	Not RCT; systematic review
Dolansky 2010[82]	Not RCT
Dombi 2009[83]	Not RCT; commentary on costs
Donaldson 1982[84]	Not RCT; retrospective study

Reference	Reason for exclusion
Donath 2001[85]	Not RCT; Commentary
Donlevy 1996A[86]	Not relevant; article is on cross-training to provide care at home on discharge
Donnelly 2002[87]	Not RCT; not relevant; questionnaire survey
Dorney-Smith 2011[88]	Not RCT; case study of the cost of nurse-led hostels for the homeless
Dow 2004[89]	Not RCT; case study
Dow 2007[90]	Not RCT; qualitative study
Duffy 2010[91]	RCT but wrong comparison (control group not in hospital)
Dyar 2012[92]	Incorrect intervention. Only discussions of end of life
Eldar 2000A[93]	Not RCT; review
Elder 2001[94]	Not RCT; literature review
Emme 2014[95]	RCT; but no relevant outcomes
Emme 2014A[96]	RCT; but no relevant outcomes
Engelhardt 2006[97]	No extractable outcomes
Eron 2004[98]	Not RCT; no data
Feltner 2014[99]	Not RCT; systematic review
Ferrell 2015[100]	Incorrect study design
Fischer 2015[101]	No relevant outcomes
Gaspoz 1994[102]	Not RCT; prospective cohort study
Glasby 2008[103]	Not RCT; qualitative study
Glick 1998[104]	Not relevant – observing outcome of aneurysmal subarachnoid haemorrhage
Gobbi 2004[105]	Not RCT; and not relevant
Gracey 1992[107]	Not RCT; case studies
Graham 2013[108]	Not RCT; description of organisation of rehabilitation services
Grande 2004[109]	RCT on bereavement. Not relevant.
Graverholt 2014 [112]	Not RCT; review
Greer 2012[113]	Intervention incorrect and no outcomes that match protocol
Gregory 2010[114]	Not RCT; Cross-sectional study
Gregory 2009[115]	Not RCT; retrospective study
Griffiths 2000[118]	Not RCT; exploratory analyses
Griffiths 2005[121]	Not RCT; systematic review
Griffiths 2001[117]	RCT but not relevant comparison; both arms in-patient care (nurse led versus consultant managed)
Griffiths 2006A[116]	Not RCT; review
Griffiths 2006[120]	Not RCT; review
Griffiths 2000A[119]	RCT but not relevant comparison (in-patients only)
Gunnell 2000[122]	Not relevant; majority of patients with trauma and elective surgery
Hamlet 2010[123]	Not RCT; uses secondary data. Focus is telemedicine
Hannan 2003[124]	Not RCT
Hardy 2001[126]	Not RCT; description of a service; and mainly trauma patients
Hansen 1992[125]	Cochrane excluded list: Hospital at home early discharge (study did not evaluate hospital at home, but a model for follow-up visits at home after discharge from hospital)
Hauser 1991[127]	Not RCT; retrospective study

Reference	Reason for exclusion
Herr 2012[128]	Not RCT; retrospective study
Heseltine 2001[129]	Not RCT; review on cost
Hill 1978[131]	RCT but not relevant to today's approach of managing MI as thrombolytic therapy made admission necessary (Cochrane)
Hudson 2013[133]	Incorrect intervention; preparation of caregivers for home palliative acre with education and discussion
Hudson 2013[134]	Incorrect intervention; preparation of caregivers for home palliative acre with education and discussion
Hughes 1990[136]	RCT but has wrong comparison (not in hospital)
Hughes 2000[137]	Incorrect interventions (home based primary care intervention; only 20% of patients were terminally ill)
Huo 2014[138]	Not RCT; retrospective study. No outcomes of interest
Hwang 2013[139]	Not RCT; observational study. Large sample, but set in Taiwan
Indredavik 1999[140]	No RCT and compares stroke unit rehabilitation with general medical ward treatment
Indredavik 2008[141]	RCT but no relevant outcomes
Jakobsen 2013[142]	Methodology of RCT only
Johnston 2015[143]	Systematic review is not relevant to review question or unclear PICO
Jolly 2005[144]	RCT but study aborted prematurely due to language barriers with participants. No data
Jones 1999[145]	Costs only
Jones 2014[146]	Not RCT; case study with little data
Kane 1984[148]	Incorrect intervention (intensive hospice care delivered by a hospice unit of a hospital versus usual hospital care)
Kenny 2002[149]	Not RCT and not relevant
Kinley 2014[150]	Not RCT; retrospective observational study
Konrad 2012[151]	Not RCT; retrospective study
Koopman 1996[152]	RCT but excluded as home care was self-administered
Kornowski 1995[153]	Not RCT; observational study
Kortke 2006[154]	Not RCT; open clinical study (non-randomised)
Korzeniowska-Kubacka 2014[155]	Not RCT; prospective observational study
Langhorne 2000[156]	Cochrane systematic review withdrawn from publication and superseded by Shepperd 2008[240]
Langhorne 2005[157]	Not RCT; review
Lappegard 2012[158]	Not RCT; retrospective study
Last 2000[159]	Not RCT, service description
Leon 2011[160]	RCT, but patient group and outcomes not relevant (stable HIV patients)
Leppert 2014[161]	Not RCT
Lewis 2007[162]	Not RCT; commentary
Lewis 2011[163]	Not RCT; research protocol only
Lewis 2012[165]	Not RCT; commentary/conceptual paper
Lewis 2013[164]	Not RCT; case studies without data
Lewis 2013[166]	Not RCT; propensity matched controls study based on observational study data
Lim 2003[167]	RCT but not relevant comparison
Linertova 2011[168]	Not RCT; Systematic review

Reference	Reason for exclusion
Luckett 2013[169]	Systematic review: study designs inappropriate
Martin 1994[170]	RCT but wrong comparison (control group received 'appropriate conventional community services) – Cochrane (early discharge) says it is in-hospital but I checked paper -to be included into district nurse section –
Mason 2003[171]	Not RCT; description of a service
Mather 1976[172]	No description of the type of service patients at home received (excluded by Cochrane too)
Matukaitis 2005[173]	Not RCT. Pilot study and no comparison study
Mayhew 2006[174]	Not RCT; health economics only
Mayo 1998[175]	Conference abstract of study protocol only; duplicate of full paper Mayo 2000[176]
McKegney 1981[178]	No outcomes of interest
Mcloughlin 2015[179]	Study protocol
Mcmillan 2006[181]	Incorrect interventions (caregiver intervention); no relevant outcomes (caregiver outcomes)
Mcmillan 2007[180]	Incorrect interventions and comparison (caregiver intervention versus usual care in the same setting (hospice))
McNamee 1998[182]	Health economic evaluation
McWhinney 1994[183]	No outcome data reported. Authors describe the challenges of conducting a trail in this area
Melin 1992[184]	Not relevant: patients with long-term care needs were recruited. Hospital at Home was substitute for long-term care and not necessarily in-hospital
Meyer 2009[185]	Not RCT; case studies
Meyers 2011[186]	Incorrect intervention (education)
Miller 2005[187]	No relevant outcomes
Molassiotis 2009[188]	Incorrect interventions (home care nursing intervention for symptom management in patients receiving oral chemotherapy)
Muijen 1992[189]	RCT but patients treated for acute, severe mental illness (psychiatric ward versus home); not relevant to AME guideline
Nicholson 2001[190]	Health economics only
Nissen 2007[191]	Not in English (Danish)
Nordly 2014[192]	Protocol only; no study data
Nordly 2016[193]	Systematic review (included incorrect study design)
Nyatanga2014[194]	Not RCT; commentary/conceptual paper
Palmer Hill 2000[197]	Not relevant: patients recovering from knee replacement
Pandian2013[198]	Trial register only; no data
Patel 2004[199]	Health economic evaluation
Penque 1999[200]	Not RCT; retrospective study
Pergolotti 2015[201]	Study protocol
Pirl 2012[202]	No relevant outcomes
Pittiglio 2011[203]	Not RCT; not relevant
Plant 2015[204]	Incorrect interventions (coordination of care intervention for patients with chronic conditions)
Plochg 2005[205]	Not RCT; process evaluation
Pozzilli 2002[206]	RCT BUT not relevant (Multiple Sclerosis patients)
Prior2012 [207]	Not RCT
Puig-Junoy 2007[208]	Health economic evaluation

Reference	Reason for exclusion
Rabow 2004[209]	Incorrect study design
Raftery 1996[211]	Incorrect intervention (co-ordinators did not provide "practical nursing care" or "specialist palliative care advice"; co-ordination only)
Raphael 2015[212]	Inappropriate comparison (no comparator)
Richards 1998 [215]	Not relevant; majority of patients with trauma and elective surgery
Richards 1998A[214]	Not relevant; correction to excluded trial with majority of patients with trauma and elective surgery
Richardson 2001 [216]	Health economic evaluation
Robinson 2009[217]	Not RCT; description of new model of acute care
Rodriguez-Cerrillo 2010[219]	Not RCT; Non-randomised prospective study
Rodriguez-Cerrillo 2012A[218]	Not RCT; no comparison group to home treatment
Round 2004[221]	Not RCT; prospective cohort study
Rosbotham-Williams 2002[220]	Not RCT; review
Rout 2011[222]	Not RCT; review
Rowley 1984[223]	Not RCT. No comparison group
Ruckley 1978[224]	Not relevant: patients following elective surgery
Rudkin 1997[225]	No service provided in community
Rummans 2006[226]	Incorrect interventions (advanced cancer intervention, participants did not meet qualification for hospice or palliative services)
Sahlen 2016[227]	No relevant outcomes
Sartain 2002[228]	Paediatric patient population
Saysell 2004[229]	Not RCT; pilot study of intermediate palliative care in care home
Schachter 2014[230]	Not RCT; study protocol only
Scheinberg 1986[231]	RCT but does not state what the control group intervention is
Schneller 2012[232]	Not RCT; case study
Schou 2014[233]	RCT; but no relevant outcomes
Scott 2010[234]	Not RCT; literature review
Senaratne 1999[235]	Cost evaluation
Seow 2016[236]	Non-RCT; cohort study
Subirana Serrate 2001[250]	Not RCT; health economics evaluation
Shepperd 1998[239]	Not RCT; systematic review
Shepperd 2005A[237]	Not RCT; editorial
Shepperd 2009A[241]	Not RCT; systematic review
Shepperd 1998A[238]	Costs only; no clinical outcomes
Sidebottom 2015[244]	In-patient care only considered. No alternative.
Singh 2015[245]	Systematic review is not relevant to review question or unclear PICO
Stephenson 1984[246]	Not RCT; conceptual paper
Steventon 2012[247]	Not RCT; retrospective analysis
Stewart 1999[248]	RCT but control group not in hospital.
Stromberg 2003[249]	RCT but only nurse-led follow up appointments in hospital. No actual community care given
Suijker 2012[251]	Protocol only; incorrect intervention
Suwanwela 2002[252]	RCT but not comparable to UK setting as home treatment was managed by Red Cross Volunteers and family members (Thailand)
Temel 2010[254]	Incorrect intervention (outpatient meetings with patients at a large academic medical centre; not specifically aimed to support patients or

Reference	Reason for exclusion
	caregivers at home)
Teng 2003[255]	Health economic evaluation
Tibaldi 2004[259]	RCT but no relevant outcomes (carer stress data incomplete)
Thorne 2001[256]	Not RCT; service description
Toseland 1995[260]	Incorrect interventions (intervention for caregivers of patients prior to the terminal stage of illness)
Trappes-Lomax 2006[261]	RCT but comparison group not appropriate; did not receive 'usual' hospital care.
Upton 2014[264]	No RCT; not relevant
Utens 2010[265]	Study protocol of RCT only
Van hout 2005[266]	Incorrect interventions (frail elderly care, not palliative care)
Ventura 2016[267]	Abstract (Cochrane review already included)
Walshe 2010 [271]	Not RCT; review of qualitative papers
Wakefield 2008[270]	RCT but all self-care; wrong comparison
Weber 2014[272]	Study protocol
Widen Holmqvist 1996[274]	Health economic evaluation
Widen Holmqvist 1995[273]	Not RCT; observational study
Widen-Holmqvist 1998[275]	Superseded by Thorsen 2005 [257], 2006[258] and Von Koch 2000[269],2001[268]
Winkel 2008[276]	Not RCT; systematic review
Wolfe 2000[277]	RCT but excluded from Cochrane because intervention does not substitute for inpatient care; not valid comparison
Woodend 2008[282]	RCT but wrong control group; both at home with no actual care provided.
Woodhams 2012[283]	Not RCT; literature review
Yoshida 2015[284]	Incorrect study design
Young 2003B[286]	Not RCT; audit
Young 2005B[287]	Not RCT; quasi-experimental study
Young 2010B[285]	RCT but not relevant outcomes
Young 2010[288]	Incorrect intervention; not palliative
Yuan 2015[289]	Incorrect interventions (early prevention and management of COPD)

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Appendix H: Excluded economic studies

Table 12: Studies excluded from the economic review

Reference	Reason for exclusion
Pace 2014[196]	This study was selectively excluded as it was conducted in a non-UK setting and does not report any health outcomes. It only looks at costs related re-hospitalisation and is based on observational evidence.
Shnoor 2007[243]	This study was excluded as it was conducted in a non-UK setting using costs from 2003 and does not report any health outcomes. It was also based on observational evidence. Given a UK RCT cost effectiveness study was included it was felt more appropriate and relevant evidence was available for this review question.
Tamir 2007[253]	This study was excluded as it was conducted in a non-UK setting using costs from the year 2000 and does not report any health outcomes.
Tzala 2005[262]	This study was assessed as partially applicable with potentially serious limitations. However, the committee judged that the treatment included in the intervention and comparators was for a specific population, and therefore this study was selectively excluded.