HEART & STROKE FOUNDATION | CANADIAN Stroke BEST PRACTICE RECOMMENDATIONS

CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

Stroke Rehabilitation Evidence Tables

Outpatient and Community-Based Stroke Rehabilitation

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on Behalf of the Canadian Stroke Best Practice Recommendations
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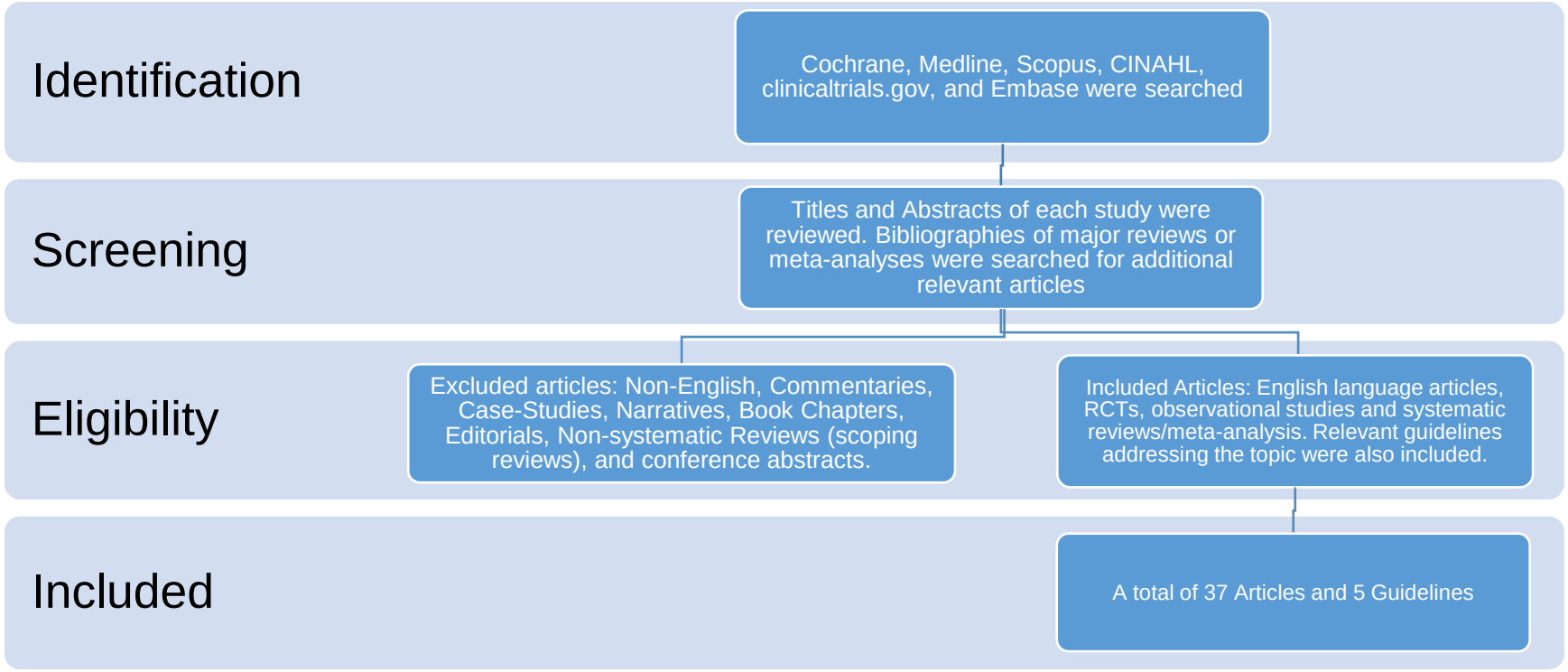
Table of Contents

Search Strategy



Cochrane, Medline, Embase, Scopus, CINAHL, and clinicaltrials.gov were searched using the keywords: Stroke AND (ESD OR “early supported discharge” OR outpatient OR community OR home) AND (rehabilitation OR therapy OR intervention). The same databases were searched to identify paediatric related evidence using additional keywords: “(pediatric OR pediatrics OR paediatric OR paediatrics OR youth OR child OR children OR young)”. A new section, Home-Based Exercise Programs, was added for the 2014 update. The keywords for the literature search were: ("functional recovery" OR mobility OR exercise) AND stroke AND (program OR therapy OR intervention OR rehabilitation) AND (home OR self-administered OR self-directed OR unsupervised). Titles and abstract of each article were reviewed for relevance. Bibliographies were reviewed to find additional relevant articles. Articles were excluded if they were: non-English, commentaries, case-studies, narrative, book chapters, editorials, non-systematic review, or conference abstracts. Additional searches for relevant best practice guidelines were completed and included in a separate section of the review. A total of 37 articles and 5 guidelines were included and were separated into categories designed to answer specific questions.

Published Guidelines

Guideline	Recommendations
Scottish Intercollegiate Guidelines Network (SIGN). Management of patients with stroke: rehabilitation, prevention and management of complications, and discharge planning. A national clinical guideline. Edinburgh (Scotland): Scottish Intercollegiate Guidelines Network (SIGN); 2010 June. p.50-51	**Recommended** Early supported discharge for mild/moderate stroke (A) Multidisciplinary ESD teams (B) **Insufficient evidence** ESD in remote rural locations (more research needed)
Management of Stroke Rehabilitation Working Group. VA/DoD clinical practice guideline for the management of stroke rehabilitation. Washington (DC): Veterans Health Administration, Department of Defense; 2010. P.52	The severity of the patient's impairment, the rehabilitation needs, the availability of family/social support and resources, the patient/family goals and preferences and the availability of community resources will determine the optimal environment for care. (I) Where comprehensive interdisciplinary community rehabilitation services and caregiver support services are available, early supported discharge services may be provided for people with mild to moderate disability. (B)
Clinical Guidelines for Stroke Management 2010. Melbourne (Australia): National Stroke Foundation; 2010 Sep. p. 41-42	1.4.1 Health services with a stroke unit should provide comprehensive, experienced multidisciplinary community rehabilitation and adequately resourced support services for stroke survivors and their family/carers. If services such as the multidisciplinary community rehabilitation services and carer support services are available, then early supported discharge should be offered for all stroke patients with mild to moderate disability. (A)
Duncan PW, Zorowitz R, Bates B, Choi JY, Glasberg JJ, Graham GD, Katz RC, Lamberty K, Reker D. Management of adult stroke rehabilitation care: a clinical practice guideline. Stroke, 2005;36:e119-120.	Strongly recommend that patients in need of rehabilitation services have access to a setting with a coordinated and organized rehabilitation care team that is experienced in providing stroke services. The coordination and organization of inpatient post–acute stroke care will improve patient outcome. (A) No recommendation can be made for the use of 1 type of rehabilitation setting over another because no conclusive evidence demonstrates that superiority exists. (B) Recommend that the severity of the patient's impairment, the availability of family/social support, and patient/family preferences determine the optimal environment for care. (I) Recommend that patients remain in an inpatient setting for their rehabilitation care if they are in need of skilled nursing services, regular physician care, and multiple therapeutic interventions. (I)
Stroke Rehabilitation. Long-term rehabilitation after stroke. Issued: June 2013. National Institute for Health and Care Excellence.	**Transfer of care from hospital to community** 1.1.8 Offer early supported discharge to people with stroke who are able to transfer from bed to chair independently or with assistance, as long as a safe and secure environment can be provided. 1.1.9 Early supported discharge should be part of a skilled stroke rehabilitation service and should consist of the same intensity of therapy and range of multidisciplinary skills available in hospital. It should not result in a delay in delivery of care.

Evidence Tables

Early Supported Discharge

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Fearon et al. 2012 **Early Supported Discharge Trialists** **UK** **Cochrane Review**	N/A	14 RCTs with a total of 1,957 patients had been admitted to hospital with clinical diagnosis of a stroke. From 13% to 70% (median 34%) of patients were eligible for ESD services within each trial. The typical patient had an initial Barthel Index (BI) score of 14/20.	3 treatment contrasts were evaluated. The control condition in all trials was inpatient stroke rehabilitation: 1) ESD using a multidisciplinary team which coordinated discharge from hospital, post-discharge care, and provided rehabilitation and patient care at home. Team on a regular basis to plan patient care (n=9). 2) ESD team coordination in which discharge home and the immediate post-discharge care was planned and supervised by a coordinated multidisciplinary team, but care was then handed over to existing community-based agencies who provided continuing rehabilitation and support at home, typically using a non-multidisciplinary team approach (n=3). 3) No ESD team coordinated-therapies were provided by uncoordinated community services or by healthcare	**Primary Outcomes:** Death, physical dependency, place of residence. **Secondary Outcomes:** ADL scores, extended ADL scores, subjective health status, mood, carer outcomes, patient/carer satisfaction. Primary outcome assessment was conducted at 3mo (n=2), 5mo (n=1), 6mo (n=5), 7mo (n=1), and 12 mo (n=5).	Death: OR=0.91, 95% CI 0.67–1.25; p=0.58. Results from 14 trials included: Death/institutional care: OR=0.78, 95% CI 0.61–1.00; p=0.049. Results from 12 trials included: Death/dependency: OR=0.82, 95% CI 0.67–0.97; p=0.021. Results from 14 trials included: BI: SMD=0.03, 95% CI -0.08–0.15; p=0.56. Results from 9 trials included: Extended EADL scores: SMD=0.14, 95% CI 0.02–0.26; p=0.024. Results from 8 trials included: Subjective Health Status: SMD=0.0, 95% CI -0.10–0.11; p=0.93. Results from 12 trials included: Mood status (patient): SMD=-0.06, 95% CI -0.19–0.07; p=0.38. Results from 8 trials included: Satisfaction with services: OR=1.6, 95% CI 1.08–2.38; p=0.019. Results from 5 trials included: Death/dependency subgroup (initial BI scores 10 to 20): OR=0.77, 95% CI 0.61–0.98; p=0.06. Death/dependency subgroup (initial BI scores <10): OR=0.86, 95% CI 0.69–1.07; p=0.17.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
			volunteers (n=2).		
Gjelsvik et al. 2014 **Norway** **RCT**	CA: ☑ Blinding Assessor: ☑ ITT: ☑	167 patients from a hospital stroke unit within 7d of stroke, and 5d of admission to the stroke unit. Eligible patients lived at home prior to stroke, had a National Institutes of Health Stroke Scale (NIHSS) score of 2–26, and had no serious comorbidities. 18.2% (n=319) of patients were eligible for inclusion, and 167 participated.	Patients were randomized to one of three groups: 1) ESD and day unit rehabilitation (n=52); 2) ESD and home rehabilitation (n=60); and 3) control group (n=55). Day unit and home rehabilitation were primarily facilitated by PT and OT for body functioning and task-oriented training. The treatment lasted up to 5 wk post discharge from the stroke unit. The control group (traditional treatment) was discharged as normal and provided with outpatient therapy on an as-needed basis.	**Primary Outcome**: Postural Assessment Scale for Stroke (PASS). **Secondary Outcomes:** Trunk Impairment Scale-modified Norwegian version (TIS-modNV), functional ambulation categories (walking ability), Timed Up-and-Go (TUG) test, 5m Timed Walk (5mTW), and self-report of activity and body related functioning (NRS 0–10; 0=best, 10=worst). Outcomes were assessed at baseline and 3mo post discharge.	**PASS**: There were no statistically significant differences between the three groups: Group 1 (Median 0, IQR 4, 95% CI -0.25–1.51) vs. Group 2 (Median 1, IQR 2, 95% CI 0.29–2.13) vs. Group 3 (Median 1, IQR 3, 95% CI 0.24–2.10); p=0.832. **TIS-modNV:** Trunk control was greatest in Group 2, however pair-wise comparisons between groups demonstrated no statistically significant differences (Group 1 vs. Group 2; p=0.031, Group 1 vs. Group 3; p=0.886, Group 2 vs. Group 3; p=0.031). Statistical significance as p=0.0167 to account for multiple comparisons. **TUG test and 5mTW:** No statistically significant differences between groups. **Self-report activity and body-related functioning:** Patients in Group 1 reported significantly greater improvement in walking compared to the control group (p=0.004). Group 2 reported significantly greater improvement in ADLs compared to the control group (p=0.006). There were no statistically significant changes in self-report balance, physical activity, pain or tiredness.
Indredavik et al. 2000 **Fjaertoft et al. 2011 (5yr outcome)** **Norway** **RCT**	CA: ☒ Blinding Assessor: ☑ ITT: ☑	320 patients with stroke who had been admitted to the inpatient stroke unit within 72hr to 7d following stroke, with Scandinavian Stroke Scale (SSS) scores of 2 and 57, and living at home prior to stroke.	Participants were randomized to receive care on an enhanced stroke unit service (ESUS; n=160) that consisted of acute and rehabilitation services with an ESD component provided by a mobile team, or an ordinary stroke service (OSUS; n=160).	**Primary Outcome:** Proportion of patients who were independent, as assessed by Barthel Index scores ≥95 and modified Rankin Scale score ≤2 at 26wk post discharge. **Secondary Outcomes:** Barthel Index and modified Rankin Scale score at 6wk post discharge, the proportion of patients who were at home, institutions of deceased at 6 and 26wk, and LOS.	**Independence at 26 wk (modified Rankin Scale):** 65% (ESUS) vs. 51.9% (OSUS), OR=1.72, 95% CI 1.10–2.70; p=0.017. **Independence at 5 yr (modified Ranking Scale):** 35% (ESUS) vs. 29% (OSUS); p=0.213. *A larger proportion of patients in ESD vs. OSUS showed improvement in modified Rankin Scale score from 1yr to 5yr (16% vs. 9%; p=0.048). **Independence at 26 wk (Barthel Index scale):** 60% (ESUS) vs. 49.4% (OSUS), OR=1.54, 95% CI 0.99–2.39; p=0.056. **Discharge destination ESUS vs. OSUS:** *At 6wk:* Home: 74.4% vs. 55.6%; p=0.0001.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
					Institution: 23.1% vs. 40.0%; p<0.001. Dead: 2.5% vs. 3.15%; p=0.735. *At 26wk:* Home: 78.8% vs. 73.1%; p=0.239. Institution: 13.1% vs. 17.5%; p=0.277. Dead: 8.1% vs. 9.4%; p=0.692. *At 5yr:* Home: 46.5% vs. 34.4%; p=0.022. Institution: 7.7% vs. 14.6%; p=0.057. Dead: 45.8% vs. 51.0%; p=0.364. **Mean LOS ESUS vs. OSUS:** 18.6d vs. 31.1d; p=0.0324. **Adverse events:** None. **Drop outs at 1yr:** n=5 (OSUS). **Drop outs at 5yr:** n=5 (ESUS), n=9 (OSUS).
Bautz-Holter et al. 2002 **Norway** **RCT**	CA: ☑ Blinding Assessor: ☑ ITT: ☑	82 patients with acute stroke hospitalized within 6 d of stroke onset. Patients were eligible for inclusion if they were medically stable (Barthel ADL=5–19 at 72 hr post stroke), were home-dwelling, and not severely disabled prior to stroke onset. 20.2% (n=88) of patients screened were eligible for inclusion, and 82 agreed to participate.	Participants were randomized to receive either ESD (n=42) or conventional hospital rehabilitation (n=40). Both groups received acute care for 3–12d, but following randomization, immediate preparation for discharge and co-ordination of community-based rehabilitation was provided for patients in the intervention group.	**Primary Outcome:** Nottingham Extended Activities of Daily Living (Nottingham Extended ADL). **Secondary Outcomes:** General Health Questionnaire (GHQ), Montgomery Asberg Depression Rating Scale, mortality, and patient and career satisfaction. Primary outcome assessment was conducted at 3 and 6mo follow-up.	The median LOS was 22d for those in the ESD group, whereas it was 31d for those in the conventional care group (p=0.09). No significant differences were reported for the primary outcome at either the 3 or 6mo follow-up. A significant between group difference was reported in favour of the intervention group on the GHQ at 3mo (95% CI for difference: -9.0–-1.0; p<0.05); this difference was no longer significant at the 6mo follow-up.
Mayo et al. 2000 **Canada** **RCT**	CA: ☑ Blinding Assessor: ☑ ITT: ☒	114 patients with stroke living with persistent motor deficits, and caregivers willing and able to provide live-in care over a 4wk period.	Participants were randomized within 28d of stroke onset to receive either a home intervention (n=58) or usual care (n=56).	**Primary Outcome**: Physical component of the Measuring Outcomes Study Short Form-36 (SF-36). **Secondary Outcomes**: Canadian Neurological	Duration of hospital stay in acute care was 2.6d shorter for participants in the home treatment group as compared to participants in the usual care group (9.8d vs. 12.4d; p<0.05). Compared to those in the usual care group, participants in the home therapy group obtained

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		Individuals with cognitive impairment, disabling coexisting conditions, and those who required the assistance of >1 person to walk 28d post stroke were excluded. 12.6% (n=194) of patients with stroke admitted to acute care were eligible for inclusion. 114 agreed to participate.	Randomization to the intervention group resulted in prompt discharge from hospital, with treatment provided by a multidisciplinary team in the participants' home for 4wk.	Scale, Stroke Rehabilitation Assessment of Movement, SF-36 Mental Health component, Barthel Index, Reintegration to Normal Living, Timed Up and Go, Older Americans Resource Scale for IADLs. Primary outcome assessment was conducted at baseline and at 1 and 3mo.	significantly higher scores on the SF-36 physical health component ($F_{2,94}$=3.99; p<0.048). Scores on the Barthel Index did not differ significantly between the two groups at either the 1 or the 3mo follow-up. **Drop outs at 3mo follow-up:** n=7 (home intervention), n=11 (usual care).
Anderson et al. 2000 **Australia** **RCT**	CA: ☑ Blinding: Assessor ☑ ITT: ☑	86 patients with acute stroke admitted to hospital and requiring rehabilitation. Patients were eligible for inclusion if they were medically stable, capable of participating in a rehabilitation program, had a home environment suitable for simple modifications, and the community rehabilitation team and a general practitioner were available to provide care. 21.6% (n=86) of patients with stoke admitted to hospital were eligible for inclusion.	Participants were randomized to receive either ESD with home rehabilitation (n=42) or conventional care (n=44). Participants randomized to the intervention group were discharged from hospital within 48hr and received individually tailored treatment from a community rehabilitation team within the participants' home. Maximum and minimum durations of treatment were not specified.	**Primary Outcome:** Measuring Outcomes Study Short Form-36 (SF-36). **Secondary Outcomes:** Nottingham Health Profile, Modified Barthel Index, Mini-Mental State Examination, General Health Questionnaire-28, Adelaide Activities Profile, McMaster Family Assessment Devise (General Functioning Subscale). Primary outcome assessment was conducted at 1, 3, and 6mo follow-up.	Participants in the intervention group received home rehabilitation for a median duration of 5wk (range: 1–19wk). Length of stay in hospital was reduced significantly for patients in the early supported discharge group (15d vs. 30d; p<0.001, 95% CI for difference: -22.0–-6.0). At the 6mo follow-up, SF-36 did not differ significantly between the two groups. Likewise, participants did not differ with respect to any of the secondary outcome measures at the 6mo follow-up. Caregivers of patients in the home group had significantly lower general mental health component scores on the SF-36 (p<0.05).
Chan et al. 2013 **United States** **Prospective Cohort Study**	N/A	222 patients admitted to hospital with hemorrhagic or ischemic stroke. Individuals with transient ischemic attack, brain tumour/abscess, significant brain trauma,	Patients were classified according to post-acute care groups: Group 1) Home, No Treatment (n=79); Group 2) Home Health Care and/or Outpatient Therapy (n=48); Group 3)	**Primary Outcome:** Activity Measure for Post-Acute Care (AM-PAC). Patient functioning in each of the 3 domains of the AM-PAC (mobility, self-care, and cognition) was compared	**Adjusted Analysis:** *IRF vs. SNF without IRF:* Patients attending a SNF had statistically significantly lower mobility scores at 6mo (β -10.1 SD 2.5; p<0.0001), lower self-care scores (β -8.8 SD 3.2; p=0.007) and cognition scores (β -8.7 SD 2.2; p<0.0001) compared to the IRF.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		age <18yr, survival prognosis <6mo, or non-Kaiser health plan patients were excluded from the study. Of the original sample of 287 patients, 23 were dropped for administrative reasons, and another 42 were lost to follow-up, yielding a final sample of 222 patients.	Inpatient Rehabilitation Facility (IRF; n=66); and Group 4) Skilled Nursing Facility without IRF (SNF without IRF; n=29).	across post-acute care groups. Outcome was administered at discharge from acute care and at 6mo follow-up.	*IRF vs. Home Health Care/Outpatient Therapy:* Patients receiving home health care or outpatient therapy had statistically significantly lower cognition scores (β -5.6 SD 2.4; p=0.08) compared to the IRF. There were no statistically significant differences in mobility and self-care outcomes. *IRF vs. Home, No Treatment:* There were no statistically significant differences in mobility, self-care or cognition scores between patients who went home and received no care compared to those that attended the IRF.
Fisher et al. 2011 **UK** **Consensus Panel Document**	N/A	An international panel of experts assembled to assess the effectiveness of, and benefits of ESD. The panel included 10 of the authors whose RCTs had been included in the Cochrane ESD review.	A modified Delphi process (3 rounds) was used to determine who should be included in an ESD team and what features it should include. Consensus agreement was achieved if ≥75% of the panelists agreed or strongly agreed with a particular statement with the same criteria for disagree or strongly disagree.	Consensus regarding team composition. Consensus regarding model of team work. Consensus regarding interventions.	Consensus agreement (≥75%) was established for 47 of the 56 statements that the panel voted on. There was strong agreement (i.e. 100% agreement) that the members of the team should have specialized stroke care knowledge that the team should be multidisciplinary, and should include: a physiotherapist, occupational therapist and a nurse. There was strong agreement that an ESD team should be hospital-based, organized by a team coordinator and each patient be assigned a key person to coordinate their care. There was a strong agreement that eligibility decisions should be based on whether the patient could safely return home and whether the patient lived within the local area and that hospital staff should identify patients for ESD.
Ricauda et al. 1998 **Italy** **RCT**	CA: ☒ Blinding: Assessor ☒ ITT: ☒	40 elderly patients (>65yr) with acute ischemic stroke. The inclusion criteria: 1) >65yr of age; 2) living in the emergency department catchment area; and 3) a diagnosis of acute ischemic stroke.	Patients were randomized to be managed at home by a home hospitalization service (HHS; n=20) or in the general medical ward (GMW; n=20).	**Primary Outcome:** ADL, IADL, and FIM. **Secondary Outcome:** Short Portable Mental Status Questionnaire (SPMSQ).	Patients managed at home displayed a significant improvement in functional status (p=0.021), as well as on the SPMSQ (p<0.05), compared with those managed at the hospital.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Kalra et al. 2000 **UK** **RCT**	CA: ☑ Blinding: Assessor ☑ ITT: ☑	A total of 457 patients with moderately severe stroke recruited within 72hr of stroke onset. Patients were included if they had sustained a moderately severe stroke with persistent neurological deficit affecting continence, mobility, and ability to look after themselves, and if they could be supported at home with nursing, therapy, and social services.	Participants were randomized to receive care on a stroke unit (n=152), on a general ward by a stroke team (n=152), or at home (n=153). Those in the stroke unit received care provided by a stroke physician supported by a multidisciplinary team with specialist experience in stroke management. Patients allocated to stroke-team care were cared under admitting physicians in a general ward and were seen by a specialist team consisting of doctors, nurses, PTs, and OTs with expertise in stroke management. Patients allocated to home care received care in their respective homes by a specialist team consisting of a doctor, nurse, PT, OT, and SLPs. Patients were under the joint care of the stroke physician and general practitioner. This support was provided for a maximum of 3mo.	**Primary Outcome:** death or institutionalization at 1yr, modified Rankin scale, and Barthel Index. Outcomes were assessed 3, 6, and 12mo post stroke onset.	The odds of dying or being institutionalized at 1yr were 3.2 times (95% CI 1.6–6.4) greater for stroke-team and 1.8 times (95% CI 1.1–3.8) greater for home-care patients when compared to stroke-unit patients. Though not statistically different, a greater proportion of patients from a stroke unit showed favourable outcomes (82%), relative to those cared by a stroke-team (70%) or at home (74%). Similar non-significant findings were noted with modified Rankin scores as well (stroke unit: 83%; stroke team: 74%; home care: 74%).
Askim et al. 2006 **Norway** **RCT**	CA: ☑ Blinding: Assessor ☑ ITT: ☑	62 patients with acute stroke within 72hr after admission to the stroke unit. Other inclusion criteria:	Participants were randomized to either an extended stroke unit service (ESUS; n=31) or an ordinary stroke unit service (OSUS; n=31)	**Primary Outcome:** Berg Balance Scale, walking speed, and motor subscores of SSS. Outcomes were assessed for	Initially at 1wk follow-up, patients in the OSUS group showed significantly faster walking speed (1.03±0.43m/s vs. 0.78±0.36m/s; p=0.043) and a trend toward better BBS score (35.4±21.4 vs. 28.6±21.4; p=0.0144) compared to those in the ESUS group. However no subsequent differences

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		Scandinavian Stroke Scale (SSS) score >2 and <58; living at home before the stroke, and ≤7d after the onset of symptoms.	following baseline evaluations. The ESUS consisted of stroke unit treatment combined with a home-based programme of follow-up care coordinated by a mobile stroke team that offers ESD. Services were rendered during the first 4wk post discharge.	all participants at 1, 6, 26, and 52wk post onset.	were seen in later follow-ups. Changes within the ESUS group showed a significant increase in the BBS score from 1 to 6wk (p=0.013) and a trend toward improvement from 1 to 26wk (p=0.051). In addition, there was a significant increase in walking speed from 1 to 6wk (p=0.022), from 1 to 26wk (p=0.044), and from 1 to 52wk (p=0.028). Such changes were not seen within the OSUS group. Patients with leg paresis showed poor balance after 1yr.

Hospital-Based Outpatient vs. Home or Community-Based Programs

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Brusco et al. 2014 **Australia** **Systematic Review and Meta-Analysis**	N/A	29 RCTs (n=6,746) comparing the outcomes and costs of inpatient rehabilitation to an alternative form of rehabilitation (e.g. outpatient, community etc.) **Inclusion criteria:** rehabilitation for any patient type (e.g. stroke, geriatric, hip fracture etc.) that assess both clinical and cost outcomes.	Systematic review of studies comparing inpatient rehabilitation to an alternative: 1. Inpatient rehabilitation versus general acute care (n=8). 2. Inpatient rehabilitation versus modified inpatient rehabilitation (n=7). *3. Inpatient rehabilitation versus community care or outpatient rehabilitation (n=8). *4. Inpatient rehabilitation versus rehabilitation in the home (n=8).	**Primary Outcome:** Cost. **Secondary Outcomes:** Functional and quality of life (QOL) outcomes.	*Inpatient rehabilitation vs. community care or outpatient rehabilitation: No meta-analysis possible. All studies (including not only stroke patients) reported that cost outcomes favour community care. Out of 8 studies, 2 favoured inpatient rehabilitation for function outcome, while one favoured outpatient rehabilitation. Similarly, for QOL outcomes, two studies favoured inpatient rehabilitation while one study favoured outpatient rehabilitation. *Inpatient rehabilitation vs. rehabilitation in the home: For stroke rehabilitation, 4 trials were combined with 732 participants and found that inpatient rehabilitation was more costly compared to rehabilitation conducted in the home (effect size=0.31, 95% CI 0.15–0.48). There were no significant differences in any studies for functional outcomes. For QOL outcomes, inpatient rehabilitation was favoured in one study, while home rehabilitation was favoured in another.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
			Where possible, meta-analyses were conducted.		
Hillier & Inglis-Jassiem 2010 **Australia** **Systematic Review and Meta-Analysis**	N/A	11 RCTs (n=1,711) that included patients who were discharged from inpatient rehabilitation to home following a stroke and who had been living in the community prior to the event.	Comparison between home-based rehabilitation and hospital-based services (day hospital or outpatients), usually composed of a multidisciplinary team. Duration and intensity of treatment: treatment lasted for 3wk to 6mo, or as long as required. Treatment intensity was not stated in 4 of the included trials, and was based on individual need in one trial. In the remaining trials, therapists visited patients an average of 1–3×/wk.	**Primary Outcome:** Scales of functional independence. **Secondary Outcomes:** Carer satisfaction/stress. The follow-up period in most of the trials ranged from 3 to 12mo.	**Barthel Index (6–8wk post intervention):** Mean Difference (MD) 1.00, 95% CI 0.12–1.88; p=0.03. Results from 2 studies included. Results favour home-based rehabilitation. **Barthel Index (3–6mo post intervention)**: MD 4.07, 95% CI 0.81–7.93; p=0.01. Results from 2 studies included. Results favour home-based rehabilitation. **Barthel Index (6mo)**: MD 0.65, -0.50–1.81; p=0.27. Results from 6 trials included.
Olaleye et al. 2014 **Africa** **RCT**	CA: ☒ Blinding: Assessor ☑ ITT: ☒	52 patients with a minimum stroke severity score of 6 on the stroke levity scale (SLS), who had been discharged from inpatient care no longer than 2wk prior. Other inclusion criteria: ability to comprehend and follow a three-step command (minimal or no cognitive impairment) and who were not aphasic.	Patients were randomized to one of two groups: 1) primary health centre group (n=25), or 2) home group (n=27). Task-specific rehabilitation in both groups consisted of strength (free weights), balance, and gait exercises. Number of sets and repetitions were tailored based on patient tolerance and performance. Treatment intensity: 2×/wk (45–60min/session) for 10wk.	**Outcomes:** Modified Motor Assessment Scale (MMAS), Short Form-Postural Assessment Scale (SF-PASS), Reintegration of Normal Living Index (RNLI), and 10-metre walkway. Outcomes were assessed every 2wk from the start of the program to Week 10.	There were no statistically significant differences between the primary health centre group or the home based group in motor function (p=0.94), balance (p=0.65), level of handicap (p=0.90) or walking speed (p=0.69 at baseline; p=0.73 at Week 10). Both groups experienced statistically significant improvements in within group scores for motor function, balance, level of handicap and walking speed (p=0.01).

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Lord et al. 2008 **New Zealand** **RCT (non-inferiority study)**	CA: ☑ Blinding: Assessor ☑ ITT: ☒	A total of 36 patients, prior to discharge home from hospital following first or recurrent stroke, were initially recruited. Eligible patients could walk the estimated distance to their mailbox and were thought to require services for 5–7wk. The average time from stroke onset to study entry was 82d. In the end, 30 patients agreed to participate.	Patients were randomized to a 2×/wk, 7wk program of physiotherapy that was either hospital- (control group; n=16) or community-based (treatment group; n=14). The differences between the 2 programs were: the environment, the use of an assistant rather than a physiotherapist (treatment group), and the content of the program, with a focus on intensive ambulatory tasks (treatment group).	**Primary Outcome:** Gait speed. **Secondary Outcomes:** 6-Minute walk test (6MWT), Activities-specific Balance Scale (ASBS), and Subjective Index of Physical and Social Outcome (SIPSO). Assessments were conducted at baseline, at the end of treatment, and at 6mo.	Patients in both groups improved over time but there were no significant differences between groups in any of the outcomes assessed. **Mean scores and mean between group differences (95% CIs) for hospital- and community-based programs at 6mo:** *10-metre timed walk (m/min)*: 44.5 vs. 48.1 (-2.5, -16.5–11.3); p=0.70. *6MWT (m):* 206.7 vs. 256.5 (10.7, -50.2–71.7); p=0.72. *ABCS:* 69.3 vs. 66.1 (-4.9, -18.8–9.0); p=0.47. **Drop-outs and losses to follow-up:** n=6 (outpatients group), n=3 (community group). **Adverse events:** None.
Bjorkdahl et al. 2006 **Sweden** **RCT**	CA: ☑ Blinding: Assessor ☑ ITT: ☑	58 patients admitted consecutively to an inpatient rehabilitation unit following first occurrence of stroke, and were subsequently discharged to their own home were recruited. Average LOS in acute care was 28d and average LOS on rehab unit was 65d.	Following discharge from hospital, patients were randomized to participate in a 3wk program of continued rehabilitation (9hr/wk) either at home (n=30), or in a hospital-based day clinic (n=29). Patients in the home group were offered training based on their own needs (i.e. personal care, shopping) while those in the day clinic group received care that that was more impairment-oriented. Patients in the home group received the services of an OT/PT while patients in the day clinic were treated by a multidisciplinary team.	**Primary Outcome:** The Assessment of Motor and Process Skills (AMPS). **Secondary Outcomes:** FIM, Instrumental Activity Measure (IAM), 30-metre walk test, NIHSS, Barrow Neurological Institutes Screening (BNIS), costs. Assessments were conducted 3wk, 3mo and 1yr following discharge from hospital.	There were no significant differences between groups on any of the outcomes assessed. Both groups achieved modest gains in most of the outcome measure assessed. The costs associated with home group rehabilitation were lower (€1,830 vs. €4,410). **Mean±SD scores for patients in the home group and clinic group at baseline and 1yr:** *AMPS (Motor)*: 1.45±0.99 to 2.18±1.04 vs. 1.42±0.76 to 2.28±0.94. *30-metre walk test (m/sec)*: 0.70±0.33 to 0.94±0.33 vs. 0.84±0.46 to 0.98±0.39. **Median (25 and 75th percentile) scores for patients in the home group and clinic group at baseline and 1yr:** *NIHSS:* 5 (2–7) to 3 (2–5) vs. 4.5 (2–6) to 2.5 (1–4).

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					FIM (motor): 78 (74–85) to 83 (79–90) vs. 80 (74–85) to 83 (79–90). **Losses to follow-up:** n=1 **Adverse events:** None.
Lincoln et al. 2004 **UK** **RCT**	CA: ☑ Blinding: Assessor ☑ ITT: ☒	Patients referred to the Nottingham Community Stroke Team were considered for eligibility. Inclusion criteria included: 1) >16yr of age, and 2) require intervention from more than one rehabilitation discipline.	232 patients were randomized to receive routine care (day hospital, outpatient services). No description of the content or the duration of therapy was provided. 189 patients were randomized to receive care from the community stroke team, for as long as was required. The team was multidisciplinary, including a mental health nurse with weekly team meetings. All therapists were based in the same department and were stroke specialists.	**Primary Outcome:** Barthel Index. **Secondary Outcomes:** Extended ADL (EADL), General Health Questionnaire (GHQ-12) by patient and carer, Carer Strain Index (CSI), and EuroQoL. Assessments were conducted at baseline and at 6mo.	**Median (IQR) scores for patients in the community team group and routine care groups at 6mo:** *BI (mobility)*: 16 (12–18) vs. 16 (12–19); p=0.83. *BI (domestic)*: 3 (0–9) vs. 2.5 (0–8); p=0.70. *BI (leisure)*: 6 (3–9) vs. 7 (3–9); p=0.34. *EADL*: 24 (13–38) vs. 25.5 (11–39); p=0.94. *GHQ-12*: 13 (10–21) vs. 15 (11–230); p=0.79. *Euro-QoL* Knowledge: 8 (2–3) vs. 2 (1–3); p=0.24. Practical help: 3 (2–3) vs. 3 (2–3); p=0.39. Emotional support: 3 (2–3) vs. 2 (2–3); p=0.02. Overall satisfaction: 3 (2–3) vs. 2 (2–3); p=0.08. **Losses to follow-up and drop outs:** n=101 (community stroke team), n=132 (routine care). **Adverse events:** None.
Gladman et al. 1993 **Gladman et al. 1994** **UK** **RCT (DOMINO study)**	CA: ☒ Blinding: Assessor ☑ ITT: ☒	327 patients who were to be discharged home (except those who were receiving care prior to stroke) were included for the study at a median 18–21d following admission.	Patients were randomized to receive domiciliary care (n=162), provided by occupational and physical therapists for up to 6mo, or to routine care (hospital-based geriatric day hospital; n=165).	**Primary Outcome (at 6mo):** Extended ADL. **Primary Outcomes (at 1yr):** Mortality, requirement for institutional care, NHP score ≥30, Barthel Index, and Extended ADL. **Secondary Outcomes**: Barthel Index and Nottingham Health Profile (NHP).	**6mo Outcomes:** *Death*: RR=2.3, 95% CI 1.0–5.05; p=0.05 (trend towards increased death in home group). *Bad outcome (death/institutionalization)*: RR=1.7, 95% CI 1.0–5.05; p=0.05 (trend towards increased death in home group). **Median (IQR) scores for patient in the home-based and hospital-based groups:** *EADL (total score)*: 8.5 (4–14) vs. 8.0 (4–14); p>0.05.

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					BI: 17.0 (14–19) vs. 18.0 (15–20); p>0.05. *NHP (emotions)*: 10 (0–41) vs. 14 (0–44); p>0.05. *NHP (mobility)*: 36 (13–58) vs. 33 (11–55); p>0.05. **1yr Outcomes:** *% of patients experiencing a bad outcome (home-based vs. hospital-based groups)*: 27 vs. 19; p>0.05. **Median scores for patient in the home-based and hospital-based groups:** *BI*: 17 vs. 18; p>0.05. *EADL*: 8 vs. 10; p>0.05. *% of patients with NHP scores >30*: 39 vs. 29; p>0.05. **Losses to follow-up**: None. **Adverse events**: None.
Young & Forester 1992 **Bradford Community Stroke Trial** **UK** **RCT**	CA: ☒ Blinding: Assessor ☑ ITT: ☒	A total of 124 stroke patients >60yr who were about to be discharged from hospital following a new stroke event were recruited to the trial.	Patients were randomized to attend a geriatric day hospital (n=61) 2×/wk for post-stroke care or to be treated at home (n=63) by one of five experienced community physiotherapists.	**Primary Outcome:** Barthel Index. **Secondary Outcomes:** Motor Club Assessment (MCA), Frenchay Activities Index (FAI), Nottingham Health Profile (NHP), and General Health Questionnaire (GHQ). Assessments were conducted at the time of discharge from hospital, 8wk from the start of treatment, and at 6mo from discharge to home.	**Median (IQR) scores at 6mo for patients in the day hospital and home group:** *BI*: 15 (12–18) vs. 17 (15–19); p<0.01. *MCA*: 39 (32–43) vs. 41 (37–44); p=0.01. *FAI*: 5 (3–11) vs. 9 (3–16); p=0.07. *NHP*: 21 (9–38) vs. 15 (5–40); p=0.32. *GHQ (carers)*: 3 (0–7) vs. 1 (0–5); p=0.22. **Losses to follow-up:** n=9 (hospital group), n=7 (home physiotherapy group). **Adverse events:** None.

Outpatient Therapy (Delivered within 6 months of stroke onset)

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Outpatient Service Trialists 2003 **UK** **Cochrane Review**	N/A	14 trials (n=1,617) including patients who were living at home prior to stroke and who were within 1yr of stroke onset. In 12 of the trials, patients were recruited following discharge from hospital. In 4 of these trials, patients had received a course of rehabilitation. In 2 studies, patients were recruited from home. The mean/median LOS in hospital was reported in 6 trials and varied from 7–85d.	Service interventions examined included those that were outpatient based (home-based; n=2, day hospital or outpatient clinic; n=12), therapy-based and provided the services of OT/PT or multidisciplinary staff, whose aim was to improve task-oriented behavior. The focus of treatment was ADL performance, leisure (OT) n=8; mobility (PT) n=2 and was provided by a multidisciplinary team in 4 trials. In most of the trials the comparison was usual or routine care. Therapy duration ranged from 5wk–6mo.	**Primary Outcomes:** Death or poor outcome (deterioration, dependency, need for institutionalization), and performance of ADL. **Secondary Outcomes:** Death at end of scheduled follow-up, death or need for institutional care, death or physical dependence, EADL, and mood. Duration of follow-up was between 3 and 12mo.	**Death by end of scheduled follow-up**: OR=1.10, 95% CI 0.76–1.59; p=0.60. Results from 14 trials included. **Death or institutionalization at end of scheduled follow-up**: OR=0.81, 95% CI 0.54–1.21; p=0.30. Results from 6 trials included. **Death or dependency at end of scheduled follow-up**: OR=0.93, 95% CI 0.70–1.22; p=0.60. Results from 7 trials included. **Death or poor outcome**: OR=0.72, 95% CI 0.57–0.92; p=0.009 (favours treatment). Results from 12 trials included. **ADL score**: SMD=0.14, 95% CI 0.02–0.025; p=0.02 (favours treatment). Results from 12 trials included. **EADL score**: SMD=0.17, 95% CI 0.04–0.30; p=0.01 (favours treatment). Results from 9 trials included. **Mood score**: SMD=0.11, 95% CI -0.04–0.26; p=0.02 (favours treatment). Results from 7 trials included.
Fens et al. 2013 **Netherlands** **Systematic Review**	N/A	14 trials (n=2,389) including community living after hospitalization or inpatient rehabilitation patients. In 12 of the studies, patients were recruited immediately following discharge from hospital. In 1 of these trials, patients were included ≥ 18mo post stroke. In	Four main types of intervention: assessment performed (n=2), assessment combined with follow-up care (n=8), rehabilitation (n=3), and education (n=1). Therapy was provided by multidisciplinary teams or OT/PT. The focus of treatment was Activities of Daily	**Outcomes:** Activities of Daily Living (using Barthel Index (BI)), extended Activities of Daily Living (ADL), Functional Independence Measure (FIM), Instrumental Activity Measure (IAM), Assessment of Motor and Process Skills (AMPS), Mental Component Summary/Physical Component Summary (MCS/MPS), Katz Index and	2 out of 8 interventions assessing quality of life have significant results in favour of the intervention group. Of the 8 ‘assessment combined with follow-up care’ studies, only one showed significance in SASIP-30 scores. One out of 3 studies for the rehabilitation interventions had significant scores for the EQ-5D.

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		another trial patients were included after discharge from a rehabilitation center. The mean period between stroke event and discharge documented in 3 of 14 studies ranged from 45d–2.5yr.	Living (n=11) and Quality of Life (n=8). Therapy duration ranged from 3wk–12mo.	Quality of Life (using Euroqol-5D (EQ-5D), Stroke Adapted-Sickness Impact Profile 30 (SASIP-30), Short-Form-36 (SF-36), Stroke Specific Quality of Life Scale, Sickness Impact Factor). Duration of follow-up was between 3 and 12mo.	
Fens et al. 2014 **Netherlands** **Prospective Controlled Trial**	CA: ☒ Blinding: ☒ Assessor ITT: ☒	117 patients with stroke discharged from inpatient rehabilitation and their caregivers were included in the trial. **Inclusion criteria**: >50yr, living within a certain radius of the hospital organization. **Exclusion criteria**: limited life expectancy, nursing home residence prior to stroke.	Patients were assigned to either the intervention group (n=62), or control group (n=55). **Intervention group:** referred to a stroke care coordinator who conducted home visits at regular intervals (1–2wk, and 3, 4, 12 and 18mo after discharge). The coordinator conducted assessments, provided follow-up care, and informed the patient's family physician of status via a written report. **Control group:** received usual care. Consisted of either referral to a stroke care coordinator or no care. If referred to a coordinator, a home-visit was conducted within 6wk after discharge. No assessments or follow-up plans were available.	**Primary Outcome (Patients):** Quality of life (Stroke Adapted Sickness Impact Profile-30 (SASIP-30)). **Secondary Outcomes (Patients):** ADLs (Barthel Index (BI)), social activities (Frenchay Activities Index (FAI)), depression and anxiety (Hospital Anxiety Depression Scale (HADS)). **Primary Outcome (Caregivers):** Quality of life (Life Satisfaction Questionnaire-9 (LiSAT-9)). **Secondary Outcomes (Caregivers):** Caregiver burden (Hospital Anxiety Depression Scale (HADS), Caregivers Strain Index (CSI)). Outcomes were assessed at the first home visit, and 2, 12 and 18mo after.	**SASIP:** No statistically significant changes in quality of life between intervention and control group at any follow-up time point (p>0.05). **BI:** No statistically significant changes in group at any follow-up (p>0.05). **FAI:** Statistically significant changes from baseline for intervention group at 6 (p<0.001), 12 (p=0.006) and 18mo (p<0.001). **HADS:** Significant changes in favour of intervention group (p=0.048) between baseline and 1mo follow-up. **LiSAT-9:** Statistically significant changes at 18mo for control (p=0.005), yet no significance for median change scores. **HADS:** No statistically significant changes over time between groups (p>0.05).
Sackley et al. 2006	CA: ☑	118 patients with moderate to severe	Patients were randomized to receive a	**Primary Outcomes:** Barthel Index (0–20); poor	**Mean±SD scores at baseline and 3mo for patients in the OT and control groups:**

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UK **Cluster RCT**	Blinding: Assessor ☑ ITT: ☒	stroke (Barthel Index scores of 4–15) who had been admitted to 12 nursing homes.	3mo occupational therapy program that was client-centred and targeted towards independence in ADL (n=55) or to usual care (n=63) (no OT). Patients in the OT group received a median of 2.7 visits/mo (median 4.5hr/session).	global outcome defined as deterioration in BI score or death. **Secondary Outcome:** Rivermead Mobility Index Assessments were conducted at baseline, end of treatment and 6mo.	*BI*: 10.1±5.7 to 10.2±5.9 vs. 9.2±5.3 to 9.3±4.7; p≥0.05. *RMI scores*: 4.9±3.6 to 4.5±3.5 vs. 4.0±3.4 to 4.5±3.3; p>0.05. *Poor global outcome at 6mo*: 51% (OT group) vs. 76% (control group); p=0.03. **Losses to follow-up:** n=10 (OT group), n=10 (control group). **Adverse events:** None.
Gilbertson et al. 2000 **Gilbertson & Langhorne 2000** **UK** **RCT**	CA: ☑ Blinding: Assessor ☑ ITT: ☑	138 patients who planned to return home following discharge from hospital with a diagnosis of stroke and could benefit from additional occupational therapy were recruited to the trial. The mean time from stroke onset to randomization was 26d.	Patients were randomized to receive either 6wk of domiciliary occupational therapy (n=67) comprising 10 visits lasting 30–45min each, tailored to recovery goals identified by patient or to receive routine post-stroke follow-up care. Routine care (n=71) included inpatient rehabilitation, a home visit prior to discharge, support services and equipment, regular review at a stroke clinic, and referral to day hospital for selected patients.	**Primary Outcomes:** Nottingham EADL, deterioration in function, and death. **Secondary Outcomes:** Barthel Index, Canadian Occupational Performance Measure (COPM) London Handicap Scale (LHS), and Dartmouth COOP Charts. Assessments were conducted at baseline, 8wk and 6mo.	**Median (IQR) scores at 6mo for patients in the OT and control groups:** *EADL*: 28 (15–38) vs. 21 (14–38); p=0.48. *BI*: 17 (15–19) vs. 17 (13–18); p=0.25. *LHS*: 0.41 (0.38–0.53) vs. 0.45 (0.29–0.64); p=0.57. *Change in BI*: 0 (-2–2) vs. -1 (-3–0); p=0.04. *Deaths*: 2 (OT group) vs. 1 (control group). *Change in COPM (satisfactions cores) from baseline to 7wk*: 1.63 (0–3) vs. -0.4 (-2–1); p=0.0001. *Change in COPM from baseline to 7wk (performance scores)*: 1 (0–2.8) vs. 0 (-2.5–1); p=0.0006. *Dartmouth COOP charts (scores at 7wk)*: Physical condition: 5 (4–5) vs. 5 (5–5); p=0.19. Emotional condition: 2 (2–4) vs. 3 (2–4); p=0.02. Social activities; 4 (2–4) vs. 3 (2–40); p=0.93. Quality of Life: 3 (2–3) vs. 3 (2–3); p=0.35. **Losses to follow-up**: n=7 (OT group), n=5 (control group).

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					Adverse events: None.
Walker et al. 1999 **2001 (1yr follow-up)** **UK** **RCT**	CA: ☑ Blinding: Assessor ☑ ITT: ☒	185 patients who sustained a stroke within the previous 6mo and who had not been admitted to hospital. 29% of patients had sustained a previous stroke.	1mo after their stroke, patients were randomized to receive up to 5mo of occupational therapy (OT; n=94) at home at a frequency of service that was agreed upon by patient and therapist, or no intervention (control group; n=91), although patients could access existing services in the community. On average, patients in the OT group received 5.8 visits (range 1–15), lasting an average of 52min.	**Primary Outcome:** Nottingham EADL. **Secondary Outcomes:** Barthel Index, carer strain index, and General Health Questionnaire (0–84) (GHQ). Assessment was conducted at baseline and 6mo.	**Median (IQR) scores at baseline and 6mo for patients in the OT and control groups:** *EADL*: 10 (4–15) to 16 (11–18.75) vs. 11 (3–16) to 12 (6–17); p=0.009. *BI*: 18 (15–20) to 20 (18–20) vs. 18 (15–20) to 18 (16–20); p=0.002. *Carer Strain Index*: 4 (1–7) to 1 (0–4) vs. 4 (1–7) to 3 (1–6); p=0.02. *GHQ-28 (patient)*: 26 (18–35) to 20 (14–30) vs. 27 (19–32) to 23 (15–35); p=0.29. **Median (IQR) scores at 1yr for patients in the OT and control groups:** *EADL*: 13 (13–18) vs. 11 (4–17); p=0.04. *BI*: 19 (16–20) vs. 18 (15–20); p=0.16. *GHQ 28 (patient)*: 20 (15–30) vs. 18 (13–31); p=0.62. **Losses to follow-up**: n=10 (OT group), n=12 (control group). **Adverse events**: None.

Home Exercise Programs

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Coupar et al. 2012 **Cochrane**	N/A	4 RCTs comprised of 166 patients with a primary diagnosis of stroke and receiving therapy to	Studies were included if they satisfied the following three criteria: 1. Intervention performed	**Primary Outcomes:** ADL performance and upper limb functional movement.	4 studies were identified for inclusion, comprising 2 separate programs: 1. Duncan et al. (1998, 2003): These two studies assessed the effectiveness of a

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Review		improve upper extremity functioning.	in the patient's home. 2. Intervention prescribed by care provider or performed with a care provider. 3. Involves a program of therapy vs. a single intervention.	**Secondary Outcomes:** Extended ADL performance and upper limb motor impairment.	series of exercises (strength, flexibility etc.) to improve upper extremity functioning. 2. Piron et al (2008, 2009): These two studies assessed the effectiveness of a virtual reality intervention combined with either telerehabilitation or a therapist. **Home therapy program vs. usual care:** **ADL Performance:** Home therapy programs resulted in a significant increase in Barthel Index compared to usual care (MD 3.16, 95% CI 0.37–5.95), but only after a fixed-effect analysis was performed. **Functional movement:** No significant difference between the two groups (MD 2.25, 95% CI -0.24–4.73). **Extended ADL performance**: No significant difference between groups (MS 0.83, 95% CI -0.51–2.17). **Upper limb motor impairment:** No significant difference between groups (MD 0.60, 95% CI -8.94–10.14).
Nadeau et al. 2013 **USA** **RCT** **Locomotor Experience Applied Post Stroke (LEAPS)**	CA: ☒ Blinding: Assessor ☑ ITT: ☑	408 patients admitted to inpatient rehabilitation within 45d of stroke. **Inclusion criteria:** lower extremity paresis and living in community at the start of the study. **Exclusion criteria:** dependency prior to stroke, unable to travel to outpatient clinic.	Patients were randomized to one of 3 programs: 1) Locomotor training program (LTP; n=139), 2) Home exercise program (HEP; n=126), 3) Usual Care (n=143). 1) LTP: 20–30min at 3.2km/hr of treadmill training with partial body weight support and 15min walking program. 2) HEP: flexibility, range of motion, strength, coordination and balance exercises. Programs conducted by PT and Rehabilitation	**Primary Outcome:** Walking improvement (reaching a walking speed of 0.4 m/s). **Secondary Outcomes:** Other walking measures (walking speed during 10m walk, 6-minute walk distance, number of steps taken per day), Lower extremity function (Fugl-Meyer (lower-extremity), total sensory and motor FM scores), balance (Berg Balance Scale (BBS), Activities-specific balance confidence (ABC)), instrumental ADL's (IADL scale, physical mobility and participation domains of Stroke Impact Scale), and overall disability (modified	**Functional walking level:** The LTP group had a greater odds of achieving a higher walking level compared to the usual care group (1.94, 95% CI 1.18–3.21; p=0.010). Likewise, the HEP group had a greater odds of achieving a higher walking level compared to the usual care group (2.04, 95% CI 1.22–3.42; p=0.007). There were no significant differences between the LTP and HEP groups. **Other walking measures:** From baseline, all 3 groups improved walking speed (p<0.0001), 6-minute walk distance, and number of community steps taken/day with greatest improvement seen in LTP and HEP group when compared to usual care (p<0.0001). **ADL/IADL:** All 3 groups improved significantly (p<0.0001) from baseline. **Balance:**

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			technician (LTP), or PT (HEP).	Rankin Scale). Outcomes were assessed at 6mo post stroke.	LTP and HEP showed significant improvements in balance confidence and modified Rankin Scale ($p<0.0014$) compared to usual care group.
Chumbler et al. 2012 **United States** **RCT**	CA: ☑ Blinding: Assessor ☒ ITT: ☑	A total of 52 participants who experienced an ischemic or hemorrhagic stroke within the previous 24mo were recruited. **Inclusion criteria:** age 45–90yr, discharged to the community, not cognitively impaired, able to follow a 3-step command, and discharge motor FIM score between 18 and 88.	48 patients were randomized to either STeleR intervention (n=25) or control groups (n=23). **STeleR (stroke telerehabilitation) Intervention**: 3mo consisting of 3 components: 1. Home televisits (3 visits, 1hr each every 12–16d with the research assistant or teletherapist – including training in 3-4 strength and balance exercises). 2. In home messaging device IHMD with teletherapist (for assessments and questions – 1×/wk) 3. Telephone calls from teletherapist (5 calls every 14d). **Usual Care:** 1 phone call at the start to collect baseline measures.	**Primary Outcomes:** FIM (motor subscale – telephone version, score range 13–91, evaluates independence in task performance) and the LLFDI, Late-Life Function and Disability Instrument (overall function, scores scaled to 0–100, evaluates independence in task performance). **Secondary Outcomes:** Upper extremity, basic lower extremity, and advanced lower extremity, subscales of the LLFDI, and the LLFDI disability component. Outcomes were assessed at baseline, at the end of the intervention and at 3mo follow-up.	**Primary Outcomes:** There were no significant differences in FIM motor subscale or overall patient functioning. **Secondary Outcomes:** There was a statistically significant increase in the personal role frequency ($p=0.025$), difficulty dimension total ($p=0.025$), and instrumental ($p=0.031$) and management role difficulty ($p=0.024$) dimensions of the LLFDI disability component. *Note: The greatest gains were made during the first 3mo, and maintained during the 3mo after cessation of therapy.
van de Port et al. 2012 **Netherlands** **RCT**	CA: ☑ Blinding: Assessor ☑ ITT: ☑	250 patients who had completed inpatient rehabilitation following stroke, were able to walk 10m without physical assistance and were to be discharged home, with the intention of participating in an outpatient rehabilitation	Subjects were randomized to receive a graded task specific circuit training program (n=126) or usual outpatient physiotherapy. Circuit training involved 8 workstations designed to improve walking ability and consisted of 90min	**Primary Outcome:** Mobility sub scale of the Stroke Impact Scale; (SIS) **Secondary Outcomes:** Other domains of the SIS, Rivermead Mobility Index, Falls Efficacy Scale, Nottingham Extended Activities of Daily Living,	**Mean±SD SIS (mobility) scores at baseline, 12wk, and 24wk:** *Circuit training group*: 80.9±13.04 to 87.27±12.38 to 86.56±13.19 *Control group*: 77.8±15.0 to 83.73±13.25 to 84.42±14.48 $p<0.001$ (baseline to 24wk) **Mean±SD RMI scores at baseline, 12wk, and**

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		program.	sessions, 2×/wk over 12wk. Subjects in the control group received usual outpatient physiotherapy.	Hospital Anxiety and Depression Scale, Fatigue Severity Scale, Motricity Index, 6MWT, Functional Ambulation Categories, TUG, 5 m comfortable walking speed, modified stairs test) Primary outcome was assessed at baseline, 6, 12, 18 and 24wk post randomization. Secondary outcomes were assessed at baseline, 12 and 24wk.	**24wk:** *Circuit training group*: 12.67±1.58 to 13.47±11.44 to 13.50±1.42 *Control group*: 12.35±2.00 to 12.82±1.90 to 13.03±1.82 p<0.001 (baseline to 24wk) **Mean±SD 6MWT (s) at baseline, 12wk, and 24wk:** *Circuit training group*: 339±120 to 412±117 to 416±118 *Control group*: 306±135 to 1354±145 to 1366±151 p<0.001 (baseline to 24wk) **Drop outs:** circuit training group n=1, control group n=7. **Adverse events:** falls (n=29, circuit training group, n=26, control group). 2 serious adverse events were reported by 2 subjects in the circuit training group.
Harris et al. 2009 **Canada** **RCT** **GRASP**	CA: ☒ Blinding: Assessor ☑ ITT: ☑	103 subjects with infarct or hemorrhagic stroke recruited an average of 21d following stroke.	Comparison of a 4wk home-based, self-administered program designed to improve ADL skills through strengthening, ROM and gross/fine motor skills exercises (n=53) vs. a non-therapeutic education control program (n=50).	**Primary Outcome:** Paretic Upper Limb performance (Chedoke Arm & Hand Activity Inventory-9 (CAHAI)). **Secondary Outcomes:** Upper limb function (action research arm tests (ARAT)), perception of upper limb function (motor activity log (MAL)), isometric strength of paretic hand (hand grip strength), health related quality of life (SF-12), visual analogue scale for pain, and fatigue (Fatigue Severity Scale). Outcomes were assessed before and after treatment and at 3mo post treatment.	At the end of the treatment period, subjects in the GRASP group had significantly higher CAHAI scores compared with the control group (32.6 to 46.7 vs. 32.7 to 40.1; mean change from baseline: 14.1 vs. 7.9; p<0.001. The improvement was maintained at 3mo (mean total score: 50.4 vs. 45.4; p=0.037). Completion rate was 60/103 (58%). At the end of the treatment period, subjects in the GRASP group had significantly higher ARAT and MAL scores and grip strength compared with the control group. ARAT: 31.1 to 42.8 vs. 31.0 to 38.0; p=0.025; grip strength (kg): 9.0 to 13.1 vs. 8.8 to 10.8; p=0.027; MAL (AOU): 2.0 to 3.3 vs. 1.9 to 2.8; p=0.023; MAL (QOU): 2.0 to 3.2 vs. 1.8 to 2.7; p=0.007. Completion rate: 60/103 (58%). Adverse events: pain (n=15).

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Langhammer et al. 2007 **RCT** **Norway**	CA: ☒ Blinding: Assessor ☑ ITT: ☑	75 patients with stroke discharged from acute care. **Inclusion criteria**: first stroke within 1yr of injury.	Patients were randomized to either the intensive exercise group (n=35) or the regular exercise group (n=40). Intensive training involved a minimum of 80hr in the year following discharge from hospital. Patients received 4 periods (every 3mo) of intervention consisting of physiotherapy 2–3×/wk up to 20hr each round. The focus of the program was endurance, strength and balance. **detailed program listed in study.* Regular training involved treatment on an as-needed basis as indicated by the rehabilitation team.	**Primary Outcomes:** Motor function (the motor assessment scale), Activities of daily living (the barthel index of activities of daily living) and grip strength (Martin vigorimeter). Outcomes were assessed at discharge, and 3mo, 6mo and 12mo after stroke.	There were statistically significant improvements in the motor assessment scale from admission to discharge (p=0.01) and 6mo to 1yr (p=0.02) between the intensive and regular exercise groups. There were statistically significant improvements between admission and discharge for the intensive exercise group compared to the regular exercise group (p=0.04). There were statistically significant improvements in grip strength of the paretic hand between 3mo and 6mo for the intensive exercise group compared to the regular exercise group (p=0.04).
Olney et al. 2006 **Canada** **RCT**	CA: ☑ Blinding: Assessor ☒ ITT: ☑	74 patients with thromboembolic or hemorrhagic cerebrovascular disorder were recruited from the community. **Inclusion criteria:** 1) age ≥20yr, 2) thromboembolic or hemorrhagic cerebrovascular disorder with many, but not all, confirmed by CT scan, 3) able to walk a total of 15min with rests, with or without assistive devices, 4) able to tolerate activity for 45min with rests, 5)	Patients were randomized to either the supervised (n=38) or unsupervised (n=36) exercise group. The supervised exercise group received sessions 3×/wk, 1.5hr in length for 10wk in duration. The unsupervised exercise group received 3 sessions of 1.5hr long in the first week followed by 9wk of unsupervised exercise. This group received instructions (written and verbal) for	**Primary Outcome:** 6-minute walking speed. **Secondary Outcomes:** Disability (Human activity profile – HAP, Medical outcome study 36-item – SF-36) and Impairments (muscle strength, physiological cost index – PCI). Outcomes were assessed at baseline, immediately after the program (10wk), at 6mo and 1yr.	**Primary Outcome:** 6-minute walking speed for both groups improved from baseline to 10wk after the intervention (supervised p<0.01; unsupervised p<0.001), 6mo after (supervised p<0.01; unsupervised p<0.05) and 1yr after (supervised p<0.001; unsupervised p<0.05). There were no statistically significant differences between the groups. **Secondary Outcomes:** There was a significant increase in HAP outcomes 1yr after the intervention for the supervised group vs. the unsupervised group (difference 6.1±2.8; p<0.05). There was a significant increase in the SF-36 mental component at the end of the intervention period for the supervised group vs. the unsupervised group (difference 5.0±2.1; p<0.05). All other outcomes at each time point did not reach statistical significance.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		no coronary artery disease, and 6) no contraindications to exercise testing.	exercise progression.		Males and females responded differently to the treatment programs. For the primary outcome, males made greater gains in the unsupervised program while females made greater gains in the supervised program.
Pang et al. 2005 **Canada** **RCT** **FAME**	CA: ☒ Blinding Assessor: ☑ ITT: ☑	63 individuals with chronic stroke were recruited. **Inclusion criteria:** first stroke more than 1yr before, >50yr of age, sufficient level of walking ability (10m), and living at home.	Patients were randomized to either the intervention group (n=32) or the control group (n=31). Intervention group received the FAME program (3 stations: a. cardiorespiratory fitness and mobility, b. mobility and balance, c. leg muscle strength) The control group received a seated upper extremity program (3 stations: a. shoulder muscle strength, b. elbow/wrist muscle strength and range of motion, c. hand activities). The duration of the program for both groups was 19wk (1hr session, 3×/wk).	**Primary Outcomes:** Cardiorespiratory fitness (VO_2 max), mobility (6MWT), leg muscle strength (hand-held dynamometry), balance (Berg Balance scale), and hip bone mineral density (BMD). Outcomes were assessed before and after the intervention.	There was a significant group x time interaction between the intervention group and the control group for the following outcomes: *VO_2 max*: p=0.034 *6MWT*: p=0.025 *Paretic leg muscle strength*: p=0.017 *Paretic femoral neck BMD*: p=0.043 There were no statistically significant differences between the two groups in non-paretic leg muscle strength, berg balance score, physical activity scale for individuals with physical disabilities, non-paretic femoral neck BMD or respiratory exchange ratio (p>0.05). **Adverse events:** 5 falls were reported in the intervention group.
Duncan et al. 2003 **United States** **RCT**	CA: ☑ Blinding: ☑ Assessor ITT: ☑	92 patients with stroke were identified from an acute stroke registry. **Inclusion criteria:** >50yr, between 30 and 150d since stroke, live within 50 miles of the hospital, mild or moderate upper extremity impairment.	Patients were randomized to the control group (n=48) or the intervention group (n=44). The experimental group received visits from an occupational or physical therapist in the home for 12–14 weeks (36	**Outcomes:** Motor recovery and strength (Fugl-Meyer Motor Score, wolf motor function test, dynamometer), gait and balance (10-metre walk test, six-minute walk test, Berg balance, functional reach), exercise stress test.	Overall, there was a statistically significantly improvement in combined outcomes in the intervention group compared to the control group (Wilk's λ=0.64; p=0.0056). There were significant changes in outcomes for the intervention group compared to the control group adjusting for baseline scores:

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		Exclusion criteria: significant comorbidities (particularly cardiac conditions), limited life expectancy.	sessions for 90min each). The intervention focused on range of motion, flexibility, strengthening, balance, upper extremity use, and endurance. The control group received routine care as specified by their family physician. A study researcher visited the patient in their home once every two weeks to provide health education and collect vital signs.	Outcomes were assessed at baseline and 3mo follow-up.	*Berg balance score*: 3mo change 2.72 (SE 0.79); p<0.001. *Duration of bike exercise*: 3mo change 1.24min (SE 0.31); p<0.001. *Peak VO_2*: 3mo change 1.06mL/(kg*min) (SE 0.32); p<0.01. *10-m gait velocity*: 3mo change 0.08m/s (SE 0.04); p<0.05. *6-min walk distance*: 3mo change 28.21m (SE 12.52); p<0.05.
Duncan et al. 1998 **United States** **RCT**	CA: ☑ Blinding: ☒ Assessor ITT: ☑	20 patients with stroke (mild or moderate) who were admitted to hospital with stroke and had completed acute rehabilitation. Mean age: 67.8yr in the control group and 67.3yr in the experimental group. Patients were 56d from stroke on average in the control group, and 66d for the experimental group. **Inclusion criteria**: 1) 30–90d post onset; 2) minimal or moderately impaired sensorimotor function (as indicated by Fugl-Meyer Motor Score 40-90 and Orpington Prognostic Scale score 2.0–5.2); 3) ambulatory with supervision and/or	Following baseline assessments, participants were randomized to receive either home-based exercise program, 3×/wk for 8wk (n=10), or to receive usual post-stroke care (n=10). The exercise program, which was provided by a physical therapist, was designed to improve strength, balance, and endurance, and also to encourage more use of the affected extremity. The control group received usual care, which consisted of home visits for 6 individuals and outpatient therapy for 4 individuals. No one in the control group underwent endurance training.	**Outcomes**: Motor Recovery (Fugl-Meyer); Functional Performance (gait speed, berg balance scale, 6-minute walk test, Jebsen Test of Hand Function); Functional Status (Barthel Index, Lawton Instrumental ADL), physical function scale (MOS-36) Outcomes were assessed at baseline and 12 week follow-up.	**Motor Recovery:** The experimental group experienced a statistically significant improvement in lower extremity functioning compared to the control group (Fugl-Meyer mean change 4.77 vs. -0.9; p<0.02). There was no statistically significant difference between groups for upper extremity functioning (Fugl-Meyer mean change 8.4 vs. 2.2; p=0.2) **Functional Performance:** The experimental group had greater mean change scores compared to the control group across all outcomes: gait velocity (0.25m/s vs. 0.09m/s), berg balance scale (7.8 vs. 5) and 6-minute walk test (195ft vs. 114ft). However, these results were not statistically significant. **Functional Status:** There were no statistically significant differences between the experimental or control group on the Barthel Index (13.0 vs. 13.3; p>0.2), Lawton Instrumental ADL (3.0 vs. 2.3; p>0.2), or physical function scale (MOS-36) (15.5 vs. 9; p>0.2).

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		assistive device; 4) living at home; and 5) living within 50 miles of the study location. Of 22 patients recruited, 2 refused to participate, leaving a final sample of 20 subjects.			
Singh et al. 2013 **Controlled Trial** **Malaysia**	CA: ☒ Blinding: ☑ Assessor ITT: ☒	50 patients who sustained a stroke at least 6mo ago were recruited. 28 patients agreed to participate. **Inclusion criteria:** age >55yr, >6mo post stroke, and able to walk independently with or without assistive devices for at least 30min. **Exclusion criteria:** significant cognitive impairments or medical comorbidities that would limit physical activity.	Participants were allocated into either the experimental group (n=15) or the control group (n=13). A total of 12, 2hr therapy sessions were provided to each group 2×/wk for 6wk. Control group: stretching (self-administered), strengthening, coordination and balance, functional exercises, and endurance training. Experimental group: 30min of the usual exercise therapy was replaced with virtual reality balance games (Wii fit Plus with balance board and Rally Ball using Xbox 360 Kinect – 15min each).	**Outcomes:** Functional mobility (Timed up and go test) and lower limb strength (thirty second sit to stand test, gait speed (timed 10-metre walk test), walking endurance (6-minute walk test), static balance (overall balance score using the probalance board), activities of daily living (Barthel Index). Outcomes were assessed before and after (at 6wk) intervention.	Both groups had statistically significant improvements in the timed up and go test (p=0.02), and the 30 second sit to stand test (p=0.001), but no significant changes in gait speed, walking endurance, static balance or ADLs. There were no significant differences between the groups in any of the outcome measures (p>0.05).
Salbach et al. 2013 **Canada** **TIME Program** **Observational**	N/A	14 patients were recruited by telephone (Mean age 63yr, 71.4% male). Six individuals used a rollator walker, one used a quad cane, two used a single point cane and five did not use	Physical Therapists partnered with municipal recreation providers to recruit ambulatory adults with stroke, ABI or MS, age >18yr, ability to walk a minimum of 10 m without assistance, living	**Primary Outcomes:** To determine the impact of the TIME Program on Physical Function. **Secondary Outcomes:** To evaluate the safety and feasibility of the TIME	**Primary Outcomes:** Improvements in the mean Berg Balance Scale for stroke patients (3±2; p=0.016, n=7) and 6MWT score (26±26; p=0.017, 95% CI 6–46m, n=9). **Secondary Outcomes**: During 293 attendances, two adverse events occurred (loss of balance and hypoglycemic

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
		a walking aid. 9 out of 14 patients (64.3%) had sustained a stroke.	in the community and medically cleared. Eligible patients were identified from a list of outpatients from Toronto Rehabilitation Institute and were mailed information to participate. Patients who were recruited had a baseline evaluation and a follow-up evaluation after the 12wk session. Patients were compensated $55.	Program.	reaction. Neither event resulted in injury or required medical intervention.

Summary of Community-Based Exercise Programs

Program	Goal and Effect	Details/Fee/Equipment	Location/ Duration/Intensity	Level of Supervision	Safety Concerns
Graded Repetitive Arm Supplementary Program (GRASP)	To increase the use of and improve the functioning of the paretic upper limb. Goal and task oriented activities. **Effect**: (+) Upper limb performance (+) Self-perceived upper limb function (+) Grip Strength	Self-administered 3 programs depending on severity of impairment Focus=strength (putty, weight), range of motion (stretching) and fine motor skills (lego)	Inpatient rehabilitation: 4wk. Home: 3mo. Intensity: 6d/wk, 60min/d.	Inpatient rehabilitation: Once per week (by a site coordinator) Home: No supervision *Exercise Book (written and pictorial instructions) and kits (low cost equipment – putty, weights, towel etc.)	Patients given log sheets Also asked to record any pain and fatigue experienced
Fitness and Mobility Exercise (FAME)	To improve cardiorespiratory fitness, mobility, lower body strength, balance, hip bone mineral density and activity and participation. **Effect**:	Station 1: Cardio (brisk walk, sit to stand, step). 10min, increased by 5min on a weekly basis up to 30min. Station 2: Mobility and balance (walking in different directions, tandem walking, obstacle course, sudden stops, walking on diff surfaces, standing on foam or other board, standing with one foot in front of other, kicking a ball	Community Centre 19wk Intensity: 3 sessions per week, 60min/session Intensity based on heart rate reserve.	Supervision team: Occupational Therapist, Physical therapist, and an exercise instructor. 9–12 participants per session. So 3:1 or 4:1 participant to instructor ratio.	Patients offered hip protectors.

Program	Goal and Effect	Details/Fee/Equipment	Location/ Duration/Intensity	Level of Supervision	Safety Concerns
	(+) Gait distance (+) Muscle strength	Station 3: Leg muscle strength (squats, toe rises). Increase number of reps and reducing arm support.			
Together in Movement and Exercise (TIME)	To improve balance and walking capacity. Task-oriented exercise program. **Effect**: (+) Balance (+) Gait Distance	Format: 10min warm up 5min stations x 9 stations 5min cool-down Stations: 1) sit to stand and walk between chairs 2) tap-ups 3) heel and toe raises 4) standing weight shifts 5) modified lunges, on-the-spot or travelling; 6) step-ups 7) an aerobic station using a recumbent bicycle 8) seated reaching to promote weight-bearing through the lower extremities 9) Arm range of motion and strength. $55 for a 12wk session.	Community Centre Gradual increases in levels (1–4) of difficulty.	Fitness instructors were trained by physical therapists over the course of two half-day sessions. Physical therapists attended the first two sessions and were available for feedback throughout the program. Participant to instructor ratio: 4:1 (supplemented with volunteers and caregivers)	Wore hip protectors Asked to record any changes to sleep, fatigue etc. using monthly calendar logs.
Duncan et al. 1998 **Home-Based Exercise Program**	To improve strength, balance, endurance, and use of effected upper limbs. Progressive exercise program. **Effect**: (+) Lower Extremity Function (ND) Upper extremity, balance, gait, ADL, IADL	Format: 10min warm-up (stretching and flexibility) 4 blocks of variable duration: Block 1: Assistive and resistive exercises (2 sets of 10 repetitions). Exercises focused on the shoulder (internal and external rotation), hips and knee (internal and external rotation) and finger, wrist, and ankle (flexed and extended) using therabands or elastic bands. Block 2: Balance Exercises (15min) Block 3: Functional activities for the effected upper limbs. Block 4: Bicycle ergometer. *Full details of program can be requested: pduncan@kumc.edu	Home 12wk duration 1st part: 3 visits/wk for 8wk 2nd part: 3×/wk for 4wk unsupervised 90min/session. Exercise difficulty was increased on a progressive basis.	1st part: Supervised by physical therapist 2nd part: Unsupervised	Individual exercises were modified based on the patient's level of functioning.
Duncan et al. 2003 **Home-Based Exercise Program**	To improve strength, balance, endurance, and use of effected upper limbs. Progressive exercise program.	Components: 1. Range of motion and flexibility 2. Strengthening (theraband exercises) 3. Balance (step-ups, chair rises, wall exercise, marching, toe-rises, kicking ball, simulating swinging, abrupt turns during walk)	Home 12–14wk duration: 36 sessions for 90min each.	Physical or occupational therapist present in the home.	Patients contacted every 2wk to assess outcomes.

Program	Goal and Effect	Details/Fee/Equipment	Location/ Duration/Intensity	Level of Supervision	Safety Concerns
	Effect: (+) Balance (+) endurance (+) max heart rate (+) gait speed (+) gait distance	4. Upper Extremity use (practicing real life tasks) 5. Endurance (stationary bike) *Further details included in peer-reviewed publication.			
Locomotor Experience Applied Post-Stroke **LEAPS**	To improve functional walking. **Effect**: (+) Functional walking (speed) (+) other walking measures, balance, IADLs, overall disability	1) Locomotor training program (LTP): a) 20–30min at 3.2km/hr of treadmill training with partial body weight support. b) 15min progressive over ground walking. 2) Home exercise program (HEP): flexibility, range of motion, strength (upper and lower body), coordination and balance (static and dynamic) exercises.	LTP: Outpatient clinic HEP: Patient's home Duration: 12–16wk, 3 sessions/wk, 90min/session.	LTP: 2 physical therapists and a rehabilitation technician. HEP: physical therapist.	Minor adverse events were reported: a fall, blisters, muscle soreness, dizziness etc.
Singh et al. 2013 **Virtual Reality (Nintendo Wii and Xbox)**	To improve physical function and activities of daily living. **Effect:** (+) functional mobility (+) functional lower limb strength *No difference in outcomes when supplementing 30 min of group exercise with 30 min of virtual reality exercise.	90min of physiotherapy-directed group exercise: 1. Self-stretching 2. Strengthening exercises 3. Coordination and balance (standing on foam and passing a ball in multiple directions) 4. Functional exercises (sit to stand, walking etc.) 30min of virtual reality video games (15min each): 1. Nintendo Wii Fit Plus with balance board 2. Xbox 360 Kinect Progression occurred according to individual performance on the video games.	Community stroke rehabilitation centre Duration: 6wk, 2 sessions/wk, 120min/session.	Physiotherapist conducted the exercise programs.	No adverse events were reported.
Graded Repetitive Arm Supplementary Program (GRASP)	To increase the use of and improve the functioning of the paretic upper limb. Goal and task oriented activities. **Effect**: (+) Upper limb performance (+) Self-perceived upper limb function	Self-administered 3 programs depending on severity of impairment Focus=strength (putty, weight), range of motion (stretching) and fine motor skills (lego)	Inpatient rehabilitation: 4wk. Home: 3mo. Intensity: 6d/wk, 60min/d.	Inpatient rehabilitation: Once per week (by a site coordinator) Home: No supervision *Exercise Book (written and pictorial instructions) and kits (low cost equipment – putty, weights, towel etc.)	Patients given log sheets Also asked to record any pain and fatigue experienced

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		*Full details of program can be requested: pduncan@kumc.edu			
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Glossary
RCT= Randomized Controlled Trial
N/A = Not Applicable
CA = Concealed Allocation
ITT = Intention to treat
ESD = Early Supported Discharge
ADL = Activity of Daily Living
IADL=Instrumental Activities of Daily Living
FIM=Functional Independence Measure
OR = Odds Ratio
SMD = Standardized Mean Difference
CI = Confidence Interval
IQR = Interquartile Range
MOS=Medical Outcomes Study
PT=Physiotherapist
OT=Occupational Therapist

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