HEART & STROKE FOUNDATION | CANADIAN Stroke BEST PRACTICE RECOMMENDATIONS

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Transitions of Care Following Stroke

Evidence Tables

Transitions to Long-Term Care Following Stroke

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Transitions of Care Following Stroke Writing Group

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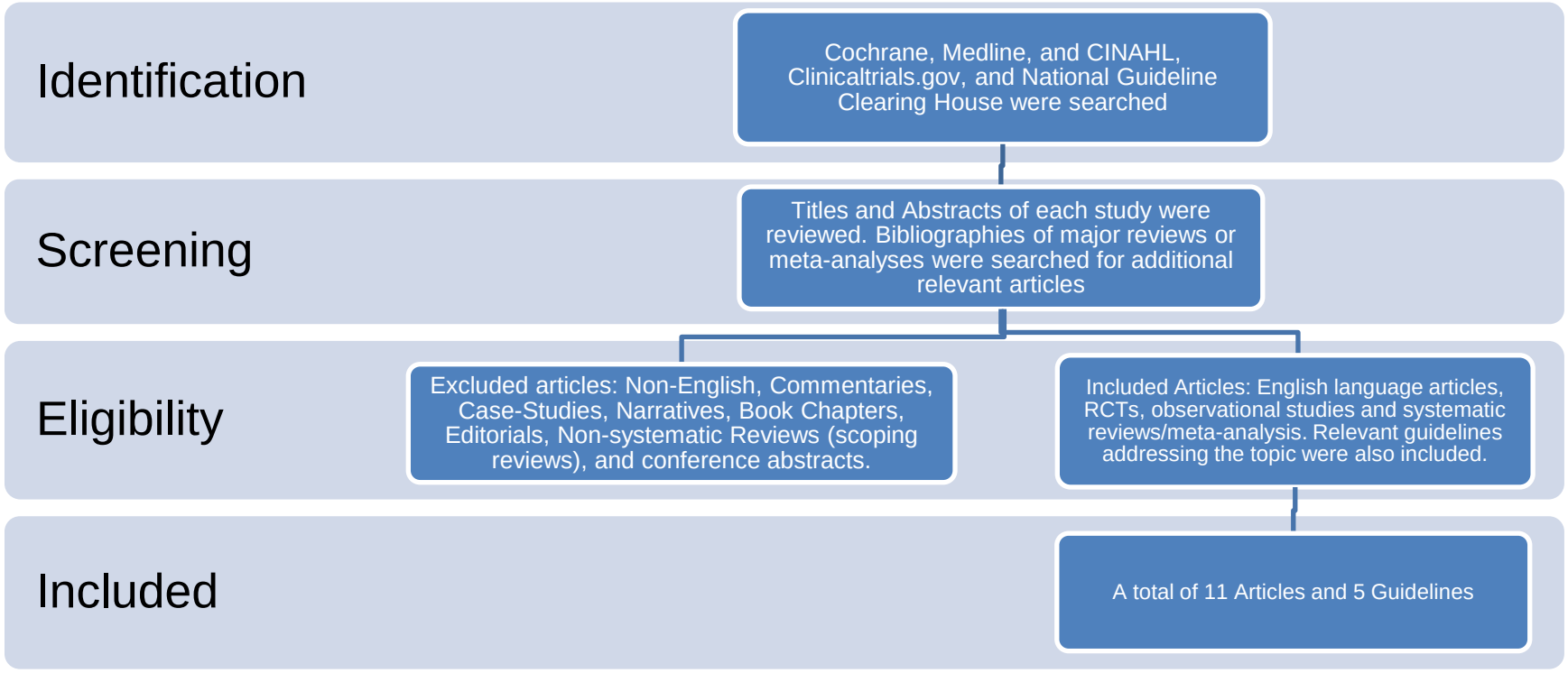
Search Strategy



Cochrane, Medline, and CINAHL, Clinicaltrials.gov, and National Guideline Clearing House were search using medical subject. 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 11 articles and 5 guidelines were included and were separated into separate categories designed to answer specific questions.

Published Guidelines

Guideline	Recommendations
Intercollegiate Stroke Working Party. National clinical guideline for stroke, 4th edition. National Institute for Health and Clinical Excellence London: Royal College of Physicians, 2012.	Any patient whose situation changes (eg new problems or changed environment) should be offered further assessment by the specialist stroke rehabilitation service. A named person and/or contact point should be identified and communicated to the patient to provide further information and advice if needed. Any patient with residual impairment after the end of initial rehabilitation should be offered a formal review at least every 6 months, to consider whether further interventions are warranted, and should be referred for specialist assessment if: • new problems, not present when last seen by the specialist service, are present • the patient's physical state or social environment has changed. Further therapy following 6-month review should only be offered if clear goals are agreed. Patients should have their stroke risk factors and prevention plan reviewed at least every year
Irish Heart Foundation: Council for Stroke: National Clinical Guidelines and Recommendations for the Care of People with Stroke and Transient Ischaemic Attack. Revised Version March 2010.	Rehabilitation in Extended Care Setting: • All staff in nursing homes, care homes and residential homes should be familiar with the common clinical features of stroke and the optimal management of common impairments and activity limitations. (R) • Residents in extended care should have the same access to care as any community resident. (R)
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.	None
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.p.70-72	Patient, Family Support, and Community Resources: • Families should receive counseling on the benefits of nursing home placement for long-term care.
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:e117 -125	• None

Evidence Tables

Rates and Predictors of Transfer to Long-Term Care Facilities

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Pereira et al. 2014 **Canada** **Retrospective study**	NA	189 patients admitted to a stroke rehabilitation unit of a single hospital following a severe first-ever stroke (i.e FIM scores 12-38). Mean age was 69 years.	Phone interviews were used to establish post-discharge living arrangements	**Primary outcome:** Independent predictors of home discharge	65 patients (34%) were discharge to a nursing home. Their mean age was significantly lower compared with patients discharged home (78.5 vs. 63.8 years, p<0.001). Their mean admission FIM score was also significantly lower (47.5 vs. 50.4, p=0.012)
Brodaty et al. 2010 **Australia** **Retrospective study**	NA	202 participants, <85 years without dementia who had suffered an ischemic stroke. Mean age was 72 years. 97 persons, recruited from the community, served as a control group. Mean age was 71 years	Participants were assessed at 3-7 days following stroke at 3-6 months and at 1, 3 and 5 years. Model were developed to predict mortality and institutionalization. Candidate variables included age, development of dementia, mild cognitive impairment, ability to perform ADL stroke severity (European Stroke Scale), marital status, depression (Geriatric Depression Scale), diabetes, education, and number of vascular risk factors	**Primary outcomes:** Mortality and rates of institutionalization at 10 years.	The survival rates for the stroke patients were: 100% at 1 month, 97.2% at 12 months, 92.0% at 2 years, 73.3% at 5 years and 17.5% at 10 years. The mean survival time for the stroke patients was significantly shorter compared with the controls. Nursing home admission rates were 24% at 5 years and 32% at 10 years for patients and 0 for controls over 8.9 years follow-up. Independent predictors of nursing home admission were advancing age (HR=1.08, 95% CI 1.01-1.12, p=0.01) and lower performance on ADL (HR=0.81, 95% CI 0.74-0.88, p<0.001).
Walsh et al. 2008 **Ireland** **Retrospective study**	NA	136 patients admitted to a stroke unit of a single hospital. Median age was 77 years. 98% of patients were living at home prior to stroke.	Patient data was obtained through a patient information system. Data collected included age, sex, stroke subtype, patients' residence pre-stroke and discharge medications	**Primary outcomes:** Mortality, rates of institutionalization and stroke recurrence at 4 years.	Mortality at 1 and 4 years was 16.3% and 39.5%, respectively. Stroke recurrence at 1 and 4 years was 1.6% and 8.0%, respectively. At 4 years, 40.3% of patients were institutionalized.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Chuang et al. 2005 **Taiwan** **Prospective study**	NA	714 patients admitted to one of 6 hospitals following acute stroke. Mean age was 71 years. 59% of patients had experience their first stroke.	Data was collected in person during hospitalization and by telephone interviews at 1, 3 and 6 months following discharge. Data points collected included, age, sex, ability to perform ADL, discharge destination, mortality	**Primary outcomes:** Mortality and rates of institutionalization.	At 1 month after discharge, 22.1% of patients could perform ADL 4.5% of patients had died, 10.4% were admitted to a LTC facility. At 3 months after discharge, 25.3% of patients could perform ADL 6.8% of patients had died, 11.2% were admitted to a LTC facility. At 6 months after discharge, 29% of patients could perform ADL 10% of patients had died, 10.3% were admitted to a LTC facility.
Portelli et al. 2005 **UK** **Retrospective study**	NA	2,778 patients randomly sampled from 79 hospitals, who had been admitted with acute stroke.	A 42-item questionnaire was used to collect data on admission and discharge details, prestroke status, stroke severity, resource utilization, and discharge disposition at three and six months post stroke.	**Primary outcomes:** Independent variables predicting institutionalization	349 patients (19%) were discharged from hospital to a nursing home. Of these, 242 (14%) patients lived at home, prior to stroke. 812 patients (29%) died in hospital. At 3 months, 194 patients (74%) remained institutionalized. while 48 (18%) patients had died. Age, Barthel Index at discharge and LOS were significant predictors of institutionalization.

Discharge Planning for Patients Entering Long-Term Care

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Sackley & Pound. 2002 **UK** **Consensus panel**	NA	12 members from a multidisciplinary specialized stroke team participated in a panel to discuss priority items for discharge plans for stroke patients entering long term care.	Literature was reviewed and the evidence summarized. 22 discharge process items were identified and categorized into three areas: discharge process, physical care needs, and patient needs. Panel members ranked the items in terms of priority, met to discuss	**Outcome:** The development of an evidence-based discharge plan for persons moving from inpatient care to a nursing home facility following a stroke.	In addition to the identification of physical care needs (e.g., details of the methods the patient uses to transfer and mobilize) and care needs (e.g., details of current medications and pain management), priorities for discharge were identified and included: 1. Plans need to be coordinated by a single person 2. A full assessment of needs for aids should be carried out and the findings given to the nursing home 3. Patients should visit the nursing home before discharge

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			importance of items, and provided a second ranking of items following this meeting.		4. Patient information should be recorded in written format 5. Continuing rehabilitation plans should be included 6. Staff at the nursing home should receive teaching on the patient's care before discharge 7. Details of follow-up care should be included 8. Hospital staff should carry out a follow-up visit to the nursing home 9. The patient should be given an outpatient appointment after discharge Overall, there was good agreement on priority items between panel members (Kendall coefficient of concordance (W)=0.48-0.58).
Sackley & Pound. 2002 **UK** **Retrospective Study**	NA	38 stroke patients with Barthel Index scores of <11, three months post stroke who were discharged to a nursing home. Mean age of patients was 81 years.	A content analysis of case notes and discharge letters, completed by nurses and MDs was conducted to determine if the discharge letters contained information related to self-care ability, nursing needs, and risk assessment.	**Outcome**: Completeness and accuracy of discharge letters related to patient nursing needs	Nursing care items that were most likely to have been recorded in the discharge letter were related to diet (82%), and self-care ability in bathing (71%) and transfer method (76%). Nursing care items that were least likely to have been recorded in the discharge letter were related to risk assessment (e.g., falls 18%) and depression and pressure care (37% each) and patient's level of communication (37%). Many items deemed to be priority for discharge communication were poorly recorded, and in several cases discharge letters contained inaccurate information regarding patients abilities (i.e. mobility issues). In two cases, discharge letters were delivered to the nursing care facility months after the patient was discharge from inpatient care. The majority of discharge letters completed by MDs contained no information related to primary diagnosis, long-term care needs or social needs.

Outcomes for Patients Transferred to Long-Term Care

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Jantzi et al. 2014 **Canada** **Retrospective study**	NA	42,089 patients admitted to long-term care facilities in Ontario within 180 days. 7,226 patients (17.2%) had experienced a stroke	The association between various neurological conditions (dementia, seizure disorder, Huntington's disease, multiple sclerosis, Parkinson's disease, stroke, TBI and muscular dystrophy) and incident fractures (hip, spinal, forearm and pelvis) was explored	**Primary outcome:** Independent predictors of fractures within 180 days of admission	23,788 patients (55.5%) had one of the neurological conditions of interest. Of the entire cohort, 2.6% (1,094) sustained a fracture during the 180 days following admission to LTC. In the fully adjusted model, stroke, as a neurological condition was not an independent predictor of incident fracture (OR=1.12, 95% CI 0.92-1.37). Within the stroke sub group, independent predictors of incident fracture were: age >64 Years (65-74 years: OR=4.64, 95% CI 1.07-20.2; 75-84 years: OR=5.21, 95% CI 1.27-21.43 and >85 years: OR=7.06, 95% CI 1.73-28.86, compared with patients <65 years), female sex (OR=1.59, 95% CI 1.14-2.22), a score of 5-6 on the Cognitive Performance Scale (OR=2.23, 95% CI 1.15-4.3) a fall in the past 30 days (OR= 1.61, 95% CI 1.14-2.28) and an unsteady gait (OR=1.43, 95% CI 1.04-1.95).
Brajkovic et al. 2009 **Croatia** **Cross-Sectional Survey**	NA	60 patients, living in a private nursing home (n=30) or their own homes (n=30), for at least the previous 9 months. Stroke onset was one year prior to the start of receipt of services. Median age was 81 years for the nursing home group and 79 years for the home care group.	Participants living in the nursing home received 24 hour support including access to psychiatric and internist checkups (2 times per week), exercises with a physiotherapist (daily), massage (1 time per week). Participants living in their home receive care from the same nursing facility but only received nurse, physical therapist and physician's assistance. Questionnaires were administered to all	**Primary outcomes:** Quality of life (World Health Organization Quality of Life Questionnaire – short form WHOQOL-BREF), which includes four domains (physical, psychological, social relationships and environment) **Secondary outcomes:** perception of quality of life, perception of health, and self-assessment of global quality of life.	**WHOQOL-BREF:** Patients living in the nursing home had higher mean scores on the physical domain (28.5 vs. 17.2; p=0.001), psychological domain (22.3 vs. 16.3; P=0.001), social relationships (11.4 vs. 8.3; P=0.001) and environmental domain (32.8 vs. 24.0; P=0.001) compared to patients living in their homes. **Perceived quality of life and health status:** Patients living in the nursing home also had a higher perceived quality of life (78.7 vs. 59.3; p<0.001) and perceived health status (3.6 vs. 2.5; <0.001) compared to patients living in their home.

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
			participants with help from researchers.		
Leeds et al. 2004 **UK** **Prospective study**	NA	Patients admitted to a stroke rehabilitation unit who had been discharged home (n=65) or to a nursing home (n=65) following stroke. Mean age for patients in both groups was 80 years.	Patients in each group were matched for age, sex, stroke severity, ADL performance, cognition, mood and HR QoL, and their outcomes compared at baseline and 6 months following discharge from hospital	**Primary outcomes:** CAMCOG, Barthel Index (BI), Geriatric Depression Scale (GDS), EQ-5D, number of drugs	Patients in both groups received low amounts of rehabilitation following discharge. A third of patients received none, while 1/5 attended a Day Hospital. Mean baseline GDS score was significantly higher for patients discharged to a nursing home (6.1 vs. 3.4, p=0.003), but there were no significant differences between groups on any of the other measures. At follow-up, patients who had been discharged home had significantly lower mean GDS score (4.2 vs. 5.9, p=0.002), and significantly higher mean CAMCOG (81.4 vs. 75.4, p=0.03), BI scores (14.9 vs. 10.8, p=0.0001) and mean EQ-5D scores (0.60 vs. 0.35, p=0.001). There was no significant difference in the mean number of drugs taken, between groups (5.9 vs. 5.1, p=0.07).
Quilliam & Lapane 2001 **U.S.** **Cross-Sectional Study**	NA	53, 829 patients in 5 states >65 years with stroke who were living in a long- term care facility following stroke. 21% of patients were 65-74 years, 43% were 75-84 years, and 36% were over 85.	Factors associated with the use of drugs for secondary prevention of stroke were assessed using an administrative database (SAGE). Drugs that were classified as preventative agents included: aspirin, dipyridamole, ticlopidine and warfarin	**Outcomes:** independent predictors of anticoagulant or antiplatelet usage.	66% of patients were not receiving anticoagulant or antiplatelet therapy. Among the 9042 patients who had been hospitalized within the previous 6 months, independent predictors of reduced likelihood of secondary prevention drug use were: older age (85+ years OR=0.80, 95% CI 0.72–0.89, female sex (OR= 0.92, 95% CI 0.85–0.99), physical dependency (OR= 0.62, 95% CI 0.52–0.74), moderate and severe cognitive impairment (OR= 0.85, 95% CI 0.77–0.93 and OR=0.61, 95% CI 0.55–0.68, respectively), Alzheimer's disease (OR= 0.72, 95% CI 0.57–0.90) and a history of GI bleed (OR=0.51, 95% CI 0.43–0.61) or peptic ulcer (OR=0.58, 95% CI 0.48–0.69). Independent predictors associated with increased likelihood of drug use were: atrial fibrillation (OR=1.67, 95% CI 1.54–1.81), HTN (OR= 1.16, 95% CI 1.08–1.25) and depression (OR= 1.16, 95% CI 1.03–1.30).

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