CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

Rehabilitation, Recovery and Community Participation Following Stroke

Part One: Stroke Rehabilitation Planning for Optimal Care Delivery

Evidence Tables

Interdisciplinary Care Planning & Transitions Preparation

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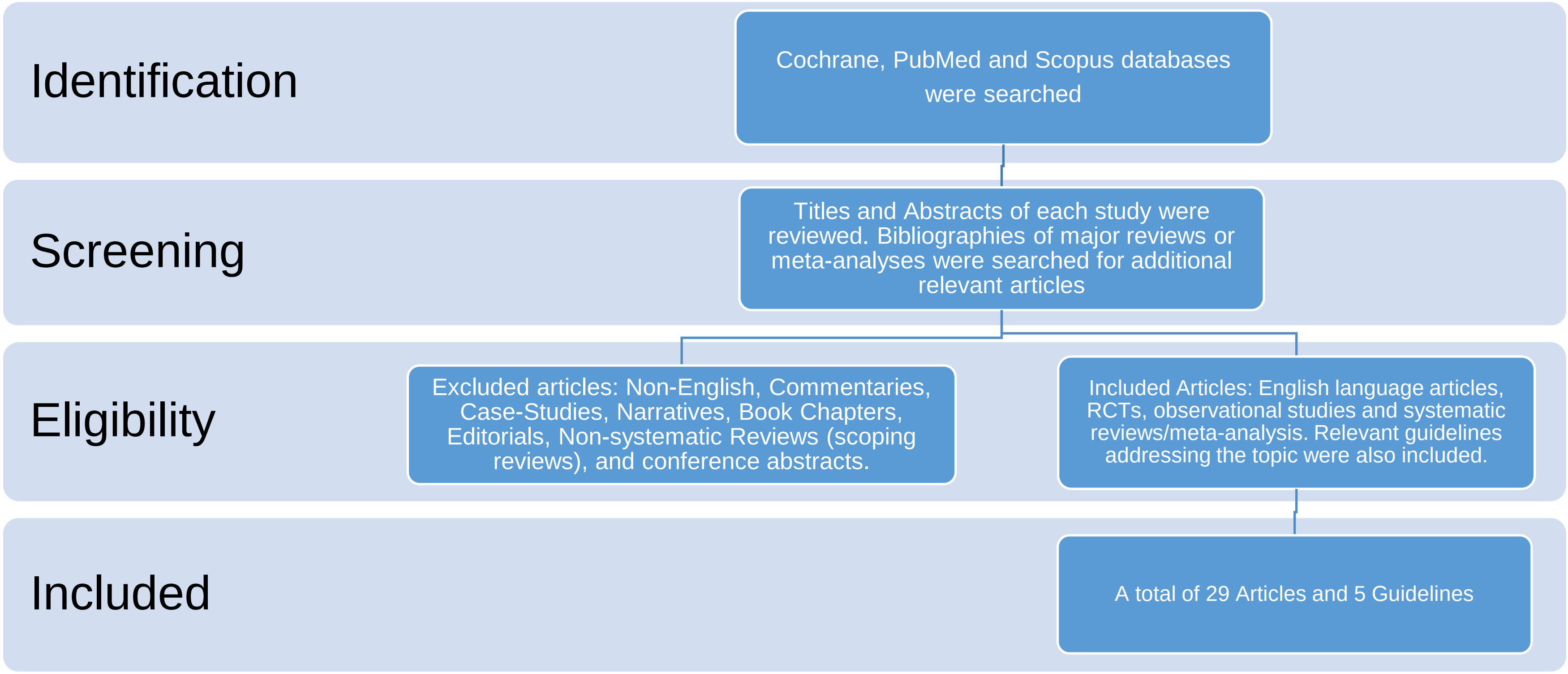
Search Strategy



Identification

Cochrane, PubMed and Scopus databases were searched

Screening

Titles and Abstracts of each study were reviewed. Bibliographies of major reviews or meta-analyses were searched for additional relevant articles

Eligibility

Excluded articles: Non-English, Commentaries, Case-Studies, Narratives, Book Chapters, Editorials, Non-systematic Reviews (scoping reviews), and conference abstracts.

Included Articles: English language articles, RCTs, observational studies and systematic reviews/meta-analysis. Relevant guidelines addressing the topic were also included.

Included

A total of 29 Articles and 5 Guidelines

Cochrane, PubMed, and Scopus databases were searched. 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 the relevant best practice guidelines were completed and included in a separate section of the review. A total of 29 articles and 5 guidelines were included and were separated into separate categories designed to answer specific questions.

Published Guidelines

Guideline	Recommendations
National Clinical Guideline for Stroke for the UK and Ireland. London: Intercollegiate Stroke Working Party; 2023 May 4. **Available at: www.strokeguideline.org.** **(selected)**	Clinicians should facilitate shared decision making and communicate the likelihood of the individual achieving their goals in an informed, compassionate, and individualised manner. [2023] From an early stage in rehabilitation, clinicians should prepare people with stroke and their carer(s) that discharge from the service will occur and ensure an adequate transition plan is created collaboratively. Discharge information should include how to re-access services if required. [2023] The multidisciplinary team should complete weekly reviews whilst providing rehabilitation in any setting, considering the needs, goals and progress of the person with stroke, and their treatment and discharge plans. The choice of rehabilitation pathway should be regularly reviewed to ensure rehabilitation continues to best meet the person's needs.
Clinical Guidelines for Stroke Management 2017. Melbourne (Australia): National Stroke Foundation. Part 7: Discharge Planning & Transfer of Care	Strong Recommendation Comprehensive discharge care plans that address the specific needs of the stroke survivor should be developed in conjunction with the stroke survivor and carer prior to discharge. Consensus-based recommendations A discharge planner may be used to coordinate a comprehensive discharge program for stroke survivors. To ensure a safe discharge process occurs, hospital services should ensure the following steps are completed prior to discharge: • Stroke survivors and families/carers have the opportunity to identify and discuss their post-discharge needs (physical, emotional, social, recreational, financial and community support) with relevant members of the multidisciplinary team. • General practitioners, primary healthcare teams and community services are informed before or at the time of discharge. • All medications, equipment and support services necessary for a safe discharge are organised. • Any necessary continuing specialist treatment required has been organised. • A documented post-discharge care plan is developed in collaboration with the stroke survivor and family and a copy provided to them. This discharge planning process may involve relevant community services, self-management strategies (i.e. information on medications and compliance advice, goals and therapy to continue at home), stroke support services, any further rehabilitation or outpatient appointments, and an appropriate contact number for any post-discharge queries. A locally developed protocol or standardised tool may assist in implementation of a safe and comprehensive discharge process. Prior to hospital discharge, all stroke survivors should be assessed to determine the need for a home visit, which may be carried out to ensure safety and provision of appropriate aids, support and community services.
Winstein CJ, Stein J, Arena R, Bates B, Cherney LR, Cramer SC et al; on behalf of the American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical	**Transitions in Care and Community Rehabilitation** It is reasonable to consider individualized discharge planning in the transition from hospital to home. Class IIa; LOE B It is reasonable to consider alternative methods of communication and support (eg, telephone visits, telehealth, or Web-based support), particularly for patients in rural settings. Class IIa; LOE B. **ADLs, IADLs, and Disability Measurement** It is recommended that all individuals with stroke be provided a formal assessment of their ADLs and IADLs, communication abilities, and functional mobility before discharge from acute care hospitalization and the findings be incorporated into the care transition and the discharge planning process. Class I; LOE B.

Guideline	Recommendations
Cardiology, and Council on Quality of Care and Outcomes Research. **Guidelines for adult stroke rehabilitation and recovery: a guideline for healthcare professionals from the American Heart Association/American Stroke Association.** ***Stroke* 2016;47:e98–e169**	
Shamji H, Baier RR, Gravenstein S, Gardner RL. **Improving the quality of care and communication during patient transitions: best practices for urgent care centers.** ***Jt Comm J Qual Patient Saf* 2014;40:319-24.**	1. Ask patients for the name of their Primary Care Physician (PCP). 2. Ask patients for the name of their home care provider. 3. Send summary clinical information to the PCP upon visit completion. 4. Send summary clinical information to the home care provider upon visit completion. 5. Send summary clinical information to the ED physician upon patient referral. 6. Perform modified medication reconciliation upon visit completion. 7. Provide patients with effective education upon visit completion. 8. Provide patients with written discharge instructions upon visit completion.
Snow V, Beck D, Budnitz T, Miller DC, Potter J, Wears RL, et al. **Transitions of Care Consensus Policy Statement American College of Physicians-Society of General Internal Medicine-Society of Hospital Medicine-American Geriatrics Society-American College of Emergency Physicians-Society of Academic**	Detailed Recommendations related to: • Coordinating Clinicians • Care Plans/Transition Record • Communication Infrastructure • Standard Communication Formats • Transition Responsibility • Timeliness • Community standards • Measurement

Guideline	Recommendations
Emergency Medicine. ***J Gen Intern Med* 2009;24:971-76**	

Evidence Tables

Individual Care Planning

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Dewan et al. 2014 **UK** **Pilot study**	NA	Over a one-year period (April 2011-2012), 55 adult stroke survivors who had been discharged from a hyperacute stroke unit.	6-weeks following discharge, patients (and caregivers, if available) attended a home-based review clinic conducted by a stroke navigator and a stroke consultant, which assessed patients' medical, health, social and secondary stroke prevention needs. Education and information were provided and referrals for needed services were made. 2-4 patients attended each session	**Primary outcomes:** Hospital readmission, patient satisfaction questionnaires, Stroke Impact Scale (SIS), Depression Intensity Scale Circle (DISC), Barthel Index Service user satisfaction questionnaires	There were no readmissions for new stroke at 6 weeks and 6 months following discharge. An informal caregiver attended 53% of the reviews. The majority of participants found the stroke navigator services easy to access, helpful, increased their knowledge and would recommend the service to others. The most common referrals recommendations were for blood pressure management (88%), community-based exercise program (65%), medical issues (35%), and social service intervention (22%)
Markle-Reid et al. 2011 **Canada** **RCT**	CA: ☑ Blinding: Patient☒ Assessor ☑ ITT: ☒	101 persons with stroke or TIA, sustained within the previous 18 months, who were eligible to receive home care services, living in the community. Mean age was ~73 years, 55% were men. Stroke chronicity was <6 months among 70% of participants.	Participants were randomized to receive home visits by a dedicated interprofessional team of healthcare providers, as required for a maximum of 12 months or usual care (home care). The intervention was individually tailored to the participant's rehabilitation needs/goals and was developed through a collaborative process with decisionmakers and front-line providers. The foci of the intervention	**Primary outcome:** Change in SF-36 scores **Secondary outcomes:** Change in Stroke Impact Scale (SIS) scores, Personal Resource Questionnaire (PRQ-85-Part 2), Epidemiological Studies in Depression Scale (CES-D), depression & anxiety (Kessler-10), The Short Portable Mental Status Questionnaire	19 participants were lost to follow-up, distributed equally between groups. Persons in the intervention group received 4.3 CCAC care coordinator visits, 29.1 nursing visits, 5.2 OT visits, 7.8 PT visits, 2.4 RD visits, 1 SW visits, 1.5 SLP visit, and 242 hours of care by a PSW. Persons in the usual care group received 1.1 CCAC care coordinator visits, 20.4 nursing visits, 5.3 OT visits, 4.3 PT visits, 0.4 RD visits, 0.4 SW visits, and 1 SLP visits, and 169 hours of care by a PSW. There was no significant difference between groups in mean change in SIS summary score from baseline. There were no significant differences between groups in mean change in any of the 8 SIS subscale scores, although there was a difference of >5 points (i.e. clinically significant), favouring the intervention group

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			were health management, life roles, social network, environment, communication, mobility, caregiver support, and financial management.	(SPMSQ) and Reintegration to Normal Living Index (RNLI)	for the SIS subscale score of physical function. There were no significant differences in mean change scores for any of the secondary outcomes. Sex was not examined as a potential effect modifier in subgroup analysis. The mean cost of the intervention was $2,750 greater compared with usual care over the 12-month period.

Transition Planning

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Gonçalves-Bradley et al. 2022 **Portugal** **Cochrane review**	One trial was at low risk of bias across all 9 domains assessed.	33 RCTs (n=12,242) that included participants that had been recruited with a medical condition (n=30, mainly heart conditions) or a surgical procedure (n=3). Mean age ranged from 60-84 years. One trial recruited patients following stroke.	Trials compared the outcomes of patients who received formal discharge planning (nurse-led, pharmacist, member of a multidisciplinary team, discharge planner) vs. usual care, (informal discharge planning). The majority of trials evaluated a discharge planning intervention that aimed to facilitate the co-ordination of post-discharge care and improve communication between the hospital, primary care and community services to aid the transition of patients from hospital to	**Primary Outcomes:** Hospital LOS, unscheduled readmission, patient health status, satisfaction of patients, care givers and healthcare professionals	The use of discharge plans was associated with a significantly reduced LOS: (MD -0.73; 95% CI -1.33 to -0.12). The results from 11 studies were included. GRADE: moderate At 2 weeks to 6 months following discharge, the use of discharge planning was associated with a significant reduction in readmissions (RR= 0.89; 95% CI 0.81 to 0.97). The results from 17 trials were included. GRADE: moderate At 3-9 months following discharge, patients in the control group were no more likely to be dead (OR=1.05, 95% CI 0.85-1.29). Results from 8 trials were included. GRADE: moderate Most studies reported little or no differences between groups for general and disease-specific health-related quality of life. Sex was not explored as a potential moderator variable in subgroup analysis.

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			their discharge destination. In all but three trials, the discharge planning intervention included an education component that provided patients with information of their health condition, medicines and post discharge arrangements.		
Duncan et al. 2020 **USA** **RCT (cluster)** ***Comprehensive Post Acute Stroke Services (COMPASS)***	CA: ☑ Blinding: Patient☒ Assessor☑ ITT: ☑	6,024 adult stroke and TIA patients discharged home from 40 hospitals, acutely after stroke. Mean age was 67 years, 49% were women. 58% of patients had sustained an ischemic stroke. Median NIHSS score was 1.	Participants were randomized to receive a comprehensive post-acute stroke transitional care (TC) management program or usual care. The intervention included telephone follow-up within 2 business days of hospital discharge and a clinic visit 7 to 14 days post-discharge. The TC plan in the intervention group was patient-centered and assessed social and functional determinates of health to inform individualized care plans.	**Primary outcome:** Stroke Impact Scale-16 (functional status) at 90 days **Secondary outcomes:** Mortality, disability, medication adherence, depression, cognition, self-rated health, fatigue, care satisfaction, home blood pressure monitoring, and falls	Receipt of the intervention per protocol ranged from 6% to 70% across hospitals. 35% of patients at intervention hospitals attended a COMPASS clinic visit. Mean SIS-16 functional status scores were not significantly different between groups (80.6 vs. 79.9). There was no significant difference between groups in 90-day mortality (98% vs. 98.2%, RR=1.04, 95% CI 0.62 to 1.75). Self-reported home blood pressure monitoring was performed significantly more in the TC group (72% vs. 64% (adj OR=1.43, 95% C, 1.21–1.70). There were no significant differences between groups for any of the secondary outcomes. There were no significant treatment interactions across subgroups of age, race, sex, NIHSS score, diagnosis, or insurance status for the primary- and secondary-outcomes.
Andrew et al. 2018 **Australia** **Retrospective study**	NA	200 patients from 35 hospitals included in the Australian Stroke Clinical Registry who had been discharged directly home from an acute hospital care following stroke, sustained 3-9 months	Participants were sent a survey assessing patient-perceived discharge quality including 3 questionnaires:1) the Prescriptions, Ready to re-enter community, Education, Placement, Assurance of safety,	**Primary outcome:** Predictors of high discharge quality scores	PREPARED domain quality scores ranged from a mean of 71% for medications to 81% for support structures and information exchange. The mean quality score was 73%. Only 18% of participants received an overall score of 100% across all 4 domains of PREPARED (support structures and information exchange; medication management; concerns with community management

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		earlier. Median age was 72 years, 69% were men.	Realistic expectations, Empowerment, Directed to appropriate services (PREPARED) questionnaire; 2) Longer-term Unmet Needs after Stroke (LUNS) questionnaire; and 3) a 2-question questionnaire about discharge processes specific to stroke care. Factors associated with higher discharge quality scores were identified.		and preparedness to deal with unexpected issues; and control of discharge circumstances. Those with quality scores <80% were significantly more likely to report having pain (49% vs. 35%) or anxiety or depression (49% vs. 29%) at 3 months post stroke. They were also more likely to report having unmet needs in these areas at approximately 6 months post stroke. Independent predictors of higher discharge planning quality scores (>80%) were receiving stroke specific information developed by the local hospital (OR=5.7, 95% CI 2.7-12.4) and referral to a local stroke support group (OR= 2.5, 95% CI 1.1- 5.9). PREPARED scores >80% were associated with higher EQ-5D scores and a reduction in the rate of unmet needs reported at 3-9 months post discharge.
Poston et al. 2014 **USA** **Retrospective study**	NA	Patients discharged home with self-care from a single hospital following acute ischemic stroke	During a 4-month feasibility phase, a nurse navigator ensured that prior to discharge, there was a follow-up appointment made with the patient's primary care physician (PCP), or a PCP was established for those without providers, and ensured that discharge summaries were transmitted to PCPs. In the final months of the intervention, 2 additional components were added-targeted education (self-care, stroke warning signs, prevention) and confirmed the medication plan.	**Primary outcomes:** 30-day readmissions and Emergency Department (ED)visits	During the 24-month period prior to the intervention, there were 20.8 ischemic stroke discharges per month. The average 30-day readmission rate during this time was 9.39%. (The average 30-day readmission rate to all state hospitals was 9.80%) During the feasibility phase, an average of 19.3 patients were discharged each month. The average 30-day readmission rate was 2.63%, which was the same as for all state hospitals. During the 4 months after the feasibility phase, an average of 21.3 patients were discharged each month. The average 30-day readmission rate was 3.24%, which was the same as for all state hospitals. Mean ED visits for the pre-intervention, feasibility phase and 4-month period after the feasibility phase were 6.9%, 6.8% and 4.24%, respectively. Mean ED visits for all state hospitals during these same periods were 16.36%, 12.11% and 12.08, respectively.

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Olson et al. 2011 **USA** **Agency for Healthcare Research and Quality Report**	NA	62 articles published ≥ the year 2000, representing 44 studies that included adults ≥ 18 years old who were discharged, or were preparing to be discharged from a hospital following acute stroke (ischemic or hemorrhagic) and acute myocardial infarction (MI). Components of transition of care services included: Case management, discharge planning, self-management tools, care pathways, systems for shared access to patient information, referrals to specialty care providers, included as part of the transition of care service and referral back to primary care providers.	Studies examined post-acute hospitalization transition of care services as well as prevention of recurrent stroke or MI.	**There were 5 key questions:** *Key Question 1* was related to identifying the key components of transition of care services, if they can be grouped in a taxonomy, and if they are based on a particular theory. *Key Question 2* asked if transition of care services improve functional status and quality of life and reduce hospital readmission, morbidity, and mortality up to 1-year post event. *Key Question 3* asked about potential adverse events associated with transition of care services *Key Question 4* asked if transition of care services improve other aspects of care, such as more efficient referrals, more timely appointments, better provider communication, and improved coordination among multiple	**KQ1:** Transition of care interventions were grouped into four categories: (1) hospital-initiated support for discharge was the initial stage in the transition of care process, (2) patient and family education interventions were started during hospitalization but were continued at the community level, (3) community-based models of support followed hospital discharge, and (4) chronic disease management models of care assumed the responsibility for long-term care. **KQ2:** There was moderate evidence to support the benefit of early supported discharge for stroke patients. ESD was associated with a reduction in hospital length of stay without negative impact and may also reduce caregiver strain and improve some aspects of quality of life among patients as well as caregivers. **KQ3:** Insufficient evidence to determine. **KQ4:** Insufficient evidence to determine. **KQ5:** No evidence that benefits or harms of transition of care services varied on the basis of patient characteristics, except a greater benefit of services was noted among patients with less severe strokes.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
				providers. *Key Question 5* asked if the benefits and harms associated with transition of care services varies by subgroup (e.g. disease etiology and severity, comorbidities)	
Shyu et al. 2008 **Shyu et al. 2010 (1-year follow-up)** **Taiwan** **RCT**	CA: ☒ Blinding: Patient☑ Assessor☒ ITT: ☒	201 patient / informal caregiver dyads. Patients ≥65 years with a primary diagnosis of stroke with high-demand discharge needs who were to be discharged home. 12% of those screened were eligible for inclusion. At one year, 158 patient/caregiver dyads remained in the study.	Within 48 hours of admission to an acute-care hospital, patient/caregiver dyads were randomized to one of 4 wards where they received a caregiver-oriented discharge planning program (n=97, 2 wards) or routine discharge planning (n=104, 2 wards). The discharge planning program was conducted by trained research nurses who evaluated caregiver needs during hospitalization and used results to guide individualized interventions, which included both health education and referral services. Once discharged, carers were contacted within one week by telephone and two home visits were made (one week, one	**Outcomes:** Nurse Evaluation of Caregiver Preparation Scale, Preparedness for Caregiving Scale (caregiver self-evaluation), Caregiver Discharge Needs Assessment Scale, Perception of Balance Between Competing Needs Scale. Assessments were conducted at admission, discharge, and one month following discharge. (Not all measures were administered at all assessment points). **Follow-up study outcomes**: Health-related quality of life (HRQoL; SF-36), quality of care (Family Caregiving Consequence	From admission to discharge, there were significant improvements in the nurse's evaluation and caregiver's self-evaluation of preparedness among caregivers in the intervention group (p<0.001). Among caregivers in the control group, although the nurses reported significant improvement in preparedness, caregivers did not. Caregivers in both groups reported increased Satisfaction in Caregiver Needs Satisfaction Scale from discharge to the one-month follow-up (p<0.001). Caregivers in the intervention group demonstrated significantly greater caregiver preparedness on both nursing and self-reported evaluations at discharge (both at p<0.01). At the one-month follow-up, those in the intervention group demonstrated significantly greater satisfaction with discharge needs than those in the control group (p<0.001). There were no differences in Perception of Balance Between Competing Needs Scale scores between groups. Dropouts: Intervention group=25 (26%); Control group=18 (17%). **Follow-up study:** No significant between-group differences in HRQoL scores for patients or carers were reported. Carers in the intervention group reported significantly better quality of care at 6 months (p<0.01) but not at any other

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			month) to advise and support caregivers in the home environment.	Inventory), health service utilization (readmission, length of stay, and institutionalization), and self-care ability (Barthel Index). Assessments were conducted at 3, 6 and 12 months after discharge.	assessment point; however, overall quality of care was reported to be significantly superior in the intervention group over the 1-year follow-up period ($p<0.05$). No significant group differences were reported with respect to self-care ability or hospital readmissions. However, patients in the intervention group were significantly less likely to be institutionalized between 6- and 12-months post-discharge, compared to those in the control group ($p<0.05$).
Allen et al. 2009 **USA** **RCT**	CA: ☑ Blinding: Patient☒ Assessor☑ ITT: ☑	380 patients admitted to the stroke unit of an acute care hospital with ischemic stroke, NIHSS score>0, discharged home directly, or within 8 weeks of discharge from hospital following a short stay in a skilled nursing facility	Patients were randomized to receive enhanced post discharge care (n=190) or standard care (n=190). An advanced practice nurse (APN) performed an in-home assessment within 1 week of discharge, the results of which were used by the multidisciplinary team to form a care plan that was provided to the patient's GP. Follow-up by the APN continued for 6 months (including home visits and telephone calls) in collaboration with the GP to ensure that all aspects of care were coordinated and delivered. Patients in the standard care group received care by their MD.	**Outcomes:** NIHSS, Timed Up & Go (TUG) test, mortality and institutionalization, QoL, recurrent stroke, blood pressure, depression (CES-D scale), Hgb A_{1c}, cholesterol, self-reported fall, incontinence, stroke knowledge and lifestyle modification (assessed using an investigator-generated questionnaire). All assessments were conducted at baseline and at 6 months	There were no significant differences between groups on any of the outcomes of interest except for significantly increased percentage of patients in the intervention group who could correctly identify stroke symptoms (79% vs. 76%) and risk knowledge (53% vs. 48%). Informal tests for potential interactions revealed that persons with a prior history of stroke, TIA or atrial fibrillation, benefited more from the intervention in terms of improved neuromotor function. Most of the APN time was spent on issues related to self-management and medical management issues.

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Mayo et al. 2008 **Canada** **RCT**	CA: ☑ Blinding: Patient☒ Assessor☑ ITT: ☑	190 stroke patients discharged home from 1 of 5 acute care hospitals who were identified as having a specific need for health care supervision following discharge, such as living alone or having a medical comorbidity. 65% of those screened for eligibility were randomized.	Participants were randomized to receive either a case management intervention (n=96) or care as usual (n=94). The intervention involved coordination with the patient's personal physician through telephone contact and home visits with the patient over 6 weeks. Persons in the usual care group were instructed to make an appointment with the patient's personal physician as soon as possible.	**Primary Outcome:** The Physical Component Summary of the Short-Form-36 (SF-36). **Secondary Outcome:** Health Care Utilization, the Medical Component of the SF-36, the EuroQuoL EQ-5D, the Preference-Based Stroke Index, the Reintegration to Normal Living Index, the Barthel Index, the Geriatric Depression Scale, Gait Speed, and the Timed Up and Go Test, healthcare utilization. Assessments were conducted at discharge, following the intervention, and 6-months post stroke.	The mean number of nurse visits was 4.8 and the mean number of telephone contacts was 7.4. 60% of the patients suffered moderately disabling strokes. Patients were discharged home an average of 12 days following admission. There were no significant differences between groups on any of the primary or secondary outcomes at any of the assessment points. From the 6-week to 6-month follow-up, patients in case management group had attended fewer mean specialist outpatient visits (2.2 vs. 3.4, p<0.01). Lost to Follow-up: Intervention group=15 (16%); Control group=18 (19%).
Torp et al. 2006 **Denmark** **RCT**	CA: ☑ Blinding: Patient☒ Therapist☒ Assessor☑ ITT: ☑	189 patients admitted acutely to hospital following a stroke, with functional impairments that required a hospital stay of >1 week beyond their acute stay	Patients were randomized to a control group that received standard treatment (n=188) or an intervention group (n=185) who received additional care from a multidisciplinary team through home visits following discharge for up to 30 days and whose home-based care with local home care services	**Primary outcome:** LOS **Secondary outcomes:** Barthel Index (BI), Frenchay Activities Index (FAI), Mini Mental State Examination, Geriatric Depression Scale, SF-36 Assessments were	There was no significant difference between groups in mean LOS (35.2 days, intervention vs. 39.8 days, control). There were no significant differences between groups in readmissions, GP visits, outpatient visits, or contacts with primary healthcare providers. There were no differences between groups in any of the secondary outcomes at either 6 months, or 1 year. Therapists spent an average of 6.5 hours on home visits and 3.3 hours on transportation per patient.

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			was also coordinated by one of the team members.	conducted at baseline, discharge, 6 months and 1 year.	At 12 months 89 patients remained in the intervention group and 87 in the control group.
Grasel et al. 2005 **Grasel et al. 2006 (long-term follow-up)** **Germany** **Controlled Study**	CA: ☒ Blinding: Patient☒ Assessor☑ ITT: ☒	71 patients who had suffered an ischemic or hemorrhagic stroke and required rehabilitation following the acute admission and their carers	Patients were assigned to a standard transition group (control) or an intensified transition group. Patients (and carers) in this group participated in a single psycho-educational seminar (education related to caregiving and resource availability), 3 sessions (45-60 minutes each) dedicated to skills training for the carer, and a weekend leave of absence which was supervised by an outpatient care service provider. A 3-month telephone counselling session was also provided.	**Patient outcomes:** Barthel Index (BI), FIM, Frenchay Arm Test, Ashworth Scale, SF-36, Timed Up & Go (TUG), evidence of paresis (upper and lower), gait disturbance (none, mild, major) **Carer outcomes:** Giessen Symptom List (GSL-24), Zerssen Depression Scale, Burden Scale for Family Caregivers Assessments were conducted at baseline (discharge), and 6 months **Follow-up study outcomes:** Family carers were contacted by telephone an average of 31 months following inclusion of the first patient in the study to enquire whether the patient was still alive, and if so if they were still residing at home, or in a nursing home	At 6 months there were no significant differences (in change scores) between groups for any of the patient outcomes, expect that more patients in the intervention group could complete the TUG (94% vs. 76%, p=0.04). At 6 months there were no significant differences (in change scores) between groups for any of the carer outcomes. 4 weeks after discharge, patients in the intervention group had developed significantly fewer new illness (6% vs. 245, p=0.044). By 6 months, there were no longer significant differences between groups (15% vs. 21%). Readmission rates and deterioration in general health were similar between groups at 4 weeks (9% vs. 7%) and 6 months (28% in both groups). **31-month follow-up:** Significantly more patients in the intervention group were alive and living at home (83% vs. 54%) and fewer patients were living in nursing homes (6% vs. 14%). Participation in the intervention group was an independent predictor of remaining at home.
Sulch et al. 2000, 2002a),	CA: ☑	152 patients with persistent deficits	Participants were randomized to the	**Primary outcome:** LOS	72-76% of patients were continent, able to dress independently and were mobile, prior to stroke.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
2002b) **UK** **RCT**	Blinding: Patient☒ Assessor☒ ITT: ☑	requiring inpatient rehabilitation, who had experienced a stroke within the previous 2 weeks.	Integrated Care Pathway group (ICP; n=76) or the conventional care group (n=76). The ICP intervention was developed by members of the multidisciplinary team using an evidence-based approach to identify therapeutic activities associated with best practices, key short-term goals and the time needed to achieve them. The progress of patients in the conventional care group was reviewed in weekly meetings, where short-term goals were set based on progress made to date (i.e. not defined in advance).	**Secondary outcomes:** Mortality, institutionalization, Length of stay, Barthel Index (BI), Hospital Depression and Anxiety Scale (HADS), Rankin, and EuroQol Quality of Life Scale. Assessments were conducted at baseline, 1, 4, 12, and 26 weeks (not all measures were assessed at the 1- and 4-week follow-up). **2002a) outcomes:** Proportion of patients receiving recommended interventions **2002b) outcomes:** EuroQol, caregiver strain, patient and carer satisfaction, all assessed at 6 months	There was no significant difference in mean LOS between groups (50 vs. 45 days, p=ns). There were no significant differences between groups in 6-month mortality (13% vs. 8%) or institutionalization (13% vs. 21). Median BI, Rankin scores and HADS scores were similar between groups at all assessment points. Patients in both groups received similar amounts of occupational and physical therapy. **2002a)** A higher number of caregivers in the conventional care group had their needs assessed separately and their need for skills training assessed (65% vs. 44%, p=0.021). Patient's GPs were notified within 24 hours of discharge more often in the ICP group (80% vs. 45%, p<0.001). Follow-up arrangements were made more often among patients in the ICP group (89% vs. 70%, p=0.024). **2002b):** Data for 82% (ICP) and 78% (conventional care) were available. Median total EuroQol scores were significantly higher in the conventional care group (72 vs. 63, p<0.005). Patients in the conventional group scored significantly higher on the social functioning domain, while those in the ICP group scored significantly higher on the self-care domain. There were no significant differences between groups on the 3 remaining domains. There were no significant differences between groups in caregiver or patient satisfaction with care. Median caregiver strain index score was non-significantly higher in the ICP group (5.9 vs. 4.6, p=0.054).

Stroke Navigators

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Manderson et al. 2012 **Canada** **Systematic review**	NA	15 publications, representing 9 RCTs examining system navigation models for older adults living with multiple chronic diseases making transitions across healthcare settings	Narrative synthesis	**Primary outcomes:** Economic, psychosocial and function	Most studies examined the transition from hospital to home. Regardless of their navigation titles (e.g. case manager, care coordinator), most roles were filled by nurses. Services were provided for up to 18 months following discharge. Services provided included care planning, coordination of care, phone support, home visits, liaison with medical and community services, and patient and caregiver education 8 studies included some form of economic evaluation (e.g hospital costs, health service utilization, hospital readmissions). Of these, 5 were positive (i.e. lower costs) 5 studies included at least one psychosocial outcome (e.g. QoL, depression). Of these, 4 were positive (i.e. at least one of the psychosocial evaluations was significantly improved relative to control group on one or more occasions) 6 studies included at least one functional outcome (e.g. ability to perform ADLs). Of these, one was positive (i.e. functional outcomes were significantly better in intervention compared with control group)
Egan et al. 2010 **Canada** **Single group intervention study**	NA	51 stroke survivors (mean of 4.7 years post stroke) and 32 care partners, recruited through a stroke survivors' organization.	A community stroke navigation service was provided by an occupational therapist. Following pre-test assessments, the community Stroke Navigator interviewed the participant and caregiver if available, to identify the greatest concerns and	**Primary outcome:** 2-Minute Walk Test (patient and carer), HADS (depression sub scale, patient only), General Well-Being Schedule (carer only), Reintegration to normal Living (RNLI), patient and carer, qualitative interviews	During the 4-month intervention period, contacts made by the Stroke Navigator included 1-8 visits, phone calls, and written correspondence There was a significant increase in the mean, daily functioning subscale of the RNLI among patients (54.1 to 59.3, p=0.02) There were no significant changes on any of the standardized assessments for patients or carers.

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			then developed a care plan to enhance community reintegration. The intervention was composed of 6 components (case coordination, support, “just in time” education, coaching, accompaniment, and advocacy	Assessments were conducted pre-intervention and 4 months following initiation of the service	

Interprofessional Communication

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Gleeson et al. 2023 **Ireland** **Systematic review**	The 21-item Critical Appraisal Skills Programme checklist for qualitative research (CASP), was used.	18 qualitative studies examining interprofessional communication in a hospital setting. Study participants included doctors, nurses, surgeons, pharmacists, other allied healthcare professionals and non-clinical healthcare staff	Thematic analysis was used to synthesize the evidence regarding healthcare providers’ perceptions of interprofessional communication in the hospital setting. Data collection methods included interviews, focus groups, and a mixed methods survey	**Primary outcome:** Barriers to, and facilitators of, communication	*Facilitators to communication* • Having a mutually positive and respectful relationship between colleagues • Comprehending the particular skills and role of that person. • Trusting in the knowledge and skills possessed by a member of another profession. • Having a good pre-existing personal relationship • Being approachable, respectful and level-headed during stressful situations • Mutual respect *Barriers to communication* • A negative or stressful healthcare environment • Stressful situations with time limitations

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					- A hierarchal environment, where some professions felt it was not their place to speak up, particularly with senior staff/MDs. - Insufficient understanding of a colleague's role. This barrier was identified for those who were perceived to be at the top of the hierarchy.
Kattel et al. 2020 **USA** **Systematic review**	NA	19 studies describing hospital discharge (D/C) communication between hospital-based providers and primary care physicians (PCPs), or studies describing interventions to improve communication at hospital-discharge between hospitals and PCPs.	Data are presented descriptively.	**Primary outcomes:** Timeliness of completion, availability, contents of discharge summaries, and the effectiveness of interventions aimed at improving timeliness, availability, content, or readability	*Timeliness and content of D/C summaries* A median of 55.1% of hospital D/C communications were transferred to the PCP within 48 hours, while a median of 67.4% of hospital physicians had completed D/C summaries within 48 hours. 8.5% of discharge summaries never reached the PCP. Information that was absent from discharge summaries included diagnostic test results (61%), pending tests at discharge (25%), and follow-up plans (41%). PCP received notification of D/C in 23% of cases. *Interventions to improve delivery of hospital D/C summaries to PCP* Email use was associated with faster delivery of D/C summaries to PCP. Electronic D/C summaries and quality improvement initiatives were effective methods to ensure summaries were completed in a timely manner. *Interventions to improve the quality of the D/C summary* Quality improvement initiatives helped to improve the quality of D/C summaries. *Interventions to improve discharge readiness and communication with PCPs* The use of D/C software resulted in improved patient perception of discharge preparedness in one trial. Audit-feedback and financial incentives resulted in improved documentation of communication with PCPs in one trial.
Mitchell 2015 **USA**	NA	Data were collected from 3,248 hospitals	The association between MD/nurse communication with the	**Primary outcome:** 30-day medical readmissions	A mean of 84% of patients reported receiving discharge instructions. Hospitals that had smaller bed numbers, were non-profit and located in non-urban areas were

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Controlled study			patient regarding discharge instructions and readmission was explored.		more likely to provide discharge instructions. Patients reported that, on average, nurses and doctors communicated well with them 78% and 82% of the time. Controlling for other factors, increasing frequency of communication surrounding discharge instructions was associated with significantly lower number of hospital admissions (-5.5).
Tielbur et al. 2015 **USA** **Pilot project**	NA	226 patients admitted to a neurological stroke service before the initiation of the intervention (baseline cohort) and 188 patients admitted after its initiation.	A program of multidisciplinary team discharge meetings (huddles) was implemented with the aims of identifying follow-up care placement, increasing referrals into affiliated follow-up care options, predicting a discharge date and eliminating barriers to discharge. Each case manager and social worker was provided with a cellular phone with texting capabilities. All members of the team were provided with tablet computers.	**Primary outcomes:** Hospital LOS, and percentage of patients discharge destination	Prior to the initiation of the huddle, the mean LOS was 5.9 days. At discharge, 18% of patients were serviced by affiliated care partners (inpatient rehabilitation, outpatient rehabilitation, and home care). After the initiation of the huddle pilot, the mean length of stay was reduced significantly to 4.4 days (25% reduction). Discharges into affiliated partners increased from 18% to 28% ($p < .05$). The number of patients being sent home without services decreased from 47% to 35%. Results from 196 staff surveys indicated they found the discharge huddle was helpful and that they believed they were more efficient in discharging patients. The technology was heavily utilized and was reported to be helpful.
Mitchell et al. 2008 **Australia** **Systematic review**	The mean score for RCTs was 7.8/10 using the Cochrane Quality scoring system. The	18 studies (5 RCTs, 7 qualitative studies), assessing coordinated multidisciplinary care of patients post stroke, in primary care.	Studies examined any multidisciplinary planning process with the general practitioner (GP) as a participant or leader, mainly involving face-to-face or teleconference meetings. Results are	**Primary outcomes:** Function, quality-of-life (QoL), mortality, service provision (inpatient days)	Most care planning took part in the context of multidisciplinary team care based in hospitals with outreach to community patients. In the RCTs, the interventions described were home based care coordination from hospital specialist unit, stroke unit care with discharge planning; and early supported discharge. There were no significant benefits of the intervention compared with usual care for

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
	mean score for qualitative studies was 12.4/16 on the Aoun quality scoring system.		reported descriptively.		mortality, and equivocal results for improved function, QoL and service utilization. Three qualitative studies of multidisciplinary care in the community care of stroke described: 1) the micromanagement of the discharge process, 2) GP care experienced by stroke patients after discharge in the community and 3) setting discharge priorities for patients about to enter nursing home. GP involvement in these processes was variable. Three qualitative studies described the processes of care of multidisciplinary care in the community care of stroke, of which two were economic models. The authors concluded it was uncertain whether multidisciplinary care involving GPs improves stroke outcomes in patients returning to the community.
Kripalani et al. 2007 **USA** **Systematic Review**	NA	73 studies examining communication deficits between hospitals and primary care providers (n=55) and interventions to improve communication during this transition (n=18, 3 RCTs)	Narrative synthesis Interventions varied across studies. The most common were hand delivery of D/C letter by patient to GP vs. mailed delivery (n=2); Database or computer-generated D/C summary vs. dictated D/C summary (n=7); standardized format for D/C summary vs. narrative D/C summary (n=2)	**Studies examining communication deficits:** Timeliness and type of information missing from a discharge letter or summary arriving to a primary care physician for a patient discharged from hospital. **Intervention studies to improve communication:** Not stated *a priori*	**Timeliness of discharge letter or summary:** A median of 53% of discharge letters (range 30%-94%) were received by the primary care physician from hospital within 1 week; 14.5% (range 9% to 20%) of discharge summaries were received within 1 week. A median of 82% (range 77% to 85%) of discharge letters were available in the hospital medical record; 85% (range 82% to 93%) of discharge summaries. **Prevalence of Missing Information**: Main Diagnoses: A median of 13% (range 2% to 31%) of discharge letters; 17.5% (range 10% to 39%) of discharge summaries were missing main diagnoses. In Hospital Treatment Details: A median of 29.5% (range 22% to 45%) of discharge letters; 14.5% (range 7% to 22%) of discharge summaries were missing treatment details. Medications at Discharge: A median of 25% (range 7% to 48%) of discharge letters; 21% (range2% to 40%) of discharge summaries were missing medication details. Plans for Follow-up: A median of 30% (range 23% to 48%) of discharge letters; 14 (range 2% to 43%) of

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
					discharge summaries were missing details of a follow-up plan. Patient or family counseling: A median of 92% (range 92% to 97%) of discharge letters; 91% (range 90% to 92%) of discharge summaries were missing notes on any patient or family counseling. **Statistically significant results reported in Intervention Studies**: i) RCTs: A higher percentage of D/C summaries that were hand delivered were received by week 4 following discharge (80% vs. 57%, p<0.001). GPs that received D/C plans from institutions with enhanced D/C planning group had a better understanding of hospital management (96% vs. 62%, p=0.005) and a higher percentage of the GPs rated the quality of the D/C summaries as good or extremely good (96% vs. 48%, p<0.001). ii) Non RCTs with concurrent controls: D/C summaries that were hand-delivered were received by the GP sooner (median 2.5 vs. 7.5 days, p<0.001) and a higher percentage of computer-generated D/C summaries were easier to read and perceived to be of higher quality. iii) Non RCTs with pre-post designs: The overall quality of the D/C summaries was perceived to be higher and the summaries were longer when computer generated, using a standard template, and were received by the GP sooner.
Halasyamani et al. 2006 **USA** **Checklist development**	NA	NA	A discharge checklist designed to identify the critical components in the process when discharging elderly patients from hospital was developed by a Hospital Quality & Safety committee.	NA	32 studies were identified that were specific to discharge elements, including adverse events and the use of standardized tools to assemble pertinent information at the time of discharge. Most of the studies were related to medication-associated adverse events. The final checklist includes 3 types of discharge documents: the discharge summary, patient instruction and communication on the day of discharge to the

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			The process included a literature review, development of a draft checklist by an expert committee, peer review and ratification of final checklist		receiving care provider. Data elements included on the final checklist were: Problem that precipitated hospitalization, key findings and test results, final primary and secondary diagnoses, condition at discharge (functional and cognitive), discharge destination, discharge medications, follow-up appointments, list of pending lab results and person to whom results will be sent, recommendations of sub-specialty consultants, documentation of patient education and understanding, identification of atypical problems and suggested interventions, 24/7 call-back number, identification of referring and receiving providers, resuscitation status.
Roy et al. 2005 **USA** **Prospective study**	NA	2,644 consecutive patients discharged from 2 tertiary care hospitals	Pending tests at the time of discharge were tracked for 14 days, using an electronic medical record. Abnormal test results were identified and sent to one of 4 physicians for review to determine (subjectively) if the test results were potential actionable, based on data contained in the discharge summary and any related test results. A result was considered potentially actionable if it could change the management of the patient in any way (e.g. by requiring a new treatment or diagnostic test, or discontinuation of a treatment). Inpatient or primary	**Primary outcomes:** Prevalence of potentially actionable results returning after discharge, awareness of the results by inpatient and PCP. Inpatient physicians were surveyed 72 hours after a test result became available while PCP were surveyed 14 days later.	Out of 2033 pending results, 877 (43%) were abnormal. Of these, 191 (9.1%) were potentially actionable. 155 surveys were sent to the associated physicians, of which 105 surveys were returned. 61.6% of physicians were unaware of the test result. A higher percentage of inpatient physicians were unaware compared with PCP (71% vs. 46%, p=0.02). 33.3% of physicians were unaware that the test in question had been ordered. A higher percentage of PCPs were unaware (45.8% vs. 24.6%, p=0.006).

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			care physicians (PCP) were surveyed to determine if they were aware of the test result.		
Van Walraven et al. 2003 **Canada** **Retrospective study**	NA	888 patients discharged from a single hospital following an acute stay admission for a medical condition. The most common reasons for admission were pneumonia (14.3%), congestive heart failure (9.7%) and asthma/COPD (8.4%). 3.6% of patients were admitted for stroke. The mean age was 65.7 years, 50.2% were women.	The discharge summaries of patients were reviewed to determine the date of discharge and the physician to whom the summary was sent. The investigators determined whether the discharge summary had been received by the physician and if so, if it had been received in time for review prior to a follow-up outpatient visit.	**Primary outcome:** Independent predictors of readmission 3 months following discharge	Median LOS was 4 days. Over the 3 months patients had a median of 4 outpatient visits. Discharge summaries were sent to a median of 2 physicians/patients. The discharge summary was available for 568 of 4,639 outpatient visits (12.2%). There were 240 (27.0%) of patients readmitted urgently to the hospital during the study period. Independent predictors of hospital readmission were presence of a regular family physician (OR=2.26, 95% CI 1.20-4.29) increasing LOS during first hospital admission (OR=1.31, 95% CI 1.18-1.47), cancer diagnosis (OR=1.55, 95% 1.04-2.29). Independent factors associated with decreased odds of readmission were higher income (OR=0.87, 95% CI 0.77-0.98) and a D/C summary being received by at least one physician (OR=0.74, 95% CI 0.50-1.11).

Virtual Family Conference

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Ritsma et al. 2023 **Canada** **Single group intervention study**	NA	87 carers of patients who were receiving inpatient rehabilitation. 67% of carers were women and 41% lived with the patient. Mean age of the patients was 75 years.	Participants attended a 1-hour virtual family conference, using a teleconference platform 1-2 weeks prior to discharge, addressing 9 primary themes/topics, which	**Primary outcomes:** Stroke Knowledge and Transition Preparedness Questionnaire (5 items), Information Satisfaction Questionnaire (5 items),	There were 48 virtual family conferences. There was significant improvement in all 5 questions related to stroke knowledge with more responses rated as good or excellent post intervention. There was in increase in the number of “yes” responses to all questions on the Information Satisfaction Questionnaire post

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			was led by the patient's physiatrist. Carers were asked to complete three online questionnaires before and after the family conference.	Kingston Caregiver Stress Scale (4 items)	intervention (e.g. Do you feel you know enough about what a stroke is? 72% pre intervention vs. 93% post intervention). There were fewer significant improvements in the proportion of respondents reporting having extreme stress, a lot of stress, moderate stress, some stress or no stress post intervention for all 4 items of the Kingston Caregiver Stress Scale.

Abbreviations

CA: concealed allocation	CI: confidence interval	LOS: length of stay
HRQoL: health-related quality of life	ITT: intention-to-treat	NA: not assessed/not applicable
NIHSS: National Institutes of Health Stroke Scale	OR: odds ratio	RCT: randomized controlled trial
RR: relative risk	SF-36: Short Form Health Survey	

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