National Institute for Health and Care Excellence

Final

Chapter 13 Community rehabilitation

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

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Chapter 13 Community rehabilitation

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13.1 Introduction

Acute medical illness can be associated with a temporary reduction in our ability to carry out the normal activities of daily living. This can be due to the effect of the illness itself, side effects of treatment or becoming deconditioned from reduced activity whilst in hospital. Therefore rehabilitation is often needed during recovery from an acute medical illness so that patients can return to the same level of functioning and independence.

Whilst rehabilitation should start as soon as possible, there is some uncertainty over the clinical and cost effectiveness of the location of rehabilitation, as certain equipment and expert healthcare professionals (for example, physiotherapists or occupational therapists) may be needed to deliver the optimal rehabilitation therapy.

13.2 Review question: Does the provision of community-based rehabilitation services following acute medical illness improve patient outcomes?

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.
Interventions	Community-based rehabilitation services.
Comparisons	Hospital-based rehabilitation services.
Outcomes	• Mortality (CRITICAL) • Avoidable adverse events (CRITICAL) • Quality of life (CRITICAL) • Patient and/or carer satisfaction (CRITICAL) • Length of stay (CRITICAL) • Number of presentations to ED (IMPORTANT) • Number of admissions to hospital (IMPORTANT) • Number of GP presentations (IMPORTANT)
Study design	Systematic reviews (SRs) of RCTs, RCTs, observational studies only to be included if no relevant SRs or RCTs are identified.

13.3 Clinical evidence

Twenty- nine studies (all RCTs) were included in the review;[6,13,14,19,38,56,64,65,76,88,90,91,93,96,113,122,126,131,134,155,164,177,191,192,198,199,202,208,211,243,244,251] these are summarised in Table 2 and Table 3 below. Evidence from these studies is summarised in the GRADE clinical evidence summary below (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.

The studies were also divided by the aim of the intervention: a) avoiding hospital admission (n=3 studies) and b) facilitating early discharge from hospital after admission (n=26 studies).

Interventions in category A: admission avoidance is a service that provides active treatment by health care professionals outside hospital for a condition that otherwise would require acute hospital in-patient admission.

Interventions in category B: early discharge is a service that provides active treatment by health care professionals outside hospital for a condition that otherwise would require continued acute hospital in-patient care.

Table 2: Summary of studies included in the review: Admission avoidance

Study	Intervention and comparison	Population	Outcomes	Comments
Admission avoidance **Comparison: Community rehabilitation versus routine hospital services**				
Cowie 2012[56] RCT UK	Home based: 1 hour aerobic based exercise session- DVD and booklet The session started with a 15 min warm-up and ended with a 15 min cool-down. Participants in both home and hospital groups were educated on symptoms of unstable heart failure, and avoided exercise where instability was suspected. A physiotherapist telephoned the home group every 2 weeks to modify their exercise prescription where appropriate. For monitoring of adherence and exercise intensity, the home group completed a diary detailing every session completed Versus Hospital based 1 hour aerobic based exercise session- exercise session was a physiotherapist led class	n=60 Patients with heart failure (NYHA class II/III)	Quality of life	Follow-up at 8 weeks
Kalra 2000[134] RCT	Hospital outreach admission avoidance multi-disciplinary with joint care from community services. Care was provided by a mix of outreach and community staff including physiotherapy, occupational therapy, social worker and a speech therapist versus Hospital admission (inpatient stroke team care or admission to a stroke unit)	Patients recovering from a moderately severe stroke Median (IQR) age T=75 (72-84) C=77.7 (67-83)	Mortality;	Included in Cochrane (Shepperd 2008)
Ricauda 2004[192] RCT	Hospital outreach admission avoidance (services operated from an accident and emergency department). 24 hour care available multi-disciplinary team:	Patients recovering from a stroke	Mortality; Length of treatment; Activities of daily living;	Included in Cochrane (Shepperd 2008)

Study	Intervention and comparison	Population	Outcomes	Comments
	physiotherapist, occupational therapist, nursing, hospital geriatrician, social worker, speech therapist, psychologist Versus Hospital admission		Functional impairment; Living in an institutional setting; Canadian Neurological Scale Score; National Institute of Health Stroke Scale Score; Geriatric Depression Scale score	
Shepperd 2008[223,223223] Cochrane review	Admission avoidance hospital at home schemes compared to acute hospital inpatient care. The schemes may admit patients directly from the community or from the emergency room. Definition used by the authors: hospital at home is a service that can avoid the need for hospital admission by providing active treatment by health care professionals in the patient's home for a condition that otherwise would require acute hospital in-patient care, and always for a limited time period. In particular, hospital at home has to offer a specific service to patients in their home requiring health care professionals to take an active part in the patients' care.	Patients aged 18 years and over that were included in admission avoidance hospital at home schemes	Mortality, Re-admissions, Patient satisfaction, Carer satisfaction , Length of stay in hospital and hospital at home	10 studies in Cochrane review, of which 2 studies included in our evidence review.

Table 3: Summary of studies included in the review: Early discharge

Study	Intervention and comparison	Population	Outcomes	Comments
Anderson, 2000[7]; Hackett 2002[7,113] RCT	Early hospital discharge and individually tailored home-based/community rehabilitation (median duration, 5 weeks) by a full time occupational therapist, a consultant in rehabilitation, physiotherapists, occupational therapists, social workers, speech therapists, and rehabilitation nurses. Efforts were made so that discharge from hospital could occur within 48 hours of	Acute stroke patients that were medically stable and suitable to be discharged early from hospital to a community rehabilitation scheme and had sufficient physical and cognitive	Mortality; SF-36 physical and mental component summary scores; patient satisfaction with therapy/recovery; Falls; Caregiver strain index;	Included in Cochrane review Shepperd 2009

Study	Intervention and comparison	Population	Outcomes	Comments
	randomisation. Versus Conventional care and rehabilitation in hospital, either on an acute-care medical geriatric ward or in a multidisciplinary stroke rehabilitation unit run by specialists in rehabilitation or geriatric medicine	function. Patients included in this study were mildly disabled	Readmission to hospital at 6 months; Length of hospital stay	
Arthur 2002[13] (Smith 2011[229], Smith 2004[228]) Conducted in Canada RCT	Intervention 1 (n=96): Home based exercise training. Patients attended individual, 1 hour exercise consultations with an exercise specialist at baseline and after 3 months of exercise training. Patients were advised to train a total of 5 times per week. Each exercise included a 10-15 minute warm up/down and 40 mins of aerobic training. Home patients were telephoned every 2 weeks for 6 months by the exercise specialist to monitor progress, assess and document adherence, revise the exercise prescription if necessary, and provide support and education. Control (n=100): Hospital based exercise training. Patients were expected to attend supervise exercise sessions 3 times per week for 6 months. Classes were led by exercise specialists. Each exercise included a 10-15 min warm up/down and 40 minutes of aerobic training. Exercise logs were reviewed with the patient on a monthly basis	Patients referred after Coronary artery bypass grafting (CABG) to the Cardiac Health and Rehabilitation Centre at a university hospital group. Inclusion: between 35 and 49 days post-CABG surgery, achieved between 40 and 80% of age and sex-predicted minimum MET level on a progressive cycle ergometry exercise test, able to read and write English. Exclusion: recurrent angina, positive graded exercise test, unable to attend rehabilitation 3 times per week, unable to participate due to physical limitations, previously participated in an out-patient cardiac rehabilitation program	Mortality, Health related quality of life, hospitalisation at 6 years	

Study	Intervention and comparison	Population	Outcomes	Comments
Askim, 2004[15] RCT	Extended service consisting of stroke unit treatment combined with a home based programme of follow-up care co-ordinated by a mobile stroke team that offers early supported discharge and works in close co-operation with the primary health care system during the first 4 weeks after discharge. The mobile team consisted of a nurse, a physiotherapist, an occupational therapist and the consulting physician. Versus Ordinary service defined as the stroke unit treatment of choice according to evidence-based recommendations.	Acute stroke patients with a Scandinavian Stroke Scale (SSS) score greater than 2 points and less than 58 points. I score such as this indicates that patients were moderately disabled	Mortality; Length of stay in hospital or programme; Caregiver Strain index	Included in Cochrane review Shepperd 2009
Askim 2010A [14] RCT	Intensive Motor training (IMT) group: 3 additional sessions of motor training each week for the first 4 weeks after discharge and 1 additional session per week for the next 8 weeks; each session 30-50 minutes. Patients also encouraged to perform home exercises during this period Versus Standard treatment (ST) group: All patients were treated in a comprehensive stroke unit	Diagnosis of acute stroke according to WHO definition, modified Rankin Scale score <3 before admission, Berg Balance Scale score <45 points, Scandinavian Stroke Scale score >14 points, Scandinavian Stroke Scale leg item <6 points or Scandinavian Stroke Scale transfer item <12 points, Mini-Mental State Examination score >20 points; informed consent.	Mortality; Adverse events at 26 weeks	Included in Cochrane review Shepperd 2009
Bautz-Holter, 2002[19] RCT	Early supported discharge with a multidisciplinary team for each stroke patient was offered and support and supervision was provided from the project team whenever needed. Four weeks after discharge, the patients in the ESD group were seen at the outpatient clinic	Acute stroke patients; not severely disabled prior to stroke; had no other medical condition likely to preclude rehabilitation and were medically	Mortality; Admissions to hospital; Length of hospital stay; Admissions to hospital;	Included in Cochrane review Shepperd 2009

Study	Intervention and comparison	Population	Outcomes	Comments
	Versus Conventional procedures for discharge and continued rehabilitation, which were anticipated to be less well organised	stable. Patients included were moderately to mildly disabled		
Caplan 2006[38] RCT	Early discharge hospital based outreach Type of service: nurses, physiotherapy, occupational therapy, physician Versus Control group: in-patient hospital care	Elderly patients whose length of hospital stay exceeded 6 days, who were referred for geriatric rehabilitation and expected to return home and live reasonably independently Mean age: treatment = 83.86 (7.8); control = 84.0 (7.02)	Mortality; Functional and cognitive status; Psychological well-being; patient and/or carer satisfaction; Readmission at 6 months; Length of stay	Included in Cochrane review Shepperd 2009
Cunliffe 2004[64] RCT	Hospital at home (early discharge) Type of service: provided by community services, GP had clinical responsibility, physiotherapy, occupational therapy, 3 dedicated nurses plus 7 rehabilitation assistants, provided care up to 4 weeks. Community care officer liaised with social services Versus Control group: in-patient hospital care	3 most common conditions were fractures (105/370, 28%), neurological conditions, mainly stroke (97/370, 26%), cardio-respiratory illnesses (50/370,14%). 247/370 (66%) lived alone Median age: 80 years	Mortality; Readmission by 3 months; Quality of life; GP visits; length of stay in hospital	Included in Cochrane review Shepperd 2009
Dalal 2007[65] RCT UK	Home-based rehabilitation Patients received a self-help package of 6 weeks' duration (the Heart Manual) supported by a cardiac rehabilitation nurse. The cardiac rehab nurse made a home visit in the first week after discharge followed up by telephone calls over 6 weeks. Versus Hospital-based rehabilitation	n=230 Patients admitted with acute myocardial infarction	Mortality and quality of life	Follow-up 9 months

Study	Intervention and comparison	Population	Outcomes	Comments
	classes over 8-10 weeks. Classes lasted 2 hrs each and were conducted in groups of 8-10 people in the local hospital or for a small number of patients in one of the 2community centres. Three different multidisciplinary teams delivered the programme. Patients were also encouraged to exercise at home.			
Donnelly, 2004[76] RCT	Earlier hospital discharge combined with community-based multidisciplinary stroke team rehabilitation comprising 0.33 coordinator, 1 occupational therapist, 1.5 physiotherapists, 1 speech and language therapist, and 2 rehabilitation assistants. On average the number of home visits over a 3-month period was 2.5 per week each lasting 45 minutes. Patients in the CST group were to be discharged as soon as their home was assessed. Versus Usual hospital rehabilitation comprising inpatient rehabilitation in a stroke unit and follow-up rehabilitation in a day hospital	Acute stroke patients with no pre-existing physical or mental disability that was judged to make further rehabilitation inappropriate. Patients included were moderately (10-14) to mildly disabled (15-19)	Mortality; SF-36 physical and mental component; Quality of life (EuroQoL); patient satisfaction; Caregiver Strain index; Length of stay; Admissions to hospital at 12 months	Included in Cochrane review Shepperd 2009
Evans 1997B [88] RCT	Out-patient follow-up: Usual medical services but no scheduled rehabilitation therapies; patients received a mean of 0.6 (1.3) rehabilitation services during acute rehabilitation and 0.1 (0.2) during out-patient follow up. Versus In-patient comprehensive rehabilitation: patients received a mean of 18.0 (8.1) rehabilitation services during acute rehabilitation and 8.3 (10.9) during out-patient rehabilitation.	Presence of a physical limitation based on psychiatry exam; medically stable as indicated by an illness severity index of 1 (lowest mortality); first time hospitalisation for a disabling condition in any of 4 Major Diagnostic Categories (MDC 1 – nervous, 5 – circulatory, 8 – musculoskeletal and 21 – injury). Nervous: 16% versus 17%	Mortality at 1 year; QoL: Life satisfaction at 1 year Length of stay (days) at 1 year; Admissions to hospital at 1 year	

Study	Intervention and comparison	Population	Outcomes	Comments
		between groups, circulatory: 16% versus 14%, musculoskeletal: 52% versus 60%, injury: 13% versus 9%		
Fleming 2004 [93] RCT	Care Home Rehabilitation Services (CHRS): Occupational therapists assessed patients in the units and devised their treatment plans. Community Care Officers; rehabilitation assistants trained by the OTs. Physiotherapy; GP; District nurses. Treatment programmes were tailored to individual needs Versus Usual care	Hospitalised patients who were aged over 65 years; lived in the Social Services districts served by the CHRS scheme; wished to return to their own homes; no longer needed in-patient medical care; were unable to return home due to activity limitation that might be improved by a period of short-term rehabilitation in a care home setting; agreed to a period of rehabilitation in a care home setting; met Social Services criteria for eligibility for residential home care. Principal diagnostic condition: cardio-respiratory disorder: 26/165 (16%), gastroenterology disorder 11/165 (7%), infection 3/165 (2%), neurological disorder: 23/165 (14%), orthopaedic disorder: 29/165 (18%), peripheral	Mortality at 12 months; Length of stay at discharge from index admission; Hospital bed days from randomisation to 12 months; Days either in hospital or in CHRS facility from randomisation to 12 months; Number of patients re-admitted to hospital at 12 months; GP visits at 12 months	

Study	Intervention and comparison	Population	Outcomes	Comments
		vascular disease: 5/165 (3%), non-specific condition: 64/165 (40%)		
Gladman 1993 [96] RCT	Domiciliary rehabilitation service (DRS): provided by 2 half-time physiotherapists and 1 OT who assessed all patients referred to DRS at home and then organised or provided appropriate therapy and arranged other relevant help. Versus Hospital-based rehabilitation service (HRS): eligible for out-patient rehabilitation according to usual practices, that is, for those discharged from Health Care of the Elderly wards, the main option was a day hospital, while for those discharged from General Medical wards, outpatient physiotherapy or occupational therapy could be arranged.	Acute stroke (first or recurrent)	Mortality at 6 months	
ESD Stroke Bergen trial: Hofstad 2013[122] (Gjelsvik 2014[95]) Conducted in Norway RCT	Intervention 1 (n=103): Early supported discharge from an outpatient ambulatory coordinating team during hospitalisation and for 5 weeks post-discharge at a community-based day unit. Multi-disciplinary outpatient visits at 3 and 6 months Intervention 2 (n=104): Early supported discharge from an outpatient ambulatory coordinating team during hospitalisation and for 5 weeks post-discharge at the patient's home. Multi-disciplinary outpatient visits at 3 and 6 months Control (n=99): Usual care, which consists of treatment in a stroke unit, followed by transfer to the Department of Physical Medicine and Rehabilitation if needed based on a professional judgment. Other alternatives are discharge directly to home or discharge to inpatient treatment in a municipal health care institution.	All stroke patients admitted to the Department of Neurology at one University Hospital. Inclusion: home-dwelling and live in the Municipality, Inclusion within 1-7 days after symptom onset, inclusion within 6-hours to 120 hours after admission to the Department of Neurology, NIHSS score at inclusion 2–26, or a two-point increase in mRS score if 0 or 1 previously, able to agree to	Patient satisfaction at 6 months and length of stay	Small in-hospital component of interventions Outpatient ambulatory coordinating team consisted of physiotherapist, occupational therapist, and a nurse trained for stroke patients. Treatment by other specialists, particularly speech therapists is considered if needed in all arms. Mortality not reported (20-30% 'dropped out' during the 6 months)

Study	Intervention and comparison	Population	Outcomes	Comments
		the participation in the study Exclusion: Serious psychiatric disorders, Alcohol or substance abuse, Other serious conditions of importance to the cerebral disorder and subsequent rehabilitation process, Poor knowledge of the Norwegian language before the stroke		
Indredavik 2000[126] Fjaertoft, 2004[90] Fjaertoft 2005 [91,92] RCT	Extended stroke unit service (ESUS): A mobile stroke team: offers early supported discharge and coordinates further rehabilitation and follow-up in close cooperation with the primary healthcare system; nurse, physiotherapist, occupational therapist, physician; evaluation of the needs of the patient; primary healthcare system informed about the patient; home visit; plan for further follow-up for necessary nursing, support, and rehabilitation. The mobile stroke team was responsible for coordination of the different agencies and activities. Versus Ordinary stroke unit service (OSUS): treatment in a combined acute and rehabilitation stroke unit and further follow-up organized by rehabilitation clinics and/or the primary healthcare system; systematic diagnostic evaluation, standardized observation of vital signs and neurological deficits, acute medical treatment program, very early mobilization and rehabilitation in a stroke unit.	Signs and symptoms of an acute stroke according to the World Health Organization definition of stroke; Scandinavian Stroke Scale (SSS) score between 2 and 57 points; living at home before the stroke; included within 72 hours after admission to the stroke unit and within 7 days after the onset of symptoms; lack of participation in other trials; and provision of informed consent	Mortality at 5 years Length of stay in stroke unit at index admission; Length of stay in hospital (stroke unit plus rehabilitation clinics) at index admission; Length of stay in stroke unit at 1 year; Length of stay in inpatient rehabilitation at 1 year; hospital Readmission days at 1 year Number of GP visits at 1 year Caregiver strain index	Included in Cochrane review Shepperd 2009
Jolly2007 [131]	Home-based rehabilitation (n=263) This consisted of a manual, home	Any adult patient was eligible if	Mortality (2 years); Quality	

Study	Intervention and comparison	Population	Outcomes	Comments
	visits and telephone contact. Patients who had had an MI were discharged home with *The Heart Manual* (second edition). The Heart Manual was introduced to patients on an individual basis, either in hospital or on a home visit. At the first visit the facilitator discussed the progress with the patient and agreed action or exercise goals with the patient. Patients were then telephoned at about 3 weeks post-recruitment and a further visit took place 6 weeks post-recruitment. A final visit took place at 12 weeks, when patients were encouraged to maintain their lifestyle changes and to continue with their exercise programme. Versus Hospital based rehabilitation (n=262) all patients were offered an individualised rehabilitation programme consisting of risk factor counselling, relaxation and twice-weekly supervised exercise sessions for 12 weeks. The exercise was mainly walking, fixed cycling and rowing. The relaxation session and information sessions occurred once during each rehabilitation session and participants could opt to attend. Patients completed the programme after attending 24 sessions.	they had had one of the following events within the previous 12 weeks: an acute MI and had been informed of their diagnosis; a coronary angioplasty with or without stenting; a CABG operation.	of life (6 months)	
Maltais 2008[155] Conducted in Canada RCT	Intervention 1 (n= 126): Home-based rehabilitation. A qualified exercise specialist initiated the program in the patient's home and subsequently made weekly telephone calls for 8 weeks to reinforce and detect problems. Patients were loaned portable ergocycles. Control (n=126): Hospital-based outpatient rehabilitation. Training program combined aerobic and strength exercises at a rate of 3 sessions per week for 8 weeks.	Patients from pulmonary clinics of 8 university-based and 2 community-based centres. Inclusion: stable COPD, 40 years or older, were current or former smokers of at least 10 pack-years, had an FEV_1 less than	Mortality, Quality of life, Serious adverse event (COPD exacerbation), Hospitalisation at 1 year	Both groups received the same education intervention which consisted of an educational flipchart and 6 skill-oriented, self-help, patient workbook modules.

Study	Intervention and comparison	Population	Outcomes	Comments
	Training was monitored by a qualified exercise specialist, who could modify training, in a ratio of 4 to 5 participants for 1 trainer.	70% of the predicted value and FEV_1-FVC ratio less than 0.70; had MRC dyspnoea score of at least 2. Exclusion: diagnosis of asthma, congestive left heart failure as the primary disease, terminal disease, dementia, or an uncontrolled psychiatric illness.		
Mayo, 2000[164] RCT	Rehabilitation at home after prompt discharge from hospital with the immediate provision of follow-up services by a multidisciplinary team offering nursing, physical therapy (PT), occupational therapy (OT), speech therapy (ST), and dietary consultation. Duration of intervention was 4 weeks for all participants. Versus Usual care practices for discharge planning and referral for follow-up services. These included physiotherapy, occupational therapy and speech therapy, as requested by the patient's care provider and offered through extended acute-care hospital stay; inpatient or outpatient rehabilitation; or home care via local community health clinics.	Acute stroke patients with motor deficits after stroke who had caregivers willing and able to provide live-in care for the subject over a 4-week period after discharge from the hospital. Patients included were mildly disabled	Mortality; SF-36 Mental summary component and SF-36 physical summary component; Length of stay (hospital); Length of stay (hospital + rehabilitation)	Included in Cochrane review Shepperd 2009
Ozdemir 2001 [177] RCT	Rehabilitation in the patients' homes. Family members shown how convenient bed positioning and exercises should be performed by patient and family members. No neuromuscular facilitation. Family provided therapy at least 2 hours a day, 7 days a week. Splints, orthoses and devices were provided. A team consisting of a rehabilitation physician and a	Aged under 80 years, diagnosed with stroke (first or recurrent) between 1996 and 1999	Adverse events at 9 weeks	

Study	Intervention and comparison	Population	Outcomes	Comments
	physiotherapist regularly visited the patients for 2 hours once a week and instructed family caregivers and provided medical support to the patients. Versus Intensive multidisciplinary rehabilitation services as inpatients in the rehabilitation clinic. Therapeutic exercises (range of motion, passive stretching, muscle strengthening, mobilisation) and neuromuscular facilitation for 2 hours a day, 5 days a week. Physical agents such as ice, hot packs, TENS and ultrasound were used when necessary. Regular occupational therapy but no speech therapy. Hand and/or wrist splints, ankle-foot orthoses, tripods and canes were provided if needed. Patients evaluated daily by a physician. Stroke-related symptoms and complications were treated with multi-disciplinary approaches.			
RASMUSSEN2016[191] RCT Denmark	Home based stroke rehabilitation for 4 weeks after discharge Patients were treated by a multi-disciplinary, intersectoral and interventional team for providing coordinated and home based rehabilitation. The team included a nurse, physiotherapists, occupational therapists and physicians experienced in stroke treatment. Prior to home based training a physician evaluated each intervention inpatient to secure that the inpatient was able and fit to participate. The nurse participated in the home training if nursing intervention was needed. At home inpatients were tested and trained in difficult activities with or without assistive devices. Versus	n= 41 Stroke patients with focal neurological deficits hospitalised in a stroke unit for more than 3 days and in need of rehabilitation.	- Length of hospital stay -Quality of life	

Study	Intervention and comparison	Population	Outcomes	Comments
	Control Control patients were treated following standard care procedures in the stroke unit.			
Roderick 2001[198] RCT	Domiciliary stroke team: physiotherapist and occupational therapist who met daily to plan activity and fortnightly with a consultant geriatrician to review patients, using a goal-setting approach. Outpatient speech and language therapy provided. Versus Five day hospitals were involved; care was coordinated by multi-disciplinary teams who gave therapy in both individual and group sessions.	Confirmed diagnosis of stroke; aged 55 years or over; residents of East Dorset; needed further rehabilitation for disability caused by stroke; physically able to attend the day hospital; any previous disability was not too severe that it would prevent further rehabilitation; no signs of advanced dementia.	Mortality at 6 months; SF-36 Physical health at 6 months; SF-36 Mental health at 6 months; Length of stay at 6 months; Number of patients readmitted at 6 months; Number of patients attending GP at 6 months	
Rodgers, 1997[199] RCT	Early Supported Discharge with home care from the Stroke Discharge Team (community based). The team consisted of an occupational therapist, physiotherapist, speech and language therapist, social worker and occupational therapy technician. The stroke discharge rehabilitation service was available 5 days per week but the home care component of the service was available 24 hours per day and 7 days per week if required. The stroke discharge service was withdrawn gradually and a contact name and number was provided to patients in case of subsequent queries or problems. Versus Inpatient and outpatient care was provided for the control group by conventional hospital and community services. Discharge planning and services post discharge for patients randomised to conventional care were	Acute stroke patients that were not severely handicapped prior to the incident stroke with no other condition likely to preclude rehabilitation. Patients included were moderately disabled	Mortality; Length of hospital stay; Readmission to hospital; Quality of life; Carer strain	Included in Cochrane review Shepperd 2009

Study	Intervention and comparison	Population	Outcomes	Comments
	arranged and provided according to the usual practice of each participating ward or unit.			
Ronning 1998 [202] RCT	Health services in the municipality (after initial short length of stay in acute stroke unit or general medical ward): most municipalities have a nursing home that provides rehabilitation through a multidisciplinary staff (in-patient or day patient) and further ambulatory rehabilitation by a visiting physical therapist, speech therapist and/or nurse. Municipalities offer access to primary health care including physical therapy, occupational therapy, speech therapy and nurse support. Versus Hospital rehabilitation unit (after initial short length of stay in acute stroke unit or general medical ward): patients had access to a coordinated multidisciplinary rehabilitation team of nurses; physical, occupational and speech therapists; a social worker and a neurologist.	Acute (first or recurrent) stroke patients aged 60 or older, with a Scandinavian Stroke Scale (SSS) score between 12 and 52, who were conscious on admission, and who could cooperate in the rehabilitation programme (that is, scored at least 4 points on the subject orientation section of the SSS); patients with malignant diseases not in the terminal stages were included.	Mortality at 7 months; length of stay in hospital; SF-36 Mental Health; Summary score at 7 months; SF-36 Physical Health Summary score at 7 months	
Rudd 1997[208] RCT	Early discharge with a planned course of domiciliary physiotherapy, occupational therapy, and speech therapy, with visits as frequently as considered appropriate (maximum one day visit from each therapist) for up to 3 months after randomisation. Versus Usual care with no augmentation of social services resources.	Stroke patients able to perform functional independent transfer or able to perform transfer with assistance	Mortality; Length of stay in hospital; Admissions to hospital; patient satisfaction with therapy/recovery; Caregiver strain index; Carer satisfaction	Included in Cochrane review Shepperd 2009
Santana 2016 [211] RCT Portugal	Early home supported discharge group (EHSD) –rehabilitation in the stroke unit and at home EHSD team of therapists included 2 physiotherapists, 2 occupational therapists and a psychologist. Patients and carers received education on healthy behaviours	n=190 Stroke patients aged 25-85 years admitted to the stroke unit with an initial Functional Independence	Length of stay	

Study	Intervention and comparison	Population	Outcomes	Comments
	and information about stroke, its consequences, how to best participate in rehabilitation and how to find help within their communities. EHSD team worked with the patients to provide approximately 8 home based training sessions for a month Versus Usual care group Patients received rehabilitation as part of standard care in the stroke unit. Patients received information from the case manager about services available in the community, but no further specific input was provided.	Measure of up to 100		
Shepperd 2009[225]	Studies comparing early discharge hospital at home with acute hospital in-patient care. The authors used the following definition to determine if studies should be included in the review: hospital at home is a service that provides active treatment by health care professionals in the patient's home for a condition that otherwise would require acute hospital in-patient care, and always for a limited time period. In particular, hospital at home has to offer a specific service to patients in their home requiring health care professionals to take an active part in the patients' care.	The review included evaluations of early discharge hospital at home schemes that include patients aged 18 years and over. Patients were either recovering from a stroke, following elective surgery, or were older people with a mix of conditions.	Mortality, Re-admissions, Patient satisfaction, Carer satisfaction, Length of stay in hospital and hospital at home	26 studies in Cochrane review, of which 10 studies included in our review
Thorsen 2005 [243] Thorsen 2006 [244] von Koch 2000[252] von Koch 2001 [251] RCT	Early supported hospital discharge (after initial medical care and rehabilitation in the stroke unit) to a home rehabilitation group (HRG). An outreach team of occupational therapists, physiotherapists and a speech-and-language pathologist provided services; the duration, frequency and content of the intervention were decided on together with the patient and his or her family Versus	Mild to moderate impairments after first or recurrent stroke according to clinical criteria of the WHO	Mortality at 5 years; Falls at 5 years; Length of stay at index admission; Number of patients presenting to GPs at 5 years; Readmission to hospital	

Study	Intervention and comparison	Population	Outcomes	Comments
	Conventional rehabilitation group (CRG) (after initial medical care and rehabilitation in the stroke unit). If required, and after evaluation by specialists, patients in CRG received additional rehabilitation in the Geriatrics or Rehabilitation Department. The content and duration did not adhere to a standardised programme but rather reflected services available within the District Health Authority.			

13.3.1 Admissions avoidance

Table 4: Clinical evidence summary: Community rehabilitation versus hospital rehabilitation after acute medical emergencies

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Control	Risk difference with Community (admission avoidance) versus hospital (95% CI)
Mortality	413 (2 studies) 6-12 months	⊕⊕⊕⊖ MODERATE[b] due to imprecision	RR 0.74 (0.52 to 1.04)	Moderate	
				314 per 1000	82 fewer per 1000 (from 151 fewer to 13 more)
Length of treatment	120 (1 study) Unclear	⊕⊕⊖⊖ LOW[a,b] due to risk of bias, imprecision		The mean length of treatment in the control groups was 22.2 days	The mean length of treatment in the intervention groups was 15.9 higher (8.1 to 23.7 higher)
Quality of life-SF 36 physical component summary	40 (1 study) 8 weeks	⊕⊕⊖⊖ LOW[b] due to imprecision		-	The mean quality of life-SF 36 physical component summary in the intervention groups was 0.18 higher (6.35 lower to 6.71 higher)*
Quality of life-SF 36 mental component summary	40 (1 study) 8 weeks	⊕⊕⊕⊖ MODERATE[b] due to imprecision			The mean quality of life-SF 36 mental component summary in the intervention groups was 3.81 lower (11.08 lower to 3.46 higher)*

(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 one MID or by 2 increments if the confidence interval crossed both MIDs.
**Higher scores better.*

Outcomes as reported in study (not analysable)

Activities of daily living (number of functions lost, score 0 to 6) (Ricauda 2004): Median (IQR): community rehab group =4 (2-5); hospital group = 4 (2-6), p=0.57.

Functional impairment (range 28 to 126; high score =greater independence) (Ricauda 2004). At 6 months: Median IQR: community rehab group =106 (67.5-121.5); hospital group = 96.5 (56.5-116.5), p=0.26.

National Institute of Health Stroke Scale Score (range 0-36; low score = improvement) (Ricauda 2004): At 6 months: Median IQR: community rehab group=8 (4-26); hospital group =8 (6-24), p=0.37.

Geriatric Depression Scale score (range 0-30) higher scores indicate depression (Ricauda 2004). At 6 months: Median IQR: community rehab group=10 (5-15); hospital group=17 (13-20), p<0.001.

Canadian Neurological Scale Score (range 0-10; higher score= improvement): At 6 months: Median IQR: community rehab group =10 (8.5-10.0); hospital group=9.5 (7.0-10.0), p=0.39.

13.3.2 Early discharge

Table 5: Clinical evidence summary: Community rehabilitation versus hospital rehabilitation after acute medical emergencies

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Hospital Rehabilitation	Risk difference with Community Rehabilitation (95% CI)
Mortality	3495 (20) 3 months – 6 years	⊕⊕⊕⊖ MODERATE[a]	RR 1.03 (0.84 to 1.25)	Moderate	
				91 per 1000	3 more per 1000 (from 15 fewer to 23 more)
Mortality	1214 (8 studies) 6 months	⊕⊖⊖⊖ VERY LOW[a,b,c] due to risk of bias, inconsistency, imprecision	RR 1.26 (0.79 to 2.03)	Moderate	
				91 per 1000	24 more per 1000 (from 19 fewer to 94 more)
Mortality	1033	⊕⊖⊖⊖	RR 0.86	Moderate	

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Hospital Rehabilitation	Risk difference with Community Rehabilitation (95% CI)
	(6 studies) 12 months	VERY LOW[a,b,c] due to risk of bias, inconsistency, imprecision	(0.63 to 1.18)	163 per 1000	23 fewer per 1000 (from 60 fewer to 29 more)
Mortality	1248 (6 studies) 2-6 years	⊕⊕⊕⊖ MODERATE[a]	RR 0.97 (0.78 to 1.20)	Moderate	
				116 per 1000	3 fewer per 1000 (from 26 fewer to 23 more)
Adverse events	513 (5 studies) 9 weeks - 6 years	⊕⊖⊖⊖ VERY LOW[a,b,c] due to risk of bias, inconsistency, imprecision	RR 1.20 (0.85 to 1.68)	Moderate	
				367 per 1000	73 more per 1000 (from 55 fewer to 250 more)
Quality of life SF-36 Physical component summary score	623 (5 studies) 7 months	⊕⊕⊕⊖ MODERATE[a] due to risk of bias		The mean quality of life in the control groups was 39.6 units	The mean quality of life in the intervention groups was 1.04 higher (0.99 lower to 3.07 higher)
Quality of life SF-36 Mental component summary scores	623 (5 studies) 7 months	⊕⊕⊕⊖ MODERATE[a] due to risk of bias		The mean quality of life in the control groups was 55.7	The mean quality of life in the intervention groups was 0.86 higher (1.04 lower to 2.77 higher)
Quality of life St. George's Respiratory Questionnaire	184 (1 study) 12 months	⊕⊕⊕⊖ MODERATE[a] due to risk of bias		The mean quality of life in the control groups was -3.5	The mean quality of life in the intervention groups was 1 lower (4.14 lower to 2.14 higher)
Quality of life Life Satisfaction	85 (1 study) 12 months	⊕⊕⊕⊖ MODERATE[a] due to risk of bias		The mean quality of life in the control groups was 19.9	The mean quality of life in the intervention groups was 0.3 higher (4.06 lower to 4.66 higher)
Quality of life (MacNew-Global)	104 (1 study) 9 months	⊕⊕⊕⊖ MODERATE[a] due to risk of bias		The mean quality of life in the control groups was 5.67	The mean quality of life (Macnew-global) in the intervention groups was 0.07 lower (0.51 lower to 0.37 higher)
Quality of life- SF 12 (PCS)	525 (1 study) 6 months	⊕⊕⊕⊖ MODERATE[a]			The mean quality of life SF 12 (PCS) in the intervention groups was

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Hospital Rehabilitation	Risk difference with Community Rehabilitation (95% CI)
		due to risk of bias			0.28 lower (2.14 lower to 1.58 higher)
Quality of life-SF 12 (MCS)	525 (1 study) 6 months	⊕⊕⊕⊖ MODERATE[a] due to risk of bias			The mean quality of life SF 12 (MCS) in the intervention groups was 1.14 lower (2.83 lower to 0.55 higher)
Patient satisfaction	467 (4 studies) 6 months	⊕⊖⊖⊖ VERY LOW[a,b,c] due to risk of bias, inconsistency, imprecision		The mean patient satisfaction in the control groups was 4.28	The mean patient satisfaction in the intervention groups was 0.32 higher (0.18 lower to 0.82 higher)
Patient satisfaction	348 (2 studies) 6-12 months	⊕⊕⊖⊖ LOW[a,c] due to risk of bias, imprecision	RR 1.15 (0.93 to 1.43)	Moderate	
				512 per 1000	77 more per 1000 (from 36 fewer to 220 more)
Carer satisfaction	104 (1 study) 6 months	⊕⊕⊖⊖ LOW[a,c] due to risk of bias, imprecision		The mean carer satisfaction in the control groups was 4.08	The mean carer satisfaction in the intervention groups was 0.39 higher (0.01 lower to 0.79 higher)
Carer satisfaction	145 (1 study) 12 months	⊕⊕⊕⊖ MODERATE[a] due to risk of bias	RR 1 (0.86 to 1.17)	Moderate	
				825 per 1000	0 fewer per 1000 (from 115 fewer to 140 more)
Carer satisfaction Caregiver Strain Index	532 (5 studies) 12 months	⊕⊕⊕⊖ MODERATE[a] due to risk of bias		The mean carer satisfaction in the control groups was 6	The mean carer satisfaction in the intervention groups was 0.16 standard deviations higher (0.01 lower to 0.34 higher)
Length of stay in hospital	1389 (8) in-hospital	⊕⊕⊕⊖ MODERATE[a] due to risk of bias		The mean length of stay in hospital and programme in the control groups was 25 days	The mean length of stay in hospital in the intervention groups was 1.38 lower (2.47 to 0.3 lower)
Length of stay in hospital and programme	486 (3 studies)	⊕⊕⊕⊖ MODERATE[a]		The mean length of stay in hospital and programme in the control groups	The mean length of stay in hospital and programme in the intervention groups

Outcomes	No of Participants (studies) Follow up	Quality of the evidence (GRADE)	Relative effect (95% CI)	Anticipated absolute effects	
				Risk with Hospital Rehabilitation	Risk difference with Community Rehabilitation (95% CI)
	unclear	due to risk of bias		was 34 days	was 7.74 lower (14.2 to 1.28 lower)
Admissions to hospital	1745 (13 studies) 3 months – 6 years	⊕⊕⊕⊖ MODERATE[a] due to risk of bias	RR 0.98 (0.86 to 1.11)	Moderate	
				243 per 1000	5 fewer per 1000 (from 34 fewer to 27 more)
Admissions to hospital	451 (5 studies) 6 months	⊕⊖⊖⊖ VERY LOW[a,c] due to risk of bias, imprecision	RR 0.9 (0.61 to 1.33)	Moderate	
				224 per 1000	22 fewer per 1000 (from 87 fewer to 74 more)
Admissions to hospital	1150 (7 studies) 12 months	⊕⊕⊕⊖ MODERATE[a] due to risk of bias	RR 1.03 (0.88 to 1.20)	Moderate	
				253 per 1000	8 more per 1000 (from 30 fewer to 51 more)
Admissions to hospital	144 (1 study) 6 years	⊕⊖⊖⊖ VERY LOW[a,c] due to risk of bias, imprecision	RR 0.8 (0.6 to 1.08)	Moderate	
				622 per 1000	124 fewer per 1000 (from 249 fewer to 50 more)
GP presentations	166 (2 studies) 6 months - 5 years	⊕⊕⊕⊖ MODERATE[a] due to risk of bias	RR 0.94 (0.86 to 1.04)	Moderate	
				933 per 1000	56 fewer per 1000 (from 131 fewer to 37 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) The point estimate varies widely across studies, unexplained by subgroup analysis.

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

Outcomes as reported in study (not analysable)

One study (Cunliffe 2004) used Euroqol (Quality of life score): Euroqol (-0.59 to 1); at 3 months: mean difference 0.07 (95% CI -0.01 to 0.14); at 12 months: mean difference 0.02 (95% CI -0.06 to 0.09); Cunliffe 2004: GHQ - carer (36 to 0); at 3 months: mean difference -2.0 (95% CI -3.8 to -0.1); at 12 months, mean difference -1.1 (95% CI -3.7 to 1.5); mean GP visits over 12 months: community rehabilitation: 6 compared to the hospital group: 6.7, p=0.16.

One study (Roderick 2001) included quality of life data: quality of life median (IQR): physical health at 6 months; community rehabilitation group: 35.2 (26.5, 43.7) (n=49), hospital group: 32.7 (26.8, 39.2) (n=50); mental health at 6 months; community rehabilitation group: 57.4 (49.9, 62.9) (n=49), hospital group: 57.1 (50.6, 63.0) (n=50).

One study (Rodgers 1997) included quality of life data: quality of life median, (IQR): community rehabilitation group: 2 (1-5) compared to the hospital group: 3 (1-5); hospital length of stay median (IQR): Community rehabilitation group: 13 days (IQR 8-25) compared to the hospital group: 22 days (IQR 10-57), p<0.02; General health questionnaire for carers (30) median (range): community rehabilitation group: 5 (0-21) (n=22) compared to the hospital group: 5 (1-27) (n=19).

One study (Anderson 2000) included total hospital bed days: median (IQR): community rehabilitation group: 15 (8.0, 22.0) compared to the hospital group: 30 (17.3, 48.5), median difference -15, 95% CI -22.0 to -6.0; Readmission stay (days) median (IQR): community rehabilitation group: 6.0 (3.0 to 39.0) compared to hospital group: 4.0 (1.0 to 29.0), median difference 2.0, 95% CI -7.0 to 18.0, p=0.26.

One study (Bautz-Holter 2002) included length of stay: median: community rehabilitation group: 22 days compared to the hospital group: 31 days, p=0.09.

One study (Donnelly 2004) included length of stay: mean/median: community rehabilitation group: mean 42 days, median 31 days compared to the hospital group: mean 50 days, median 32 days.

One study (Indredavik 2000) included mean stroke unit length of stay: community rehabilitation group: 11 days compared to the hospital group: 11 days; mean hospital length of stay (stroke unit plus rehabilitation): community rehabilitation group: 18.6 days compared to the hospital group: 31.1 days; mean (range) number of GP visits at 1 year; community rehabilitation group: 7.5 (0-58) days compared to hospital group: 6.4 (0-35).

One study (Fleming 2004) included median (IQR) GP visits at 12 months: community rehabilitation group: 3 (1-6) compared to the hospital group: 4 (0-6); median (IQR) length of stay at discharge from index admission; community rehabilitation group: 8 (7-15), hospital group: 18 (8-34); median (IQR) hospital bed days from randomisation to 12 months; community rehabilitation group: 16 (8-35), hospital group: 34.5 (18-60); median (IQR) days either in hospital or in CHRS facility from randomisation to 12 months; community rehabilitation group: 60 (34-87), hospital group: 34.5 (18-63).

One study (Thorsen 2006) included Length of stay at index admission: community rehabilitation group: 14 days, hospital group: 30 days.

13.4 Economic evidence

Published literature

Six economic evaluations in 7 papers were identified with the relevant comparison and have been included in this review.[38,55,91,130,131,170,238] These are summarised in the economic evidence profiles below (Table 6, Table 7 and Table 9) and the economic evidence tables in Appendix E.

Four economic evaluations relating to this review question were identified but were excluded due to combination of limited applicability and methodological limitations.[147,168,193,210] These are listed in Appendix H, with reasons for exclusion given.

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 stroke rehabilitation versus inpatient rehabilitation

Study	Applicability	Limitations	Other comments	Incremental cost	Incremental effects	Cost effectiveness	Uncertainty
Fjaertoft 2005[91] [Norway]	Partially applicable[(a)]	Potentially serious limitations[(b)]	**Study design:** RCT **Intervention:** Treatment in stroke unit followed by early supported discharge **Treatment duration:** NR **Subgroup:** Early discharge	-£1491[(c)]	• **Barthel index** (0-20, lower indicates increased disability)(MD): 1.72 •**Mortality** (RR): 0.87 •**Caregiver strain index** (13 question tool; Better indicated by lower values) (SMD): 0.24	n/a	**Stratification by functional level** Incremental costs: 0-1 = £1477 2-3 = -£2743 4-5 = -£2962 Simple sensitivity analyses with the 5 most expensive cost components increased/decreased by 25% - Author states that only marginally impacted results (not shown).
National Audit Office 2010[170][UK]	Partially applicable[(d)]	Potentially serious limitations[(e)]	**Design**: decision model **Intervention**: Early supported discharge (ESD): programme of home-based care (physiotherapy; occupational therapy and speech therapy) available up to a period of 3 months, with no more than one visit per day from each type of therapist **Treatment duration:** unclear, possibly 1 year. **Subgroup:** Early discharge	£804[(f)]	0.13 QALYs	£6184 per QALY gained	Deterministic uncertainty conducted on the level of discount rate (varying it from 0 to 6%) and on the extent of coverage of the ESD scheme to all stroke patients. The model findings were not sensitive to these changes. Not clear as to whether probabilistic sensitivity analysis was conducted.

Abbreviations: MD: mean difference; SMD: standardised mean difference; n/a: not applicable; NR: not reported; QALYs: quality-adjusted life-years; RCT: randomised controlled trial; RR: risk ratio.

(a) QALYs not used. Some uncertainty about the applicability of Norwegian resource use and unit costs. Resource use from >10 years ago year; unit cost year unclear.

(b) RCT-based analysis so from one study by definition therefore not reflecting all evidence in area. Some uncertainty about whether time horizon is sufficient. Limited sensitivity analysis.
(c) Converted using 2005 purchasing power parities.[176]
(d) NAO Costs and outcomes discounted at a different rate. EQ5D data not available so mapped from disease-specific measure.
(e) Unclear how the health outcomes, health and social care costs of each health states were calculated. Not clear whether the study considered the costs of long-term care such as residential care (nursing homes and residential homes). Unclear as to whether the unit costs used from Beech et al (1997) were updated to take into account of inflation or whether recent official data were used (for example, unit costs from PSSRU).
(f) Cost year unclear.

Table 7: Economic evidence profile: Community based geriatric rehabilitation versus inpatient rehabilitation

Study	Applicability	Limitations	Other comments	Incremental cost	Incremental effects	Cost effectiveness	Uncertainty
Caplan 2006A[38] [Australia]	Partially applicable(a)	Potentially serious limitations(b)	**Study design:** RCT **Intervention:** Home rehabilitation provided by a hospital-based multidisciplinary outreach service. The team includes nurses, physiotherapists, occupational therapists and doctors. Patients were visited a mean of 20 times during the rehabilitation episode. Equipment were provided free for up to 3 months **Treatment duration:** variable. **Subgroup:** Early discharge	-£3238(c)	**Delirium: Acute phase** -1.1% **Delirium: rehabilitation phase** -2.6% **Overall length of episode of care:** -5.21**Length of rehabilitation phase:** - 7.12 days **Hospital bed days:** -19.78 days **Mini Mental State Examination (MMSE) (score out of 30):** 0.08 **Depression (Geriatric Depression Score GDS):** - 0.04 **Patient satisfaction:** 0.6 **Carer satisfaction:** 0.39 **General practitioner satisfaction:** 0.28	n/a	No sensitivity analysis reported

Abbreviations: n/a: not applicable; QALYs: quality-adjusted life-years; RCT: randomised controlled trial;
(a) Some uncertainty regarding the applicability of resource use and unit costs from Australia (2002) to the current NHS context. QALYs were not used as an outcome measure.
(b) RCT-based analysis so from one study by definition therefore not reflecting all evidence in area. There is also some uncertainty about whether time horizon is sufficient to reflect all the possible downstream differences in costs and outcomes. No sensitivity analysis is reported.
(c) Converted to 2002 UK pounds using purchasing power parities.[176]

Table 8: Economic evidence profile: Community based cardiac rehabilitation versus outpatient rehabilitation

Study	Applicability	Limitations	Other comments	Incremental cost	Incremental effects	Cost effectiveness	Uncertainty
Cowie 2014[55] [UK]	Partially applicable[(a)]	Potentially serious limitations[(b)]	Study design: cost analysis of a RCT Intervention: exercise training delivered in a home setting Treatment duration: 5 years. Subgroup: admissions avoidance	£480	NR	n/a	Increasing the cost of hospital training by 100% still resulted in hospital training being cost saving.
Jolly et al 2009, Jolly et al 2007 [130,131][UK]	Directly applicable	Potentially serious limitations[(c)]	Study design: RCT Intervention: Exercise programme after Myocardial infarction Treatment duration: 9-12 weeks Subgroup: admission avoidance	£41	Change in EQ-5D score: -0.022	Hospital dominates	Sensitivity analyses were carried out around missing data and a major variable for each of the interventions. This did not change the decision outcome.
Taylor et al 2007 [238][UK]	Directly applicable	Minor limitations[(d)]	Study design: RCT Intervention: Exercise programme after myocardial infarction Treatment duration: 6-10 weeks Subgroup: admission avoidance	£78	QALYs: -0.06	Hospital dominates	

Abbreviations: n/a: not applicable; QALYs: quality-adjusted life-years; RCT: randomised controlled trial.

(a) Only costs were measured, no details on mortality or quality of life. Costs were measured over 5 years but not discounted.

(b) RCT-based analysis, so from one study by definition therefore not reflecting all evidence in area. Only looks at impact on hospital admission costs, no primary care or outpatient costs were considered in the analysis.

(c) RCT-based analysis, so from 1 study by definition therefore not reflecting all evidence in area. Did not include survival into quality of life measure to obtain QALY.

(d) RCT-based analysis, so from 1 study by definition therefore not reflecting all evidence in area. Length of follow-up may not be deemed long enough. Further sensitivity analysis for all assumptions could be conducted. Outcomes had high confidence intervals around incremental values.

13.5 Evidence statements

Clinical

Admission avoidance

- Three studies comprising 453 participants evaluated the role of community rehabilitation for improving outcomes in secondary care in adults and young people at risk of an AME, or with a suspected or confirmed AME. The evidence suggested that community rehabilitation may provide a benefit in reduced mortality (2 studies, moderate quality). The evidence suggested that there was no difference between the groups for quality of life - physical component summary (1 study, low quality) and quality of life score – mental component summary (1 study, moderate quality). However, there was a possible increase in length of treatment (1 study, low quality) in the community rehabilitation group.

Early discharge:

- Twenty six studies comprising 3852 participants evaluated the role of community rehabilitation for improving outcomes in secondary care in adults and young people at risk of an AME, or with a suspected or confirmed AME. The evidence suggested that community rehabilitation may provide a benefit in reduced GP presentations (2 studies, moderate quality), admissions to hospital at 6 months (5 studies, very low quality) and at 6 years (1 study, very low quality) and length of stay in hospital (8 studies, moderate quality) and length of stay in hospital and programme (3 studies, moderate quality). However, there was no effect on admissions at 12 months (7 studies, moderate quality) and mortality, although the trend was more deaths at 6 months (8 studies, very low quality) but fewer at 12 months (6 studies, very low quality) and no difference at 2-6 years (6 studies, moderate quality). However, there was a possible increase in adverse events (5 studies, very low quality). The evidence for quality of life with different scores suggested no effect or an improvement (9 studies, moderate quality). The evidence suggested that community rehabilitation may provide a benefit in terms of patient satisfaction (6 studies, very low to low quality). The evidence for carer satisfaction suggested no difference (6 studies, moderate quality) or an improvement (1 study, low quality) when reported using different scores and/or methodologies.

Economic

- A UK cost–utility model found community-based rehabilitation following early supported discharge for stroke patients to be cost-effective (ICER: £6184) compared to usual care. This study was assessed as directly applicable with potentially serious limitations.
- One cost-consequences analysis found that community-based rehabilitation following early supported discharge was less costly than inpatient rehabilitation for stroke patients (cost saving: £1491 per patient) and improved functionality (1.7 higher Barthel index score), lower mortality and higher care giver strain (0.24 higher care giver strain index score). This study was assessed as directly applicable with potentially serious limitations.
- One cost-consequences analysis found that community-based rehabilitation was less costly (cost saving: £3238 per patient) and had better outcomes (less delirium, better quality of life, lower length of stay in hospital and in treatment, higher patient satisfaction, higher carer satisfaction and higher GP satisfaction) compared with inpatient rehabilitation for frail older people. This study was assessed as directly applicable with potentially serious limitations.
- Three economic evaluations found that home-based cardiac rehabilitation was dominated by hospital-based outpatient rehabilitation for MI patients (cost: £480 more per patient). These studies were assessed as directly applicable with potentially serious to minor limitations.

13.6 Recommendations and link to evidence

Recommendations	**7. Provide a multidisciplinary community-based rehabilitation service for people who have had a medical emergency.**
Research recommendation	**-**
Relative values of different outcomes	Quality of life, mortality, avoidable adverse events, patient and/or carer satisfaction and number of admissions to hospital were considered by the guideline committee to be critical outcomes. Number of GP presentations, readmission, length of hospital stay and number of presentations to the Emergency Department were considered by the committee to be important outcomes.
Trade-off between benefits and harms	A total of 29 studies were identified that assessed community rehabilitation compared to hospital rehabilitation. These studies were separated into admission avoidance or early discharge studies. **Stratum - Admissions avoidance:** Three studies suggested that community rehabilitation may provide benefits in reduced mortality.. The evidence suggested that there was no difference between the groups for quality of life (physical component and mental component). There was no evidence for the following outcomes: avoidable adverse events, quality of life, patient and/or carer satisfaction, number of presentation to the ED, number of admissions to hospital or number of GP presentations. **Stratum - Early discharge:** Evidence from 26 studies suggested that community rehabilitation provides a benefit in fewer GP presentations, admissions to hospital at 6 months and at 6 years and reduced length of stay in hospital and in programme. However, there was no effect on admissions at 12 months; mortality trends suggested more deaths at 6 months, fewer at 12 months and no difference at 2-6 years. However, there was a possible increase in adverse events. The evidence for quality of life with different scores suggested no effect or an improvement. There was potential benefit in terms of patient satisfaction. The evidence for carer satisfaction suggested no difference or an improvement when reported using different scores and/or methodologies. There was no evidence for the outcome relating to number of presentations to the ED. The committee considered that the data were consistent with a benefit for rehabilitation in the community, which also has high patient acceptability. The committee agreed that rehabilitation in the community should be offered to patients as an alternative to routine hospital inpatient rehabilitation, depending on their clinical condition and after discussion of risks and benefits. Community rehabilitation is a viable alternative to hospital inpatient treatment for selected patients, and would be the preferred option to maintain patients' independence.
Trade-off between net effects and costs	Two included studies assessed the cost effectiveness of early supported discharge and rehabilitation following acute admissions for stroke. The studies showed that early supported discharge with rehabilitation in the community is cost effective (either dominant - or has an incremental cost effectiveness ratio (ICER) less than £20,000 per QALY gained). Three economic evaluations found home-based cardiac rehabilitation to be more costly and less effective than hospital outpatient based rehabilitation. One study assessed the cost effectiveness of community-based geriatric rehabilitation compared to inpatient rehabilitation. This study showed that geriatric rehabilitation in the community was dominant (more effective and less costly) compared to inpatient rehabilitation. The committee considered the clinical evidence which showed improvement in

Recommendations	**7. Provide a multidisciplinary community-based rehabilitation service for people who have had a medical emergency.**
Research recommendation	-
	patient-centred outcomes, including patient and/or carer satisfaction. However, there was lack of evidence regarding improved functional outcomes and independence for elderly patients which the committee believed, based on their clinical experience, would be improved. The committee were of the view that patients' quality of life could be enhanced by improved independence and satisfaction. Overall, the committee considered the possible improvements in health outcomes and cost savings to outweigh the costs of providing community based rehabilitation for patients recovering from an AME. Community rehabilitation services are quite common across the country, for example, early supported discharge for suitable patients who have had an acute stroke. But for some parts of the country, providers and commissioners may have to set up or expand the capacity of existing services (including training or hiring of additional staff, including physiotherapists. The rehabilitation services could be integrated within the intermediate care services. The impact of such services should be to free up hospital beds and improved patient outcomes.
Quality of evidence	**Admission avoidance:** The evidence was graded moderate for mortality and length of stay due to imprecision. Length of treatment data was graded as low due to risk of bias and imprecision. The outcome of quality of life (physical and mental component summary) was graded low to moderate due to imprecision **Early discharge:** The evidence was graded very low to moderate due to risk of bias, imprecision and inconsistency. **Economic evaluations** One study of cardiac rehabilitation was assessed as directly applicable with minor limitations. The rest of the evidence was assessed as partially applicable (because of the setting and/or the measure of health outcome) with potentially serious limitations.
Other considerations	As with all forms of rehabilitation, the 'dose' of the intervention may be relatively small in terms of the amount of time the practitioner can devote to each patient. The committee noted that rehabilitation would often need to be delivered or reinforced by different disciplines, requiring coordination between those disciplines and the various community and social care agencies to ensure that care was focused on the goals for each patient, involved (and, where necessary, educated) the patient and family or carers, and was integrated between sectors, particularly community nursing. Further discussion on integrated care can be found in Chapter 38. The majority of the evidence was in the stroke population and there was insufficient evidence on other clinical conditions making generalisations more difficult. However, a sub-group analysis by population did not explain heterogeneity within the outcomes. In some specific conditions, such as stroke, the evidence is stronger on outcomes relating to independence (not evaluated specifically in trials on other clinical conditions). The committee agreed that community rehabilitation should be focused on maximising and maintaining independence and thereby reduce the overall burden on the healthcare system.

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Appendices

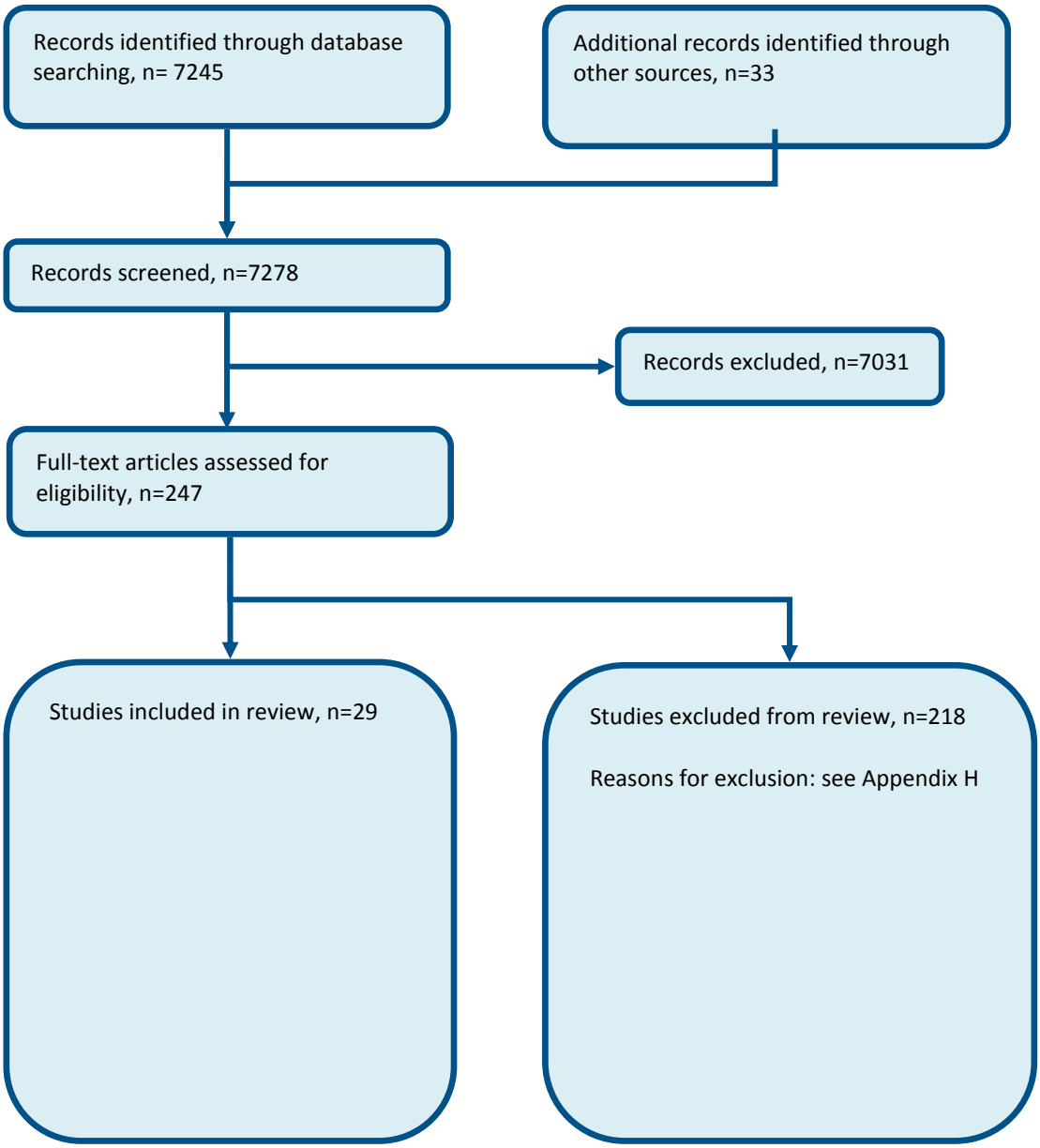
Appendix A: Review protocol

Table 9: Review protocol: community rehabilitation

Review question: Does the provision of community-based rehabilitation services following acute medical illness improve patient outcomes?	
Objective	To determine if wider provision of community-based rehabilitation prevents people staying in hospitals longer than necessary while not impacting on patient and carer outcomes.
Rationale	Community-based healthcare services are vital to prevent unnecessary hospital admission and to facilitate early hospital discharge. It is also likely that these resources are less costly than hospital care.
Population	Adults and young people (16 years and over) with a suspected or confirmed AME presenting to an acute medical unit.
Intervention	Community-based rehabilitation services.
Comparison	Hospital-based rehabilitation services.
Outcomes	• Mortality during study period (Dichotomous) CRITICAL • Avoidable adverse events during study period (Dichotomous) CRITICAL • Quality of life during study period (Continuous) CRITICAL • Patient and/or carer satisfaction during study period (Dichotomous) CRITICAL • Length of stay during study period (Continuous) IMPORTANT • Number of presentations to ED during study period (Dichotomous) IMPORTANT • Number of admissions to hospital after 28 days of first admission (Dichotomous) CRITICAL • Number of GP presentations during study period (Dichotomous) IMPORTANT • Readmission up to 30 days (Dichotomous) IMPORTANT
Search criteria	The databases to be searched are: Medline, Embase, the Cochrane Library Date limits for search: None Language: English only
The review strategy	Systematic reviews (SRs) of RCTs, RCTs, observational studies only to be included if no relevant SRs or RCTs are identified.
Analysis	Data synthesis of RCT data. Meta-analysis where appropriate will be conducted. Studies in the following subgroup populations will be included: • Frail elderly • People with serious mental illness In addition, if studies have pre-specified in their protocols that results for any of these subgroup populations will be analysed separately, then they will be included. The methodological quality of each study will be assessed using the Evibase checklist and GRADE.

Appendix B: Clinical article selection

Figure 1: Flow chart of clinical article selection for the review of Community rehabilitation



Appendix C: Forest plots

C.1 Community versus hospital rehabilitation – Admission avoidance

Figure 2: Mortality

Study or Subgroup	Community Events	Community Total	Hospital Events	Hospital Total	Weight	Risk Ratio M-H, Fixed, 95% CI
Kalra 2000	21	144	34	149	58.2%	0.64 [0.39, 1.05]
Ricauda 2004	21	60	24	60	41.8%	0.88 [0.55, 1.39]
Total (95% CI)		**204**		**209**	**100.0%**	**0.74 [0.52, 1.04]**
Total events	42		58			

Heterogeneity: Chi² = 0.85, df = 1 (P = 0.36); I² = 0%
Test for overall effect: Z = 1.75 (P = 0.08)

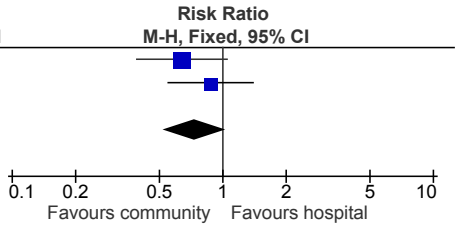


Figure 3: Length of treatment

Study or Subgroup	Community Mean	Community SD	Community Total	Hospital Mean	Hospital SD	Hospital Total	Weight	Mean Difference IV, Fixed, 95% CI
Ricauda 2004	38.1	28.6	60	22.2	11.5	60	100.0%	15.90 [8.10, 23.70]
Total (95% CI)			**60**			**60**	**100.0%**	**15.90 [8.10, 23.70]**

Heterogeneity: Not applicable
Test for overall effect: Z = 4.00 (P < 0.0001)

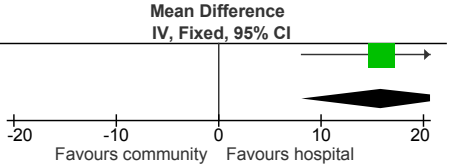


Figure 4: Quality of life –SF 36- Physical component summary

Study or Subgroup	Community Mean	Community SD	Community Total	Hospital Mean	Hospital SD	Hospital Total	Weight	Mean Difference IV, Fixed, 95% CI
Cowie 2012	34.01	11.04	20	33.83	10	20	100.0%	0.18 [-6.35, 6.71]
Total (95% CI)			**20**			**20**	**100.0%**	**0.18 [-6.35, 6.71]**

Heterogeneity: Not applicable
Test for overall effect: Z = 0.05 (P = 0.96)

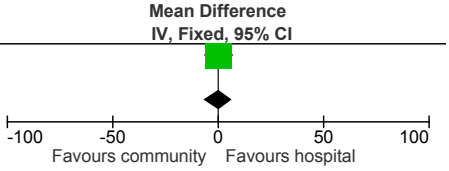
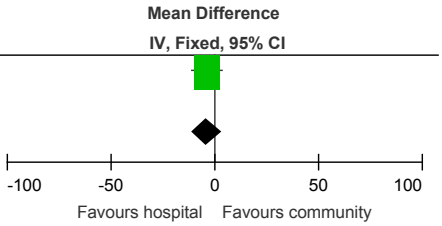


Figure 5: Quality of life –SF 36- Mental component summary

Study or Subgroup	Community Mean	Community SD	Community Total	Hospital Mean	Hospital SD	Hospital Total	Weight	Mean Difference IV, Fixed, 95% CI
Cowie 2012	44.44	12.23	20	48.25	11.21	20	100.0%	-3.81 [-11.08, 3.46]
Total (95% CI)			**20**			**20**	**100.0%**	**-3.81 [-11.08, 3.46]**

Heterogeneity: Not applicable
Test for overall effect: Z = 1.03 (P = 0.30)



C.2 Community versus hospital rehabilitation - Early discharge

Figure 6: Mortality

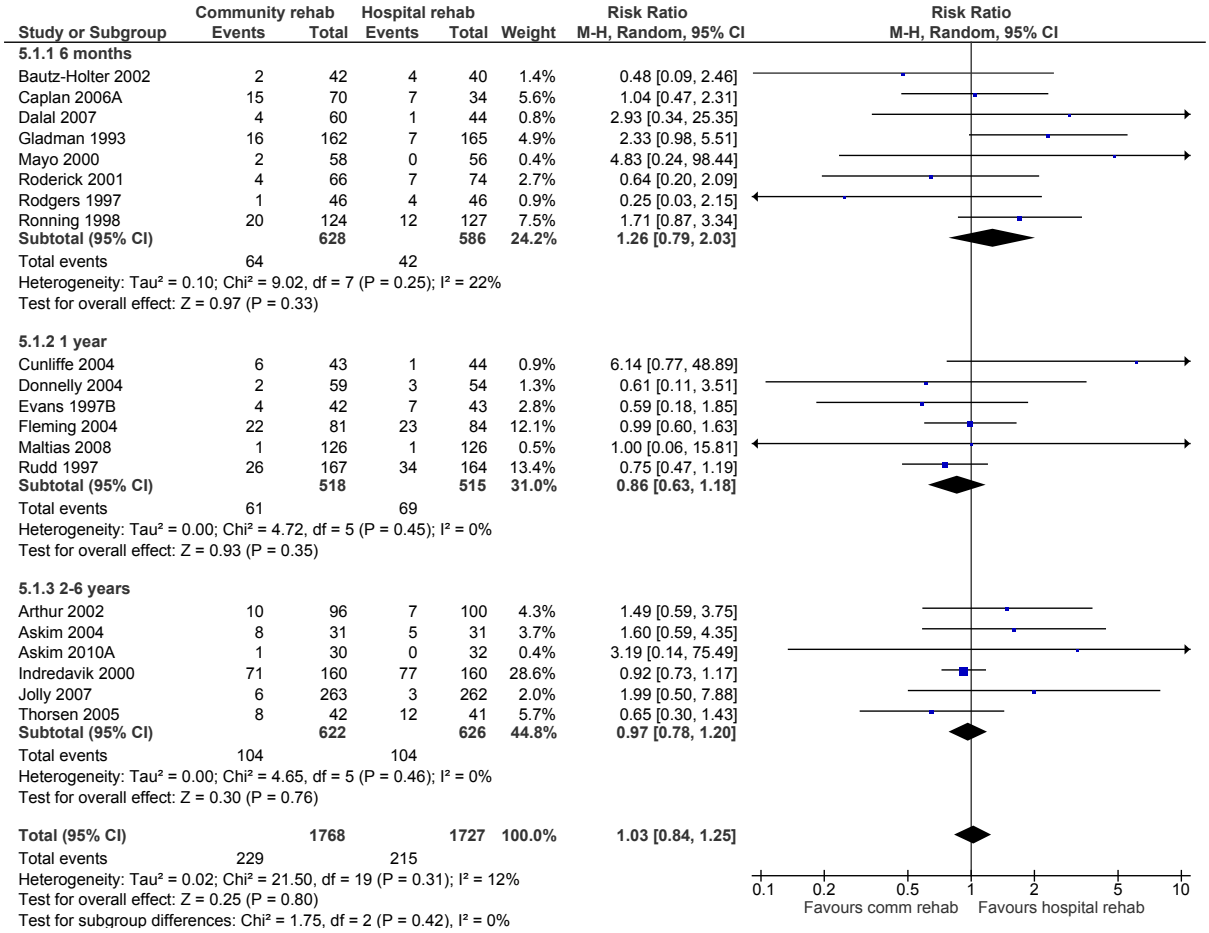


Figure 7: Adverse events

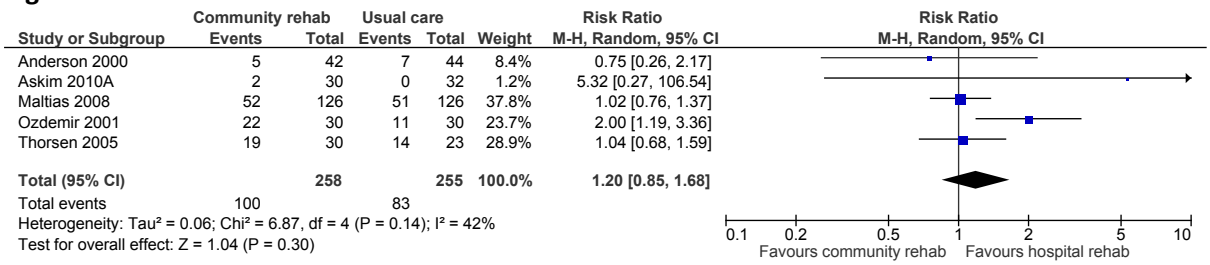


Figure 8: Quality of life (SF-36)

Study or Subgroup	Early supported discharge Mean	SD	Total	Usual care Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
5.3.1 SF-36 Physical component summary score								
Anderson 2000	37.4	10.3	42	39.6	9	44	24.6%	-2.20 [-6.30, 1.90]
Arthur 2002	48.3	11.7	102	47.6	11.7	96	38.9%	0.70 [-2.56, 3.96]
Donnelly 2004	35.59	31.32	51	34.67	32.01	46	2.6%	0.92 [-11.71, 13.55]
Mayo 2000	42.9	10.1	51	37.9	10.6	44	23.6%	5.00 [0.82, 9.18]
Ronning 1998	48	19	65	47	20	82	10.3%	1.00 [-5.33, 7.33]
Subtotal (95% CI)			**311**			**312**	**100.0%**	**1.04 [-0.99, 3.07]**
Heterogeneity: Chi² = 5.89, df = 4 (P = 0.21); I² = 32%								
Test for overall effect: Z = 1.00 (P = 0.32)								
5.3.2 SF-36 Mental component summary scores								
Anderson 2000	54.4	9.2	42	55.7	8.4	44	26.1%	-1.30 [-5.03, 2.43]
Arthur 2002	53	10.9	102	50.2	10.9	96	39.3%	2.80 [-0.24, 5.84]
Donnelly 2004	69.49	18.26	51	67.3	20.07	46	6.2%	2.19 [-5.48, 9.86]
Mayo 2000	46.5	11.7	51	46.7	10.8	44	17.7%	-0.20 [-4.73, 4.33]
Ronning 1998	70	17	65	70	19	82	10.7%	0.00 [-5.83, 5.83]
Subtotal (95% CI)			**311**			**312**	**100.0%**	**0.86 [-1.04, 2.77]**
Heterogeneity: Chi² = 3.27, df = 4 (P = 0.51); I² = 0%								
Test for overall effect: Z = 0.89 (P = 0.38)								

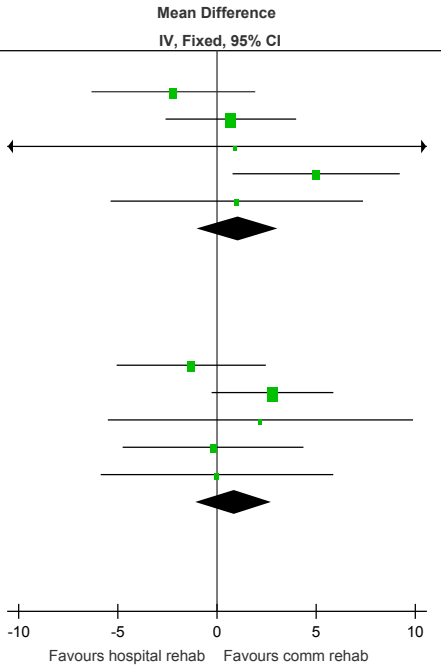


Table 10: Quality of life (St. George's Respiratory Questionnaire)

Study or Subgroup	Early supported discharge Mean	SD	Total	Usual care Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Maltias 2008	-4.5	10.9185	89	-3.5	10.7996	95	100.0%	-1.00 [-4.14, 2.14]
Total (95% CI)			**89**			**95**	**100.0%**	**-1.00 [-4.14, 2.14]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.62 (P = 0.53)								

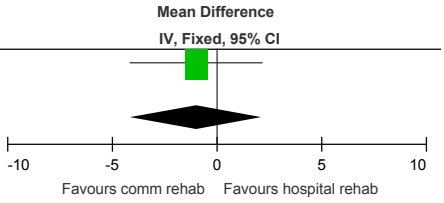


Table 11: Quality of life (Life Satisfaction)

Study or Subgroup	Early supported discharge Mean	SD	Total	Usual care Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Evans 1997B	20.2	10.6	42	19.9	9.9	43	100.0%	0.30 [-4.06, 4.66]
Total (95% CI)			**42**			**43**	**100.0%**	**0.30 [-4.06, 4.66]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.13 (P = 0.89)								

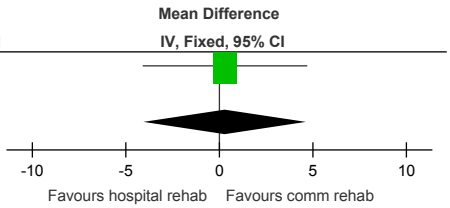


Figure 9: Quality of life (SF-12)- PCS

Study or Subgroup	comm rehab Mean	SD	Total	hospital rehab Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Jolly 2007	42.28	10.9	263	42.56	10.8	262	100.0%	-0.28 [-2.14, 1.58]
Total (95% CI)			**263**			**262**	**100.0%**	**-0.28 [-2.14, 1.58]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.30 (P = 0.77)								

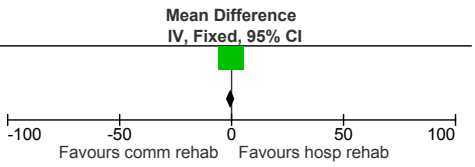


Figure 10: Quality of life (SF-12)- MCS

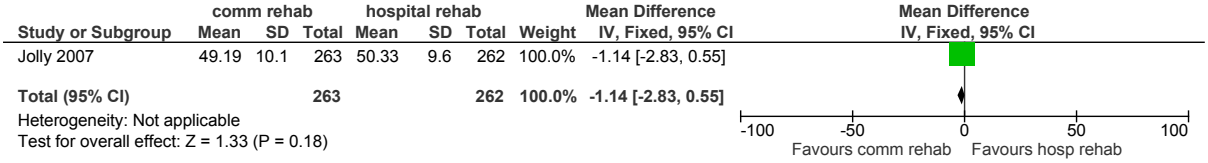


Figure 11: Patient satisfaction

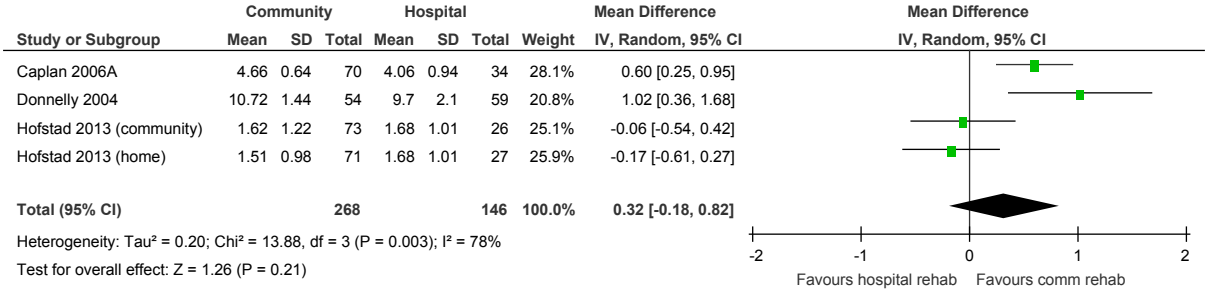


Figure 12: Patient Satisfaction

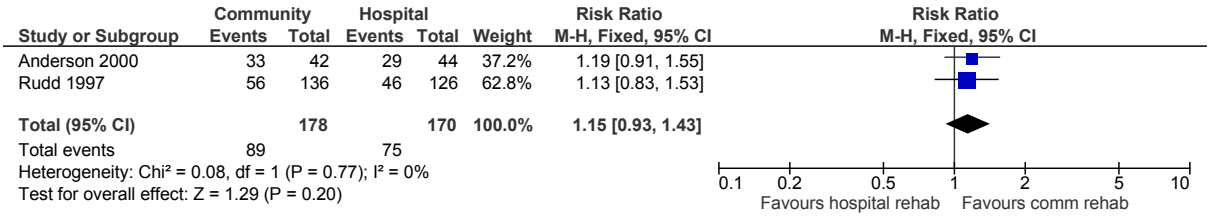


Table 12: Carer Satisfaction

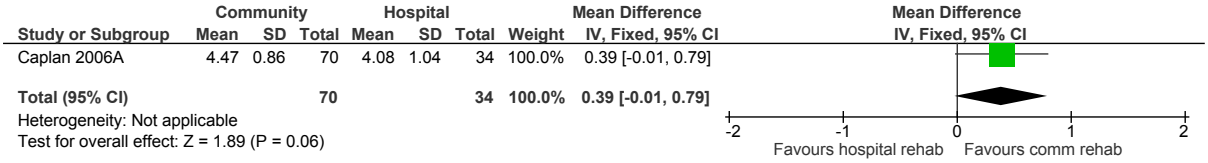


Figure 13: Carer Satisfaction

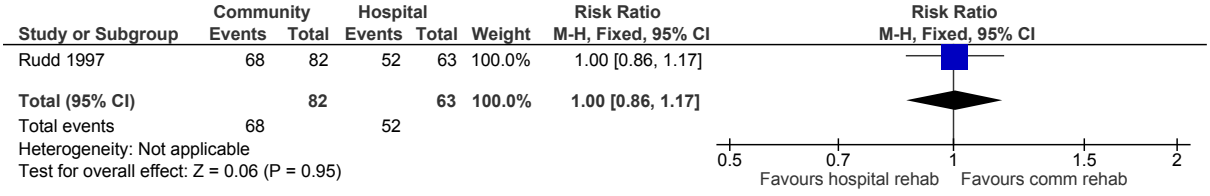


Figure 14: Carer Satisfaction (Caregiver Strain Index)

Study or Subgroup	Community Mean	SD	Total	Hospital Mean	SD	Total	Weight	Std. Mean Difference IV, Fixed, 95% CI
Anderson 2000	0.2	0.4	24	0.2	0.4	21	8.5%	0.00 [-0.59, 0.59]
Askim 2004	24.3	2.7	23	24.8	1.9	22	8.5%	-0.21 [-0.80, 0.38]
Donnelly 2004	5.92	2.86	27	6	4.23	25	9.9%	-0.02 [-0.57, 0.52]
Fjaertoft 2004	23.3	2.7	133	22.6	3.1	125	48.7%	0.24 [-0.00, 0.49]
Rudd 1997	5	4	75	4	3	57	24.4%	0.28 [-0.07, 0.62]
Total (95% CI)			**282**			**250**	**100.0%**	**0.16 [-0.01, 0.34]**

Heterogeneity: Chi² = 3.09, df = 4 (P = 0.54); I² = 0%
Test for overall effect: Z = 1.89 (P = 0.06)

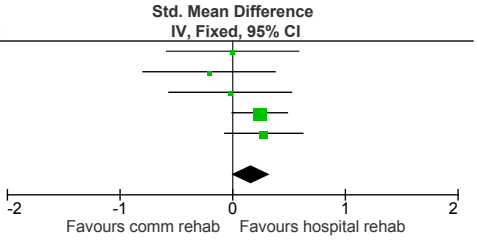


Figure 15: Length of stay (in-hospital)

Study or Subgroup	Community Mean	SD	Total	Hospital Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Cunliffe 2004	39.56	47.7	52	41.08	30.7	50	0.5%	-1.52 [-17.03, 13.99]
Evans 1997B	16.8	10.2	42	21	16.7	43	3.4%	-4.20 [-10.07, 1.67]
Hofstad 2013 (community)	37.7	51.8	103	42.2	55.7	54	0.4%	-4.50 [-22.41, 13.41]
Hofstad 2013 (home)	35.6	46.91	104	42.2	55.7	55	0.4%	-6.60 [-23.86, 10.66]
Mayo 2000	9.8	5.3	58	16.1	14.6	56	7.2%	-6.30 [-10.36, -2.24]
Ronning 1998	9.4	7.9	124	10.4	7.9	127	30.9%	-1.00 [-2.95, 0.95]
Rudd 1997	12	19	167	18	24	164	5.4%	-6.00 [-10.67, -1.33]
Santana 2016	9.8	5.3	95	10	5.3	95	51.9%	-0.20 [-1.71, 1.31]
Total (95% CI)			**745**			**644**	**100.0%**	**-1.38 [-2.47, -0.30]**

Heterogeneity: Chi² = 13.26, df = 7 (P = 0.07); I² = 47%
Test for overall effect: Z = 2.49 (P = 0.01)

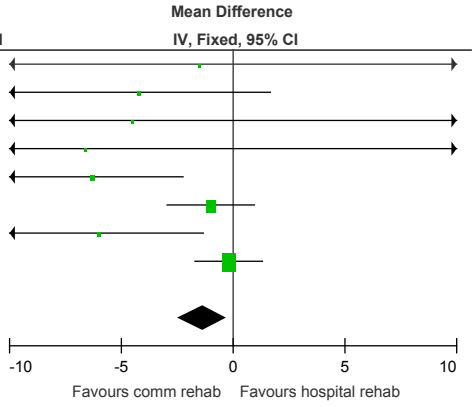


Figure 16: Length of stay in hospital and programme

Study or Subgroup	Community Mean	SD	Total	Hospital Mean	SD	Total	Weight	Mean Difference IV, Fixed, 95% CI
Askim 2004	23.5	30.5	31	30.5	44.8	31	11.5%	-7.00 [-26.08, 12.08]
Caplan 2006A	34.91	15.37	70	40.09	23.22	34	56.4%	-5.18 [-13.78, 3.42]
Indredavik 2000	18.6	52	160	31.1	52	160	32.1%	-12.50 [-23.89, -1.11]
Total (95% CI)			**261**			**225**	**100.0%**	**-7.74 [-14.20, -1.28]**

Heterogeneity: Chi² = 1.02, df = 2 (P = 0.60); I² = 0%
Test for overall effect: Z = 2.35 (P = 0.02)

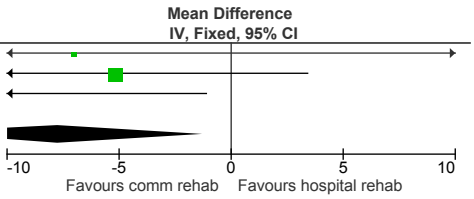


Figure 17: Admissions

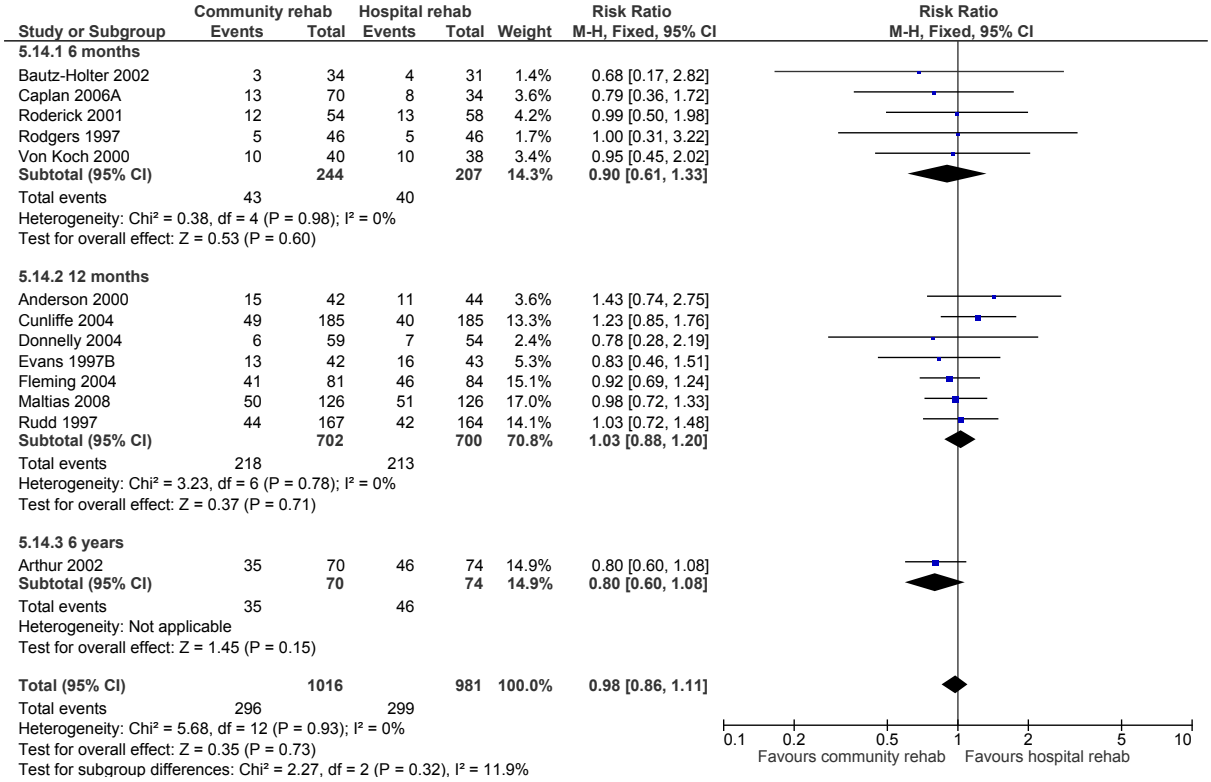
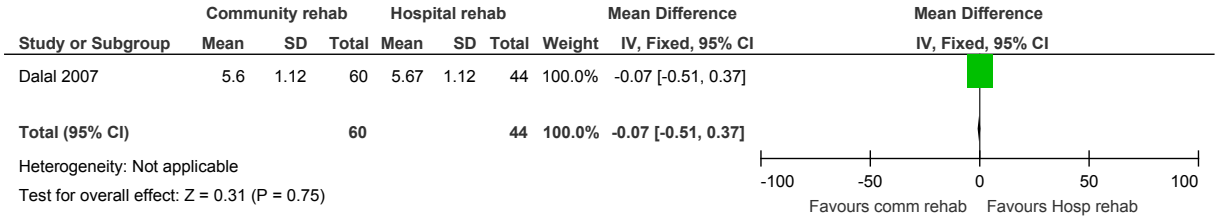


Figure 18: GP presentations

Figure 19: Quality of life (MacNew-Global)



Appendix D: Clinical evidence tables

Cochrane reviews

Study	Shepperd 2008[223]
Study type	Systematic review of RCTs – Hospital at home admission avoidance
Number of studies (number of participants)	10 (n=1333) (2 studies included in our evidence review)
Countries and setting	Conducted in Australia, Italy, New Zealand and the United Kingdom
Duration of study	Databases were searched through to January 2008
Stratum	Overall
Subgroup analysis within study	Systematic review – pre-specified in protocol
Inclusion criteria	Patients aged 18 years and over that were included in admission avoidance hospital at home schemes
Exclusion criteria	Patients with long-term care needs were not included unless they required admission to hospital for an acute episode of care. Evaluations of obstetric, paediatric and mental health hospital at home schemes were excluded from the review since the preliminary literature searches by the authors suggested that separate reviews would be justified for each of these groups.
Recruitment/selection of patients	Randomised controlled trials recruiting patients aged 18 years and over. Studies comparing admission avoidance hospital at home with acute hospital inpatient care. The schemes may admit patients directly from the community, so avoiding physical contact with the hospital, or may admit from the emergency room.
Age, gender and ethnicity	Not stated overall
Further population details	Two trials recruited patients with chronic obstructive pulmonary disease (COPD) (Davies 2000; Nicholson 2001), 2 trials recruited patients recovering from a moderately severe stroke who were clinically stable (Kalra 2000; Ricauda 2004), and 3 trials recruited patients with an acute medical condition who were mainly elderly (Caplan 1999; Harris 2005; Wilson 1999). As noted above, there was one trial each for patients with cellulitis (Corwin 2005), patients with community acquired pneumonia (Richards 2005), and frail elderly patients with dementia (Tibaldi 2004).
Extra comments	
Indirectness of population	No indirectness
Interventions	Admission avoidance hospital at home schemes compared to acute hospital inpatient care. The schemes may admit patients directly from the community or from the emergency room. Definition used by the authors: hospital at home is a service that can avoid the need for

Study	Shepperd 2008[223]
	hospital admission by providing active treatment by health care professionals in the patient's home for a condition that otherwise would require acute hospital in-patient care, and always for a limited time period. In particular, hospital at home has to offer a specific service to patients in their home requiring health care professionals to take an active part in the patients' care. If hospital at home were not available then the patient would be admitted to an acute hospital ward. Therefore, the following services are excluded from this review: • services providing long term care; • services provided in outpatient settings or post discharge from hospital; and • self-care by the patient in their home such as self-administrationof an intra-venous infusion.
Funding	Not stated

Study	Intervention and comparison	Population	Outcomes	Comments
Kalra 2000[134] RCT UK	Hospital outreach admission avoidance MDT with joint care from community services. Three arm trial: Stroke unit care (n=148) Versus Stroke team (n=150) Versus Home care (n=149)	Adults (n=457) recovering from a moderate to severe stroke	Mortality, Readmission, length of stay, Ranking level of independence, Barthel Risk of bias (assessed in Cochrane review) Risk of bias : Selection bias - Low	**Admission avoidance** Strata
Ricauda 2004[192] RCT Italy	Home treatment (from a geriatric home hospitalisation service) Team: geriatricians, nurses, dieticians, physiotherapists, psychologists and social workers dedicated to the home management of stroke. Versus General medical ward.	Adults (n = 120) elderly patients, with a mean age of 82 years; admitted to the emergency department with first acute ischemic stroke.	Quality of life, mortality, avoidable adverse events (respiratory and urinary tract infections) Risk of bias (assessed in Cochrane review) Risk of bias : Selection bias - high risk	**Admission avoidance** Strata

Study	Shepperd 2009[225]
Study type	Systematic review of RCTs – Hospital at home early discharge
Number of studies (number of participants)	26 (n=3967) (10 studies included from this review)
Countries and setting	Conducted in Australia, Canada, New Zealand, Norway, Sweden, Thailand, and the UK (the majority of trials).
Duration of study	Databases were searched through to January/February 2008
Stratum	Overall
Subgroup analysis within study	Sys review – pre-specified in protocol
Inclusion criteria	The review includes evaluations of early discharge hospital at home schemes that include patients aged 18 years and over. Patients were either recovering from a stroke, following elective surgery, or were older people with a mix of conditions.
Exclusion criteria	Patients with long-term care needs were not included unless they required admission to hospital for an acute episode of care. Evaluations of obstetric, paediatric and mental health hospital at home schemes were excluded from the review since the authors' preliminary literature searches suggested that separate reviews would be justified for each of these groups due to the different types of patient group and volume of literature. The following services were excluded from this review: services providing long term care, services provided in out-patient settings or post discharge from hospital, and self-care by the patient in their home such as self-administration of an intravenous infusion.
Recruitment/selection of patients	The review includes evaluations of early discharge hospital at home schemes that include patients aged 18 years and over. Patients were either recovering from a stroke, following elective surgery, or were older people with a mix of conditions.
Age, gender and ethnicity	Not stated overall
Further population details	-
Extra comments	-
Indirectness of population	No indirectness – we excluded the papers with patients recovering from elective surgery for our analysis
Interventions	Studies comparing early discharge hospital at home with acute hospital in-patient care. The authors used the following definition to determine if studies should be included in the review: hospital at home is a service that provides active treatment by health care professionals in the patient's home for a condition that otherwise would require acute hospital in-patient care, and always for a limited time period. In particular, hospital at home has to offer a specific service to patients in their home requiring health care professionals to take an active part in the patients' care. If hospital at home were not available then the patient would not be discharged early from hospital and would remain on an acute hospital ward. Therefore, the following services were excluded from this review: services providing long term care, services provided in out-patient settings or post discharge from hospital, and self-care by the patient in their

Study	Shepperd 2009[225]
	home such as self-administration of an intravenous infusion.
Funding	Not stated

Study	Intervention and comparison	Population	Outcomes	Comments
Askim, 2004[15] RCT Norway	Extended service consisting of stroke unit treatment combined with a home based programme of follow-up care co-ordinated by a mobile stroke team that offers early supported discharge and works in close co-operation with the primary health care system during the first 4 weeks after discharge. The mobile team consisted of a nurse, a physiotherapist, an occupational therapist and the consulting physician. versus Ordinary service defined as the stroke unit treatment of choice according to evidence-based recommendations.	Acute stroke patients with a Scandinavian Stroke Scale (SSS) score greater than 2 points and less than 58 points. I score such as this indicates that patients were moderately disabled	Mortality; Length of stay in hospital or programme; Caregiver Strain index Risk of bias (assessed in Cochrane review) Risk of bias : Selection bias – Low risk	-
Bautz-Holter, 2002[19] RCT Norway	Early supported discharge with a multidisciplinary team for each stroke patient was offered and support and supervision was provided from the project team whenever needed. Four weeks after discharge, the patients in the ESD group were seen at the	Acute stroke patients; not severely disabled prior to stroke; had no other medical condition likely to preclude rehabilitation and were medically stable. Patients included were moderately to mildly disabled	Mortality; Admissions to hospital; Length of hospital stay; Admissions to hospital; Risk of bias (assessed in Cochrane review) Risk of bias : Selection bias – Low risk	-

Study	Intervention and comparison	Population	Outcomes	Comments
	outpatient clinic versus Conventional procedures for discharge and continued rehabilitation, which were anticipated to be less well organised			
Rudd, 1997[208] RCT UK	Early discharge with a planned course of domiciliary physiotherapy, occupational therapy, and speech therapy, with visits as frequently as considered appropriate (maximum one day visit from each therapist) for up to 3 months after randomization. versus Usual care with no augmentation of social services resources	Stroke patients able to perform functional independent transfer or able to perform transfer with assistance	Mortality; Length of stay in hospital; Admissions to hospital; patient satisfaction with therapy/recovery; Caregiver strain index; Carer satisfaction Risk of bias (assessed in Cochrane review) Risk of bias : Selection - Low	-
B: Early discharge **Comparison 2: Community rehabilitation versus routine hospital services (similar amount in each setting)**				
Anderson, 2000[7]; Hackett 2002[113] RCT Australia	Early hospital discharge and individually tailored home-based/community rehabilitation (median duration: 5 weeks) by a full time occupational therapist, a consultant in rehabilitation, physiotherapists, occupational therapists, social workers, speech therapists, and	Acute stroke patients that were medically stable and suitable to be discharged early from hospital to a community rehabilitation scheme and had sufficient physical and cognitive function. Patients included in this study were mildly disabled	Mortality; SF-36 physical and mental component summary scores; patient satisfaction with therapy/recovery; Falls; Caregiver strain index; Readmission to hospital at 6 months; Length of hospital stay Risk of bias (assessed in Cochrane review) Risk of bias : Selection - Low	-

Study	Intervention and comparison	Population	Outcomes	Comments
	rehabilitation nurses. Efforts were made so that discharge from hospital could occur within 48 hours of randomisation. versus Conventional care and rehabilitation in hospital, either on an acute-care medical geriatric ward or in a multidisciplinary stroke rehabilitation unit run by specialists in rehabilitation or geriatric medicine			
Caplan 2006[38] RCT Australia	Early discharge hospital based outreach Type of service: nurses, physiotherapy, occupational therapy, physician Versus Control group: in-patient hospital care	Elderly patients whose length of hospital stay exceeded 6 days, who were referred for geriatric rehabilitation and expected to return home and live reasonably independently Mean age: treatment = 83.86 (7.8); control = 84.0 (7.02)	Mortality; Functional and cognitive status; Psychological well-being; patient and carer satisfaction; Readmission at 6 months; Length of stay Risk of bias (assessed in Cochrane review) Risk of bias : Selection - Low	-
Cunliffe 2004[64] RCT UK	Hospital at home (early discharge) Type of service: provided by community services, GP had clinical responsibility, physiotherapy, occupational therapy, 3 dedicated nurses plus 7 rehabilitation assistants,	3 most common conditions were fractures (105/370, 28%), neurological conditions, mainly stroke (97/370, 26%), cardio-respiratory illnesses (50/370,14%). 247/370 (66%) lived alone Median age: 80 years	Mortality; Readmission by 3 months; Quality of life; GP visits; length of stay in hospital Risk of bias (assessed in Cochrane review) Risk of bias : Selection - Low	-

Study	Intervention and comparison	Population	Outcomes	Comments
	provided care up to 4 weeks. Community care officer liaised with social services Versus Control group: in-patient hospital care			
Donnelly, 2004[76] RCT UK	Earlier hospital discharge combined with community-based multidisciplinary stroke team rehabilitation comprising 0.33 coordinator, 1 occupational therapist, 1.5 physiotherapists, 1 speech and language therapist, and 2 rehabilitation assistants. On average the number of home visits over a 3-month period was 2.5 per week each lasting 45 minutes. Patients in the CST group were to be discharged as soon as their home was assessed versus Usual hospital rehabilitation comprising inpatient rehabilitation in a stroke unit and follow-up rehabilitation in a day hospital	Acute stroke patients with no pre-existing physical or mental disability that was judged to make further rehabilitation inappropriate. Patients included were moderately (10-14) to mildly disabled (15-19)	Mortality; SF-36 physical and mental component; Quality of life (EuroQoL); patient satisfaction; Caregiver Strain index; Length of stay; Admissions to hospital at 12 months Risk of bias (assessed in Cochrane review) Risk of bias : Selection - Low	-
Indredavik 2000[126] RCT Norway	Hospital at home (early discharge)	Patients recovering from a stroke Mean age: treatment = 74; control = 73.8	Mortality, length of stay Risk of bias (assessed in Cochrane review)	

Study	Intervention and comparison	Population	Outcomes	Comments
	Type of service: mobile team based in a stroke unit and worked with primary care team Skill mix: nurse, physiotherapist, occupational therapist, stroke physician Control group: combined active and rehabilitation stroke unit and further follow-up organised by rehabilitation clinic and/or primary health care system	Treatment = 160 Control = 160	Risk of bias : Selection – unclear risk	
Mayo, 2000[164] RCT Canada	Rehabilitation at home after prompt discharge from hospital with the immediate provision of follow-up services by a multidisciplinary team offering nursing, physical therapy (PT), occupational therapy (OT), speech therapy (ST), and dietary consultation. Duration of intervention was 4 weeks for all participants. Versus Usual care practices for discharge planning and referral for follow-up services. These included physiotherapy, occupational therapy and speech therapy, as requested	Acute stroke patients with motor deficits after stroke who had caregivers willing and able to provide live-in care for the subject over a 4-week period after discharge from the hospital. Patients included were mildly disabled	Mortality; SF-36 Mental summary component and SF-36 physical summary component; Length of stay (hospital); Length of stay (hospital + rehabilitation) Risk of bias (assessed in Cochrane review) Risk of bias : Selection - Low	-

Study	Intervention and comparison	Population	Outcomes	Comments
	by the patient's care provider and offered through extended acute-care hospital stay; inpatient or outpatient rehabilitation; or home care via local community health clinics			
Rodgers, 1997[199]	Early Supported Discharge with home care from the Stroke Discharge Team (community based). The team consisted of an occupational therapist, physiotherapist, speech and language therapist, social worker and occupational therapy technician. The stroke discharge rehabilitation service was available five days per week but the home care component of the service was available 24 hours per day and 7 days per week if required. The stroke discharge service was withdrawn gradually and a contact name and number was provided to patients in case of subsequent queries or problems Versus Inpatient and outpatient care was provided for the control group by conventional hospital and community services.	Acute stroke patients that were not severely handicapped prior to the incident stroke with no other condition likely to preclude rehabilitation. Patients included were moderately disabled	Mortality; Length of hospital stay; Readmission to hospital; Quality of life; Carer strain Risk of bias (assessed in Cochrane review) Risk of bias : Selection - Low	-

Study	Intervention and comparison	Population	Outcomes	Comments
	Discharge planning and services post discharge for patients randomised to conventional care were arranged and provided according to the usual practice of each participating ward or unit.			

Randomised controlled trials

Study (subsidiary papers)	Arthur 2002[13] (Smith 2011[229], Smith 2004[228])
Study type	RCT (Patient randomised; Parallel)
Number of studies (number of participants)	1 (n=275)
Countries and setting	Conducted in Canada; setting: Cardiac Health and Rehabilitation Centre at a university hospital group
Line of therapy	Not applicable
Duration of study	Follow up (post intervention): 6 years
Method of assessment of guideline condition	Partially adequate method of assessment/diagnosis: Post coronary artery bypass grafting patients
Stratum	Early discharge
Subgroup analysis within study	Not applicable
Inclusion criteria	Between 35 and 49 days post-CABG surgery, achieved between 40 and 80% of age and sex-predicted minimum MET level on a progressive cycle ergometry exercise test, able to read and write English
Exclusion criteria	Recurrent angina, positive graded exercise test, unable to attend rehabilitation 3 times per week, unable to participate due to physical limitations, previously participated in an out-patient cardiac rehabilitation program
Recruitment/selection of patients	All referrals to the centre
Age, gender and ethnicity	Age - Mean (SD): Group 1: 64.2 (9.4); Group 2: 62.5 (8.8). Gender (M:F): 197:45. Ethnicity: NR
Further population details	1. Frail elderly: Not applicable/Not stated/Unclear
Indirectness of population	No indirectness
Interventions	(n=120) Intervention 1: Community-based rehabilitation services. Home based exercise training. Patients attended individual, 1-h exercise consultations with an exercise specialist at baseline and after 3 months of exercise training.

Study (subsidiary papers)	Arthur 2002[13] (Smith 2011[229], Smith 2004[228])
	Patients were advised to train a total of 5 times per week. Each exercise included a 10-15 min warm up/down and 40 mins of aerobic training. Home patients were telephoned every 2 weeks for 6 months by the exercise specialist to monitor progress, assess and document adherence, revise the exercise prescription if necessary, and provide support and education. Duration: 6 months. Concurrent medication/care: none stated. (n=122) Intervention 2: Hospital-based rehabilitation services. Hospital based exercise training. Patients were expected to attend supervise exercise sessions 3 times per week for 6 months. Classes were led by exercise specialists. Each exercise included a 10-15 min warm up/down and 40 minutes of aerobic training. Exercise logs were reviewed with the patient on a monthly basis. Duration: 6 months. Concurrent medication/care: none stated.
Funding	Academic or government funding (Heart and Stroke Foundation)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY-BASED REHABILITATION SERVICES versus HOSPITAL-BASED REHABILITATION SERVICES Protocol outcome 1: Quality of life during the study period - Actual outcome: SF-36 mental component at 12 months; Group 1: mean 53 (SD 10.9); n=102, Group 2: mean 50.2 (SD 10.9); n=96; Risk of bias: All domain - high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome: SF-36 physical component at 12 months; Group 1: mean 48.3 (SD 11.7); n=102, Group 2: mean 47.6 (SD 11.7); n=96; Risk of bias: High; Indirectness of outcome: No indirectness Protocol outcome 2: Mortality during the study period - Actual outcome: Mortality at 6 years; Group 1: 10/96, Group 2: 7/100; Risk of bias: All domain - high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Number of admissions to hospital at After 28 days of first admission - Actual outcome: Hospitalisations at 6 years; Group 1: 35/70, Group 2: 46/74; Risk of bias: All domain - high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Cowie 2012[56]
Study type	RCT (Patient randomised; Parallel)

Study	Cowie 2012[56]
Number of studies (number of participants)	1 (n=60 (n=20 hospital; n=20 home based; n=20 in control group not included in analysis))
Countries and setting	Conducted in United Kingdom; setting: Hospital and Home
Line of therapy	1st line
Duration of study	Intervention + follow up: follow-up 8 weeks
Method of assessment of guideline condition	Adequate method of assessment/diagnosis
Stratum	Overall
Subgroup analysis within study	Not applicable
Inclusion criteria	Left ventricular systolic dysfunction on echocardiography, clinically stable for at least one month, optimised medication dosages.
Exclusion criteria	Significant ischaemic symptoms at low workloads, uncontrolled diabetes, acute systemic illness or fever, recent embolism, active pericarditis or myocarditis, moderate to severe aortic stenosis, regurgitant valvular heart disease requiring surgery, myocardial infraction within past 3 weeks, new onset atrial fibrillation, signs and symptoms of decompensation, other co-morbidities(life threatening, uncontrolled, infectious or exacerbated by exercise)
Recruitment/selection of patients	Participants were recruited from the Heart Failure Nursing service, Scotland from May 2007 and August 2008.
Age, gender and ethnicity	Age - Mean (range): Home based: 65.5 (35-82); 71.2 (59-85). Gender (M:F): Home based: 18/2; hospital: 16/4. Ethnicity: not stated
Further population details	-
Extra comments	Patients with heart failure (NYHA class II/III)
Indirectness of population	No indirectness
Interventions	(n=20) Intervention 1: Community-based rehabilitation services. 1 hour aerobic based exercise session- DVD and booklet The session started with a 15 min warm-up and ended with a 15 min cool-down. Participants in both home and hospital groups were educated on symptoms of unstable heart failure, and avoided exercise where instability was suspected. A physiotherapist telephoned the home group every 2 weeks to modify their exercise prescription where appropriate. For monitoring of adherence and exercise intensity, the home group completed a diary detailing every session completed. Duration: 8 weeks. Concurrent medication/care: Number of patients on Beta-blockade (17); ACE inhibitor (17); lipid lowering (12); diuretic (18); aldosterone antagonist (9); anti-platelet (10). (n=20) Intervention 2: Hospital-based rehabilitation services. 1 hour aerobic based exercise session. Exercise session

Study	Cowie 2012[56]
	was a physiotherapist led class. Duration: 8 weeks. Concurrent medication/care: number of patients on Beta-blockade (18); ACE inhibitor (18); lipid lowering (13); diuretic (15); aldosterone antagonist (7); anti-platelet (14);anti-arrhythmic (2).
Funding	Academic or government funding
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY-BASED REHABILITATION SERVICES versus HOSPITAL-BASED REHABILITATION SERVICES Protocol outcome 1: Quality of life at during study period - Actual outcome: Quality of life -SF 36 (Physical component summary) at 8 weeks; Group 1: mean 34.01 (SD 11.04); n=20, Group 2: mean 33.83 (SD 10); n=20; Risk of bias: All domain - Low, Selection - High, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome: Quality of life -SF 36 (mental component summary) at 8 weeks; Group 1: mean 44.44 (SD 12.23); n=20, Group 2: mean 48.25 (SD 11.21); n=20; Risk of bias: All domain - Low, Selection - High, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Mortality at during study period; Avoidable adverse events at during study period; Patient and/or carer satisfaction at during study period; Number of presentations to Emergency Department at during study period; Number of admissions to hospital at After 28 days of first admission; Number of GP presentations at during study period; Readmission at 7 and 28 days; Length of hospital stay at during study period

Study	Dalal 2007[65]
Study type	RCT (Patient randomised; Parallel)
Number of studies (number of participants)	1 (n=104)
Countries and setting	Conducted in United Kingdom; setting: Hospital and home
Line of therapy	1st line
Duration of study	Intervention + follow up: follow-up- 9 months
Method of assessment of guideline condition	Adequate method of assessment/diagnosis
Stratum	Early discharge
Subgroup analysis within study	Not applicable
Inclusion criteria	Confirmed acute myocardial infraction (WHO criteria), ability to read English, registered with GP in one of 2 primary

Study	Dalal 2007[65]
	care trusts. Acute myocardial infraction (WHO criteria), ability to read English, registered with GP in one of 2 primary care trusts.
Exclusion criteria	Severe heart failure, unstable angina, uncontrolled arrhythmia, history of major psychiatric illness, other significant comorbidity precluding the ability to exercise on the treadmill, patients readmitted with acute myocardial infarction who had already received an intervention earlier in the study.
Recruitment/selection of patients	All patients admitted to the Royal Cornwall Hospital during December 2000-September 2003with acute myocardial infarctions from the areas served by 2 primary care trusts were assessed for eligibility. Cardiac rehabilitation nurses in the hospital identified suitable patients.
Age, gender and ethnicity	Age - Mean (SD): hospital based- 64.3 (11.2); home-based- 60.6 (10.1). Gender (M:F): Define. Ethnicity:
Further population details	-
Indirectness of population	No indirectness
Interventions	(n=60) Intervention 1: Community-based rehabilitation services. Home-based rehabilitation Patients were seen by a cardiac rehabilitation nurse and received a self-help package (the Heart Manual) to use over 6 consecutive weeks'. This step-by step guide was a comprehensive cardiac rehabilitation programme using a structured programme of exercise, stress management and education. The cardiac rehab nurse made a home visit in the first week after discharge followed up by telephone calls over 6 weeks. Patients were advised to start using their manual during the first week after discharge. Duration: 9 months. Concurrent medication/care: not stated. (n=44) Intervention 2: Hospital-based rehabilitation services. Hospital-based rehabilitation classes over 8-10 weeks. Classes lasted 2 hours each and were conducted in groups of 8-10 people in the local hospital or for a small number of patients in one of the 2 community centres. Three different multidisciplinary teams delivered the programme. Patients were also encouraged to exercise at home. Each team included a cardiac rehabilitation nurse, physiotherapist, or exercise therapist, with input from a psychologist or occupational therapist, pharmacist and dietician. Patients typically attended their first session 4-6 weeks after discharge. Duration: 9 months. Concurrent medication/care: not stated.
Funding	Funding not stated
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY-BASED REHABILITATION SERVICES versus HOSPITAL-BASED REHABILITATION SERVICES Protocol outcome 1: Quality of life at during study period - Actual outcome: Quality of life - MacNew-Global at 9 months; Group 1: mean 5.6 (SD 1.12); n=60, Group 2: mean 5.67 (SD 1.12); n=60; Risk of bias: All domain - Low, Selection - Low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of	

Study	Dalal 2007[65]
outcome: No indirectness Protocol outcome 2: Mortality at during study period - Actual outcome: Mortality at 9 months; Group 1: 4/60, Group 2: 1/44; Risk of bias: All domain - Low, Selection - Low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events at during study period; Patient and/or carer satisfaction at during study period; Number of presentations to Emergency Department at during study period; Number of admissions to hospital at After 28 days of first admission; Number of GP presentations at during study period; Readmission at 7 and 28 days; Length of hospital stay at during study period

Study (subsidiary papers)	ESD Stroke Bergen trial: Hofstad 2013[122] (Gjelsvik 2014[95])
Study type	RCT (Patient randomised; Parallel)
Number of studies (number of participants)	1 (n=306)
Countries and setting	Conducted in Norway
Line of therapy	Not applicable
Duration of study	Follow up (post intervention): 6 months
Method of assessment of guideline condition	Adequate method of assessment/diagnosis: Stroke patients
Stratum	Early discharge
Subgroup analysis within study	Not applicable
Inclusion criteria	Home-dwelling and live in the Municipality, Inclusion within 1-7 days after symptom onset, inclusion within 6-hours to 120 hours after admission to the Department of Neurology, NIHSS score at inclusion 2–26, or a two-point increase in mRS score if 0 or 1 previously, able to agree to the participation in the study
Exclusion criteria	Serious psychiatric disorders, Alcohol or substance abuse, Other serious conditions of importance to the cerebral disorder and subsequent rehabilitation process, Poor knowledge of the Norwegian language before the stroke
Recruitment/selection of patients	All stroke patients admitted to the Department of Neurology
Age, gender and ethnicity	Age - Mean (range): 72.24 (27-98). Gender (M:F): 169:137. Ethnicity: NR
Further population details	1. Frail elderly: Not applicable/Not stated/Unclear
Indirectness of population	No indirectness
Interventions	(n=103) Intervention 1: Community-based rehabilitation services. Early supported discharge from an outpatient ambulatory coordinating team during hospitalisation and for 5 weeks post-discharge at a community-based day unit.

Study (subsidiary papers)	ESD Stroke Bergen trial: Hofstad 2013[122] (Gjelsvik 2014[95])
	Multi-disciplinary outpatient visits at 3 and 6 months. Duration: 5 weeks. Concurrent medication/care: none stated. (n=104) Intervention 2: Community-based rehabilitation services. Early supported discharge from an outpatient ambulatory coordinating team during hospitalisation and for 5 weeks post-discharge at the patient's home. Multi-disciplinary outpatient visits at 3 and 6 months. Duration: 5 weeks. Concurrent medication/care: none stated. (n=99) Intervention 3: Hospital-based rehabilitation services. Usual care, which consists of treatment in a stroke unit, followed by transfer to the Department of Physical Medicine and Rehabilitation if needed based on a professional judgment. Other alternatives are discharge directly to home or discharge to inpatient treatment in a municipal health care institution. Duration: not stated. Concurrent medication/care: none stated.
Funding	Academic or government funding (Norwegian Research Council, the Western Norway Regional Health Trust, Ministry of Health, and Sophies Minde Foundation)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY-BASED REHABILITATION SERVICES versus HOSPITAL-BASED REHABILITATION SERVICES Protocol outcome 1: Length of hospital stay during the study period - Actual outcome: Length of stay in institution from stroke to first discharge home at 6 months; Group 1: mean 37.7 days (SD 51.8); n=103, Group 2: mean 42.2 days (SD 55.7); n=99; Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Patient and/or carer satisfaction during the study period - Actual outcome: Patient satisfaction at 6 months; Group 1: mean 1.62 (SD 1.22); n=73, Group 2: mean 1.68 (SD 1.01); n=53; Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY-BASED REHABILITATION SERVICES versus HOSPITAL-BASED REHABILITATION SERVICES Protocol outcome 1: Length of hospital stay during the study period - Actual outcome: Length of stay in institution from stroke to first discharge home at 6 months; Group 1: mean 35.6 days (SD 46.91); n=104, Group 2: mean 42.2 days (SD 55.7); n=99; Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Patient and/or carer satisfaction during the study period - Actual outcome: Patient satisfaction at 6 months; Group 1: mean 1.51 (SD 0.98); n=71, Group 2: mean 1.68 (SD 1.01); n=53; Risk of bias: All domain - high, Selection -	

Study (subsidiary papers)	ESD Stroke Bergen trial: Hofstad 2013[122] (Gjelsvik 2014[95])
high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Quality of life during the study period; Avoidable adverse events during the study period; Number of presentations to Emergency Department during the study period; Number of admissions to hospital at After 28 days of first admission; Number of GP presentations during the study period; Readmission at 7 and 28 days; Mortality during the study period

Study	Jolly 2007[131]
Study type	RCT (Patient randomised; Parallel)
Number of studies (number of participants)	1 (n=525)
Countries and setting	Conducted in United Kingdom; setting: Hospital and Home
Line of therapy	1st line
Duration of study	Intervention + follow up: Follow-up-2 years
Method of assessment of guideline condition	Adequate method of assessment/diagnosis
Stratum	Early discharge
Subgroup analysis within study	Not applicable
Inclusion criteria	Any adult patient was eligible if they had one of the following events within the previous 12 weeks: an acute MI and had been informed of their diagnosis; a coronary angioplasty with or without stenting; a CABG operation.
Exclusion criteria	Exclusion criteria were defined by a cardiologist: 1. inability to speak either English or Punjabi 2. Case-note reported dementia 3. Severe hearing impairment 4. Sight defects of sufficient severity to prevent them from reading the Heart Manual 5. serious persisting complications which had not been stabilised at the time of proposed randomisation, including: (a) unstable angina (angina at rest or minimal exertion, with ECG changes and requiring medical/non-medical intervention) (b) clinically significant heart failure

Study	Jolly 2007[131]
	(c) important cardiac arrhythmias (d) any other condition which, in the consultant's opinion, would preclude safe home exercise 6. complications during the angioplasty/CABG procedure or significant lesions remaining
Recruitment/selection of patients	Patients who had an MI,PTCA or CABG were recruited between 1 February 2002 and 31 January 2004.Patients were identified by CR nurses following hospital admission for MI or PTCA. Patients following CABG were followed up and referred for rehabilitation at their hospital of origin.
Age, gender and ethnicity	Age - Other: Age <65 years- 322; Age >65 years-203. Gender (M:F): Males- 402; Females-123. Ethnicity: White- 45.1%; South Asian-44.4%
Further population details	1. Frail elderly:
Extra comments	.
Indirectness of population	No indirectness
Interventions	(n=263) Intervention 1: Community-based rehabilitation services. This consisted of a manual, home visits and telephone contact. Patients who had an MI were discharged home with The Heart Manual (second edition). Those who had had a revascularisation had an adapted version of the Heart Manual designed for this patient group in conjunction with the Heart Manual Team. The Heart Manual is a facilitated home-based programme for the first 6 weeks following MI, based on the Health Belief Model and using cognitive behavioural techniques. It includes education, a home-based exercise programme and a tape-based relaxation and stress management programme. It also has accompanying tapes in ethnic minority languages for patients who are unable to read English. The Heart Manual was introduced to patients on an individual basis, either in hospital or on a home visit. The facilitators adhered to the format with which they had been familiarised at the Heart Manual training course. At this time the facilitator provided information about how they could be contacted and arranged a home visit for 7–10 days ahead. At the first visit the facilitator discussed the progress with the patient and agreed action or exercise goals with the patient. Patients were then telephoned at about 3 weeks post-recruitment and a further visit took place 6 weeks post-recruitment. A final visit took place at 12 weeks, when patients were encouraged to maintain their lifestyle changes and to continue with their exercise programme. Additional visits were made as deemed necessary by the rehabilitation nurse. Patients with no telephone had home visits instead of telephone contacts. Duration: 12 weeks. Concurrent medication/care: not stated. (n=262) Intervention 2: Hospital-based rehabilitation services. At Hospital 1, all patients were offered an individualised rehabilitation programme consisting of risk factor counselling, relaxation and twice-weekly supervised exercise sessions for 12 weeks. The exercise was mainly walking, fixed cycling and rowing. The relaxation session and

Study	Jolly 2007[131]
	information sessions occurred once during each rehabilitation session and participants could opt to attend. Patients completed the programme after attending 24sessions. Hospital 2 offered a more traditional 9-week course consisting of patient education and counselling and relaxation. Exercise sessions only took place once each week during the period of the trial. Each session lasted 1.5 hours with the exercise consisting of circuit training with 6 stations. Patients did 1–2 minutes of each exercise with additional walking. In addition, the patients received further follow-up and support in cardiology outpatients. The rehabilitation programme at Hospital 3 lasted for 8weeks and consisted of 8 sessions of education and exercise twice weekly over 4 weeks lasting 2.5 hours followed by a once per week hour-long exercise session for a further 4 weeks. Relaxation took place once per week. The exercise consisted of 45 minutes of circuit training. The CR programme at Hospital 4 consisted of 12 sessions held twice weekly over a 6-week period. The first 8 sessions consisted of 30minutes of education followed by a warm-up, 40 minutes of exercise on bicycles and treadmills and relaxation. This was followed by 4 further hour-long exercise sessions. The same cardiac rehabilitation team covered Hospitals 3 and4, with some staff working in only one hospital and others covering rehabilitation sessions in both. Duration: 12 weeks. Concurrent medication/care: not stated. Comments: During the first 6 weeks of the home-based CR programme, 11patients crossed over from the home- to the hospital-based programme. In 8 cases this was due to the development of additional cardiac or medical complications, requiring closer monitoring, and in 3 cases a lack of motivation to exercise at home was the predominant factor. These participants were analysed on an ITT basis as part of the home-based group.
Funding	Academic or government funding
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY-BASED REHABILITATION SERVICES versus HOSPITAL-BASED REHABILITATION SERVICES Protocol outcome 1: Quality of life at during study period - Actual outcome: Quality of life (SF-12) -physical component score at 6 months; Group 1: mean 42.8 (SD 10.9); n=263, Group 2: mean 42.6 (SD 10.8); n=262; Risk of bias: All domain - High, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness: - Actual outcome: Quality of life (SF-12) -mental component score at 6 months; Group 1: mean 49.19 (SD 10.1); n=263, Group 2: mean 50.33 (SD 9.6); n=262; Risk of bias: All domain - High, Selection - High, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Mortality at during study period		

Study	Jolly 2007[131]
- Actual outcome: Mortality at 2 years; Group 1: 6/263, Group 2: 3/262; Risk of bias: All domain - High, Selection - High, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events at during study period; Patient and/or carer satisfaction at during study period; Number of presentations to Emergency Department at during study period; Number of admissions to hospital at After 28 days of first admission; Number of GP presentations at during study period; Readmission at 7 and 28 days; Length of hospital stay at during study period

Study	Kalra 2000[134]
Study type	RCT (Patient randomised; Parallel)
Number of participants	457
Countries and setting	UK
Duration of study	Follow up at 3, 6 and 12 months
Stratum	Admission avoidance
Subgroup analysis within study	None
Inclusion criteria	Patients recovering from a moderately severe stroke. Stroke diagnosed clinically according to WHO criteria; patients included at time of presentation but no later than 72 hours after stroke onset; moderately severe stroke (persistent neurological deficit affecting continence, mobility and ability to look after themselves, requiring multidisciplinary treatment; could be supported at home with nursing, therapy and social services.
Exclusion criteria	Patients with mild stroke, severe strokes (unconscious, swallowing problems not amenable to dietary modification, heavy nursing needs); admitted to other hospitals; those with atypical neurological features who needed specialised assessments or investigation to establish diagnosis; institutionalised or severe disability before stroke.
Recruitment/selection of patients	Recruited from a population-based stroke register
Age, gender and ethnicity	Median (IQR) age (years) Stroke team in hospital=75 (72-84) Home care=77.7 (67-83) Home care: 68/149 (46%) female; stroke team 76/150 (51%)
Further population details	Living alone

Study	Kalra 2000[134]
	Home care=50/149 (34%) Stroke team=55/150 (37%)
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=149) Hospital outreach admission avoidance; multi-disciplinary with joint care from community services (domiciliary stroke care). Patients managed in their own home by specialist team consisting of a doctor, nurse, physiotherapist, occupational therapist and speech and language therapists, with support from district nursing and social services for nursing and personal care needs. Patients under joint care of stroke physician and general practitioner. Each patient had individualised care plan outlining activities and the objective of treatment, reviewed at weekly multidisciplinary meetings. Concurrent medication/care: not stated. Duration: up to 3 months. (n=150) Hospital admission to general wards with stroke care team support. Remained under the care of admitting physicians; seen by specialist team (doctor, nurse, physiotherapist, occupational therapist) with expertise in stroke management; team undertook stroke assessments and collaborated with ward-based nursing and therapy staff in goal setting, planning of treatment, discharge arrangement and liaison with patients and relatives; day-to-day treatment provided by staff on the ward. Concurrent medication/care: not stated. Duration: up to 3 months. (n=148) Third group had treatment in stroke unit; this group not included in Cochrane review. Stroke physician + multidisciplinary team with specialist experience in stroke management; clear guidelines for acute care, prevention of complications, rehabilitation and secondary prevention. Routine management involved joint assessments and goal setting, coordinated treatment and planned discharges. Concurrent medication/care: not stated. Duration: up to 3 months.
Funding	NHS R&D Executive's Health Technology Assessment Programme; Stroke Association; Bromley Health Authority
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community versus Hospital (general ward with stroke team) Protocol outcome 1: Protocol outcome 2: Mortality at 12 months: Community: 21/144; hospital: 34/149; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; admissions to hospital; Number of GP presentations during the study period;

Study	Kalra 2000[134]
	Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Maltais 2008[155]
Study type	RCT (Patient randomised; Parallel)
Number of studies (number of participants)	1 (n=252)
Countries and setting	Conducted in Canada; setting: pulmonary clinics of 8 university-based and 2 community-based centres
Line of therapy	Not applicable
Duration of study	Intervention + follow up: 1 year
Method of assessment of guideline condition	Partially adequate method of assessment/diagnosis: Stable COPD
Stratum	Early discharge
Subgroup analysis within study	Not applicable
Inclusion criteria	Stable COPD, 40 years or older, were current or former smokers of at least 10 pack-years, had an FEV1 less than 70% of the predicted value and FEV1-FVC ratio less than 0.70; had MRC dyspnoea score of at least 2
Exclusion criteria	Diagnosis of asthma, congestive left heart failure as the primary disease, terminal disease, dementia, or an uncontrolled psychiatric illness
Recruitment/selection of patients	All COPD patients
Age, gender and ethnicity	Age - Mean (SD): 66 (9). Gender (M:F): 140/112. Ethnicity: NR
Further population details	1. Frail elderly: Not applicable/Not stated/Unclear
Indirectness of population	No indirectness
Interventions	(n=126) Intervention 1: Community-based rehabilitation services. Home-based rehabilitation. A qualified exercise specialist initiated the program in the patient's home and subsequently made weekly telephone calls for 8 weeks to reinforce and detect problems. Patients were loaned portable ergocycles. Duration: 8 weeks. Concurrent medication/care: none stated. (n=126) Intervention 2: Hospital-based rehabilitation services. Hospital-based outpatient rehabilitation. Training program combined aerobic and strength exercises at a rate of 3 sessions per week for 8 weeks. Training was monitored by a qualified exercise specialist, who could modify training, in a ratio of 4 to 5 participants for 1 trainer. Duration: 8 weeks. Concurrent medication/care: none stated.

Study	Maltais 2008[155]
Funding	Academic or government funding (Canadian Institutes of Health Research, respiratory Health Network)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY-BASED REHABILITATION SERVICES versus HOSPITAL-BASED REHABILITATION SERVICES Protocol outcome 1: Quality of life during the study period - Actual outcome: St. George's Respiratory Questionnaire at 12 months; Group 1: mean -4.5 (SD 10.92); n=89, Group 2: mean -3.5 (SD 10.8); n=95; Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Mortality during the study period - Actual outcome: Mortality at 12 months; Group 1: 1/126, Group 2: 1/126; Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Avoidable adverse events during the study period - Actual outcome: Serious adverse events at 12 months; Group 1: 51/126, Group 2: 52/126; Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 4: Number of admissions to hospital at After 28 days of first admission - Actual outcome: Hospitalisations at 12 months; Group 1: 50/126, Group 2: 51/126; Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Rasmussen 2016[191]
Study type	RCT (Patient randomised; Parallel)
Number of studies (number of participants)	1 (n=41)
Countries and setting	Conducted in Denmark; setting: Home or hospital
Line of therapy	1st line
Duration of study	Intervention + follow up: Follow-up-90 days

Study	Rasmussen 2016[191]
Method of assessment of guideline condition	Adequate method of assessment/diagnosis
Stratum	Early discharge
Subgroup analysis within study	Not applicable
Inclusion criteria	Acute Stroke patients >18 years of age; premorbid Modified Rankin score of 0 to 3; premorbid ability to live in own home; patients with focal neurological deficits hospitalised in a stroke unit for more than 3days and in need of rehabilitation.
Exclusion criteria	Patients were excluded if they were terminal; unable to understand or speak the Danish language; living in or discharged to nursing homes; unable to take care of themselves in their own home; relocated to other hospital departments after being admitted to the stroke unit; unable to participate in home based rehabilitation; severe memory impairments or baseline modifiedBarthel-100 ADL Index score of 91 or better
Recruitment/selection of patients	Patients were recruited by neurologists at the Stroke Unit, Copenhagen University Hospital from 1 July 2007 to 4 August 2008
Age, gender and ethnicity	Age - Mean (SD): intervention- 78 (72-84); control- 79 (71-85). Gender (M:F): 58/42. Ethnicity:
Further population details	-
Indirectness of population	No indirectness
Interventions	(n=31) Intervention 1: Community-based rehabilitation services. Home based rehabilitation for 4 weeks after discharge Patients were treated by a multi-disciplinary, intersectoral and interventional team for providing coordinated and home based rehabilitation. This MDT included a nurse, physiotherapists, occupational therapists and physicians experienced in stroke treatment. Prior to home based training a physician evaluated each intervention inpatient to secure that the inpatient was able and fit to participate. The nurse participated in the home training if nursing intervention was needed. At home inpatients were tested and trained in difficult activities with or without assistive devices. Duration: 3 months. Concurrent medication/care: not stated. (n=30) Intervention 2: Hospital-based rehabilitation services. Control patients were treated following standard care procedures in the stroke unit. Duration: 3 months. Concurrent medication/care: not stated.
Funding	Academic or government funding
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY-BASED REHABILITATION SERVICES versus HOSPITAL-BASED REHABILITATION	

Study	Rasmussen 2016[191]
SERVICES Protocol outcome 1: Quality of life at during study period - Actual outcome: QOL - EuroQol-5D at 3 months; Other: Median (IQR)- Intervention -0.77 (0.66-0.79); control-0.66 (0.56-0.72); Risk of bias: All domain - High, Selection - Low, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Length of hospital stay at during study period - Actual outcome: Length of stay at 3 months; Other: Median (IQR)- Intervention 18 (16-21); control 16 (12-21); Risk of bias: All domain - High, Selection - Low, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events at during study period; Patient and/or carer satisfaction at during study period; Number of presentations to Emergency Department at during study period; Number of admissions to hospital at After 28 days of first admission; Number of GP presentations at during study period; Readmission at 7 and 28 days; Mortality at during study period

Study	Ricauda 2004[192]
Study type	RCT (Patient randomised; Parallel)
Number of participants	120
Countries and setting	San Giovanni Battista Hospital, Turin, Italy. A teaching & tertiary care hospital
Duration of study	6 months
Stratum	Admission avoidance
Subgroup analysis within study	None
Inclusion criteria	Patients recovering from a stroke. Patients admitted to the ED within 24 hours of onset of symptoms and evaluated for at least 24 hours since onset of symptoms; availability of carer
Exclusion criteria	Patients living outside the hospital catchment area; history of dementia before acute stroke; history or evidence of prior stroke; absence of family or social support; CNS mental status <0.5; symptoms or signs of cardiorespiratory instability
Recruitment/selection of patients	Patients admitted to the ED within 24 hours of onset of symptoms and evaluated for at least 24 hours since onset of symptoms were assessed

Study	Ricauda 2004[192]
Age, gender and ethnicity	Median (IQR) age 82 (76-88) years; 54/120 male
Further population details	None
Extra comments	
Indirectness of population	No indirectness
Interventions	(n=60) Hospital outreach admission avoidance: home treatment from a geriatric home hospitalisation service (GHHS) 24 hour care available including diagnostic, therapeutic and rehabilitative interventions; multi-disciplinary team: physiotherapist, occupational therapist, nursing, hospital geriatrician, social worker, speech therapist, psychologist, dietician. Home rehabilitation emphasised a task-orientated approach; patients perform guided, supervised and self-directed activities in a functional and familiar context. Caregiver encouraged to be an active participant; individual counselling for caregivers if needed. Standard daily intervention consisted of 1 visit by a physician, a nurse and a physical therapist. Concurrent medication/care: not stated. Duration: not stated. (n=60) Hospital admission (general medical ward [GMW]) and routine hospital rehabilitation service Concurrent medication/care: not stated. Duration: not stated.
Funding	Not stated
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community versus Hospital Protocol outcome 1: Mortality - Actual outcome- Mortality at 6 months; community: 21/60; hospital: 24/60; Risk of bias: All domain - High, Selection - High, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; admissions to hospital; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Anderson 2000[7]
Study type	RCT (Patient randomised; Parallel)

Study	Anderson 2000[7]
Number of participants	86
Countries and setting	Location: Australia; 2 teaching hospitals, Adelaide
Duration of study	Follow up of patients: 1, 3, 6, 12 months
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Patients recovering from a stroke (first or recurrent); residual disability and requiring rehabilitation; medically stable and suitable for early discharge; sufficient physical and cognitive function for active participation in rehabilitation scheme; home environment suitable for simple modifications; community rehabilitation team available to provide care; GP willing to provide any necessary medical care; caregiver (if one identified) gave consent for participation
Exclusion criteria	Subarachnoid haemorrhage
Recruitment/selection of patients	All patients with clinical diagnosis of stroke admitted to 2 affiliated acute-care public teaching hospitals Feb 1997-June 1998 assessed for eligibility
Age, gender and ethnicity	Mean age: 72 years
Further population details	Not stated
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=42) Intervention 1: Hospital at home early discharge Type of service: specialist rehabilitation nurses; therapy sessions in patient's home and individually tailored to achieve mutually agreed goals over several weeks. Emphasis on self-learning, adjustment to disability and structured practice sessions were encouraged between sessions Occupational therapy, physiotherapy, speech therapist Concurrent medication/care: not stated. Duration: not stated. (n=44) Intervention 2: in-patient hospital care Concurrent medication/care: not stated. Duration: not stated.
Funding	Federal Government
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community rehabilitation versus hospital rehabilitation	

Study	Anderson 2000[7]
	Protocol outcome 1: Mortality at 12 months - Actual outcome for Adults: Mortality at 12 months; Community: 2/42; hospital: 0/44; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Adverse events at 12 months - Actual outcome for Adults: Adverse events at 12 months; Community: 5/42; hospital: 7/44; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Quality of life at 12 months - Actual outcome for Adults: SF-36 Physical component summary score: Community: 37.4 (10.3) 42; hospital: 39.6 (9) 44; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness – Actual outcome for Adults: SF-36 Mental component summary score: Community: 54.4 (9.2) 42; hospital: 55.7 (8.4) 44; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 4: Patient satisfaction at 12 months - Actual outcome for Adults: Patient satisfaction: Community: 33/42; hospital: 29/44; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 5: Admission to hospital at 12 months - Actual outcome for Adults: Admission to hospital: Community: 15/42; hospital: 11/44 Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 6: Caregiver burden at 12 months - Actual outcome for Adults: Caregiver Strain Index: Community: 0.2 (0.4) 24; hospital: 0.2 (0.4) 21; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Askim 2004[15]
Study type	RCT (Patient randomised; Parallel)
Number of participants	62
Countries and setting	Stroke Unit at University Hospital, Trondheim, Norway
Duration of study	Follow up at 6, 26 and 52 weeks
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Diagnosis of acute stroke according to WHO definition, Scandinavian Stroke Scale score >2 points and <58 points, living at home before stroke, inclusion within 72 hours after admission to stroke unit and within 7 days after onset of symptoms; informed consent.
Exclusion criteria	Not stated
Recruitment/selection of patients	Patients from the municipality of Malvik, Melhus and Klaebu, admitted to the Stroke Unit at the University Hospital, Trondheim, Norway; lived within 30-90 minutes driving distance from the hospital; screened <7 days after stroke onset and within 72 hours of admission.
Age, gender and ethnicity	Mean age: ESUS group: 76.9; OSUS group: 76.3 years; ESUS group: 16/31 (51.6%) men; OSUS group: 17/31 (54.8%) men. Ethnicity not stated.
Further population details	Living alone: 11/31 (35.5%) ESUS and 15/31 (48.4%) OSUS
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=31) Intervention 1: Ordinary stroke unit service (OSUS): treatment in a combined acute and rehabilitation stroke unit and further follow up organised by rehabilitation clinics and/or the primary health care system. Concurrent medication/care: Not stated Duration: 4 weeks (n=31) Intervention 2: Extended stroke unit service (ESUS): stroke unit treatment combined with home-based programme of follow up care coordinated by a mobile stroke team that offers early supported discharge and works in close cooperation with the primary healthcare system during the first 4 weeks after discharge. Mobile team based in stroke unit and consisted of a nurse, a physiotherapist, an occupational therapist and the consulting service of a physician. For patients living within 30-45 minutes radius from the hospital, where direct discharge home was likely to occur, a home visit was performed as soon as the patient's medical condition allowed, to assess the home environment, define the goals of further rehabilitation, and make a plan for follow up with the family and primary healthcare providers; for those >45 minutes from the hospital, primary healthcare providers were asked to make this visit. The need for further rehabilitation was subsequently defined in a telephone conversation. The mobile team then established a service and support

Study	Askim 2004[15]
	system for the patient allowing him or her to return home as soon as possible and to continue the necessary training and rehabilitation at home, in a day clinic, or both. On the day of discharge, a meeting was organised with the patient and their family, the physician and the mobile stroke team member, to jointly define the plans for further follow up and care (date of discharge decided in collaboration with the mobile team, the patient and the family. For patients with extensive deficits after a stroke who needed help and support 24 hours a day, plans for further inpatient rehabilitation in a rehabilitation clinic were made following a protocol. For the first 4 weeks after discharge, the mobile team acted as a safety net for the patient, and kept in contact by telephone and at least 1 more home visit to ensure the functioning of follow-up care, terminated with an outpatient consultation for patients within a 30-45 minute radius from the hospital; a consultation in the patient's home was conducted for patients living further away. This included the physician responsible for the patient's treatment during the acute hospital stay, the mobile team member, the patient and if possible the family. When a group of patients was identified in the same community, the mobile team invited them and their families to a local meeting, to give general information about acute and chronic issues of stroke care and give patients the opportunity to share experiences. Concurrent medication/care: Not stated Duration: 4 weeks
Funding	Not stated
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community versus hospital Protocol outcome 1: Mortality at 1 year - Actual outcome for Adults: Mortality at 52 weeks; ESUS: 8/31, OSUS: 5/31; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Caregiver burden at 1 year - Actual outcome for Adults: Caregiver strain index at 52 weeks; ESUS: 24.3 (2.7) n=23, OSUS: 24.8 (1.9) n=22; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Askim 2010A[14]
Study type	RCT (Patient randomised; Parallel)
Number of participants	62
Countries and setting	Stroke Unit at St Olavs Hospital, Trondheim, Norway

Study	Askim 2010A[14]
Duration of study	26 weeks
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Diagnosis of acute stroke according to WHO definition, modified Rankin Scale score <3 before admission, Berg Balance Scale score <45 points, Scandinavian Stroke Scale score >14 points, Scandinavian Stroke Scale leg item <6 points or Scandinavian Stroke Scale transfer item <12 points, Mini-Mental State Examination score >20 points; informed consent.
Exclusion criteria	Could not tolerate the increased amount of motor training because of serious cardiovascular diseases (uncompensated heart failure with dyspnoea or angina pectoris with chest pain during rest) or other functional impairments (for example, severe rheumatoid arthritis or Parkinson's disease.
Recruitment/selection of patients	Patients admitted to the Stroke Unit at St Olavs Hospital, Trondheim, Norway between April 2004 and September 2007; screened 4-14 days after stroke.
Age, gender and ethnicity	Mean age: IMT group: 75.4 (7.9); ST group: 77.6 (9.6) years; IMT group: 19/30 (59.4%) women; ST group: 14/32 (44.8%) women. Ethnicity not stated.
Further population details	Not stated
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=30) Intervention 1: Intensive Motor training (IMT) group: 3 additional sessions of motor training each week for the first 4 weeks after discharge and 1 additional session per week for the next 8 weeks; each session 30-50 minutes. Patients also encouraged to perform home exercises during this period. Additional training comprised reaching tasks in sitting and standing positions, sit-to-stand, step tasks and walking tasks. Tasks were individually adapted and varied according to base of support, speed, weight and complexity; as many repetitions as tolerated. Patients were instructed to exert themselves between "somewhat hard" and "hard". Patients also partly wore an orthosis on the less affected leg to force the use of the more affected leg. Programme provided by physical therapists in the primary health care system, who also provided the standard care. Treatment administered in patient's home, rehabilitation clinic or outpatient clinic, depending on where patient discharged after hospital stay. Home exercises consisted of 4 tasks that were individually chosen according to patient's functional level; 10 repetitions of each task, twice a day, 6 days a week. Concurrent medication/care: not stated. Duration: 12 weeks. (n=32) Intervention 2: Standard treatment (ST) group: All patients were treated in a comprehensive stroke unit emphasising mobilisation to standing or sitting position out of bed within first 24 hours after onset of symptoms and physical therapy according to a task-

Study	Askim 2010A[14]
	orientated approach, focusing on independence in activities of daily living. 2 daily sessions of 30 minutes, 5 days per week. In addition, specially trained nurses in the stroke unit offered training in activities of daily living when appropriate during 24 hours. Stroke unit treatment based on team approach combining acute medical treatment and rehabilitation. All patients received early supported discharge, coordinated by a hospital-based multidisciplinary team who worked in close collaboration with the primary health care system during the first 4 weeks after discharge. Further rehabilitation was administered as inpatient, outpatient in home rehabilitation according to patients' needs. Concurrent medication/care: not stated. Duration: 4 weeks.
Funding	Academic or government funding (The Norwegian Fund for Postgraduate Training in Physiotherapy and Clinical Service, St Olavs Hospital, Trondheim University Hospital, Norway)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Intensive Motor training versus Standard treatment Protocol outcome 1: Adverse events at End of follow-up - Actual outcome for Adults: Adverse events at 26 weeks; IMT Group: 2/30, ST Group: 0/32; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Mortality during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Bautz-Holter 2002[19]
Study type	RCT (Patient randomised; Parallel)
Number of participants	82
Countries and setting	Location: Norway; university hospital
Duration of study	Follow-up of patients: 1 week, 3, 6 months
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Recovering from a stroke; home dwelling and not severely disabled prior to the stroke (Oxford Handicap Scale score 0-3); no other medical condition likely to preclude rehabilitation; medically stable with Barthel ADL Index score between 5 and 19 at 72 hours after stroke.

Study	Bautz-Holter 2002[19]
Exclusion criteria	Admitted to medical departments other than stroke unit; subarachnoid haemorrhage; unable to consent due to mental or communication problems.
Recruitment/selection of patients	Recruited from June 1997 to January 1999; all patients with acute stroke (onset <6 days prior to hospitalisation) admitted to acute stroke unit of Ullevaal university hospital assessed
Age, gender and ethnicity	Median age (IQR): treatment = 79.5 (69 to 84); control = 78 (74 to 82); ESD 21/42 (50%) female; CRS 24/40 (60%) female
Further population details	Living alone: ESD: 24/42 (57%); CRS 25/40 (63%)
Extra comments	
Indirectness of population	No indirectness
Interventions	(n=42) Intervention 1: Early supported discharge (ESD), hospital outreach community based rehabilitation Type of service: multidisciplinary hospital based team (1 nurse, 1 occupational therapist, 1 physiotherapist) plus community nurses. Patients assessed by team; 1 member of team served as primary contact for patients and relatives throughout study period; in cooperation with ordinary hospital staff, the primary contact started immediate preparations for discharge and coordination of continued rehabilitation, provided by general community services in local areas. 4 weeks after discharge, patients seen in outpatient's clinic. Also offered the opportunity to make new contact with outpatient clinic if they wished, or to be readmitted to hospital whenever needed. Concurrent medication/care: not stated. Duration: as long as considered necessary. (n=40) Intervention 2: in-patient hospital care: conventional rehabilitation service (CRS). Conventional procedures for discharge and continued rehabilitation (anticipated to be less well organised) Concurrent medication/care: not stated. Duration: as long as considered necessary.
Funding	Not stated
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community versus hospital Protocol outcome 1: Mortality at 6 months - Actual outcome for Adults: Mortality at 6 months; Community: 2/40; hospital: 4/37; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Admission to hospital at 6 months - Actual outcome for Adults: Admission to hospital at 6 months; Community: 3/34; hospital: 4/31; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	

Study	Bautz-Holter 2002[19]
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Caplan 2006A[38]
Study type	RCT (Patient randomised; Parallel)
Number of participants	n=104
Countries and setting	Location: Australia; Prince of Wales Hospital, a tertiary referral hospital attached to the University of New South Wales, Sydney
Duration of study	Follow-up of patients: 1 and 6 months
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Elderly patients whose length of hospital stay exceeded 6 days, who required and were suitable for geriatric rehabilitation and expected to return home and live reasonably independently; lived in the local area of the hospital; patients and carers gave consent
Exclusion criteria	Lived in a nursing home
Recruitment/selection of patients	Between April 2000 and October 2002, all inpatients with a length of stay >6 days, referred for geriatric rehabilitation were assessed.
Age, gender and ethnicity	Mean age: treatment = 83.86 (7.8); control = 84.0 (7.02); male: female: home rehabilitation group: 43:20; hospital rehabilitation group: 22:11
Further population details	Not stated
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=70) Intervention 1: Early discharge hospital based outreach. Type of service: nurses, physiotherapy, occupational therapy, physician. Patients kept in hospital until they could transfer independently and mobilise sufficiently to toilet themselves. Home rehabilitation by hospital outreach team. Concurrent medication/care: Not stated Duration: Not stated, but patients visited a mean of 20 times and any equipment supplied free for up to 3 months

Study	Caplan 2006A[38]
	(n=34) Intervention 2: in-patient hospital care. Patients transferred to geriatric rehabilitation ward when a bed became available and acute illness settling. Concurrent medication/care: Not stated Duration: Not stated
Funding	National Demonstration Hospitals Program 3, Commonwealth Department of Health and Ageing
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community rehabilitation versus hospital rehabilitation Protocol outcome 1: Mortality at 6 months - Actual outcome for Adults: Mortality at 6 months; Community: 15/70; hospital: 7/34; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Patient satisfaction at 6 months - Actual outcome for Adults: Patient satisfaction at 6 months; Community: 4.66 (0.64) 70; hospital: 4.06 (0.94) 34; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Carer satisfaction at 6 months - Actual outcome for Adults: Carer satisfaction at 6 months; Community: 4.47 (0.86) 70; hospital: 4.08 (1.04) 34; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 4: Length of stay at 6 months - Actual outcome for Adults: Length of stay at 6 months; Community: 34.91 (15.37) 70; hospital: 40.09 (23.22) 34; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 5: Admission to hospital at 6 months - Actual outcome for Adults: Admission to hospital at 6 months; Community: 13/70; hospital: 8/34; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Quality of life

Study	Cunliffe 2004[64]
Study type	RCT (Patient randomised; Parallel)
Number of participants	370
Countries and setting	Location: UK (Nottingham)
Duration of study	Follow up: 1, 3 and 12 months

Study	Cunliffe 2004[64]
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Aged 65 or above; residing in Nottingham Health Authority boundary; medically fit for discharge; rehabilitation needs that could be met at home with a home-based package of care and rehabilitation. 3 most common conditions were fractures (105/370, 28%), neurological conditions, mainly stroke (97/370, 26%), cardio-respiratory illnesses (50/370, 14%).
Exclusion criteria	People in need of constant or overnight care; admitted from or discharged to institutional care
Recruitment/selection of patients	Participants identified from medical and surgical hospital wards
Age, gender and ethnicity	Median age: 80 years (IQR 73-85); 246/370 (67%) female
Further population details	247/370 (66%) lived alone
Extra comments	
Indirectness of population	No indirectness
Interventions	(n=185) Early discharge and rehabilitation service (EDRS). Aimed to assess the patient and arrange discharge as soon as possible. Up to 4 visits per day could be provided, up to 7 days a week, between 8am and 10pm. Type of service: provided by community services, GP had clinical responsibility, physiotherapy, occupational therapy, 3 dedicated nurses plus 7 rehabilitation assistants. Community care officer liaised with social services Concurrent medication/care: Not stated Duration: up to 4 weeks (n=185) Control group: in-patient hospital care. Patients managed in hospital until fit for home using existing after-care services (hospital out-patient department rehabilitation, geriatric day hospitals, all usual social services) as required Concurrent medication/care: Not stated Duration: Not stated
Funding	Nottingham Health Authority
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community rehabilitation versus hospital rehabilitation Protocol outcome 1: Mortality at 12 months - Actual outcome for Adults: Mortality at 12 months; Community: 6/43; hospital: 1/44; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Length of stay at 12 months	

Study	Cunliffe 2004[64]
- Actual outcome for Adults: Length of stay at 12 months; Community: 39.56 (47.7) 52; hospital: 41.08 (30.7) 50; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Admission to hospital at 12 months - Actual outcome for Adults: Admission to hospital at 12 months; Community: 49/185; hospital: 40/185; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days;

Study	Donnelly 2004[76]
Study type	RCT (Patient randomised; Parallel)
Number of participants	113
Countries and setting	Location: UK (Belfast): Belfast City Hospital and Ulster Hospital
Duration of study	Follow-up of patients: 12 months
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Recovering from a stroke; stroke in 4 weeks prior to admission; potential to benefit from rehabilitation
Exclusion criteria	Resident in nursing or residential home; pre-existing physical or mental disability judged to make further rehabilitation inappropriate
Recruitment/selection of patients	Research nurses in collaboration with hospital staff identified patients in Belfast City Hospital and Ulster Hospital
Age, gender and ethnicity	Mean age: 75 (8.2) years; median age: treatment = 68; control = 71; 57% female
Further population details	Not stated
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=54) Intervention 1: Early discharge community based (community stroke team CST) Type of service: average of 2.5 home visits a week for 3 months, each visit lasting 45 minutes. Multidisciplinary meetings held to discuss the assessment of patients and progress towards rehabilitation goals, which were set by relatives, patient and therapist. Patients discharged to home following home assessment and placement of aids and equipment. Physiotherapist, occupational therapist, nurses, speech therapist. Discharged as soon as the liaison therapist had assessed their home and ensured any necessary aids and equipment

Study	Donnelly 2004[76]
	were in place Concurrent medication/care: Not stated Duration: 3 months (n=59) Intervention 2: in-patient hospital care. Discharge arranged in the usual way by hospital-based rehabilitation team, that is, in-patient rehabilitation in stroke unit and follow up rehabilitation in day hospital Concurrent medication/care: Not stated Duration: Not stated
Funding	South and East Belfast Health and Social Services Trust and Northern Ireland Chest Heart and Stroke Association
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community rehabilitation versus hospital rehabilitation Protocol outcome 1: Quality of life at 12 months - Actual outcome for Adults: SF-36 Physical component summary score at 1 year: Community: 35.59 (31.32) 51; hospital: 34.67 (32.01) 46 ; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome for Adults: SF-36 Mental component summary score at 1 year: Community: 69.49 (18.26) 51; hospital: 67.3 (20.07) 46 ; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Patient satisfaction at 12 months - Actual outcome for Adults: Patient satisfaction at 1 year; Community: 10.72 (1.44) 54; hospital: 9.7 (2.1) 59; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Admissions to hospital at 12 months - Actual outcome for Adults: Admissions to hospital at 1 year; Community: 6/59; hospital: 7/54; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 4: Caregiver burden at 12 months - Actual outcome for Adults: Caregiver strain index at 1 year; Community: 5.92 (2.86) 27; hospital: 6 (4.23) 25; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Evans 1997B[88]
Study type	RCT (Patient randomised; Parallel)

Study	Evans 1997B[88]
Number of participants	85
Countries and setting	VA Puget Sound Health Care System, Seattle, USA
Duration of study	1 year
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Presence of a physical limitation based on psychiatry exam; medically stable as indicated by an illness severity index of 1 (lowest mortality); first time hospitalisation for a disabling condition in any of 4 Major Diagnostic Categories (MDC 1 – nervous, 5 – circulatory, 8 – musculoskeletal and 21 – injury).
Exclusion criteria	Not stated
Recruitment/selection of patients	Hospital admissions were screened on the 3rd day of admission
Age, gender and ethnicity	Age not stated; gender: in-patient rehabilitation: 41/43 (95%) male; out-patient follow up: 42/42 (100%) male; ethnicity: Black 4/43 (9%) versus 4/42 (9%); White: 39/43 (91%) versus 37/42 (89%); Other: 0/43 (0%) versus 1/42 (2%)
Further population details	Nervous: 16% versus 17%, circulatory: 16% versus 14%, musculoskeletal: 52% versus 60%, injury: 13% versus 9%
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=42) Intervention 1: Out-patient follow-up: Usual medical services but no scheduled rehabilitation therapies; patients received a mean of 0.6 (1.3) rehabilitation services during acute rehabilitation and 0.1 (0.2) during out-patient follow up. Concurrent medication/care: Not stated Duration: Not stated (n=43) Intervention 2: In-patient comprehensive rehabilitation: patients received a mean of 18.0 (8.1) rehabilitation services during acute rehabilitation and 8.3 (10.9) during out-patient rehabilitation Concurrent medication/care: Not stated Duration: Not stated
Funding	Academic or government funding (VA Health Services Research and Development Program)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: In-patient comprehensive rehabilitation versus Out-patient follow-up	

Study	Evans 1997B[88]
Protocol outcome 1: Mortality at End of follow-up - Actual outcome for Adults: Mortality at 1 year: In-patient comprehensive rehabilitation: 7/43 (16%); Out-patient follow-up: 4/42 (10%) Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Quality of life at End of follow up - Actual outcome for Adults: Life satisfaction (LSIA; items scored from 1 very dissatisfying to 6 very satisfying) at 1 year; In-patient comprehensive rehabilitation: 19.9 (9.9) (n=43), Out-patient follow-up: 20.2 (10.6) (n=42); Risk of bias: All domain - high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Length of stay at End of follow up - Actual outcome for Adults: Length of stay (days) at 1 year; In-patient comprehensive rehabilitation: 21.0 (16.8) (n=43), Out-patient follow-up: 16.7 (10.2) (n=42); Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 4: Admissions to hospital at End of follow-up - Actual outcome for Adults: admissions to hospital at 1 year; In-patient comprehensive rehabilitation: 16/43 (37%), Out-patient follow-up: 13/42 (31%); Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days

Study	Fleming 2004[93]
Study type	RCT (Patient randomised; Parallel)
Number of participants	165
Countries and setting	Social Services Care Home Rehabilitation Services in Nottingham, UK
Duration of study	1 year
Stratum	Early discharge
Subgroup analysis within	None

Study	Fleming 2004[93]
study	
Inclusion criteria	Hospitalised patients who were aged over 65 years; lived in the Social Services districts served by the CHRS scheme; wished to return to their own homes; no longer needed in-patient medical care; were unable to return home due to activity limitation that might be improved by a period of short-term rehabilitation in a care home setting; agreed to a period of rehabilitation in a care home setting; met Social Services criteria for eligibility for residential home care.
Exclusion criteria	Dementia, depression or distress that interfered with rehabilitation; required 2 or more people to mobilise or perform personal activities of daily living, or with severe incontinence.
Recruitment/selection of patients	Referrals were discussed to confirm eligibility; trial co-ordinator obtained consent, completed baseline data and allocated patient; CHRS OT assessed participants and arranged transfer to nearest unit to their home
Age, gender and ethnicity	Median 81 (77-88) years; 113/165 (69%) female; ethnicity not stated
Further population details	Principal diagnostic condition: cardio-respiratory disorder: 26/165 (16%), gastroenterology disorder 11/165 (7%), infection 3/165 (2%), neurological disorder: 23/165 (14%), orthopaedic disorder: 29/165 (18%), peripheral vascular disease: 5/165 (3%), non-specific condition: 64/165 (40%)
Extra comments	
Indirectness of population	No indirectness
Interventions	(n=81) Intervention 1: Care Home Rehabilitation Services (CHRS): Occupational therapists assessed patients in the units and devised their treatment plans. Community Care Officers (Social Services employed staff with experience in the delivery of community care services for people with a disability). Day to day staffing was by rehabilitation assistants: these were care assistants in the local authority homes who had been trained by the OTs. Physiotherapy was provided by existing community physiotherapy service; medical cover provided by GP; referrals made to District nurses. Patients had single rooms and had access to a dedicated rehabilitation kitchen; encouraged to practice the activities of daily living under the supervision of, or with the assistance of, the rehabilitation assistants. Home visits were encouraged to increase the patients' confidence to return home. Treatment programmes were tailored to individual needs. Concurrent medication/care: Not stated Duration: Up to 6 weeks (n=84) Intervention 2: Usual care Concurrent medication/care: Not stated Duration: Not stated
Funding	Academic or government funding (Trent NHS Executive)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Care Home Rehabilitation Services (CHRS) versus usual care Protocol outcome 1: Mortality at End of follow-up	

Study	Fleming 2004[93]
- Actual outcome for Adults: Mortality at 12 months; CHRS: 22/81 (27%), usual care: 23/84 (27%); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Length of stay - Actual outcome for Adults: Median (IQR) length of stay at discharge from index admission; CHRS: 8 (7-15), usual care: 18 (8-34); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome for Adults: Median (IQR) hospital bed days from randomisation to 12 months; CHRS: 16 (8-35), usual care: 34.5 (18-60); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome for Adults: Median (IQR) days either in hospital or in CHRS facility from randomisation to 12 months; CHRS: 60 (34-87), usual care: 34.5 (18-63) Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Admissions to hospital at 12 months - Actual outcome for Adults: Number of patients re-admitted to hospital at 12 months; CHRS: 41/81 (51%), usual care: 46/84 (55%); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 4: Number of GP presentations at End of follow-up - Actual outcome for Adults: Median (IQR) GP visits at 12 months; CHRS: 3 (1-6), usual care: 4 (0-6); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Readmission at 7 and 28 days; Quality of life

Study	Gladman 1993[96]
Study type	RCT (Patient randomised; Parallel)
Number of participants	327
Countries and setting	Patients discharged from 2 acute and 3 rehabilitation hospitals in Nottingham, UK

Study	Gladman 1993[96]
Duration of study	6 months
Stratum	Early discharge
Subgroup analysis within study	Health Care of the Elderly (HCE), General medical (GM) and Stroke Unit (SU)
Inclusion criteria	Acute stroke (first or recurrent)
Exclusion criteria	Discharged to residential or nursing homes those requiring respite or terminal care; those who had been receiving outpatient rehabilitation before the stroke; those who had no significant disability from their stroke; those who stayed in hospital <7 days
Recruitment/selection of patients	Identified from a register of all those admitted to the City and University hospitals, Nottingham with acute stroke
Age, gender and ethnicity	Mean 70 years in both groups; 77/162 (48%) female in DRS group and 77/165 (47%) in HRS group; ethnicity not stated
Further population details	Not stated
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=162) Intervention 1: Domiciliary rehabilitation service (DRS): provided by 2 half-time physiotherapists and 1 OT who assessed all patients referred to DRS at home and then organised or provided appropriate therapy and arranged other relevant help. Concurrent medication/care: Not stated Duration: Up to 6 months, then referred back to routine services (n=165) Intervention 2: Hospital-based rehabilitation service (HRS): eligible for out-patient rehabilitation according to usual practices, that is, for those discharged from Health Care of the Elderly wards, the main option was a day hospital, while for those discharged from General Medical wards, outpatient physiotherapy or occupational therapy could be arranged. Concurrent medication/care: Not stated Duration: Not stated
Funding	Academic or government funding (Chest, Heart and Stroke Association, Nottingham Fights Stroke Association, Medical Research Council and the Rehabilitation and Medical Research Trust)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Domiciliary rehabilitation service (DRS) versus Hospital-based rehabilitation service (HRS) Protocol outcome 1: Mortality at End of follow-up - Actual outcome for Adults: Mortality at 6 months; Domiciliary rehabilitation service (DRS): 16/162 (10%), Hospital-based rehabilitation service (HRS): 7/165 (4%); Risk of bias: All domain - high, Selection - high, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups -	

Study	Gladman 1993[96]
Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period; Quality of life

Study	Indredavik 2000[126] Fjaertoft 2005[91,92]
Study type	RCT (Patient randomised; Parallel)
Number of participants	320
Countries and setting	Stroke Unit, city of Trondheim, Norway
Duration of study	26 weeks (Indredavik 2000); follow up to 1 year (Fjaertoft 2005); follow up 5 years (Fjaertoft 2013)
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Signs and symptoms of an acute stroke according to the World Health Organization definition of stroke; Scandinavian Stroke Scale (SSS) score between 2 and 57 points; living at home before the stroke; included within 72 hours after admission to the stroke unit and within 7 days after the onset of symptoms; lack of participation in other trials; and provision of informed consent
Exclusion criteria	Not stated
Recruitment/selection of patients	Patients with signs and symptoms of acute stroke from the city of Trondheim, Norway, who were admitted to the stroke unit were screened for inclusion
Age, gender and ethnicity	Mean (median) age: ESUS: 74.0 (74.5); OSUS: 73.8 (74.0); males: ESUS: 86/160 (54%); OSUS: 70/160 (44%); ethnicity not stated
Further population details	Not stated
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=160) Intervention 1: Extended stroke unit service (ESUS): A mobile stroke team was developed and established as part of this trial to organize and coordinate the extended service. ESUS may therefore be defined as stroke unit treatment similar to OSUS combined with service from a mobile team that offers early supported discharge and coordinates further rehabilitation and follow-up in close cooperation with the primary healthcare system. The team consisted of a nurse, a physiotherapist, an occupational therapist, and the

Study	Indredavik 2000[126] Fjaertoft 2005[91,92]
	part-time services of a physician. As soon as a patient was randomised to ESUS, a member of the team collected basic information about the patient and his/her medical condition, comorbidity, the situation at home before the stroke, and existing support from family, friends, and eventually the healthcare system. Together with the staff in the stroke unit, a preliminary evaluation of the needs of the patient during the recovery phase was made. Simultaneously, the primary healthcare system was informed about the patient. In cases in which direct discharge to home was likely to occur, a visit at home was usually performed as soon as the medical condition of the patient was stable. The patient, the family if possible, and representatives from the primary healthcare system and the mobile stroke team participated. During the visit, a plan for further follow-up for necessary nursing, support, and rehabilitation was made. Furthermore, the different tasks necessary for the follow-up program were delegated to dedicated members of the service system. The mobile stroke team was responsible for coordination of the different agencies and activities. The team tried to establish a service and support system that allowed the patient to live at home as soon as possible after the stroke and to continue necessary training and rehabilitation at home, in a day clinic, or by a combination of those 2 alternatives. In most cases the primary role of the team was coordination, but for some patients with more extensive needs, the team also offered training and support at home in addition to service from other agencies. However, most of the service and support was offered by trained staff in the community healthcare system, which played an important role in the support system. On the day of discharge, a dedicated discharge meeting was organized in which all plans were again checked, and the patient and family were informed in detail about further plans for treatment, rehabilitation, support, help, and follow-up. For patients with very extensive deficits after the stroke who needed continuous help and support 24 hours a day, a plan for further inpatient rehabilitation in a rehabilitation clinic was made in close cooperation between the mobile team, the stroke unit, and the rehabilitation clinics. Similar to the case for patients who were discharged directly to home, early discharge and further treatment/rehabilitation while the patient stayed at home were emphasized. Hence, the stay in rehabilitation clinics was kept as short as possible. The close follow-up by the mobile team was present for the first month after discharge to home and was terminated with an outpatient consultation. The physician who had treated the patient during the acute stage in the hospital (that is, the stroke unit), a member of the mobile team, the patient, and eventually the family participated during this outpatient consultation. An evaluation and summary of the period from stroke onset through the acute stage to the establishment at home were made. During this evaluation the patient and the family were invited to present their view about plans that did not work, plans and goals that had to be changed, and needs, hopes, and worries they had for the future. An evaluation of the treatment program for secondary prophylaxis was also made, and improvements and changes were introduced if necessary. A final report was sent to the family physician with advice for further follow-up. The home nursing personnel and therapists or other members of the primary healthcare system, when indicated, were also informed about the present condition of the patient, the treatment and rehabilitation thus far, and further plans. After care by the outpatient clinic 1 month after discharge, the primary healthcare system was responsible for all further follow-up but could immediately contact members of the stroke team if problems occurred that were difficult to solve by the primary healthcare system alone. Three months after discharge, the patients and their families were invited to a meeting for a larger group of stroke patients. There they were generally informed about stroke and the problems and possibilities for stroke victims. Concurrent medication/care: Not stated Duration: 3 months

Study	Indredavik 2000[126] Fjaertoft 2005[91,92]
	(n=160) Intervention 2: Ordinary stroke unit service (OSUS): treatment in a combined acute and rehabilitation stroke unit and further follow-up organized by rehabilitation clinics and/or the primary healthcare system. The service includes systematic diagnostic evaluation, standardized observation of vital signs and neurological deficits, an acute medical treatment program, and very early mobilization and rehabilitation in a stroke unit. OSUS may be defined as stroke unit treatment according to evidence-based recommendations combined with further inpatient rehabilitation when more long-term rehabilitation is necessary and a follow-up program organized by the primary healthcare system after discharge. Concurrent medication/care: Not stated Duration: Not stated
Funding	Academic or government funding (Norwegian Department of Health and the Stroke Units Fund of Stroke Research, University of Trondheim)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Extended stroke unit service (ESUS) versus ordinary stroke unit service (OSUS) Protocol outcome 1: Mortality at End of follow-up - Actual outcome for Adults: Mortality at 6 months; ESUS: 13/160 (8.1%), OSUS: 15/160 (9.4%); Risk of bias: All domain - high, Selection - high, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Length of stay at End of follow up - Actual outcome for Adults: Length of stay in stroke unit at index admission; ESUS: 11 days, OSUS: 11 days; Risk of bias: All domain - high, Selection - high, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome for Adults: Length of stay in hospital (stroke unit plus rehabilitation clinics) at index admission; ESUS: 18.6 days, OSUS: 31.1 days; Risk of bias: All domain - high, Selection - high, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome for Adults: Mean (range) length of stay in stroke unit at 1 year; ESUS: 12.6 (1-48) days, OSUS: 12.5 (1-74) days; Risk of bias: All domain - high, Selection - high, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome for Adults: Mean (range) length of stay in inpatient rehabilitation at 1 year; ESUS: 11.1 (0-182) days, OSUS: 23.4 (0-163) days; Risk of bias: All domain - high, Selection - high, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Hospital readmission at End of follow up - Actual outcome for Adults: Mean (range) hospital readmission days at 1 year; ESUS: 5.8 (0-120) days, OSUS: 7.3 (0-62) days; Risk of bias: All domain - high, Selection - high, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 4: GP presentations at End of follow up - Actual outcome for Adults: Mean (range) number of GP visits at 1 year; ESUS: 7.5 (0-58) days, OSUS: 6.4 (0-35); Risk of bias: All domain - high, Selection - high, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to

Study	Indredavik 2000[126] Fjaertoft 2005[91,92]
reported by the study	Emergency Department during the study period

Study	Mayo 2000[164]
Study type	RCT (Patient randomised; Parallel)
Number of participants	114
Countries and setting	Location: Canada; 5 acute care hospitals in Montreal
Duration of study	Follow-up of patients: 1, 3 months
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Patients recovering from an acute stroke; persistent motor deficits after stroke; caregivers willing and able to provide live-in care over 4 weeks after discharge
Exclusion criteria	Stroke patients who still required the assistance of >1 person to walk by 28 days after stroke; cognitive impairment (>5 errors on the Short Portable Mental Status Questionnaire; important co-existing conditions that affected ability to function independently (for example, dialysis requirement, paraplegia)
Recruitment/selection of patients	Patients admitted for acute stroke to 5 acute care hospitals in Montreal; project nurses consulted emergency room records and admission lists daily to identify potentially eligible patients
Age, gender and ethnicity	Mean age: treatment = 70.3 (12.7); control = 69.6 (12.7); home care group: 37/58 (63.8%) men; usual care group: 40/56 (71.4%) men
Further population details	Not stated
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=58) Intervention 1: Early discharge hospital outreach Type of service: multi-disciplinary team: physiotherapist, occupational therapist, dedicated nurses, speech therapist, dietary consultation. Home intervention consisted of prompt discharge from hospital with immediate provision of follow up services from multidisciplinary team. Medical follow up arranged at discharge. Intervention individualised, coordinated by a team member who had the most contact with the patient (usually nurse or physical therapist); rehabilitation provided at home; participants received at least 1 home visit form nurse; subsequent home visits arranged as needed and supplemented with telephone monitoring. Patients not scheduled to have >1 active treatment session per day, although nursing visit sometimes scheduled the same day as therapy. Concurrent medication/care: Not stated

Study	Mayo 2000[164]
	Duration: 4 weeks (n=56) Intervention 2: in-patient hospital care. Current practices for discharge planning and referral for follow up services, including physiotherapy, occupational therapy, speech therapy as requested by patient's care provider and offered through extended acute-care hospital stay; inpatient or outpatient rehabilitation or home care via local community health clinics; patients could also arrange for private care for which they themselves paid. Concurrent medication/care: Not stated Duration: Not stated
Funding	National Health Research Development Program
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Intensive multidisciplinary rehabilitation services as inpatients versus rehabilitation in the patients' homes Protocol outcome 1: Quality of life at 3 months - Actual outcome for Adults: SF-36 Physical component summary score at 3 months; Community: 42.9 (10.1) 51; hospital: 37.9 (10.6) 44; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome for Adults: SF-36 Mental component summary score at 3 months; Community: 46.5 (11.7) 51; hospital: 46.7 (10.8) 44; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectnessProtocol outcome 2: Length of stay at 3 months - Actual outcome for Adults: Length of stay at 3 months; Community: 9.8 (5.3) 58; hospital: 16.1 (14.6) 56; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Mortality; Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days

Study	Ozdemir 2001[177]
Study type	RCT (Patient randomised; Parallel)
Number of participants	60
Countries and setting	Trakya University Hospital Physical Medicine and Rehabilitation Department Polyclinic, Turkey
Duration of study	60 days

Study	Ozdemir 2001[177]
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Aged under 80 years, diagnosed with stroke (first or recurrent) between 1996 and 1999
Exclusion criteria	Age > 80 years; unconscious; medically unstable; significant complications (for example, pressure ulcers, severe contractures) that would inhibit rehabilitation recovery; history of transient ischaemic attacks.
Recruitment/selection of patients	Referred after medical stabilisation to the Trakya University Hospital Physical Medicine and Rehabilitation Department Polyclinic from the neurology and neurosurgery departments of the various hospitals in Turkey.
Age, gender and ethnicity	Mean (SD) (range) age: hospital: 59.1 (5.9) (49-79) years; community: 61.8 (9.2) (43-84) years; hospital: 21 male, 9 female (30% female); community: 19 male, 11 female (37% female); ethnicity not stated
Further population details	Not stated
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=30) Group 1: intensive multidisciplinary rehabilitation services as inpatients in the rehabilitation clinic. Therapeutic exercises (range of motion, passive stretching, muscle strengthening, mobilisation) and neuromuscular facilitation for 2 hours a day, 5 days a week. Physical agents such as ice, hot packs, TENS and ultrasound were used when necessary. Regular occupational therapy but no speech therapy. Hand and/or wrist splints, ankle-foot orthoses, tripods and canes were provided if needed. Patients evaluated daily by a physician. Stroke-related symptoms and complications were treated with multi-disciplinary approaches. Concurrent medication/care: Not stated Duration: Mean 64 days (range 25-147 days) (n=30) Group 2: rehabilitation in the patients' homes. Family members showed how convenient bed positioning and exercises should be performed by patient and family members. No neuromuscular facilitation. Family provided therapy at least 2 hours a day, 7 days a week. Splints, orthoses and devices were provided. A team consisting of a rehabilitation physician and a physiotherapist regularly visited the patients for 2 hours once a week and instructed family caregivers and provided medical support to the patients. Concurrent medication/care: Not stated Duration: Mean 64 days (range 29-150 days)
Funding	Not stated (no commercial funding)
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Intensive multidisciplinary rehabilitation services as inpatients versus rehabilitation in the patients' homes	

Study	Ozdemir 2001[177]
Protocol outcome 1: Adverse events at End of follow-up - Actual outcome for Adults: Adverse events at 9 weeks; Group 1: 11/30 (37%), Group 2: 22/30 (73%); Risk of bias: All domain - high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Mortality during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period; Quality of life

Study	Roderick 2001[198]
Study type	RCT (Patient randomised; Parallel)
Number of participants	140
Countries and setting	Poole area, East Dorset, England
Duration of study	6 months
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Confirmed diagnosis of stroke; aged 55 years or over; residents of East Dorset; needed further rehabilitation for disability caused by stroke; physically able to attend the day hospital; any previous disability was not too severe that it would prevent further rehabilitation; no signs of advanced dementia.
Exclusion criteria	Terminal illness, needing day hospital for social or medical reasons.
Recruitment/selection of patients	Patients with a newly-identified stroke admitted to Poole Hospital NHS Trust or 1 of its associated community hospitals and those with recent strokes directly referred from the community for day-hospital rehabilitation
Age, gender and ethnicity	Mean age (range): domiciliary: 78.3 (62-91); day hospital: 79.6 (60-95); female: 33 (52%) and 42 (57%); ethnicity not stated
Further population details	Not stated
Extra comments	-
Indirectness of population	No indirectness
Interventions	(n=66) Intervention 1: Domiciliary stroke team: physiotherapist and occupational therapist who met daily to plan activity and fortnightly with a consultant geriatrician to review patients, using a goal-setting approach. Outpatient speech and language therapy provided Concurrent medication/care: Not stated

Study	Roderick 2001[198]
	Duration: Until maximum potential for recovery was reached (n=74) Intervention 2: Five day hospitals were involved; care was coordinated by multi-disciplinary teams who gave therapy in both individual and group sessions Concurrent medication/care: Not stated Duration: Until maximum potential for recovery was reached
Funding	Academic or government funding (South and West Research and Development Directorate)

RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Domiciliary stroke team versus day hospital

Protocol outcome 1: Mortality at End of follow-up
- Actual outcome for Adults: Mortality at 6 months; Domiciliary stroke team: 4/66 (7%), day hospital: 7/74 (9%); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness

Protocol outcome 2: Quality of life at End of follow up
- Actual outcome for Adults: Median (IQR) SF-36 Physical health at 6 months; Domiciliary stroke team: 35.2 (26.5, 43.7) (n=49), day hospital: 32.7 (26.8, 39.2) (n=50); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness
- Actual outcome for Adults: Median (IQR) SF-36 Mental health at 6 months; Domiciliary stroke team: 57.4 (49.9, 62.9) (n=49), day hospital: 57.1 (50.6, 63.0) (n=50); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness

Protocol outcome 3: Length of stay at End of follow up
- Actual outcome for Adults: Median (IQR) length of stay at 6 months; Domiciliary stroke team: 7 (2, 30) (n=54), day hospital: 11 (4, 26) (n=58); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness

Protocol outcome 4: Admissions to hospital at End of follow-up
- Actual outcome for Adults: Number of patients readmitted at 6 months; Domiciliary stroke team: 12/54 (22%), day hospital: 13/58 (22%); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness

Protocol outcome 5: GP presentations at End of follow-up

Study	Roderick 2001[198]
- Actual outcome for Adults: Number of patients attending GP at 6 months; Domiciliary stroke team: 49/54 (91%), day hospital: 55/58 (95%); Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Readmission at 7 and 28 days

Study	Rodgers 1997[199]
Study type	RCT (Patient randomised; Parallel)
Number of participants	92
Countries and setting	Location: UK: 3 acute hospitals in Newcastle upon Tyne (Freeman Hospital, Royal Victoria Infirmary and Newcastle General Hospital)
Duration of study	Follow-up of patients: 7 to 10 days and 3 months
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Patients recovering from a stroke. Home address in Newcastle; not living in residential or nursing home care prior to incident stroke; not severely handicapped prior to incident stroke (Oxford Handicap Scale 0-3); no other condition likely to preclude rehabilitation; medically stable with a Barthel Activities of Daily Living Index between 5 and 19 at 72 hours post-stroke
Exclusion criteria	None apart from above
Recruitment/selection of patients	All patients admitted with acute stroke to the 3 Newcastle acute hospitals between 1 February 1995 and 31 January 1996 identified within 48 hours of admission
Age, gender and ethnicity	Median age: 73 (range 44-93) years; 42/92 (46%) female
Further population details	Living alone: 43/92 (47%)
Extra comments	
Indirectness of population	No indirectness
Interventions	(n=46) Intervention 1: Hospital at home (early discharge) Type of service: community based stroke team that provided an in reach service to 3 local acute hospitals, visiting patients prior to discharge. Multi-disciplinary team of occupational therapist, physiotherapist, speech and language therapist, social worker. Nursing provided by the primary care team. GP had clinical responsibility, with support from a consultant working in stroke medicine. The stroke

Study	Rodgers 1997[199]
	team used a key worker approach and patients held a copy of their record which they or their carer could add to. Review meetings involved patients and carers in their homes. Care available 24 hours a day if required Concurrent medication/care: Not stated Duration: Not stated (no time limit) (n=46) Intervention 2: Conventional in-patient hospital and community care; 1 hospital had a dedicated inpatient stroke service; in the other 2 hospitals, stroke patients were cared for on general medical or care of the elderly wards; discharge planning and services post-discharge arranged and provided according to the usual practice of each participating ward or unit; community support by primary care team, community rehabilitation services, outpatient services and social services as appropriate. Concurrent medication/care: Not stated Duration: Not stated
Funding	National CVD & Stroke R & D Programme; Newcastle Health Authority Primary Care Development Fund.
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community versus hospital Protocol outcome 1: Mortality at 3 months - Actual outcome for Adults: Mortality at 3 months; Community: 1/46; hospital: 4/46; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Admission to hospital at 3 months - Actual outcome for Adults: Admission to hospital at 3 months; Community: 5/46; hospital: 5/46; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period; Quality of life

Study	Ronning 1998[202]
Study type	RCT (Patient randomised; Parallel)
Number of participants	251
Countries and setting	Rehabilitation unit in the Central Hospital of Ahershus in Norway (generalised unit physically separated from the stroke unit, which rehabilitates patients with a disabling illness not exclusively stroke patients)
Duration of study	7 months

Study	Ronning 1998[202]
Stratum	Early discharge
Subgroup analysis within study	-
Inclusion criteria	Acute (first or recurrent) stroke patients aged 60 or older, with a Scandinavian Stroke Scale (SSS) score between 12 and 52, who were conscious on admission, and who could cooperate in the rehabilitation programme (that is, scored at least 4 points on the subject orientation section of the SSS); patients with malignant diseases not in the terminal stages were included.
Exclusion criteria	Comatose or somnolent on admission (even if they showed improvement in the first few days); admitted from nursing homes
Recruitment/selection of patients	Assessed for eligibility within the first day after admission to hospital
Age, gender and ethnicity	Mean (SD) age: hospital: 75.5 (6.7); municipality: 76.5 (6.4) years; women: hospital: 60/127 (47.2%); municipality: 60/124 (48.4%); ethnicity not stated
Further population details	Not stated
Extra comments	
Indirectness of population	No indirectness
Interventions	(n=127) Intervention 1: Hospital rehabilitation unit (after initial short length of stay in acute stroke unit or general medical ward): patients had access to a coordinated multidisciplinary rehabilitation team of nurses; physical, occupational and speech therapists; a social worker and a neurologist. The staff is specially trained to treat and rehabilitate stroke patients and they take part in education programmes to improve their knowledge of stroke. Patients assessed on arrival by members of the multidisciplinary team to identify problems affecting activities of daily living, speech problems and disturbances affecting their living at home. Spouses participated routinely in meetings. Long- and short-term goals were planned and each patient had 1 therapist coordinating the rehabilitation. The staff were instructed in the Bobath technique, which was the main approach for physical and functional rehabilitation. Concurrent medication/care: Not stated Duration: Mean 27.8 days (n=124) Intervention 2: Health services in the municipality (after initial short length of stay in acute stroke unit or general medical ward): most municipalities have a nursing home that provides rehabilitation through a multidisciplinary staff (in-patient or day patient) and further ambulatory rehabilitation by a visiting physical therapist, speech therapist and/or nurse. Municipalities offer access to primary health care including physical therapy, occupational therapy, speech therapy and nurse support. Concurrent medication/care: Not stated Duration: Not stated

Study	Ronning 1998[202]
Funding	Academic or government funding (National Association for Heart and Vascular Diseases)

RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Hospital rehabilitation unit versus Health services in the municipality

Protocol outcome 1: Mortality at End of follow-up
- Actual outcome for Adults: Mortality at 7 months; Hospital rehabilitation unit: 12/127 (9.4%), Health services in the municipality: 20/124 (16.1%); Risk of bias: High; Indirectness of outcome: No indirectness

Protocol outcome 2: Quality of life at End of follow up
- Actual outcome for Adults: SF-36 Physical functioning at 7 months; Hospital rehabilitation unit: 49 (34) (n=82), Health services in the municipality: 48 (36) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness
- Actual outcome for Adults: SF-36 Role Physical at 7 months; Hospital rehabilitation unit: 47 (40) (n=82), Health services in the municipality: 49 (41) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness
- Actual outcome for Adults: SF-36 Bodily Pain at 7 months; Hospital rehabilitation unit: 42 (14) (n=82), Health services in the municipality: 42 (14) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness
- Actual outcome for Adults: SF-36 General Health at 7 months; Hospital rehabilitation unit: 52 (21) (n=82), Health services in the municipality: 55 (22) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness
- Actual outcome for Adults: SF-36 Vitality at 7 months; Hospital rehabilitation unit: 48 (20) (n=82), Health services in the municipality: 46 (18) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness
- Actual outcome for Adults: SF-36 Social Functioning at 7 months; Hospital rehabilitation unit: 75 (30) (n=82), Health services in the municipality: 75 (26) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness
- Actual outcome for Adults: SF-36 Role Emotional at 7 months; Hospital rehabilitation unit: 87 (31) (n=82), Health services in the municipality: 84 (35) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness
- Actual outcome for Adults: SF-36 Mental Health Domain at 7 months; Hospital rehabilitation unit: 71 (17) (n=82), Health services in the municipality: 69 (15) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness

Study	Ronning 1998[202]
- Actual outcome for Adults: SF-36 Mental Health Summary score at 7 months; Hospital rehabilitation unit: 70 (19) (n=82), Health services in the municipality: 70 (17) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome for Adults: SF-36 Physical Health Summary score at 7 months; Hospital rehabilitation unit: 47 (20) (n=82), Health services in the municipality: 48 (19) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness - Actual outcome for Adults: SF-36 Health Change at 7 months; Hospital rehabilitation unit: 4 (0.8) (n=82), Health services in the municipality: 4 (0.9) (n=65); Risk of bias: All domain – very high, Selection - high, Blinding - high, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - high, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period

Study	Rudd 1997[208]
Study type	RCT (Patient randomised; Parallel)
Number of participants	331
Countries and setting	Location: London, UK: 2 teaching hospitals
Duration of study	Follow- up of patients: 2, 4 and 6 months and 1 year
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Patients recovering from a stroke
Exclusion criteria	Patients were excluded if they lived too far away for the team to visit.
Recruitment/selection of patients	A hospital based stroke register was maintained at St Thomas' and King's College Hospitals, London between January 1993 and July 1995. Twice weekly checks of the wards were undertaken by 2 dedicated research associates with nursing training. If patients lived alone, they

Study	Rudd 1997[208]
	needed to be able to perform functional independent transfer, and if they lived with a willing carer they needed to be able to perform transfer with assistance. The point at which these criteria were met was decided after consultation with the hospital physiotherapist. All patients were assessed within 1 working day of notification by a consultant physician or medical registrar.
Age, gender and ethnicity	Mean age: treatment = 70 (SD 11); control = 72 (SD 12); 185/331 (56%) male
Further population details	113/331 (34%) lived alone
Extra comments	
Indirectness of population	No indirectness
Interventions	(n=167) Intervention 1: Hospital at home (early discharge) Type of service: co-ordinated by hospital based consultant, community based nursing and therapy (physiotherapy, occupational therapy, speech and language therapy; therapy aide); 24 hour care not available. Remained in hospital until the required package of social service care could be organised and any home adaptations undertaken. A store of commodes, high chairs and toilet frames was kept by the team to expedite discharge. Patients were assessed for rehabilitation needs before discharge in conjunction with the hospital based therapists to set initial objectives and to ensure continuity of care. After discharge, patients were given a planned course of domiciliary physiotherapy, occupational therapy and speech therapy, with visits as frequently as considered appropriate (maximum 1 daily visit from each therapist). Each patient had an individual care plan which was reviewed at a weekly team meeting; on discharge (at maximum 3 months), patients were referred to conventional services when appropriate. All other services apart from therapy were as for control group (no augmentation of social services resources). Concurrent medication/care: Not stated Duration: Maximum 3 months (n=164) Intervention 2: hospital care and hospital organised rehabilitation. Treatment, discharge planning and outpatient care in the normal way; about half the patients treated in stroke unit, the rest in general medical or elderly care wards. Outpatient resources available included a hospital based stroke clinic, geriatric day hospital, generic domiciliary physiotherapy and speech and language therapy, hospital outpatient physiotherapy and usual community resources. Maximum level of home care available was 3 one-hour visits daily by a home help for personal care, meals on wheels and community nurse visits for specific tasks. Concurrent medication/care: Not stated Duration: Not stated
Funding	The Stroke Association, Lambeth, Southwark and Lewisham Health Authority, the Special Trustees of St Thomas's Hospital, the Nuffield Provincial Hospitals Trust, Wandsworth Health Gain Fund.
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Community versus hospital	

Study	Rudd 1997[208]
Protocol outcome 1: Mortality at 1 year - Actual outcome for Adults: Mortality at 1 year; Community: 26/167; hospital: 34/164; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 2: Patient satisfaction at 1 year - Actual outcome for Adults: Patient satisfaction at 1 year; Community: 56/136; hospital: 46/126; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 3: Carer satisfaction at 1 year - Actual outcome for Adults: Carer satisfaction (overall) at 1 year; Community: 68/82; hospital: 52/63; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 4: Length of stay at 1 year - Actual outcome for Adults: Length of stay at 1 year; Community: 12 (19) 167; hospital: 18 (24) 164; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 5: Admissions to hospital at 1 year - Actual outcome for Adults: Admissions to hospital at 1 year; Community: 44/167; hospital: 42/164; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness Protocol outcome 6: Caregiver burden at 1 year - Actual outcome for Adults: Caregiver strain index at 1 year; Community: 5 (4) 75; hospital: 4 (3) 59; Risk of bias: All domain - low, Selection - low, Blinding - Low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Number of presentations to Emergency Department during the study period; Number of GP presentations during the study period; Readmission at 7 and 28 days; Length of hospital stay during the study period; Quality of life

Study	Santana 2016[211]
Study type	RCT (Patient randomised; Parallel)
Number of studies (number of participants)	1 (n=190)
Countries and setting	Denmark
Line of therapy	1st line
Duration of study	Intervention + follow up: follow-up- 6 months
Method of assessment of guideline condition	Adequate method of assessment/diagnosis

Study	**Santana 2016[211]**
Stratum	Early discharge
Subgroup analysis within study	Not applicable
Inclusion criteria	Stroke patients aged 25-85 years admitted to the stroke unit who had some residual disability in the form of an initial Functional Independence Measure of up to 100, no significant previous neurological disability
Exclusion criteria	Major speech and language problems preventing participation in the study, major psychological illness or dementia, other severe comorbidity, pregnancy or transfer to another acute care hospital for more than5 days.
Recruitment/selection of patients	Patients recruited with a clinical definition of stroke(confirmed on brain imaging) who were admitted to the stroke unit of the hospital.
Age, gender and ethnicity	Age - Mean (range): EHSD- 67.5 (40-84); control- 66.5 (35-84). Gender (M:F): female %- EHDS group 51%; control-43%. Ethnicity:
Further population details	-
Indirectness of population	No indirectness
Interventions	(n=95) Intervention 1: Community-based rehabilitation services. Early home supported discharge group (EHSD) – rehabilitation in the stroke unit and at home EHSD team of therapists included 2 physiotherapists, 2 occupational therapists and a psychologist. Patients and carers received education on healthy behaviours and information about stroke, its consequences, how to best participate in rehabilitation and how to find help within their communities. The team provided information and training tailored to the patient's needs; the mix of physiotherapy, occupational therapy and psychological sessions was also adapted to the specific condition of each patient. Rehabilitation was focused on daily activities valued by the patient in their usual context. EHSD team worked with the patients to provide approximately 8 home based training. Duration: 6 months. Concurrent medication/care: not stated. (n=95) Intervention 2: Hospital-based rehabilitation services. Usual care group Patients received rehabilitation as part of standard care in the stroke unit. Patients received information from the case manager about services available in the community, but no further specific input was provided. They began their rehabilitation as part of standard care in the stroke unit and then accessed the standard rehabilitation available in the region following discharge. The usual care rehabilitation frequently focused on components of training of impairments, such as ambulatory rehabilitation, with less emphasis on understanding how skills would be transferred in to normal living. Access to healthcare professionals was less easy for the usual care group and it was to address questions arising during rehabilitation. Duration: 6 months. Concurrent medication/care: Not stated.
Funding	Academic or government funding

Study	Santana 2016[211]
RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: COMMUNITY-BASED REHABILITATION SERVICES versus HOSPITAL-BASED REHABILITATION SERVICES Protocol outcome 1: Length of hospital stay at during study period - Actual outcome: Length of stay in the stroke unit at 6 months; Group 1: mean 9.8 (SD 5.3); n=95, Group 2: mean 10 (SD 5.3); n=95; Risk of bias: All domain - High, Selection - Low, Blinding - High, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Quality of life at during study period; Avoidable adverse events at during study period; Patient and/or carer satisfaction at during study period; Number of presentations to Emergency Department at during study period; Number of admissions to hospital at After 28 days of first admission; Number of GP presentations at during study period; Readmission at 7 and 28 days; Mortality at during study period; Quality of life

Study	Thorsen 2005[243] Thorsen 2006[244] von Koch 2000[252] von Koch 2001[251]
Study type	RCT (Patient randomised; Parallel)
Number of participants	83
Countries and setting	Stroke unit of the Neurology Department of Huddinge University Hospital in Stockholm, Sweden
Duration of study	5 years
Stratum	Early discharge
Subgroup analysis within study	None
Inclusion criteria	Mild to moderate impairments after first or recurrent stroke according to clinical criteria of the WHO
Exclusion criteria	Not stated
Recruitment/selection of patients	Patients admitted to the stroke unit of the Neurology Department of Huddinge University Hospital in Stockholm, Sweden from September 1993 to April 1996, diagnosed with first or recurrent stroke according to clinical criteria of the WHO were screened for inclusion 5-7 days after stroke onset
Age, gender and ethnicity	Overall (83 patients): mean 72 years; of the 54 followed up at 5 years (excluding those who died, were lost to follow up or declined), mean 71 years; Home rehabilitation group: 15 men/15 women (50% women); Conventional rehabilitation group: 14 men/10 women (42% women); ethnicity not stated
Further population details	Living with spouse: 69%

Study	Thorsen 2005[243] Thorsen 2006[244] von Koch 2000[252] von Koch 2001[251]
Extra comments	
Indirectness of population	No indirectness
Interventions	(n=42) Intervention 1: Early supported hospital discharge (after initial medical care and rehabilitation in the stroke unit) to a home rehabilitation group (HRG). An outreach team of occupational therapists, physiotherapists and a speech-and-language pathologist provided services; the duration, frequency and content of the intervention were decided on together with the patient and his or her family. Mean number of home visits was 12; most common foci of home visits were speech and communication, ADL and ambulation. Concurrent medication/care: Not stated Duration: Mean 14 weeks (n=41) Intervention 2: Conventional rehabilitation group (CRG) (after initial medical care and rehabilitation in the stroke unit). If required, and after evaluation by specialists, patients in CRG received additional rehabilitation in the Geriatrics or Rehabilitation Department. The content and duration did not adhere to a standardised programme but rather reflected services available within the District Health Authority. Concurrent medication/care: Not stated Duration: Not stated
Funding	Academic or government funding (Swedish Association of Neurologically Disabled; Swedish Stroke Association; Swedish Association of Registered Physiotherapists; Centre for Health Care Sciences, Karolina Institute)

RESULTS (NUMBERS ANALYSED) AND RISK OF BIAS FOR COMPARISON: Home rehabilitation group versus Conventional rehabilitation group

Protocol outcome 1: Mortality at End of follow-up
- Actual outcome for Adults: Mortality at 5 years; Home rehabilitation group: 8/42 (19%), Conventional rehabilitation group: 12/41 (29%); Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness

Protocol outcome 2: Adverse events at End of follow up
- Actual outcome for Adults: Falls at 5 years; Home rehabilitation group: 19/30 (63%), Conventional rehabilitation group: 14/23 (61%); Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness

Protocol outcome 3: Length of stay at index admission
- Actual outcome for Adults: Length of stay at index admission; Home rehabilitation group: 14 days, Conventional rehabilitation group: 30 days; Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness

Study	Thorsen 2005[243] Thorsen 2006[244] von Koch 2000[252] von Koch 2001[251]
Protocol outcome 4: GP presentations at End of follow up - Actual outcome for Adults: Number of patients presenting to GPs at 5 years; Home rehabilitation group: 25/30 (83%), Conventional rehabilitation group: 22/24 (92%); Risk of bias: All domain - high, Selection - high, Blinding - low, Incomplete outcome data - Low, Outcome reporting - Low, Measurement - Low, Crossover - Low, Subgroups - Low; Indirectness of outcome: No indirectness	
Protocol outcomes not reported by the study	Avoidable adverse events during the study period; Patient and/or carer satisfaction during the study period; Number of presentations to Emergency Department during the study period; Readmission at 7 and 28 days; Quality of life

Appendix E: Economic evidence tables

A-Stroke rehabilitation

Study	Fjaertoft 2005[91]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: CCA (health outcome: various) **Study design:** within trial analysis of RCT (linked clinical studies [90,91,126] **Approach to analysis:** Analysis of individual level resource use, with unit costs applied. **Perspective:** Norwegian health service **Time horizon/Follow-up:** 52 weeks **Treatment effect duration:**	**Population:** Acute stroke patients admitted to a hospital stroke unit. **Cohort settings: (n=320)** Mean age: 73.9 years Male: 49% **Intervention 1: (n=160)** Treatment in stroke unit with no early supported discharge (OSUS). **Intervention 2: (n=160)** Treatment in stroke unit	**Total costs (mean per patient):** Intervention 1: £11,271 Intervention 2: £9,780 Incremental (2−1): -£1,491 (95% CI: NR; p=0.127) **Currency & cost year:** Norwegian Euro; cost year unclear – assumed to be 2005 (presented here as 2005 UK pounds)[(a)]] **Cost components incorporated:** Acute care in stroke unit, inpatient and home-based rehabilitation, nursing	**From clinical review:** • **Barthel** (MD): 1.72 (1.10-2.70) •**Mortality** (RR): 0.87 (0.43, 1.76) •**Caregiver strain index** (SMD): 0.24 (-0.00, 0.49)	**ICER (Intervention 2 versus Intervention 1):** n/a 95% CI: n/a Probability Intervention 2 cost-effective (£20K/30K threshold): n/a **Analysis of uncertainty:** Stratification by functional level Incremental costs: 0-1 = £1,477 (95% CI: NR, p=0.200) 2-3 = -£2,743 (95% CI: NR, p=0.099) 4-5 = -£2,962 (95% CI: NR, p=0.301) Simple sensitivity analyses with the 5 most expensive cost components increased/decreased by 25% - Author states

Study	Fjaertoft 2005[91]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
n/a **Discounting:** n/a	followed by early supported discharge	home/assisted living, hospital readmission, mobile team.		that only marginally affected results (not shown).
Data sources				
Health outcomes: Within-RCT analysis. Health outcomes assessed in linked trials. **Quality-of-life weights:** n/a. **Cost sources:** National average costs (DRG-Norway).				
Comments				
Source of funding: Norwegian Foundation for Health and Rehabilitation. **Applicability and limitations:** QALYs not used. Some uncertainty about the applicability of Norwegian resource use and unit costs. Resource use from >10 years ago year; unit cost year unclear. RCT-based analysis so from 1 study by definition therefore not reflecting all evidence in area. Some uncertainty about whether time horizon is sufficient. Limited sensitivity analysis.				
Overall applicability[(b)]: partially applicable **Overall quality[(c)]:** potentially serious limitations				

Abbreviations: CCA: cost–consequence analysis; 95% CI: 95% confidence interval; EQ-5D: Euroqol 5 dimensions (scale: 0.0 [death] to 1.0 [full health], negative values mean worse than death); ICER: incremental cost-effectiveness ratio; NR: not reported; QALYs: quality-adjusted life years.

(a) Converted using 2005 purchasing power parities.[176]

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

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

Study	National Audit Office 2010[170]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: CUA **Study design:** Decision analytic model **Approach to analysis:** Discrete event simulation model comparing current with pre National Stroke Strategy (2006) provision of ESD. Health states modelled were severe,	**Population:** Patients who have suffered a stroke and who require post-discharge therapy. Mild stroke patients were excluded. **Cohort settings:** • Start age: 69.89 years • Male: NR	**Total costs (mean per patient):** Intervention 1: £24,855 Intervention 2: £25, 659 Incremental (2-1): £804 (95% CI: NR; p=NR) **Currency & cost year:** UK pounds. Cost year unclear: cost	**QALYs (mean per patient):** Intervention 1: NR Intervention 2: NR Incremental (2−1): 0.13 QALYs (95% CI: NR; p=NR)	**ICER (Intervention 2 versus Intervention 1):** £6,184 per QALY gained (pa) 95% CI: NR Probability Intervention 2 cost-effective (£20K/30K threshold): NR **Analysis of uncertainty:** Deterministic uncertainty conducted on the level of discount

Study	National Audit Office 2010[170]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
moderate and mild disability, depending on a patient's Barthel score. Treatment effects (probability of being mild, moderate or severe) determined at 1 year. **Perspective:** UK NHS and PSS **Time horizon:** 10 years **Treatment effect duration[(a)]:** Unclear – possibly 1 year. **Discounting:** Costs: 3%; Outcomes: 1.5%	**Intervention 1:** Conventional discharge route (inpatient and community-based care) **Intervention 2:** Early supported discharge (ESD): program of home-based care (physiotherapy; occupational therapy and speech therapy) available up to a period of 3 months, with no more than 1 visit per day from each type of therapist.	analysis based on Beech et al (1999). Not clear whether the cost figures were updated using inflation indexes. **Cost components incorporated:** Length of stay in acute ward; physiotherapy; occupational therapy; speech therapy; non-inpatient services (annual contacts with hospital physician; GP home visits; visits at GP surgery). Community-based services (meals on wheels; home help; district nurse; lunch club; day hospital).		rate (varying it from 0 to 6%) and on the extent of coverage of the ESD scheme to all stroke patients. The model findings were not sensitive to these changes. Not clear as to whether probabilistic sensitivity analysis was conducted.
Data sources				
Health outcomes: Barthel index disability levels based on an RCT by Rudd et al (1997).[208] **Quality-of-life weights:** Barthel scores converted to EQ5D using van Exel et al (2004). **Cost sources:** Hospital financial records; PSSRU 2008.				
Comments				
Source of funding: Department of Health. **Applicability and limitations:** Costs and outcomes discounted at a different rate. EQ5D data not available so mapped from disease-specific measure. Unclear how the health outcomes, health and social care costs of each health states were calculated. Not clear whether the study considered the costs of long-term care such as residential care (nursing homes and residential homes). Unclear as to whether the unit costs used from Beech et al (1997) were updated to take into account of inflation or whether recent official data were used (for example, unit costs from PSSRU).				
Overall applicability[(b)]: partially applicable **Overall quality[(c)]:** potentially serious limitations				

Abbreviations: 95% CI: 95% confidence interval; CUA: cost–utility analysis; EQ-5D: Euroqol 5 dimensions (scale: 0.0 [death] to 1.0 [full health], negative values mean worse than death); ICER: incremental cost-effectiveness ratio; NR: not reported; pa: probabilistic analysis; QALYs: quality-adjusted life years.

(a) For studies where the time horizon is longer than the treatment duration, an assumption needs to be made about the continuation of the study effect. For example, does a difference in utility between groups during treatment continue beyond the end of treatment and if so for how long?

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

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

B- Geriatric rehabilitation

Study	**Caplan 2006A[38]**			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: CCA (health outcome: various including delirium (primary outcome measure), length of stay, functional independence, depression, patient satisfaction) **Study design:** RCT **Approach to analysis:** Within-trial analysis of costs and outcomes. Patients were randomised in a 2:1 ratio. Outcomes were assessed on discharge and at 1- and 6-months follow-up. **Perspective:** Australian health care provider **Time horizon/Follow-up:** 6 months **Treatment effect duration[(a)]:** variable **Discounting:** Costs: n/a; Outcomes: n/a	**Population:** Frail elderly patients with length of stay exceeding 6 days who were referred for geriatric rehabilitation. **Cohort settings: (n=104)** Mean age: 1: 84 years, 2: 83.9 years Male: 1: 33.3%, 2: 31.8% **Intervention 1:** Inpatient rehabilitation at the hospital geriatric rehabilitation ward. **Intervention 2:** Home rehabilitation provided by a hospital-based multidisciplinary outreach service. The team includes nurses, physiotherapists, occupational therapists and doctors. Patients were visited a mean of 20 times during the rehabilitation episode. Equipment was provided free for up to 3 months.	**Total costs (mean per patient):** 1: £11,760 2: £8,522 (2−1): -£3,238 (95% CI: NR; p=0.011) **Acute phase costs (mean per patient):** 1: £4,991 2: £5,722 (2−1): £731 (95% CI: NR; p=0.51) **Rehabilitation phase costs (mean per patient):** 1: £6,768 2: £2,799 (2−1): -£3,969 (95% CI: NR; p<0.0001) **Currency & cost year:** 2002 Australian dollars (presented here as 2002 UK pounds)[(b)]] **Cost components incorporated:** Hospital costs based on DRGs, home-based rehabilitation costs including overheads. No	**Delirium: Acute phase** 1: 2.5% , 2: 1.4%, (2−1): -1.1% (95% CI: NR; p=0.62) **Delirium: rehabilitation phase** 1: 3.2%, 2: 0.6%, (2−1): -2.6% (95% CI: NR; p=0.003) **Overall length of episode of care:** 1: 40.09 days, 2: 34.91 days, (2−1): -5.21 days (95% CI: NR; p=0.19) **Length of rehabilitation phase:** 1: 23.09 days, 2: 15.97 days, (2−1): - 7.12 days (95% CI: NR; p=0.02) **Hospital bed days:** 1: 40.09 days, 2: 20.31 days, (2−1): -19.78 days (95% CI: NR; p< 0.0001) **Mini Mental State Examination (MMSE):** 1: 23.71, 2: 23.79, (2−1): 0.08 (95% CI: NR; p=0.95) **Depression (Geriatric Depression Score GDS):** 1: 9.42, 2: 8.38, (2−1): - 0.04 (95% CI: NR; p=0.45) **Patient satisfaction:** 1: 4.06, 2: 4.66, (2−1): 0.6 (95% CI: NR; p=0.01) **Carer satisfaction:** 1: 4.08, 2: 4.47, (2−1): 0.39 (95% CI: NR; p=0.19)	**ICER:** NA **Analysis of uncertainty:** None reported

Study	Caplan 2006A[38]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
		further details provided.	**General practitioner satisfaction:** 1: 3.78, 2: 4.06, (2−1): 0.28 (95% CI: NR; p=0.41)	
Data sources				
Health outcomes: The following outcome measures were used for data collection: delirium (measured by confusion assessment method (CAM), functional independence measure (FIM), Mini-Mental State Examination (MMSE), geriatric depression scale (GDS). Data were collected on enrolment, at the start and completion of rehabilitation and at 1- and 6-months follow-up. **Quality-of-life weights:** NA. **Cost sources:** The Prince of Wales Hospital Casemix Unit costs were used, which are based on diagnoses related groups for inpatient admissions.				
Comments				
Source of funding: Governmental funding. **Applicability and limitations:** Some uncertainty regarding the applicability of resource use and unit costs from Australia (2002) to the current NHS context. QALYs were not used as an outcome measure. RCT-based analysis so from 1 study by definition therefore not reflecting all evidence in area. There is also some uncertainty about whether time horizon is sufficient to reflect all the possible downstream differences in costs and outcomes. No sensitivity analysis is reported.				
Overall applicability[(c)]**:** Partially applicable **Overall quality**[(d)]**:** Potentially serious limitations				

Abbreviations: CCA: cost–consequence analysis; 95% CI: 95% confidence interval; ICER: incremental cost-effectiveness ratio; NR: not reported; QALYs: quality-adjusted life years.

(a) For studies where the time horizon is longer than the treatment duration, an assumption needs to be made about the continuation of the study effect. For example, does a difference in utility between groups during treatment continue beyond the end of treatment and if so for how long?

(b) Converted using 2002 purchasing power parities.[176]

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

C- Cardiac rehabilitation

Study	Cowie 2014[55]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: CCA **Study design:** cost analysis conducted alongside a RCT	**Population:** Frail elderly patients with length of stay exceeding 6 days who were referred for geriatric rehabilitation. **Cohort settings: (n=104)**	**Total costs:** Intervention 1: £111,774 Intervention 2: £118,980 Incremental (2−1): £7,206	NR	**ICER (Intervention 2 versus Intervention 1):** NA

Study	Cowie 2014[55]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Approach to analysis: Within-trial analysis of costs. **Perspective:** UK NHS **Time horizon/Follow-up:** 5.16 years (mean duration from study completion date – November 2012) **Discounting:** Costs: n/a; Outcomes: n/a	Mean age: Intervention 1: 84 years, Intervention 2: 83.9 years Male: Intervention 1: 33.3%, Intervention 2: 31.8% **Intervention 1:** Hospital-based rehabilitation services. 1 hour aerobic based exercise session. Exercise session was a physiotherapist led class. **Intervention 2:** Community-based rehabilitation services. 1 hour aerobic based exercise session- DVD and booklet The session started with a 15 min warm-up and ended with a 15 min cool-down.	(95% CI: NR; p=0.011) **Currency & cost year:** 2013 UK pounds **Cost components incorporated:** Rehabilitation nurse, rehabilitation physio, DVD, heart rate monitors, cost of congestive heart failure admission, cardiology admission, medical admission, orthopaedic admission, renal admission.		**Analysis of uncertainty:** Increasing the cost of hospital training by 100% still resulted in hospital training being cost saving.
Data sources				
Health outcomes: NR. **Quality-of-life weights:** NA. **Cost sources:** Agenda for change pay scales, Information Service Division (ISD) 2011/12 references				
Comments				
Source of funding: NR. **Applicability and limitations:** Only costs were measured, no details on mortality or quality of life. Costs were measured over 5 years but not discounted. Only looks at impact on hospital admission cots, no primary care or outpatient costs were considered in the analysis.				
Overall applicability[(a)]**:** Partially applicable **Overall quality**[(b)]**:** Potentially serious limitations				

Abbreviations: CCA: cost–consequence analysis; 95% CI: 95% confidence interval; ICER: incremental cost-effectiveness ratio; NR: not reported; QALYs: quality-adjusted life years.

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

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

Study	Jolly 2009, Jolly 2007[130,131]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: CUA (health outcome: EQ-5D)	Population: Patients referred following an MI, PTCA or CABG within	Total costs (mean per patient):	EQ-5D visual analogue scale:	Intervention 1 dominates.

Study	Jolly 2009, Jolly 2007[130,131]			
Study design: RCT Approach to analysis: Within-trial analyses of individual patient level resource use and outcome data on intention-to-treat basis. Perspective: UK NHS and societal Follow-up: 24 months Discounting: Costs: NR; Outcomes: NR.	the previous 12 weeks who were not considered to be high risk for a home-based exercise programme. Cohort: (n=525) Mean start age: Intervention 1: 61.8 Intervention 2: 60.3 Male: Intervention 1: 76% Intervention 2: 77.2% Intervention 1: (n=262) 9-12 week hospital-based exercise training Intervention 2: (n=263) 12 week home-based exercise training	NHS perspective: Intervention 1: £157 Intervention 2: £198 Incremental (2−1): £41 (95% CI: NR; p<0.05) Societal perspective: Intervention 1: £181 Intervention 2: £198 Incremental (2−1): £17 (95% CI: NR; p>0.05) Currency & cost year: 2003 UK pounds Cost components incorporated: Nurse time (visits, travel and telephone calls), Heart Manual (including training), Rehabilitation sessions, Patient travel-related (societal perspective)	Intervention 1: 0.753 Intervention 2: 0.731 Incremental (2−1): -0.022 (95% CI: -0.072 to 0.028; p=NR) Change in SWT (mean per patient): Intervention 1: 406.8 Intervention 2: 391.3 Incremental (2−1): -15.52 (95% CI: -48.18 to 17.13; p=NR)	Analysis of uncertainty: Missing values: Sensitivity analysis was conducted to assess the impact of missing values for outcomes at 12 month follow-up. Regression-based models were used to generate and impute predicted outcome values. Interpretation of the results did not change. Home-based Duration of visits was limited to a maximum of 3, up to 30 minutes visits. Reduced the cost but the interpretation of results did not change. Hospital-based Allowed an additional 1 hour for 4 staff in preparing and clearing each rehabilitation session. Increased the cost but the interpretation of results did not change.
Data sources				
Health outcomes: Cardiac risk factors and patient reported outcomes were taken at baseline, 6 and 12 months follow-up. Resource use data were collected from cardiac rehabilitation staff and participants. Hospital records were used to check attendance. **Quality-of-life weights:** EQ-5D visual analogue scale values rather than tariff utilities were used. **Cost sources**: Staff costs from PSSRU unit costs of health and social care 2003 [171]. Staff travel costs from the NHS mileage rate. Home equipment and training costs taken from The Heart Manual.				
Comments				
Source of funding: UK Department of Health through its Health Technology Assessment Programme. **Applicability and limitations:** RCT-based analysis, so from 1 study				

Study	Jolly 2009, Jolly 2007[130,131]
by definition therefore not reflecting all evidence in area. Did not include survival into QoL measure to obtain QALY.	
Overall applicability[Error! Reference source not found.]**:** Directly applicable	**Overall quality**[Error! Reference source not found.]**:** Potentially serious limitations

Abbreviations: CABG: coronary artery bypass graft; 95% CI: 95% confidence interval; CUA: cost–utility analysis; da: deterministic analysis; DBP: diastolic blood pressure; EQ-5D: Euroqol 5 dimensions (scale: 0.0 [death] to 1.0 [full health], negative values mean worse than death);HADS: hospital anxiety and depression scale; ICER: incremental cost-effectiveness ratio; MI: myocardial infarction; NR: not reported; pa: probabilistic analysis; PTCA: percutaneous transluminal coronary angioplasty; PSSRU: personal social services research unit; QALYs: quality-adjusted life years; SBP: systolic blood pressure; SWT: shuttle walking test.

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

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

Study	Taylor 2007[238]			
Study details	**Population & interventions**	**Costs**	**Health outcomes**	**Cost effectiveness**
Economic analysis: CUA (health outcome: QALYs) Study design: RCT Approach to analysis: Within-trial analyses of individual patient level resource use and outcome data on intention-to-treat basis. Perspective: UK NHS and societal Time horizon/Follow-up: 9 months Discounting: Costs: n/a; Outcomes: n/a	Population: Patients with an uncomplicated acute myocardial infarction without major comorbidity. Cohort settings: (n=104) Start age: NR Male: NR Intervention 1: (n=44) Hospital-based rehabilitation for 8-10 weeks Intervention 2: (n=60) Home-based rehabilitation; nurse facilitated, self-help package of 6 weeks' duration	Total costs (mean per patient): Intervention 1: £3,142 Intervention 2: £3,189 Incremental (2−1): £47 (95% CI: -1,103 to 1,191; p=0.894) Currency & cost year: 2003 UK pounds Cost components incorporated: Staff costs, equipment, drugs, diagnostic tests, hospital readmission, revascularization	QALYs (mean per patient): Intervention 1: 0.81 Intervention 2: 0.74 Incremental (2−1): -0.06 (95% CI: -0.15 to 0.02; p=0.156)	Intervention 1 dominates. Analysis of uncertainty: Study looked at individual patient simulations plotted onto a cost-effectiveness plane with points in all 4 quadrants. Ranged from a small QALY gain and lower cost in favour of hospital to a small QALY gain and lower cost in favour of home. Sensitivity analyses did not reveal a significant difference in the cost-effectiveness decision. However, costs between groups appeared to be sensitive to the costing approach.
Data sources				
Health outcomes: Patient completed EQ-5D at baseline, 3 and 9 months. **Quality-of-life weights:** EQ-5D UK tariff. **Cost sources:** Staff costs from PSSRU unit costs of health and social care 2003. [171] Diagnostic tests, hospital readmission and revascularization from NHS reference costs 2003 and National Tariff 2004. Patient costs from				

Study	Taylor 2007[238]
trial data.	
Comments	
Source of funding: NHS Executive South West (Research and Development) **Applicability and limitations:** RCT-based analysis, so from 1 study by definition therefore not reflecting all evidence in area. Length of follow-up may not be deemed long enough. Further sensitivity analysis for all assumptions could be conducted. Outcomes had high confidence intervals around incremental values.	
Overall applicability[(b)]: Directly applicable **Overall quality[(c)]:** Minor limitations	

Abbreviations: 95% CI: 95% confidence interval; CUA: cost–utility analysis; EQ-5D: Euroqol 5 dimensions (scale: 0.0 [death] to 1.0 [full health], negative values mean worse than death); ICER: incremental cost-effectiveness ratio; NR: not reported; QALYs: quality-adjusted life years.

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

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

Appendix F: GRADE tables

Table 13: Clinical evidence profile: Community versus hospital for after acute medical emergencies (admission avoidance)

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Community (admission avoidance) versus hospital	Control	Relative (95% CI)	Absolute		
Mortality 6-12 months												
2	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	42/204 (20.6%)	31.4%	RR 0.74 (0.52 to 1.04)	82 fewer per 1000 (from 151 fewer to 13 more)	⊕⊕OO LOW	CRITICAL
Length of treatment (Better indicated by lower values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[2]	none	60	60	-	MD 15.9 higher (8.1 to 23.7 higher)	⊕⊕OO LOW	CRITICAL
Quality of life-SF 36 physical component summary (follow-up 8 weeks; Better indicated by higher values)												
1	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	very serious[2]	None	20	20	-	MD 0.18 higher (6.35 lower to 6.71 higher)	⊕⊕OO LOW	CRITICAL
Quality of life-SF 36 mental component summary (follow-up 8 weeks; Better indicated by higher values)												
1	randomised trials	no serious risk of bias	no serious inconsistency	no serious indirectness	serious[2]	None	20	20	-	MD 3.81 lower (11.08 lower to 3.46 higher)	⊕⊕⊕O MODERATE	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 14: Clinical evidence profile: Early Supported Discharge for after acute medical emergencies versus continued hospital treatment

Quality assessment							No of patients		Effect		Quality	Importance
No of studies	Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Community Rehabilitation	Hospital Rehabilitation	Relative (95% CI)	Absolute		
Mortality (follow-up 3 months - 6 years)												
20	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	229/1768 (13%)	9.1%	RR 1.013 (0.84 to 1.25)	1 more per 1000 (from 15 fewer to 23 more)	⊕⊕⊕O MODERATE	CRITICAL
Mortality (follow-up median 6 months)												
8	randomised trials	serious[1]	serious[2]	no serious indirectness	very serious[3]	None	64/628 (10.2%)	9.1%	RR 1.26 (0.79 to 2.03)	24 more per 1000 (from 19 fewer to 94 more)	⊕OOO VERY LOW	CRITICAL
Mortality (follow-up 1 years)												
6	randomised trials	serious[1]	serious[2]	no serious indirectness	serious[3]	None	61/518 (11.8%)	16.3%	RR 0.86 (0.63 to 1.18)	23 fewer per 1000 (from 60 fewer to 29 more)	⊕OOO VERY LOW	CRITICAL
Mortality (follow-up 2-6 years)												
6	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	104/622 (16.7%)	1.61%	RR 0.97 (0.78 to 1.20)	3 fewer per 1000 (from 26 fewer to 23 more)	⊕⊕⊕O MODERATE	CRITICAL
Adverse events (follow-up 9 weeks - 6 years)												
5	randomised trials	serious[1]	serious[2]	no serious indirectness	serious[3]	None	100/258 (38.8%)	32.5%	RR 1.20 (0.85 to 1.68)	73 more per 1000 (from 55 fewer to 250 more)	⊕OOO VERY LOW	CRITICAL
Quality of life (follow-up median 7 months; measured with: SF-36 Physical component summary score; Better indicated by lower values)												
5	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	311	312	-	MD 1.04 higher (0.99 lower to 3.07 higher)	⊕⊕⊕O MODERATE	CRITICAL

Quality of life (follow-up median 7 months; measured with: SF-36 Mental component summary scores; Better indicated by lower values)												
5	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	311	312	-	MD 0.86 higher (1.04 lower to 2.77 higher)	⊕⊕⊕O MODERATE	CRITICAL
Quality of life (follow-up 12 months; measured with: St. George's Respiratory Questionnaire; Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	89	95	-	MD 1 lower (4.14 lower to 2.14 higher)	⊕⊕⊕O MODERATE	CRITICAL
Quality of life (follow-up 12 months; measured with: Life Satisfaction; Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	42	43	-	MD 0.3 higher (4.06 lower to 4.66 higher)	⊕⊕⊕O MODERATE	CRITICAL
Quality of life (follow-up 8 weeks; measured with MacNew-Global; Better indicated by higher values))												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	60	44	-	MD 0.07 lower (0.51 lower to 0.37 higher)	⊕⊕⊕O MODERATE	CRITICAL
Patient satisfaction (follow-up median 6 months; Better indicated by higher values)												
4	randomised trials	very serious[1]	serious[2]	no serious indirectness	serious[3]	None	268	146	-	MD 0.32 higher (0.18 lower to 0.82 higher)	⊕OOO VERY LOW	IMPORTANT
Patient satisfaction (follow-up 6-12 months)												
2	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[3]	None	89/178 (50%)	51.2%	RR 1.15 (0.93 to 1.43)	77 more per 1000 (from 36 fewer to 220 more)	⊕⊕OO LOW	IMPORTANT
Carer satisfaction (follow-up 6 months; Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	serious[3]	None	70	34	-	MD 0.39 higher (0.01 lower to 0.79 higher)	⊕⊕OO LOW	IMPORTANT
Carer satisfaction (follow-up 12 months)												

1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	68/82 (82.9%)	82.5%	RR 1 (0.86 to 1.17)	0 fewer per 1000 (from 115 fewer to 140 more)	⊕⊕⊕O MODERATE	CRITICAL
Carer satisfaction (follow-up median 12 months; measured with: Caregiver Strain Index; Better indicated by lower values)												
5	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	282	250	-	SMD 0.16 higher (0.01 lower to 0.34 higher)	⊕⊕⊕O MODERATE	IMPORTANT
Length of stay in hospital (follow-up in-hospital; Better indicated by lower values)												
8	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	745	644	-	MD 1.38 lower (2.47 to 0.3 lower)	⊕⊕⊕O MODERATE	CRITICAL
Length of stay in hospital and programme (follow-up 6 months - 3 years; Better indicated by lower values)												
3	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	261	225	-	MD 7.74 lower (14.2 to 1.28 lower)	⊕⊕⊕O MODERATE	CRITICAL
Admissions to hospital (follow-up 3 months - 6 years)												
13	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	246/890 (27.6%)	24.3%	RR 0.98 (0.86 to 1.11)	5 fewer per 1000 (from 34 fewer to 27 more)	⊕⊕⊕O MODERATE	CRITICAL
Admissions to hospital (follow-up 6 months)												
5	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	very serious[3]	None	43/244 (17.6%)	22.4%	RR 0.9 (0.61 to 1.33)	22 fewer per 1000 (from 87 fewer to 74 more)	⊕OOO VERY LOW	CRITICAL
Admissions to hospital (follow-up 12 months)												
7	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	168/576 (29.2%)	25.3%	RR 1.03 (0.88 to 1.20)	8 more per 1000 (from 30 fewer to 51 more)	⊕⊕⊕O MODERATE	CRITICAL
Admissions to hospital (follow-up 6 years)												
1	randomised	very	no serious	no serious	serious[3]	None	35/70	62.2%	RR 0.8 (0.6	124 fewer per	⊕OOO	CRITICAL

	trials	serious[1]	inconsistency	indirectness			(50%)		to 1.08)	1000 (from 249 fewer to 50 more)	VERY LOW	
GP presentations (follow-up 6 months - 5 years)												
2	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	74/84 (88.1%)	93.3%	RR 0.94 (0.86 to 1.04)	56 fewer per 1000 (from 131 fewer to 37 more)	⊕⊕⊕O MODERATE	IMPORTANT
Quality of life (follow-up 6 months; measured withSF12 - PCS; Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	263	262	-	MD 0.28 lower (2.14 lower to 1.58 higher)	⊕⊕⊕O MODERATE	CRITICAL
Quality of life (follow-up 6 months; measured withSF12 - MCS; Better indicated by higher values)												
1	randomised trials	serious[1]	no serious inconsistency	no serious indirectness	no serious imprecision	None	263	262	-	MD 1.14 lower (2.83 lower to 0.55 higher)	⊕⊕⊕O MODERATE	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] The point estimate varies widely across studies, unexplained by subgroup analysis.
[3] Downgraded by 1 increment if the confidence interval crossed 1 MID or by 2 increments if the confidence interval crossed both MIDs.

Appendix G: Excluded clinical studies

Table 15: Studies excluded from the clinical review

Reference	Reason for exclusion
Adler 1978[2]	Not relevant: patients following elective surgery
Aimonino 2001[3]	Patients not treated for acute medical emergency (advanced dementia patients) - please note not linked to Tibaldi 2004[245]
Aimonino2000[4]	Conference abstract; later published as Ricauda 2004[192]
Allen 1999[5]	Not RCT; description of a website
Anderson 2016[10]	Systematic review is not relevant to review question or unclear PICO. Exercise training versus usual care
Anderson 2000A[6]	Conference abstract of protocol only
Anderson 2002A[9]	No clinical outcomes; Costs only
Anderson 2002B[8]	Not RCT; Systematic review
Anonymous 1982B[1]	Not relevant comparison
Anon 2000[81]	Systematic review: eligible papers ordered
Armstrong 2008B[11]	Not RCT; Retrospective single arm study
Arrigo 2008[12]	No hospital-based comparison
Askim 2010[14]	Incorrect interventions. Hospital and community components
Aujesky 2011[16]	RCT but no community care (self- administered injections)
Bakken 2012[17]	Not RCT; not relevant
Barnes 2003[18]	Not RCT; review
Beech 2004[20]	Not RCT; service evaluation
Bernhaut 2002[21]	Not RCT, service evaluation
Bethell 1990[22]	Not substitute for usual care; control group received no intervention, only advice what exercises they could do by themselves
Beynon 2009[23]	Not RCT; literature review
Blackburn 2000[24]	Not RCT; not relevant; costs only
Blair 2011[25]	Not RCT; systematic review
Board 2000[26]	Not relevant; costs only
Booth 2004[27]	Not relevant; patients following bypass surgery
Boston 2001[28]	Not RCT; prospective non-randomised comparative study
Bowman 1998[29]	Not RCT; review
Boxall 2005[30]	Inappropriate comparison. not hospital-based care
Brooks 2002[31]	Not RCT; retrospective case study
Brooks 2003[32]	Not RCT; retrospective documentary analysis
Brunner 2008[33]	Not RCT; other experimental design
Bryan 2010[34]	Not RCT; literature review
Buckingham2016[35]	Cochrane review – relevant references ordered
Buus 2013[36]	Protocol only; no study data
Campbell 2001[37]	No clinical outcomes; costs only
Caplan 2004[41]	Comparison is not hospital-based care

Reference	Reason for exclusion
Caplan 2006[39]	Not RCT; service evaluation
Caplan 2012[40]	Not RCT; systematic review- screened for relevant references
Carroll 2005[42]	Not RCT; review
Chaiyawat 2010[43]	Conference abstract
Chaiyawat 2010[44]	Conference abstract
Chang 2015[45]	No hospital-based comparison. Not review population. Psychiatric
Chappell 1993[46]	Not relevant; retrospective cost analysis
Chard 2006[47]	Not RCT; review
Chen 2012A[48]	Not relevant; costs associated with acquired brain injury
Coast [49]	Not relevant; majority of patients with trauma and elective surgery
Cobelli 1996[50]	Not RCT; review
Coburn 1989[51]	Not RCT; quasi-experimental; cost
Cohen 1994[52]	Not RCT; review
Colprim 2012[54]	Not RCT; quasi-experimental study
Colprim 2014[53]	Not RCT; prospective cohort study
Cowie 2014[55]	Not RCT; economic analysis
Craig 2014[57]	Not RCT; review
Crawford-Faucher 2010[58]	Not RCT; systematic review - screened for relevant references
Crotty 2000[60]	Not RCT; audit of trauma patients
Crotty 2000A[59]	RCT but not relevant as trauma patients only (hip fracture)
Crotty 2002[62]	RCT but not relevant as trauma patients only (hip fracture)
Crotty 2003[61]	RCT but not relevant as trauma patients only
Cunliffe 2002[63]	Not RCT; qualitative study; abstract only
Dalal 2003[66]	Not RCT; non-randomised prospective study
Daskapan 2005[67]	No extractable outcomes
Deutsch 2006[68]	Not RCT; retrospective study
Dias 2013 [69]	RCT but not relevant (does not compare to inpatient rehabilitation)
Dolansky 2010[70]	Not RCT
Dombi 2009[71]	Not RCT; commentary on costs
Donaldson 1982[72]	Not RCT; retrospective study
Donath 2001[73]	Not RCT; Commentary
Donlevy 1996A[74]	Not relevant; article is on cross-training to provide care at home on discharge
Donnelly 2002[75]	Not RCT; not relevant; questionnaire survey
Dorney-Smith 2011[77]	Not RCT; case study of the cost of nurse-led hostels for the homeless
Dow 2004[78]	Not RCT; case study
Dow 2007[79]	Not RCT; qualitative study
Duffy 2010[80]	RCT but wrong comparison (control group not in hospital)
Early supported discharge trialists 2005[82]	Systematic review: all eligible papers ordered
Eldar 2000A[83]	Not RCT; review
Elder 2001[84]	Not RCT; literature review
Emme 2014[85]	RCT; but no relevant outcomes

Reference	Reason for exclusion
Emme 2014A[86]	RCT; but no relevant outcomes
Eron 2004[87]	Not RCT; no data
Feltner 2014[89]	Not RCT; systematic review- screened for relevant references
Gaspoz 1994[94]	Not RCT; prospective cohort study
Glasby 2008[97]	Not RCT; qualitative study
Glick 1998[98]	Not relevant – observing outcome of aneurysmal subarachnoid haemorrhage
Gobbi 2004[99]	Not RCT; and not relevant
Gracey 1992[100]	Not RCT; case studies
Graham 2013[101]	Not RCT; description of organisation of rehabilitation services
Grande 2004[102]	RCT on bereavement. Not relevant.
Gregory 2009[104]	Not RCT; retrospective study
Gregory 2010[103]	Not RCT; Cross-sectional study
Griffiths 2000[107]	Not RCT; exploratory analyses
Griffiths 2000A[108]	RCT but not relevant comparison (in-patients only)
Griffiths 2001[106]	RCT but not relevant comparison; both arms in-patient care (nurse led versus consultant managed)
Griffiths 2005[111]	Not RCT; systematic review-screened for relevant references
Griffiths 2004[109]	Systematic review is not relevant to review question or unclear PICO. hospital-based care
Griffiths 2006[110]	Not RCT; review
Griffiths 2006A[105]	Not RCT; review
Gunnell 2000[112]	Not relevant; majority of patients with trauma and elective surgery
Hannan 2003[114]	Not RCT
Hansen 1992[115]	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)
Hardy 2001[116]	Not RCT; description of a service; and mainly trauma patients
Hauser 1991[117]	Not RCT; retrospective study
Heseltine 2001[118]	Not RCT; review on cost
Higgins 2001[119]	Inappropriate comparison. No hospital-based comparison
Hill 1978[120]	RCT but not relevant to today's approach of managing MI as thrombolytic therapy made admission necessary (Cochrane)
Hoenig 2010[121]	Conference abstract
Hughes 1990[123]	RCT but has wrong comparison (not in hospital)
Ince 2014[124]	Incorrect interventions. Hospital at home
Indredavik 1999[125]	Not RCT and compares stroke unit rehabilitation with general medical ward treatment
Indredavik 2008[127]	RCT but no relevant outcomes
Jakobsen 2013[128]	Methodology of RCT only
Jolly 2005[129]	RCT but study aborted prematurely due to language barriers with participants. No data
Jones 1999[132]	Costs only
Jones 2014[133]	Not RCT; case study with little data
Karapolat 2008[135]	No outcomes of interest

Reference	Reason for exclusion
Kehusmaa 2010[136]	The outpatient group did not include community rehabilitation.
Kenny 2002[137]	Not RCT and not relevant
Knapp 1994[138]	Not review population. psychiatric. comparison to a psychiatric hospital-based care
Konrad 2012[139]	Not RCT; retrospective study
Koopman 1996[140]	RCT but excluded as home care was self-administered
Kornowski 1995[141]	Not RCT; observational study
Kortke 2006[142]	Not RCT; open clinical study (non-randomised)
Korzeniowska-Kubacka 2014[143]	Not RCT; prospective observational study
Langhorne 2000[144]	Cochrane systematic review withdrawn from publication and superseded by Shepperd 2008[223]
Langhorne 2005[145]	Not RCT; review
Lappegard 2012[146]	Not RCT; retrospective study
Last 2000[148]	Not RCT, service description
Lewis 2007[149]	Not RCT; commentary
Lewis 2011[150]	Not RCT; research protocol only
Lewis 2012[152]	Not RCT; commentary/conceptual paper
Lewis 2013[151]	Not RCT; case studies without data
Lim 2003[153]	RCT but not relevant comparison
Linertova 2011[154]	Not RCT; Systematic review
Marks 1994[157]	Not review population. admission for serious mental illness
Marchionni2003[156]	No extractable outcomes
Martin 1994[158]	RCT but wrong comparison (control group not in hospital)
Mason 2003[159]	Not RCT; description of a service
Mather 1976[160]	No description of the type of service patients at home received (excluded by Cochrane too)
Matukaitis 2005[161]	Not RCT. Pilot study and no comparison study
Mayhew 2006[162]	Not RCT; health economics only
Mayo 1998[163]	Conference abstract of study protocol only; duplicate of full paper Mayo 2000[164]
McNamee 1998[165]	Health economic evaluation
Melin 1992[166]	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[167]	Not RCT; case studies
Muijen 1992[169]	RCT but patients treated for acute, severe mental illness (psychiatric ward versus home); not relevant to AME guideline
Nicholson 2001[172]	Health economics only
Nissen 2007[173]	Not in English (Danish)
Nordly 2014[174]	Protocol only; no study data
Nyatanga2014[175]	Not RCT; commentary/conceptual paper
Pace 2014[178]	No comparator
Palmer Hill 2000[179]	Not relevant: patients recovering from knee replacement
Pandian2013[180]	Trial register only; no data
Pandian 2015[181]	No extractable outcomes

Reference	Reason for exclusion
Patel 2004[182]	Health economic evaluation
Penque 1999[183]	Not RCT; retrospective study
Pittiglio 2011[185]	Not RCT; not relevant
Piotrowicz 2010[184]	Incorrect comparison- home based- telemonitored cardiac rehab versus home based standard cardiac rehab
Plochg 2005[186]	Not RCT; process evaluation
Pozzilli 2002[187]	RCT BUT not relevant (Multiple Sclerosis patients)
Pradella 2015[188]	No hospital-based comparison
Prior2012 [189]	Not RCT
Puig-Junoy 2007[190]	Health economic evaluation
Richards 1998 [195]	Not relevant; majority of patients with trauma and elective surgery
Richards 1998A[194]	Not relevant; correction to excluded trial with majority of patients with trauma and elective surgery
Richardson [196]	Health economic evaluation
Robinson 2009[197]	Not RCT; description of new model of acute care
Rodriguez-Cerrillo 2010[201]	Not RCT; Non-randomised prospective study
Rodriguez-Cerrillo 2012A[200]	Not RCT; no comparison group to home treatment
Rosbotham-Williams 2002[203]	Not RCT; review
Round 2004[204]	Not RCT; prospective cohort study
Rout 2011[205]	Not RCT; review
Rowley 1984[206]	Not RCT. No comparison group
Ruckley 1978[207]	Not relevant: patients following elective surgery
Rudkin 1997[209]	No service provided in community
Sartain 2002[212]	Paediatric patient population
Saysell 2004[213]	Not RCT; pilot study of intermediate palliative care in care home
Schachter 2014[214]	Not RCT; study protocol only
Scheinberg 1986[215]	RCT but does not state what the control group intervention is
Schneller 2012[216]	Not RCT; case study
Schou 2014[217]	RCT; but no relevant outcomes
Scott 2010[218]	Not RCT; literature review
Senaratne 1999[219]	Cost evaluation
Shepperd 2016[226]	Cochrane review- already included in the hospital at home evidence review
Shepperd 1998[222]	Not RCT; systematic review
Shepperd 1998A[221]	Costs only; no clinical outcomes
Shepperd 2005A[220]	Not RCT; editorial
Shepperd 2009A[224]	Not RCT; systematic review
Sindhwani 2011[227]	Incorrect study design. cohort study
Standen 2016[230]	Inappropriate intervention –virtual reality system for home based rehabilitation of the arm following stroke
Stephenson 1984[231]	Not RCT; conceptual paper
Steventon 2012[232]	Not RCT; retrospective analysis
Stewart 1999[233]	RCT but control group not in hospital.

Reference	Reason for exclusion
Stromberg 2003[234]	RCT but only nurse-led follow up appointments in hospital. No actual community care given
Subirana Serrate 2001[235]	Not RCT; health economics evaluation
SUIJKER2016[236]	Study to be considered for inclusion in the community nurse review
Suwanwela 2002[237]	RCT but excluded because intervention was managed by Red Cross volunteers and family members.
Taylor 2015[239]	Systematic review: all eligible papers ordered
Teasell 2003[240]	Systematic review: all eligible papers ordered
Teng 2003[241]	Health economic evaluation
Thorne 2001[242]	Not RCT; service description
Tibaldi 2004[245]	RCT but no relevant outcomes (carer stress data incomplete)
Trappes-Lomax 2006[246]	RCT but comparison group not appropriate; did not receive 'usual' hospital care.
Tuntland 2015[247]	No hospital-based comparison
Upton 2014[248]	Not RCT; not relevant
Utens 2010[249]	Study protocol of RCT only
Wakefield 2008[253]	RCT but all self-care; wrong comparison
Widen Holmqvist 1995[254]	Not RCT; observational study
Widen Holmqvist 1996[255]	Health economic evaluation
Winkel 2008[256]	Not RCT; systematic review
Wolfe 2000[257]	RCT but excluded from Cochrane because intervention does not substitute for inpatient care; not valid comparison
Woodend 2008[258]	RCT but wrong control group; both at home with no actual care provided.
Woodhams 2012[259]	Not RCT; literature review
Young 2003B[262]	Not RCT; audit
Young 2005B[263]	Not RCT; quasi-experimental study
Young 2010B[261]	RCT but not relevant outcomes
Ytterberg 2010[264]	No outcomes of interest
Vester-andersen 2015[250]	All components were hospital-based
Wu 2008[260]	No hospital-based comparison
Zhong 2015[265]	Incorrect study design. retrospective cohort
Zwisler 2016[266]	Systematic review- checked and ordered relevant references.

Appendix H: Excluded economic studies

Table 16: Studies excluded from the economic review

Reference	Reason for exclusion
Larsen 2006[147]	This study was assessed as not applicable because the resource use was from non-UK studies pre 2005. The study is primarily a cost minimisation analysis under the assumption that the intervention is more effective. However, the only clinical outcome that is assessed is 'poor outcomes'. This clinical outcome is not all encompassing and therefore cannot definitively conclude whether total health outcomes are better for the intervention. Likewise the cost analysis only looks at intervention cost, bed day costs and nursing home costs. This doesn't fully capture total costs and likewise costing nursing home costs can be difficult as not all nursing home costs fall on the NHS. For these reasons the study was selectively excluded.
Saka 2009[210]	This study was assessed as partially applicable with very serious limitations. The reporting in the study is quite unclear and it is not clear how early supported discharge (ESD) is costed and what drives the increased costs with ESD.
Miller 2005[168]	This study was assessed as partially applicable with very serious limitations. The study is described as a cost-utility analysis but no QALY data reported.
Aimonino Ricauda 2005[193]	This study was assessed as not applicable as it relies on unit costs from 1995.