HEART & STROKE FOUNDATION | CANADIAN Stroke BEST PRACTICE RECOMMENDATIONS

CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

Transitions of Care Following Stroke

Evidence Tables

Interprofessional Care Planning and Communication

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on Behalf of the Canadian Stroke Best Practice Recommendations
Transitions of Care Following Stroke Writing Group

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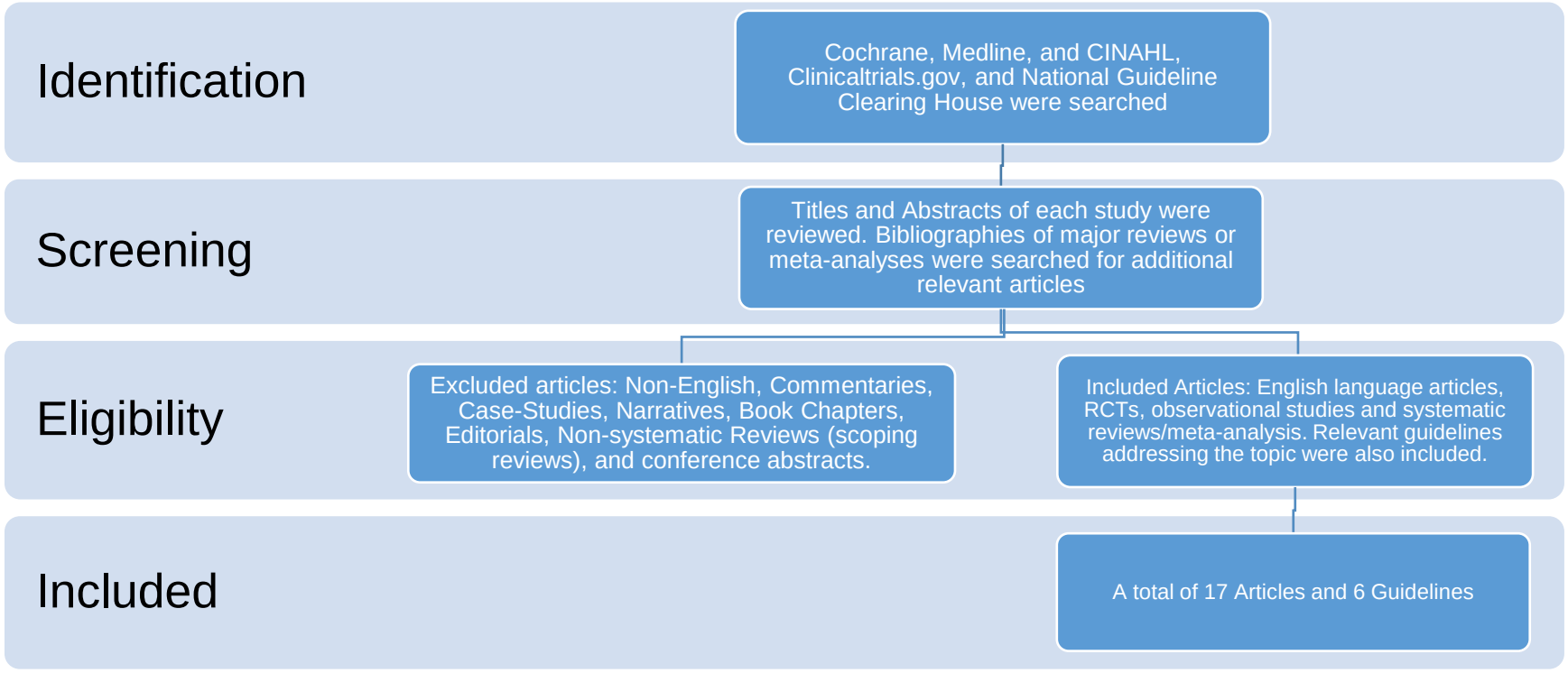
Search Strategy



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 17 articles and 6 guidelines were included and were separated into separate categories designed to answer specific questions.

Published Guidelines

Guideline	Recommendations
Shamji H, Baier RR, Gravenstein S, et al. 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	Best practices: 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 patient with effective education upon visit completion. 8. Provide patient with written discharge instructions upon visit completion.
Intercollegiate Stroke Working Party. National clinical guideline for stroke, 4th edition. National Institute for Health and Clinical Excellence London: Royal College of Physicians, 2012.	A All patients discharged from hospital, including those to care homes, who have residual stroke-related problems should be followed up within 72 hours by specialist stroke rehabilitation services for assessment and ongoing management. B Hospital services should have a protocol, locally negotiated, to ensure that before discharge occurs: • patients and carers are prepared, and have been fully involved in planning • discharge • general practitioners, primary healthcare teams and social services departments • (adult services) are all informed before, or at the time of, discharge • all equipment and support services necessary for a safe discharge are in place • any continuing specialist treatment required will be provided without delay by an • appropriate coordinated, specialist multidisciplinary service • patients and carers are given information about and offered contact with appropriate statutory and voluntary agencies. C Patients being discharged who remain dependent in some personal activities (eg dressing, toileting) should have access to, where appropriate, a transition package of: • pre-discharge visits (eg at weekends) • individual training and education for their carers • telephone counselling support for 3 months. D Before discharge of a patient who remains dependent in some activities, the patient's home environment should be assessed and optimised, usually by a home visit by an occupational therapist. E Provide early supported discharge to patients who are able to transfer independently or with the assistance of one person. Early supported discharge should be considered a specialist stroke service and consist of the same intensity and skillmix as available in hospital, without delay in delivery. F Hospitals should have clear systems in place to ensure: • patients and their families are involved in planning for discharge and carers receive training in care, for example, moving, handling and dressing • patients and carers feel adequately prepared and supported to carry out care • appropriate agencies (including GPs) are informed before discharge and an agreed health and social care plan is in place, essential equipment has been delivered (including wheelchairs if needed), and patients know who to contact if difficulties arise. G Carers of patients unable to transfer independently should receive training in moving and handling and the use of any equipment provided until they are demonstrably able to transfer and position the patient safely in the home environment. H All patients should continue to have access to specialist stroke services after leaving hospital, and should know how to

Guideline	Recommendations
	contact them. I Carers of patients with stroke should be provided with: • a named point of contact for stroke information • written information about the patient's diagnosis and management plan • sufficient practical training to enable them to provide care. J Health and social service organisations should provide a single point of access to all services for support and advice run by and/or for disabled people.
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.	At the time of discharge, the discharge document should be sent to all the relevant agencies and teams.
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.	<u>Transfer to Community Living:</u> 1. Recommend that all patients planning to return to independent community living should be assessed for mobility, ADL and IADL prior to discharge (including a community skills evaluation and home assessment). 2. Recommend that the patient, family, and caregivers are fully informed about, prepared for, and involved in all aspects of healthcare and safety needs. [I] 3. Recommend that case management be put in place for complex patient and family situations. [I] 4. Recommend that acute care hospitals and rehabilitation facilities maintain up-to-date inventories of community resources, provide this information to stroke patients and their families and caregivers, and offer assistance in obtaining needed services. Patients should be given information about, and offered contact with, appropriate local statutory and voluntary agencies. [I] <u>Discharge from Rehabilitation:</u> 1. Recommend that the rehabilitation team ensure that a discharge plan is complete for the patient's continued medical and functional needs prior to discharge from rehabilitation services. 2. Recommend that every patient participate in a secondary prevention program (see Annotation D). [A] 3. Recommend post-acute stroke patients be followed by a primary care provider to address stroke risk factors and continue treatment of co-morbidities. 4. Recommend patient and family are educated regarding pertinent risk factors for stroke. 5. Recommend that the family and caregivers receive all necessary equipment and training prior to discharge from rehabilitation services. [I] 6. Family counseling focusing on psychosocial and emotional issues and role adjustment should be encouraged and made available to patients and their family members upon discharge.
Clinical Guidelines for Stroke Management 2010. Melbourne (Australia): National Stroke Foundation; 2010	<u>Safe transfer of care from hospital to community:</u> a) Prior to hospital discharge, all patients 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 [Grade C]. b) To ensure a safe discharge occurs, hospital services should ensure the following are completed prior to discharge: • Patients and families/carers have the opportunity to identify and discuss their post-discharge needs (e.g. physical, emotional, social, recreational, financial, and community support) with relevant members of the multidisciplinary team [Grade GPP]. • General practitioners, primary healthcare teams, and community services are informed before or at the time of

Guideline	Recommendations
	discharge [Grade GPP]. • All medications, equipment and support services necessary for a safe discharge are organized [Grade GPP]. • Any continuing specialist treatment required is organized [Grade GPP]. • A documented post-discharge plan is developed in collaboration with the patients and family and a copy provided to them. This may include relevant community services, self-management strategies (e.g. 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 queries [Grade GPP]. c) A locally developed protocol may assist in implementation of a safe discharge process [Grade GPP]. d) A discharge planner may be used to coordinate a comprehensive discharge program for stroke survivors [Grade D].
Snow V, Beck D, Budnitz T, 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 Emergency Medicine. *J Gen Intern Med* 2009;24:971-76	Detailed Recommendations related to: • Coordinating Clinicians • Care Plans/Transition Record • Communication Infrastructure • Standard Communication Formats • Transition Responsibility • Timeliness • Community standards • Measurement

Evidence Tables

Discharge Planning

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
Shepperd et al. 2013 **UK** **Cochrane Review**	NA	24 studies (n=8039) that included all patients who had been admitted to any type of hospital (acute, rehabilitation or community) with any medical or surgical condition. In 16 RCTs patients were admitted with medical conditions, 2 trials admitted patients ≥65 years following a fall, 4 trials recruited patients with a mix of medical and surgical conditions, and two trials recruited participants from an acute psychiatric ward	Trials evaluated a discharge plan either as a stand-alone intervention, or as a component of a broader intervention vs. usual care in most cases (n=19)	**Primary Outcomes:** Hospital LOS, readmission rates and discharge destination **Secondary outcomes:** Patient mortality, functional, psychosocial, quality of life and health status and patient and caregiver satisfaction and health care costs	The use of discharge plans was associated with a significantly reduced LOS: (MD -0.91; 95% CI -1.55 to -0.27). The results from 10 studies were included. At 3 months following discharge, the use of discharge planning was associated with a significant reduction in readmissions (RR= 0.82; 95% CI 0.73 to 0.92). The results from 12 trials were included. Only 2 trials reported discharge destination as an outcome. In one, patients in the discharge planning group were no more likely to return home, while another reported that patients were more likely to return home. (Difference= 6%; 95% CI 0.4% to 12%). At 6-9 months following discharge, patients in the control group were no more likely to be dead (OR=1.00, 95% CI 0.79-1.26, p=0.99). Results from 6 trials were included. The results from too few studies were available for pooled analysis of the remaining secondary outcomes. No studies included data reporting costs.
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	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 they based on a particular theory.	**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.

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		hemorrhagic) and acute 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.		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 providers. Key Question 5 asked if the benefits and harms associated with transition of care services vary by sub group (e.g. disease etiology and severity, comorbidities)	**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.
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	**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,	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

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			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 month) to advise and support caregivers in the home environment.	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 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.	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 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 to by the multidisciplinary team to form a care plan that was provided to the	**Outcomes:** NIHSS, Timed Up & Go 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	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

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			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.	conducted at baseline and at 6 months	issues.
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 had 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	**Primary outcome:** LOS **Secondary outcomes:** Barthel Index (BI), Frenchay Activities Index (FAI), MMSE, Geriatric Depression Scale, SF-36	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.

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			team through home visits following discharge for up to 30 days and whose home-based care with local home care services was also coordinated by one of the team members.	Assessments were conducted at baseline, discharge, 6 months and 1 year.	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. 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☒ Therapist☒ 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), 2002b) **UK**	CA: ☑ Blinding: Patient☒ Therapist☒	152 patients with persistent deficits requiring inpatient rehabilitation, who had experienced a stroke	Participants were randomized to the Integrated Care Pathway group (ICP; n=76) or the conventional care group	**Primary outcome:** LOS **Secondary outcomes:** Mortality, institutionalization,	72-76% of patients were continent, able to dress independently and were mobile, prior to stroke. There was no significant difference in mean LOS between groups (50 vs. 45 days, p=ns).

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RCT	Assessor☒ ITT: ☑	within the previous 2 weeks.	(n=76). The ICP intervention was developed by members of the multidisciplinary team using an evidenced-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).	Length of stay, Barthel Index, 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:** EurolQol, caregiver strain, patient and carer satisfaction, all assessed at 6 months	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 amount 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).

Interprofessional Communication

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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 to the primary care physician from hospital within 1 week; 14.5% (range 9% to 20%) of discharge summaries were received within 1 week. 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 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

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					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. The process included a literature review, development of a draft checklist by an expert committee, peer review and ratification of final checklist	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 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**	NA	2644 consecutive patients discharged from 2 tertiary care hospitals	Pending test at the time of discharge were tracked for 14 days, using an electronic medical record. Abnormal test results	Prevalence of potentially actionable results returning after discharge, awareness of the results by inpatient and PCP.	Out of 2033 pending results, 877 (43%) were abnormal. Of these, 191 (9.1%) were considered to be potentially actionable. 155 surveys were sent to the associated physicians, of which 105 surveys were returned.

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study			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 care physicians (PCP) were surveyed to determine if they were aware of the test result.	Inpatient physicians were surveyed 72 hours after a test result became available while PCP were surveyed 14 days later.	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).
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% female.	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.	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/patient. 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 a decreased

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					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).

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