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# Canadian Stroke Best Practice Recommendations

## *Rehabilitation, Recovery and Community Participation Following Stroke. Part One: Stroke Rehabilitation Planning for Optimal Care Delivery, 7th Edition Update 2025*

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**Abstract:** The Canadian Stroke Best Practice Recommendations 7th edition update of the Rehabilitation, Recovery and Community Participation module is presented in three parts. This publication, Part One of the series, reflects the growing and changing body of research evidence available to guide planning, ongoing screening and assessment, management, education, and support of individuals with stroke, their families, and caregivers. This module provides guidance for the planning and delivery of coordinated and seamless systems of care from acute stroke onset to return to community settings by an interdisciplinary team of healthcare providers with expertise in stroke. These recommendations were developed with active involvement of people with lived experience of stroke at all phases. These recommendations are intended to support the progress achieved during the initial recovery stages and enable individuals with stroke to resume life roles and leisure activities as best as possible, to achieve optimal recovery goals. Evidence for effective rehabilitation therapies and support for individuals with stroke and their families continues to emerge and gaps in knowledge should drive future research.

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Stroke is on the rise in Canada with over 108,000 individuals with stroke presenting to hospitals in 2017/18 in Canada.[1] As a leading cause of adult disability, stroke creates challenges not only during the acute phase but throughout the transition to community and beyond. More than 60% of people with stroke have physical challenges requiring rehabilitation[2] and approximately 40% have persisting difficulties with thinking and memory.[3] Following the acute phase of stroke, access to stroke rehabilitation is crucial to maximizing recovery. The transition from hospital to community represents a critical period that significantly impacts long-term outcomes and quality of life. It also has significant impacts on family members and informal caregivers, who play a crucial role in recovery. In 2022/23, there were 969,095 people 20 yrs of age and older estimated to be living with the effects of stroke in Canada.[4]

In Canada, one-third of individuals with stroke, usually with transient ischemic attack (TIA) and milder strokes, are discharged back to the community directly from the emergency department.[5] Of those individuals admitted to acute inpatient care, 39% are discharged to their homes without support services, and an additional 19% are discharged to their home setting with some support service referrals.[6] Among individuals with stroke in Canada, 15% will be transferred to an inpatient rehabilitation service, 8% will be transferred to long-term care or complex continuing care.[6] Despite the prevalence of post-stroke disability, access to stroke rehabilitation services and community-based supports remains inconsistent across the country.

The complexity and needs of individuals with stroke, both during inpatient stay and after returning to the community, have been increasing partly due to a rise in pre-existing comorbid health conditions, shorter lengths of inpatient stay, and longer waits for community services. Individuals recovering from stroke often require the support of several interdisciplinary team members and services. During Community Consultation and Review Panel sessions conducted in 2024, participants reported that the coordination and integration of these supports are often major challenges when navigating community healthcare services, and they often feel they have fallen through the cracks, resulting in an inability to meet their rehabilitation goals. This is even more of a challenge for certain communities such as Indigenous peoples and South Asian communities.[7,8]

At its core, stroke rehabilitation is fundamentally about rebuilding skills that enable a meaningful and fulfilling life and to support individuals in regaining independence, reconnecting with their identities, and participating in activities that bring purpose and joy. This person-centered focus recognizes that meaningful recovery extends beyond clinical improvements to encompass the person's ability to engage with their community, maintain relationships, and pursue personally significant goals.

Therefore, the 7th update of the Canadian Stroke Best Practice Recommendations (CSBPR) *Rehabilitation, Recovery and Community Participation following Stroke* module has been reorganized to better align with the International Classification of Functioning, Disability and Health Framework.[9] Furthermore, due to the broad scope of topics covered in this module, this updated 7th edition has been divided into three parts: *Part One: Stroke Rehabilitation Planning for Optimal Care Delivery; Part Two: Delivery of Stroke Rehabilitation to Optimize Functional Recovery; and, Part Three: Optimizing Activity and Community Participation following Stroke, Update 2025.*

*This module, Part One: Stroke Rehabilitation Planning for Optimal Care Delivery,* reflects the growing and changing body of research evidence available to guide planning, ongoing screening and assessment, management, education, and support of individuals with stroke, their families, and caregivers.

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This module provides guidance for the planning and delivery of coordinated and seamless systems of care by an interdisciplinary team of healthcare providers with expertise in stroke.

These recommendations are intended to provide up-to-date evidence-based guidelines to support health system leaders and rehabilitation teams in creating seamless, coordinated systems of care. The guidelines aim to preserve progress achieved during the early recovery stages and enable individuals with stroke to transition back to community living, resume life roles and engage in meaningful leisure activities to achieve optimal recovery goals. Evidence for effective rehabilitation therapies and support for individuals with stroke and their families continues to emerge, and gaps in knowledge should drive future research. Successful planning, recovery, transitions and community participation following stroke requires integrated and coordinated person-centered efforts by all members of care teams involved with individuals with stroke, their families and caregivers, and the broader community.

Notable Updates for this module, *Stroke Rehabilitation Planning For Optimal Care Delivery* Update 2025, include promoting a broader scope of healthcare professionals who have expertise to support the ongoing management of medical comorbidities and other medical needs as part of inpatient and community rehabilitation programs; expanded recommendations for the use of virtual modalities beyond therapy delivery to support rehabilitation functions such as transitions planning and education; an enhanced scope of sensory impairment recommendations, specifically highlighting vision and perceptual difficulties; additional recommendations regarding family meetings and utilizing virtual modalities to enhance family involvement in rehabilitation; expanded recommendations focusing on strategies for community engagement and enhancing participation in community activities as part of returning to life roles; additional guidance to ensure outpatient and community-based rehabilitation aligns with the processes and standards of inpatient programs; and further emphasis on the use of validated assessment tools across rehabilitation care.

The goal of disseminating these recommendations is to increase the implementation of evidence-based stroke care across Canada, to reduce practice variations in care delivery, and to narrow the gap between current knowledge and clinical practice. These guidelines are reviewed and updated every 3–5 yrs, as evidence emerges that requires changes in practice.

## GUIDELINE DEVELOPMENT METHODOLOGY

The Canadian Stroke Best Practice Recommendations development and update process follows a rigorous framework[10,11] and addresses all criteria defined within the AGREE Trust model.[12] The methodology for development and updates to the CSBPR has previously been published[13] and detailed methodology can be found on the Canadian Stroke Best Practices website at www.strokebestpractices.ca. A broad interdisciplinary group of experts was convened and participated in reviewing, drafting, revising, and voting on all recommendation statements. A group of individuals having lived experience of stroke also actively participated in the review and update process in a parallel review process through our Community Consultation and Review Panel.

Experienced personnel conducted searches to identify peer-reviewed literature that examined each topic area addressed in the current module. Systematic reviews, meta-analyses, randomized controlled trials, and observational studies were included. The literature for this module was current to March 2025. Following a standardized abstraction format, evidence tables were constructed, including content from selected studies and provided to the writing group for review. The writing group discussed and debated the strength, importance, clinical relevance and applicability of the evidence, risks, benefits and harms. The values and preferences of individuals with stroke were explored by the Community Consultation and Review Panel and shared with the scientific writing group for consideration. Through consensus, the group developed a draft set of proposed recommendations. Throughout, additional literature may have been identified and added to the evidence tables if it contributed to the final set of recommendations. Evidence levels were assigned based on the quality of available evidence, using the Grading of Recommendations, Assessment, Development and Evaluations system.[14–16] Expert opinion, presented as clinical considerations, was used to formulate recommendations and guidance in the absence of evidence. These guidelines have undergone extensive internal and external review, and consensus was achieved for all content. Inputs from people with lived experience was incorporated throughout the recommendations and supporting materials. Please visit the Canadian Stroke Best Practices website for additional details of the methodology and additional materials to support these recommendations, including rationales, system implications, performance measures, knowledge translation and implementation tools, evidence tables, and an extended summary of the evidence.[17]

A copy of the manuscript and online supplement translated in French are available as a Supplementary Files (http://links.lww.com/PHM/C849, http://links.lww.com/PHM/C850, http://links.lww.com/PHM/C851).

## CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS FOR *STROKE REHABILITATION PLANNING FOR OPTIMAL CARE DELIVERY, 2025*

*Refer to Online Supplement Appendix One for terminology, definitions, and descriptions used throughout these recommendations (https://links.lww.com/PHM/C850).*

## SECTION 1: INITIAL STROKE REHABILITATION SCREENING AND ASSESSMENT

Following acute stroke, patients admitted to the hospital should be assessed for their rehabilitation needs as soon as possible, preferably within 48 hrs. Early assessments help with the development of individualized care plans designed to improve mobility, independence in activities of daily living (ADL), and health-related quality of life, and reduce the risk of complications. Additionally, early assessments support timely discharge planning and care coordination across settings. They are also essential in identifying patients who are potential candidates for inpatient rehabilitation. These assessments and subsequent interventions are most effectively conducted by members of a multidisciplinary team, composed of core therapists and allied health professionals.[18] Admission to an inpatient program is usually limited to patients who have moderate to severe disability, more than one type of impairment or disability and who require the services of two or more rehabilitation disciplines, and

who can participate in, and benefit from rehabilitation therapies. Patients with mild disability or a single disability can usually benefit from outpatient or community-based services and generally do not require inpatient admission.

## Section 1 Initial Stroke Rehabilitation Screening and Assessment Recommendations

***Note: these recommendations apply in inpatient and outpatient settings***

1.0 All individuals with acute stroke should be assessed to determine the severity of stroke and early rehabilitation needs [Strong recommendation; Moderate quality of evidence].

i. All individuals ***admitted to hospital*** with acute stroke should have an initial assessment, conducted by rehabilitation professionals, as soon as possible after admission [Strong recommendation; High quality of evidence].
   a. The core rehabilitation professional team should include physicians (i.e., physiatrist, neurologist, or other physicians with training in stroke rehabilitation), nurses, physiotherapists, occupational therapists, speech-language pathologists, social workers, and dietitians [Strong recommendation; High quality of evidence]. The individual with stroke, their family, and caregivers should also be included as part of the core team [Strong recommendation; Moderate quality of evidence].
   b. Additional team members may include recreation therapists, psychologists, vocational therapists, kinesiologists, rehabilitation therapy assistants, vision specialists, and pharmacists [Strong recommendation; Low quality of evidence].
   c. All professional members of the rehabilitation team should have specialized training in stroke care and recovery [Strong recommendation; High quality of evidence].
   d. All professional team members should be trained in supported conversation to be able to interact with individuals with communication limitations such as aphasia [Strong recommendation; Moderate quality of evidence].

ii. Initial screening and assessment should ideally be commenced within 48 hrs of admission by rehabilitation professionals in direct contact with the individual with stroke [Strong recommendation; Moderate quality of evidence].
   a. Initial assessment may include: an evaluation of an individual with stroke's function, safety, physical, psychological and cognitive readiness, and ability to learn and participate in rehabilitation therapies [Strong recommendation; Low quality of evidence].
   b. Transition planning should be considered during the initial rehabilitation assessment [Strong recommendation; Moderate quality of evidence].

iii. Assessment of impairments, functional activity limitations, role participation restrictions and environmental factors should be conducted using standardized, valid assessment tools [Strong recommendation; Moderate quality of evidence].
   a. Assessment tools should be adapted for use with individuals who have communication differences or limitations where required [Strong recommendation; Moderate quality of evidence].
   b. Other limitations should also be taken into consideration, such as impaired vision, hearing, and communication [Strong recommendation; Low quality of evidence].

iv. For individuals with stroke who do not initially meet criteria for rehabilitation services, reassessment of rehabilitation needs should be considered as indicated by changes in health or functional status [Strong recommendation; Low quality of evidence]. *Refer to Appendix Two, Box 1 in Online Supplement for additional information, https://links.lww.com/PHM/C850.*

v. All individuals with stroke who present with acute stroke or TIA who are ***not admitted to hospital*** should be screened for the need to undergo a comprehensive rehabilitation assessment to determine the scope of deficits from index stroke event and any potential rehabilitation requirements [Strong recommendation; Low quality of evidence].
   a. Priority screening areas, including evaluation of safety (cognition, fitness to drive, social support), swallowing, communication, and mobility, should be completed by a clinician with expertise in stroke rehabilitation where feasible *before* the individual with stroke leaves the emergency department or in the primary care setting [Strong recommendation; Low quality of evidence]. *Refer to CSBPR Secondary Prevention of Stroke module for additional information.*[19]
   b. Additional screening of impairments, including onset of depression, cognitive changes, visual and other perceptual impairment, functional activity limitations, role participation restrictions, social and environmental factors, and the presence of modifiable stroke risk factors (such as lifestyle behaviors) should be considered as soon as possible, and at least within 2 wks of stroke onset [Strong recommendation; Low quality of evidence].

vi. Once an individual with stroke has undergone assessment, a standardized approach is recommended to determine the appropriate setting for rehabilitation (including inpatient rehabilitation, outpatient and community-based rehabilitation, and home-based rehabilitation.) [Strong recommendation; Low quality of evidence].
   a. Standardized criteria for admission to any rehabilitation setting is ideally communicated to all referring centers and services [Strong recommendation; Low quality of evidence]. *Refer to Appendix Two, Box 1 in Online Supplement for additional information on eligibility and admission criteria for stroke rehabilitation, https://links.lww.com/PHM/C850.*

## SECTION 2: DELIVERY OF INPATIENT STROKE REHABILITATION

The benefits of stroke unit care are firmly established. The most recent update of the Stroke Unit Trialists Collaboration Cochrane review (2020) included the results of 29 trials (5902 participants) comparing stroke unit care with alternative, less organized care (general medical wards, mixed rehabilitation ward, and a mobile stroke team).[20] In this update, a single trial with 49 participants was added since the last update in 2013. A network meta-analysis is also included. Overall, compared with alternative services, stroke units were associated with significant reductions, ranging from 23% to 25%, in the odds of a poor outcome (modified Rankin Scale 3–6 at the end of follow-up or the

need for institutional care), death, death or institutional care, and death or disability, all of which were supported by moderate quality of evidence. At 12 mos, an extra two people are estimated to survive for every 100 receiving stroke unit care, an extra 6 will be living at home, and an extra 6 will be independent in daily activities. The benefits of stroke unit care were independent of sex, age, stroke type, and stroke severity. In the network meta-analysis, compared with a general ward, the odds of a poor outcome were reduced significantly with a stroke unit (odds ratio [OR] = 0.74, 95% CI = 0.62–0.89), and mixed rehabilitation ward (OR = 0.70, 95% CI = 0.52–0.95), but not compared with a mobile stroke team (OR = 0.88, 95% CI = 0.58–1.34).

## Section 2 Stroke Rehabilitation Unit Recommendations

### 2.1 Stroke Rehabilitation Team

i. Stroke rehabilitation should be delivered by an interdisciplinary team of health professionals, with expertise and training in providing post-stroke care, regardless of where services are provided, to ensure consistency, promote optimal recovery, and reduce the risk of complications [Strong recommendation; Moderate quality of evidence].

ii. The interdisciplinary rehabilitation team should assess individuals with stroke within 48 hrs of admission and together with the individual and their family develop and document a comprehensive individualized rehabilitation plan which reflects the severity of the stroke, the needs and goals of the individual, the best available research evidence, and clinical judgment [Strong recommendation; Low quality of evidence].

iii. Stroke unit teams should conduct at least one formal interdisciplinary meeting per week to identify ongoing or new rehabilitation problems, set goals, monitor progress, and plan discharge for individuals with stroke on the unit [Strong recommendation; Moderate quality of evidence].

iv. Individualized rehabilitation plans should be regularly updated based on review of health status and stroke recovery progress [Strong recommendation; Low quality of evidence].

v. Clinicians should use standardized, valid assessment tools when appropriate to support treatment and care planning [Strong recommendation; Low quality of evidence].

vi. Verbal and written information should be tailored to the individual's cognitive, sensory, and communication abilities [Strong recommendation; Moderate quality of evidence]. *Refer to Knowledge Translation and Implementation Resource sections at www.strokebestpractices.ca and Stroke Engine for additional information on Stroke Rehabilitation Screening and Assessment Tools.*[17]

### 2.2 Stroke Rehabilitation Unit

i. All individuals who require inpatient rehabilitation following stroke should be treated on a specialized stroke rehabilitation unit [Strong recommendation; High quality of evidence], characterized by the following elements:

   a. Rehabilitation care is formally coordinated and organized [Strong recommendation; High quality of evidence].

   b. The rehabilitation unit is geographically defined [Strong recommendation; High quality of evidence].

   c. The rehabilitation unit is staffed by an interdisciplinary rehabilitation team with expertise/core training in stroke rehabilitation consisting of physicians (i.e., physiatrist, neurologist, or other physicians with training in stroke rehabilitation), nurses, physiotherapists, occupational therapists, speech-language pathologists, social workers, and dietitians [Strong recommendation; High quality of evidence]. The individual with stroke, their family, and caregivers should also be included as part of the core team [Strong recommendation; Moderate quality of evidence].

   d. Additional members of the interdisciplinary team may include pharmacists, stroke navigators, neuropsychologists, psychologists, palliative care specialists, recreation therapists, vocational therapists, kinesiologists, rehabilitation therapy assistants, spiritual care providers, vision specialists, sexual health specialists, music or art therapists, peer supporters, stroke recovery group liaisons, and other consulting services based on individual needs [Strong recommendation; Low quality of evidence].

   e. Individuals who have experienced a stroke, their families, and caregivers should have early and active involvement in the rehabilitation process [Strong recommendation; Moderate quality of evidence].

   f. Transition and discharge planning should be initiated on admission to the unit [Strong Recommendation; Low quality of evidence]. *Refer to Section 7 for additional information on care planning.*

   g. Education for individuals with stroke, their families and caregivers, is an integral part of stroke rehabilitation care that should be included throughout rehabilitation interactions [Strong recommendation; High quality of evidence]. *Refer to the CSBPR Stroke Systems of Care module, Section 5 for additional information on education following stroke.*[21]

   h. All team members should be trained and capable of interacting with individuals with communication limitations such as aphasia, by using supported conversation techniques [Strong recommendation; Moderate quality of evidence]. *Refer to CSBPR Rehabilitation Part Two, Section 7 Language and Communication for additional information.*

ii. Individuals who have experienced a moderate or severe stroke, who are ready for rehabilitation and have goals amenable to rehabilitation, should be given an opportunity to participate in inpatient stroke rehabilitation [Strong recommendation; High quality of evidence].

iii. Where admission to a dedicated stroke rehabilitation unit is not possible, inpatient rehabilitation provided on a general rehabilitation unit should be considered as an alternative (i.e., where interdisciplinary care is provided to individuals with stroke disabled by a range of disorders including stroke) [Strong recommendation; Low quality of evidence].

a. Individuals with stroke treated on general rehabilitation units should receive equivalent rehabilitation intensity and principles as individuals treated on dedicated stroke

rehabilitation units, as described in section 3 [Strong recommendation; Moderate quality of evidence].

### Section 2.2 Clinical Considerations

1. Considering the high prevalence of comorbidities and complex medical needs in individuals with stroke, team members should incorporate the use of healthcare professionals who can manage the medical needs of individuals undergoing stroke rehabilitation.

## SECTION 3: DELIVERY OF INPATIENT STROKE REHABILITATION

Early mobilization post-stroke is intended to reduce the risk of medical complications, including deep vein thrombosis, pressure sores, painful shoulders, and respiratory infections. While the potential benefits of early mobilization were examined in several smaller randomized controlled trials (RCTs),[22–24] the largest and most definitive trial was A Very Early Rehabilitation Trial for Stroke (AVERT) trial. Bernhardt et al.[25] randomized 2104 adults (1:1) to receive early mobilization, a task-specific intervention focused on sitting, standing, and walking activity, initiated within 24 hrs of stroke onset, or to usual care for 14 days, or until hospital discharge. The median time to first mobilization was significantly earlier in the early mobilization group (18.5 vs. 22.4 hrs, $P < 0.0001$). Patients in the early mobilization group received significantly more out of bed sessions (median of 6.5 vs. 3, $P < 0.0001$) and received more daily therapy (median of 31 vs. 10 mins, $P < 0.0001$). However, significantly fewer patients in the early mobilization group had a favorable outcome (modified Rankin Scale 0–2), the primary outcome, at 3 mos (46% vs. 50%; adjusted OR = 0.73, 95% CI = 0.59–0.90, $P = 0.004$). There were no significant differences between groups for any of the secondary outcomes, nor were any interactions identified based on prespecified subgroups for the primary outcome (age, stroke type, stroke severity, administration of tissue plasminogen activator, or geographical region of recruitment). Additional analysis from AVERT indicated that very early mobilization was associated with an increased risk of early mortality.[26] After adjustment for age and stroke severity, the odds of 14-day mortality were significantly higher in the early mobilization group (adjusted OR = 1.76, 95% CI = 1.06–2.92). A Cochrane review[27] included the results from 9 RCTs of 2958 patients (71% from AVERT), and reported no significant increase in the odds of the primary outcome associated with early mobilization (51% vs. 49%; OR = 1.08, 95% CI = 0.92 to 1.26); however, the primary outcome was different than AVERT and included death, dependency or institutionalization at 3 mos. In an exploratory network meta-analysis within the review, time-to-first mobilization at 24 hrs was associated with lower odds of the primary outcome compared with earlier or later mobilization.

Greater intensity of rehabilitation therapies received during inpatient rehabilitation has been associated with significantly greater improvements in Function Independence Measure scores at hospital discharge.[28,29] In a recent Cochrane review, Clark et al.[30] examined the effect of more time spent in the same type of rehabilitation on activity measures post-stroke, including the results of 21 RCTs (1412 participants, most of whom received therapy within 6 mos of stroke onset). Different amounts of the same types of occupational therapy and/or physiotherapy provided daily were compared. The difference in total time between control and intervention groups ranged widely from 186 to 6160 mins, with a median difference of 840 mins, depending on the number of weeks or months therapy was provided. At the end of the active intervention period, more time spent in rehabilitation therapies was not associated with significant improvement in ADL performance compared with less time, nor with activity measures of the upper or lower limb; however, in subgroup analysis of studies with a larger difference in total amount of therapy between treatment arms, there was a significant benefit of more therapy in ADL performance (standardized mean difference [SMD] = 0.40, 95% CI = 0.14 to 0.66). In a systematic review authored by Schneider et al.[31] including the results of 14 studies (954 participants), a large increase in additional therapy (≥240% of standard dose) was associated with significantly greater improvements in measures of upper and lower-limb function.

### Section 3 Delivery of Inpatient Stroke Rehabilitation Recommendations

i. All individuals with stroke should receive rehabilitation therapies as early as possible once they are medically stable and able to participate in active rehabilitation [Strong recommendation; High quality of evidence]. *Refer to Appendix Two, Box 1 in Online Supplement for additional information on eligibility and admission criteria for stroke rehabilitation, https://links.lww.com/PHM/C850.*

ii. Very early high-intensity mobilization of individuals with stroke within the first 24 hrs is not recommended [Strong recommendation; High quality of evidence].
   a. Mobilization of individuals with stroke should begin when the person is medically stable and ideally between 24 and 48 hrs post-stroke, but caution is advised, and clinical judgment should be used [Strong recommendation; Moderate quality of evidence].

iii. Individuals with stroke should receive rehabilitation therapies of appropriate intensity and duration, individually designed to meet their needs for optimal recovery and tolerance levels [Strong recommendation; High quality of evidence].

iv. **Individualized rehabilitation plans** should include a person-centered approach, shared decision-making, culturally appropriate and agreed-upon goals, and preferences of the individual with stroke, family, caregivers, and the healthcare team [Strong recommendation; Moderate quality of evidence].

v. Once deemed to be medically and neurologically stable, individuals with stroke should receive a recommended 3 hrs per day of direct task-specific therapy, 5 days a week [Strong recommendation; Moderate quality of evidence], delivered by the appropriate interdisciplinary stroke team members [Strong recommendation; Low quality of evidence].

vi. Therapy should include repetitive and intense use of tasks that challenge the individual with stroke to acquire the necessary skills needed to perform functional tasks and activities [Strong recommendation; High quality of evidence].

vii. The team should promote the practice and transfer of skills gained in therapy into the individual with stroke's daily routine in preparation for continuation after discharge [Strong Recommendation; Moderate quality of evidence].

## SECTION 4: OUTPATIENT AND COMMUNITY BASED REHABILITATION (INCLUDING EARLY SUPPORTED DISCHARGE)

Outpatient therapy is often required following discharge from acute and/or rehabilitation inpatient services to help patients continue to make gains toward their rehabilitation goals. Continuing therapy may take several forms, depending on resource availability and patient considerations and may include models such as hospital-based "day" programs, community-based programs, or home-based rehabilitation. Based on the results from the Outpatient Service Trialists (2003),[32] there is strong evidence that any form of continuing rehabilitation therapy is superior to no additional therapy. The review was composed of 14 RCTs that included 1617 patients who were living at home before their stroke and whose stroke had occurred within the previous year. Patients were randomized to receive specialized outpatient therapy-based interventions or usual care (often no additional treatment). Service interventions examined included home-based ($n = 2$), day hospital or outpatient clinics ($n = 12$). In these trials, provision of services included physiotherapy, occupational therapy services, or interprofessional staff, aimed primarily at improving performance in ADL. The duration of therapy in these trials ranged from 5 wks to 6 mos. At the end of scheduled follow-up, outpatient therapy was associated with significantly reduced odds of a poor outcome, greater improvements in ADL, and extended ADL and mood scores compared with usual care. The authors estimated that for every 100 persons with stroke in the community receiving therapy-based rehabilitation services, 7 (95% CI = 2–11) patients would avoid a poor outcome. In terms of establishing the relative superiority of outpatient-based rehabilitation programs compared with continued inpatient services, the differences between service models appears minimal.[33]

Some patients with mild impairments can be safely transferred back to their homes to commence or continue their rehabilitation and achieve outcomes that are as good as or better than those that would have been attained had they participated in an inpatient rehabilitation program. This form of service provision, early supported discharge (ESD), may be desirable where resources exist and may have the added benefit of being less costly. The effectiveness of ESD programs following acute stroke has been evaluated most comprehensively by the Early Supported Discharge Trialists. In the most updated version of the review,[34] the results from 17 RCTs (2422 participants) were included. Most of the trials evaluated ESD using a multidisciplinary team, which coordinated discharge from the hospital and provided rehabilitation and patient care at home. ESD services were associated with a reduction in the odds of death or dependency at end of scheduled follow-up after a median duration of follow-up of 6 mos (OR = 0.80, 95% CI = 0.67 to 0.95). The associated number needed to treat per 100 patients was 5. The benefits were greatest among patients with mild to moderate disability. ESD services were also associated with slightly greater improvement in extended ADL performance, greater patient satisfaction, and a significantly shorter hospital stay (mean difference [MD] = −5.5, 95% CI = −2.9 to −8.2 days).

## Section 4 Outpatient and Community Based Rehabilitation, and Early Supported Discharge Recommendations

*Note: These recommendations apply to all individuals with stroke who are assessed by healthcare professionals following a stroke event, treated by primary care, or at a stroke prevention clinic, emergency department, urgent care center, inpatient acute care or inpatient rehabilitation setting, and discharged back to the community.*

### 4.1 Outpatient & In-home Rehabilitation

i. Individuals with stroke who have ongoing rehabilitation goals should continue to have access to specialized stroke services after leaving hospital [Strong recommendation; High quality of evidence].
   a. This should include healthcare facility-based outpatient services and/or in-home rehabilitation services, and virtual stroke rehabilitation [Strong recommendation; High quality of evidence].

ii. Outpatient and/or in-home rehabilitation services should be provided by interdisciplinary team members with appropriate training and expertise [Strong recommendation; High quality of evidence], based on the individual needs and in consultation with the individual with stroke, their family, and caregivers [Strong recommendation; Moderate quality of evidence].
   a. Services should ideally begin within 48 hrs of discharge from an acute hospital (emergency department or inpatient) or within 72 hrs of discharge from inpatient rehabilitation [Strong recommendation; Low quality of evidence].

iii. Outpatient and/or in-home rehabilitation service delivery should be delivered in a setting that best meets the needs of the individual, and consider functional rehabilitation needs, participation-related goals, availability of family/social support, individual, and family preferences where appropriate [Strong recommendation; Low quality of evidence].

iv. Outpatient and/or in-home rehabilitation services should include the same elements as coordinated inpatient rehabilitation services [Strong recommendation; Moderate quality of evidence]. This includes:
   a. Involvement of individuals with stroke, their family, and caregivers in recovery planning, rehabilitation management, goal setting, and transition planning [Strong recommendation; Moderate quality of evidence].
   b. An interdisciplinary stroke rehabilitation team [Strong recommendation; High quality of evidence].
   c. A case coordination approach including regular team communication to discuss assessment of new clients, review client management, goals, and plans for discharge or transition [Strong recommendation; Moderate quality of evidence].
   d. Therapy provided for 60 mins per session per required discipline [Strong recommendation; Moderate quality of evidence], for 2–5 days per week, [Strong Recommendation; Moderate quality of evidence].

e. Interdisciplinary care planning and communication is essential to ensure continuity of care, individual with stroke safety, and to reduce risk of complications and adverse events during stroke care particularly at transition points [Strong recommendation; Moderate quality of evidence].

v. At any point in their recovery, individuals with stroke who have experienced a change in functional status and who would benefit from additional rehabilitation services should be offered a further period of rehabilitation in the setting best suited to their needs if they meet the requirements outlined in Appendix Two, Box 1 in Online Supplement [Strong recommendation; Moderate quality of evidence]. *Refer to Appendix Two, Box 1 in Online Supplement for criteria for Eligibility Criteria for Stroke Rehabilitation, https://links.lww.com/PHM/C850*.

### Section 4.1 Clinical Consideration:

1. The duration of outpatient and/or in-home rehabilitation services should be based on the rehabilitation needs and goals of the individual with stroke, and progress towards those over time.

### 4.2 Early Supported Discharge (ESD)

i. For individuals with mild or moderate stroke, early supported discharge should be considered where appropriate and services are available to provide the recommended intensity of therapy [Strong recommendation; High quality of evidence]. *Refer to Appendix Two, Box 4 in Online Supplement for criteria for ESD, https://links.lww.com/PHM/C850*.

ii. Early supported discharge services should be provided by a well-resourced, coordinated, interdisciplinary specialized team [Strong recommendation; High quality of evidence].

iii. Early supported discharge services should be provided within 48 hrs of discharge from an acute hospital or within 72 hrs of discharge from inpatient rehabilitation [Strong recommendation; Moderate quality of evidence].

iv. Services should be provided five days per week at the same level of intensity as they would have received in the inpatient setting to meet individual with stroke needs [Strong recommendation; Moderate quality of evidence]. *Refer to Section 3 ii, Delivery of Inpatient Stroke Rehabilitation, for additional information.*

a. Where possible, ESD should be provided by the same team that provided inpatient rehabilitation to ensure a smooth transition [Strong recommendation; Moderate quality of evidence].

b. Where different therapists are providing ESD services, communication with the hospital-based rehabilitation team is important during the transition. Processes to facilitate clear and timely communication should be implemented and appropriate meetings scheduled to ensure continuity of care [Strong recommendation; Low quality of evidence].

## SECTION 5: STROKE REHABILITATION IN LONG-TERM CARE AND COMPLEX CONTINUING CARE

Following stroke rehabilitation, high levels of residual disability combined with comorbidity or advanced age may warrant admission to a long-term care institution. Continuing rehabilitation in this setting can significantly enhance recovery. Several studies indicate that ongoing, multidisciplinary rehabilitation can improve physical function, independence, and quality of life, even beyond the initial months after a stroke.[35,36] In a systematic review, including the results from 13 RCTs ($n$ = 2379) involving persons >60 yrs, living in long-term care facilities, Crocker et al.[36] reported that rehabilitation therapies were associated with a small improvement in ADL performance (weighted mean difference = 0.24, 95% CI = 0.11–0.38), equating to a mean improvement of 1.3 Barthel Index points, compared with usual care.

## Section 5 Stroke Rehabilitation In Long-Term Care And Complex Continuing Care Recommendations

*Note: These recommendations apply specifically to individuals with stroke living in long-term care or chronic or continuing care settings, including those who were already living in long-term care at the time of their stroke. These recommendations are intended to be implemented in addition to standard care (e.g., physical, functional, emotional, cognitive, communication, and social needs) provided in chronic, continuing or long-term care. Also refer to recommendations included in other modules such as Secondary Prevention of Stroke*[19] *and Stroke Systems of Care*[21] *for additional information on management of individuals with stroke living in long-term care settings.*

### 5.1 Assessment and Care Planning

i. All individuals who transition to a long-term or complex continuing care setting following a stroke should have an initial medical and functional assessment as soon as possible after admission [Strong recommendation; High quality of evidence]. *Refer to Rehabilitation, Recovery and Community Participation following Stroke Part Two: Delivery of Stroke Rehabilitation to Optimize Functional Recovery* module and other sections of this module for information on assessments.

a. A discharge summary along with the care plan should accompany the individual to a long-term or complex continuing care setting [Strong recommendation; High quality of evidence] *Refer to Appendix Two, Box 7 in Online Supplement 7 regarding information to include in the transitions of care (discharge) summary, https://links.lww.com/PHM/C850*.

b. The initial assessment of functional, physical, emotional, cognitive, communication and perceptual status should align with existing assessment processes where possible [Strong recommendation; Moderate quality of evidence].

ii. Assessment results should be used to modify individualized care plans to meet the rehabilitation needs and goals of individuals who are admitted to long-term or complex continuing care following a stroke and optimize quality of life [Strong recommendation; Moderate quality of evidence].

iii. Individualized care plans should be updated to reflect changes in reassessments, functional status, goals of the individual with stroke, and care requirements and address issues of safety [Strong recommendation; Moderate quality of evidence].

iv. Individuals with stroke living in long-term or complex continuing care setting should be referred to appropriate healthcare professionals for further consultation when changes in functional status are identified during the initial assessment or subsequent existing assessment processes where possible [Strong recommendation; Moderate quality of evidence].
v. Individuals with stroke living in long-term care, complex continuing care and similar settings should receive care from individuals who are knowledgeable in stroke care, maintenance and recovery goals, and therapies aligned to stroke best practice recommendations [Strong recommendation; Moderate quality of evidence].
   a. Individuals providing care in these settings should be provided with updated education in these areas on a regular basis [Strong recommendation; Moderate quality of evidence].

### 5.2 Rehabilitation and Restorative Care

i. Individuals admitted to a long-term care setting with ongoing rehabilitation goals post-stroke should continue to have access to specialized stroke services (such as physiotherapy, occupational therapy and speech-language therapy) following admission [Strong recommendation; Moderate quality of evidence].
ii. Individuals with stroke who live in long-term or complex continuing care should also have access to other health disciplines and services that can support recovery and restorative care [Strong recommendation; low quality of evidence].
iii. At any point in their recovery, individuals with stroke living in long-term care who have experienced an improvement in functional status and who would benefit from new or additional rehabilitation services should be offered a trial of higher intensity inpatient or outpatient rehabilitation [Strong recommendation; Moderate quality of evidence].
iv. Individuals with stroke living in long-term or complex continuing care should have access to restorative care interventions that foster self-care, social engagement and emotional well-being [Strong recommendation; Moderate quality of evidence].

### 5.3 Support and Education for the Individual With Stroke, Their Family, and Caregivers

i. To facilitate active participation in care-planning in long-term or complex continuing care settings, individuals living with stroke, their family, and caregivers should be provided with training, education and support on:
   a. How to advocate for access to rehabilitation and restorative care as appropriate [Strong recommendation; Low quality of evidence].
   b. How to participate in care planning and be involved in shared decision-making [Strong recommendation; Low quality of evidence].
   c. Process for appointing a substitute decision-maker (proxy or agent), developing advance directives for care, and palliative care options as appropriate [Strong Recommendation; Low Quality of Evidence]. *Refer to Stroke Systems of Care module for additional information on advance care planning and palliative care.*[21]

## SECTION 6 VIRTUAL STROKE REHABILITATION

The results from a rapidly expanding volume of literature suggest that virtual stroke rehabilitation is feasible and can be as effective as in-person encounters for patients with motor, cognitive and communication impairments. The authors of a recently published systematic review examining remotely delivered therapy reported that measures of balance, upper and lower extremity motor function, mobility, and performance of activities of daily living, were not significantly different compared to those of persons receiving conventional rehabilitation, and in some cases, were superior.[37–42] In the 2020 Cochrane review,[38] virtual care was also found to be effective in treating individuals with speech and language impairments and low mood post-stroke. Knepley et al.[43] reported that functional outcomes among those who received virtual stroke rehabilitation were equivalent or better compared with those who received in-person therapy, as was patient satisfaction. Additionally, some virtually provided therapies were less costly than in-person therapy. The adaptation of existing rehabilitation programs may offer alternative solutions to in-person therapy. Yang et al.[44] provided a virtual version of the Graded Repetitive Arm Supplementary Program over 10 wks, to 9 persons with residual difficulty using their affected upper extremity following remote stroke. There were significant improvements over time for all outcome measures, which included the Arm Capacity and Movement test a new assessment tool developed for online use.

### Section 6 Virtual Stroke Rehabilitation Recommendations

*Notes: In-person stroke rehabilitation should be prioritized when possible, and virtual stroke rehabilitation should be considered a viable option when appropriate for an individual situation, the goals of therapy, and current health and functional status.*

*These recommendations are based on the premise that stroke rehabilitation can be provided through virtual technology at any stage along the care continuum, alone or in combination with in-person formats (i.e., hybrid) and for a range of intended goals. Virtual stroke rehabilitation has been shown to safely and effectively increase access to rehabilitation therapies and care providers, community reintegration, home monitoring, as well as support mental health and activities of daily living. Virtual healthcare delivery has been shown to enable timely and cost-efficient access to best-available stroke rehabilitation regardless of where the person with stroke is located. For the purposes of these recommendations, virtual stroke rehabilitation will include both fully virtual and hybrid formats.*

### 6.1 Access and Eligibility for Virtual Stroke Rehabilitation

#### 6.1.1 Access to Stroke Rehabilitation Through Virtual Care Modalities

i. Virtual stroke rehabilitation should be considered as a reasonable alternative for eligible individuals with stroke when an in-person therapy session is not feasible or available, or as an adjunct when the goals of the session can be achieved virtually [Strong recommendation; Moderate quality of evidence].
ii. Virtual care modalities should be integrated into stroke rehabilitation planning and service delivery across the

continuum (i.e., from acute care to stroke prevention, stroke rehabilitation, home-based therapy, and ambulatory care) to support optimal recovery of individuals with stroke, provide support for families, and ensure equitable access to care throughout Canada [Strong recommendation; Moderate quality of evidence].

iii. All rehabilitation disciplines should consider the use of virtual care technology for assessment of individuals with stroke and for delivery of clinical therapies (e.g., exercise monitoring and intensity adjustments, speech and language therapies for aphasia) where appropriate [Strong recommendation; Low quality of evidence].

iv. Home-based monitoring for outpatient stroke rehabilitation through web-based applications may be considered as an alternative or adjunct to in-person rehabilitation therapy sessions when frequent monitoring is necessary and access to in-person services is limited [Strong recommendation; Moderate quality of evidence]. *Refer to CSBPR Stroke Systems of Care module for additional information.*[21]

### Section 6.1.1 Clinical Considerations

1. Clinicians should consider the current health status of the individual with stroke (e.g., cognitive, communication, physical, and sensory abilities), behavioral factors, and available resources, to determine the safety and appropriateness of virtual stroke rehabilitation *Refer to Heart & Stroke Virtual Care Decision Framework for additional information.*[45]
2. Clinicians should consider individual preferences when an individual with stroke is eligible for both virtual and in-person stroke rehabilitation, and the clinician is able to offer either one or a combination of both options.
3. Clinicians should develop a safety or adverse events plan with the individual with stroke before starting virtual stroke rehabilitation. This includes having the individual's phone number, address, and emergency contact information, and asking them to have a family member or caregiver nearby and/or a phone at hand. *Refer to CSBPR Virtual Stroke Care Toolkit for additional information.*[46]
4. The benefits of virtual modalities may extend beyond therapy activities and could support other rehabilitation functions such as transitional planning, education and skills training, and peer support.

### 6.1.2 Eligibility for Virtual Rehabilitation

i. All individuals with acute stroke admitted to hospital should be assessed to determine the severity of their stroke, their early rehabilitation needs, and the most appropriate mechanism to deliver timely and effective stroke rehabilitation, whether in-person, virtual, or a hybrid (a combination of in-person and virtual modalities) model [Strong recommendation; Moderate quality of evidence]. *Refer to Section 1 for additional information.*

ii. All individuals with acute stroke who are not admitted to hospital should be screened in-person or using virtual healthcare modalities for the need to undergo a comprehensive rehabilitation assessment to determine the scope of deficits from the index stroke event and any potential rehabilitation requirements [Strong recommendation; Low quality of evidence].

iii. Clearly defined criteria and protocols should be available to help referring sites determine when and how individuals with stroke can access virtually delivered services, including stroke rehabilitation, secondary stroke prevention, and ambulatory services [Strong recommendation; Low quality of evidence]. *Refer to Heart & Stroke Virtual Care Decision Framework for additional information.*[45]

## 6.2 Assessment and Service Delivery for Virtual Stroke Rehabilitation

### 6.2.1 Assessment

i. Where available, tools selected for assessment of impairments, activity limitations, participation restrictions, and environmental factors relevant to stroke rehabilitation should have evidence of validity for the method of virtual administration and be administered by trained personnel [Strong recommendation; Low quality of evidence].
   a. Assessment tools selected for use via videoconferencing should have evidence of validity for this administration method [Conditional recommendation; Low quality of evidence]
   b. Assessment tools selected for use via telephone should have evidence of validity for this administration method [Conditional recommendation; Moderate quality of evidence].

ii. Screening for pre-stroke mental health and cognitive status and for changes in mood or cognition following stroke should be included as a routine component of virtual stroke rehabilitation [Strong recommendation; Moderate quality of evidence].

iii. For individuals with stroke who have cognitive, sensory or communication impairments (such as aphasia or vision loss), assessment tools should be adapted for use through virtual modalities, as required [Strong recommendation; Low quality of evidence].

### Section 6.2.1 Clinical Considerations

1. There is limited published evidence on the safety, feasibility, reliability, and validity of approaches to administering standardized assessment tools post-stroke using virtual rehabilitation platforms or technologies. Safety precautions should be taken during virtual performance-based health assessments. *Refer to Heart & Stroke Virtual Care Decision Framework for additional information.*[45]
   a. Healthcare professionals should receive training on the administration of virtual performance-based assessment tools to optimize validity and safety.
   b. Assessment considerations may include ensuring the individual with stroke has sufficient capacity to follow instructions, access to handholds to maintain balance, and a support person present to assist.
   c. Healthcare professionals should provide instructions to individuals with stroke and their families and caregivers on how to prepare the home environment to ensure safe participation in assessment and therapy activities.
2. When assessment tools cannot be fully administered virtually, a hybrid model that combines in-person and virtual assessment should be considered.
   a. Where possible, timed assessment tools should be administered using a consistent method, either virtual or

in-person. It is not advisable to directly compare timed data from assessment tools administered in-person and virtually, for the same individual, due to lag times.
3. Self-reported measures of rehabilitation outcomes, which are typically evaluated using performance-based assessment tools, may be feasible and useful to integrate when in-person assessment is not available.
4. Motivation and mood may influence engagement of the individual with stroke during virtual and in-person stroke rehabilitation sessions.

### 6.2.2 Service Delivery

i. Outpatient stroke rehabilitation services, whether delivered using virtual modalities alone or a hybrid model, should offer the same elements as coordinated, in-person rehabilitation services [Strong recommendation; Moderate quality of evidence]. *Refer to Section 4 for additional information.*

*Refer to Stroke Systems of Care module for additional information on Virtual Care Principles.*[21]

## SECTION 7 INTERDISCIPLINARY STROKE REHABILITATION CARE PLANNING, TRANSITIONS AND COMMUNICATION

Discharge planning should begin as soon as possible during each phase of care and involve the patient, family, caregivers, and all interprofessional team members. Discharge planning aims to ensure a safe and efficient transition between care settings while maintaining a continuity of care and coordination of services that optimize recovery and secondary prevention, as appropriate. Discharge planning activities should include a pre-discharge needs assessment, home visits, meetings between the care team, patient, family, and caregivers, a post-discharge follow-up plan, and communication with team members at the next phase of care. In a recent Cochrane review, Gonçalves-Bradley et al.[47] identified 33 RCTs including patients admitted to any type of hospital (acute, rehabilitation or community) with any medical or surgical condition. Hospital length of stay (mean difference = −0.73, 95% CI = −1.33 to −0.12) and unscheduled 3-mo readmission risk (relative risk [RR] = 0.87, 95% CI = 0.79 to 0.97) were both found to be significantly reduced for elderly patients with a medical condition who received discharge planning, compared to care as usual. In the only RCT identified in the Cochrane review that included patients post-stroke, Sulch et al.[48] randomized 152 patients within 2 wks of stroke onset to receive discharge planning according to an integrated care pathway or care as usual. No significant differences between groups were reported with respect to 6-mo mortality (13% vs. 8%), institutionalization (13% vs. 21%), or length of stay (50 ± 19 vs. 45 ± 23 days). However, those randomized to receive conventional care experienced significantly greater change on the Barthel Index from 4 to 12 wks (median change = 6 vs. 2, $P < 0.01$) and reported significantly greater scores on the EuroQol at 6 mos (72 vs. 63, $P < 0.01$). Duncan et al.[49] randomized 6024 patients with mild stroke and TIA discharged home from 40 hospitals to receive a comprehensive post-acute stroke transitional care management program or usual care. While there were no significant differences between groups in the primary outcome (Stroke Impact Scale-16 at 90 days), or most of the secondary outcomes, home blood pressure monitoring was self-reported by 72% of patients in the transitional care group compared with 64% of usual care group (adjusted OR = 1.43, 95% CI = 1.21–1.70).

Successful transition between inpatient and outpatient settings is dependent on effective communication between healthcare professionals and clinical settings to avoid fragmentation and delays. Kattel et al.[50] included 19 studies in a systematic review, which described hospital discharge communication between hospital-based providers and primary care physicians (PCPs). While a median of 55.1% of hospital discharge communications were transferred to the PCP within 48 hrs, 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%). The PCP received notification of discharge in only 23% of cases. In a controlled study of 3248 hospitals, Mitchell[51] explored the association between physician/nurse communication with the patient regarding discharge instructions and readmission. An average of 84% of patients reported receiving discharge instructions. Hospitals that had smaller bed numbers, were non-profit and located in non-urban areas were more likely to provide discharge instructions. Patients reported that, on average, nurses and doctors communicated well with them 78% and 82% of the time, respectively. Controlling for other factors, increasing frequency of communication surrounding discharge instructions was associated with significantly lower number of 30-day hospital re-admissions.

## Section 7 Interdisciplinary Stroke Rehabilitation Care Planning, Transitions and Communication Recommendations

*Note: Individualized care planning in stroke rehabilitation refers to a tailored approach that focuses on the unique needs, preferences, and goals of each individual with stroke recovering from a stroke. This process involves a comprehensive assessment of the individual with stroke's medical history, physical abilities, emotional well-being, cultural needs, environmental, and social circumstances. Through collaboration among healthcare professionals, individuals with stroke, and their families, individualized care planning aims to develop a personalized rehabilitation program that addresses specific deficits, facilitates recovery, and enhances overall quality of life. The plan is regularly reviewed and adjusted based on the individual with stroke's progress and evolving needs, ensuring that care remains relevant and effective throughout the rehabilitation experience.*

**7.0** Interprofessional care planning and effective communication among all team members and individuals with stroke are essential and should be part of all stroke rehabilitation care planning and delivery to ensure continuity of care, safety, and to reduce risk of complications and adverse events during stroke care particularly at transition points [Strong recommendation; Low quality of evidence].

### 7.1 Individualized Care Plan

i. The individual with stroke, their family, and caregivers should be actively engaged in development of a care plan, and regular updates as recovery progresses [Strong recommendation; Moderate quality of evidence].

ii. The rehabilitation team should review the care plan with the individual with stroke at least weekly and at transition points, updating the care plan to reflect changing needs, which may include evolving goals, progress through recovery and changes in health status [Strong recommendation; Moderate quality of evidence].
iii. Family members and caregivers should have the opportunity to meet with the rehabilitation team to discuss rehabilitation activities, progress, concerns and transition planning [Strong recommendation; Moderate level of evidence]; virtual modalities to support participation may be considered [Strong recommendation, Low quality of evidence].
iv. A family meeting/conference to discuss the care plan, rehabilitation treatments, and other relevant information should be considered to support person and family-centered rehabilitation and transitions of care [Strong recommendation; Low quality of evidence].

### Section 7.1 Clinical Consideration:

1. The care plan should be initiated at the first point of contact with the healthcare system, such as the emergency department, and be refined and updated as the person progresses through the continuum of care.

### 7.2 Transition Planning

i. Transition planning should begin as soon as possible as a well-organized collaboration between health professionals, the individual with stroke, their family, and caregivers [Strong recommendation; Low quality of evidence].
ii. Transition discussions, decisions, and activities should occur throughout the recovery process to reflect changing and evolving needs, goals, and progress of the individual with stroke [Strong recommendation; Low quality of evidence].
iii. The following should be considered throughout transition planning:
   a. A goal-oriented transition plan (e.g., discharge date) should be developed and revised with the individual with stroke, family, and caregivers [Strong recommendation; Moderate quality of evidence].
   b. Identification of and addressing possible transition issues for the individual with stroke and their family, including those factors that may delay discharge (such as home environment concerns, unique responsibilities, social supports including caregiver engagement, transportation issues, and equipment needs) [Strong recommendation; Moderate quality of evidence]. Ideally these should be addressed early in transition planning [Strong recommendation; Low quality of evidence].
   c. Referrals and/or appointments should be initiated prior to the individual with stroke leaving their current setting, especially short stay settings including emergency department and acute care for those discharged directly back to the community [Strong recommendation; Low quality of evidence].
   d. Assessment of caregiver ability to meet the specific needs of the individual with stroke [Strong recommendation; Low quality of evidence]. *Refer to Section 8 and Section 9 for additional information.*
   e. Utilization of virtual care where appropriate to facilitate transition planning and increase access to timely and optimal stroke care follow-up [Strong recommendation; Moderate quality of evidence]. *Refer to CSBPR Virtual Stroke Care Toolkit for additional information.*[46]
iv. Specific transition planning activities that should be completed as appropriate include:
   a. A home assessment to identify home modifications and any equipment required for accessibility and safety [Strong recommendation; Moderate quality of evidence].
   b. Caregiver skills training to meet the current and changing needs of the individual with stroke [Strong recommendation; Moderate quality of evidence]. *Refer to Section 8 and Section 9 for additional information.*
   c. Planned and goal-oriented day, weekend, and/or overnight visits to the identified discharge location [Strong recommendation; Moderate quality of evidence], in order to help identify potential barriers, assess readiness for discharge, and inform therapy and discharge planning activities.
   d. Written and verbal discharge instructions, with demonstrations of skills as needed, are provided to the individual with stroke and their family and tailored to their needs and characteristics (language, comprehension, culture) [Strong recommendation; Moderate quality of evidence]. *Refer to Clinical Consideration 1 for additional information.*
   e. Verbal and written information should be tailored to the individual's cognitive, sensory, and communication abilities and to the health literacy of the individual with stroke, their family, and caregivers. [Strong recommendation; Moderate quality of evidence].
   f. A post-discharge follow-up plan should be initiated pre-discharge by a designated team member to ensure continuity of care [Strong recommendation; Moderate quality of evidence].
   g. Individuals with stroke should have access to designated transition support team members as needed post-discharge, such as a case manager or stroke navigator [Strong recommendation; Moderate quality of evidence].

### Section 7.2 Clinical Considerations:

1. When providing discharge instructions, healthcare team members should address the following:
   a. Any risks and safety considerations relevant to the individual's recovery.
   b. Clear individualized action and tailored resources to support the recovery process.
   c. Medications at discharge, including instructions for use, any adjustments, renewals, and who will provide ongoing medication management.
   d. Details of follow-up care and appointments and contact information for follow-up care providers.
   e. A designated point of contact for any post-discharge questions or concerns.

### 7.3 Health Professional Communication

i. Processes should be in place to ensure timely and effective transfer of relevant information at all points of access and transition in the healthcare system, to ensure seamless transitions and continuity of care [Strong recommendation; Moderate quality of evidence].
ii. All members of the interdisciplinary stroke team should share timely and up-to-date information with the individual with stroke, their family, and caregivers as appropriate, and with healthcare providers at the next stage of care [Strong recommendation; Moderate quality of evidence].
iii. The transfer of information should be:
   a. Comprehensive and timely, occur before transitions, and include all relevant information on the individual with stroke, their medications, and progress to date, planned appointments, ongoing recovery needs, and goals [Strong recommendation; Moderate quality of evidence].
   b. Provided to the primary care practitioner in a formal, detailed, discharge summary prepared by the most responsible healthcare provider [Strong recommendation; Moderate quality of evidence]. *Note, not all individuals with stroke may have a primary care provider, and if not, this should also be addressed. Refer to Online Supplement Appendix Two, Box 7 for core content to be considered for inclusion in transitions of care (discharge) summaries, https://links.lww.com/PHM/C850.*
   c. Available through electronic health records that are accessible across settings and healthcare providers [Strong recommendation; Low quality of evidence].
   d. In multiple formats including the use of virtual modalities when appropriate [Strong recommendation; Moderate quality of evidence]. *Refer to Section 6. Virtual Stroke Rehabilitation, and the CSBPR Virtual Stroke Care Toolkit for additional information.*[46]

## SECTION 8: SUPPORTING INDIVIDUALS WITH STROKE, FAMILY, AND CAREGIVERS DURING STROKE REHABILITATION

Following a stroke, patients, their families and informal caregivers experience multiple life changes navigating between the hospital and home, or other community settings. These transitions are associated with substantial emotional, social, and health-related challenges, particularly for the informal caregiver, who may not have previously held this role. Interventions to provide support to patients, family, and caregivers were examined in a systematic review,[52] which included the results from 18 studies of caregivers of patients recovering from stroke or patient/caregiver dyads. Participants were recruited from acute hospitalization and from the community. Most caregivers were spouses. The interventions included elements of skills building, psychoeducation and support and were provided mainly face-to-face (group or individual) with some telephone and web-based elements. In studies that recruited family members, both patients and family members in the intervention group experienced significantly greater improvements in measures of depression, anxiety and quality of life. In studies that included patient/caregiver dyads, there was significantly greater improvement in one or more outcomes, including life satisfaction. Symptoms of anxiety and depression were also decreased significantly in another systematic review that included 16 trials composed of stroke survivor/caregiver dyads discharged home from rehabilitation hospitals.[53] Interventions in these trials included a written guide for stroke survivors, and/or video training, group discussions and face-to-face consultations, which were implemented in a hospital setting. Trials also included telephone support after discharge, an educational intervention and support with home visits or telephone support after discharge.

## Section 8 Supporting Individuals With Stroke, Their Family, and Caregivers During Stroke Rehabilitation Recommendations

**8.0** Individuals with stroke, their family, and caregivers should be supported through all transitions of care with individualized psychosocial supports, education, skills training, and information about accessing community-based services and resources [Strong Recommendation, High quality of evidence].

*Refer to Stroke Systems of Care Module for Additional Information on Supporting Individuals With Stroke, Family, and Caregivers.*[21]

### 8.1 Screening, Assessment and Management in Stroke Rehabilitation and Recovery

i. Individuals with stroke, their family, and caregivers should be **screened** for levels of coping, depressive symptoms, and other physical and psychological issues throughout the rehabilitation experience, using validated tools [Strong Recommendation; High quality of evidence].
ii. Individuals with stroke, family, and caregivers should undergo assessments to facilitate the development of a rehabilitation and recovery plan.
   a. The type and depth of assessments should be tailored to the individual's needs, readiness, issues identified during screening and stages of transition [Strong recommendation; Low quality of evidence].
iii. Assessments should address the following areas where appropriate as they relate to a family member or caregiver's ability to support the individual with stroke throughout their rehabilitation experiences and transitions back to community:
   a. Current health status of the caregiver, employment and social responsibilities, and how those will be managed in supporting the individual with stroke [Strong recommendation, Low quality of evidence].
   b. Caregiver willingness, capacity for skills acquisition, ability to support ADLs, and experience for providing rehabilitation and recovery support to the individual with stroke [Strong recommendation, Low quality of evidence].
   c. Caregiver ability to cope and manage the stress of providing rehabilitation and recovery support for the individual with stroke [Strong recommendation, Moderate quality of evidence].
   d. Resource issues such as financial situation, housing, transportation, insurance, healthcare benefits, medication and rehabilitation equipment cost coverage [Strong recommendation, Moderate quality of evidence].

e. Level and type of support from other family members, relatives and social networks [Strong recommendation, Low quality of evidence].

iv. When issues are identified through screening and assessments, referrals to appropriate experts and services to address rehabilitation and recovery issues and optimize outcomes should be made for individuals with stroke, families and caregivers [Strong recommendation, Moderate quality of evidence].

v. Individuals with stroke, families, and caregivers should be provided with information about peer support groups or services in their community, including caregiver support groups or services, descriptions of the services and benefits they offer, and be encouraged to consider participation [Strong recommendation, Moderate quality of evidence]. *Refer to Online Supplement Appendix Two, Box 8 for CSBPR Supporting Successful Transitions of Care Checklist, https://links.lww.com/PHM/C850.*

## SECTION 9: EDUCATION FOR INDIVIDUALS WITH STROKE, THEIR FAMILY, AND CAREGIVERS DURING STROKE REHABILITATION

Education is an ongoing and vital part of the recovery process for persons with stroke, family members and caregivers for promoting recovery, preventing complications, and improving overall quality of life. Education fosters confidence, independence, and better long-term outcomes by equipping patients and caregivers with knowledge about medications, lifestyle modifications, and available resources. In a Cochrane review, Crocker et al.[54] included the results of 33 RCTs and reported active information interventions, such as lectures and videos, were shown to improve the patient's knowledge of stroke and stroke services and quality of life, while passive interventions had no effect on symptoms of anxiety and depression compared with a control condition. Caregivers, on the other hand, did not appear to experience any significant benefits of the intervention. Neither passive (leaflet or pamphlet), nor active (lecture) interventions were associated with significant improvements in caregiver's knowledge of stroke and stroke services, compared with usual care. However, only 3 to 4 trials assessing this outcome were included in pooled analysis. Conversely, active interventions were associated with an improvement in the patient's stroke knowledge (SMD = 0.41, 95% CI = 0.17–0.65: low quality), but not with anxiety or depression. Eames et al.[55] randomized 138 patients and their carers to receive an individually tailored education and support package with verbal reinforcement for 3 mos, or to a usual care group, which received unstructured, informal education. Patients in the intervention group reported significantly greater self-efficacy (access to stroke information domain, $P < 0.04$), feeling of being informed ($P < 0.01$), and satisfaction with medical ($P < 0.001$), practical ($P < 0.01$), service/benefit ($P < 0.05$), and secondary prevention ($P < 0.001$) information received.

Comprehensive stroke education programs have been associated with enhanced self-management, reduced caregiver burden, and improved long-term quality of life for stroke survivors and their families. A Cochrane review[56] included the results from 14 RCTs of patients recovering from stroke who were living in the community. Trials compared interventions composed of ≥1 component of self-management or targeted more than a single domain of change, or both, with a control intervention (either an inactive control such as waiting list or usual care or an active control such as education only). Interventions were provided by allied health professionals either on a one-to-one basis or as a group, and all were delivered face-to-face except one. Self-management programs were associated with a significant improvement in quality of life (SMD = 0.20, 95% CI = 0.00 to 0.41; low quality of evidence) and self-efficacy (SMD = 0.33, 95% CI = 0.04 to 0.61; low quality of evidence). Self-management programs were not associated with significant improvements in activity limitations or impairment. Two trials of nurse-led stroke self-management programs were associated with significant improvements in Stroke Self-Efficacy Questionnaire scores.[57,58]

### Section 9 Education for Individuals With Stroke, Their Family, and Caregivers During Stroke Rehabilitation Recommendations

i. Education for individuals with stroke, their family, and caregivers, is an integral part of stroke rehabilitation and recovery that should be included as part of all healthcare encounters, and during transitions [Strong recommendation; High quality of evidence].

ii. Individualized rehabilitation and recovery learning needs and goals should be assessed and documented by members of the healthcare team [Strong recommendation; Moderate quality of evidence].

iii. Individuals with stroke, their family, and caregivers should undergo an assessment to determine readiness for education, health literacy, psychosocial support, ability to integrate rehabilitation and recovery knowledge and training, and to access appropriate health information and social services [Strong recommendation; Moderate quality of evidence].

iv. Opportunities to learn and master self-management skills should be provided during the rehabilitation and recovery process to support the development of self-efficacy and self-management [Strong recommendation; Moderate quality of evidence]. *Refer to Online Supplement Appendix Two, Box 9 for CSBPR Education and Self-management Checklist for Individuals With Stroke, Their Family, and Caregivers, https://links.lww.com/PHM/C850.*

v. With consent, family members and caregivers may be invited and encouraged to attend rehabilitation therapy sessions and given the opportunity to learn rehabilitation and recovery skills to support safety and self-management [Strong recommendation; Low quality of evidence].

vi. Rehabilitation teams should offer updated, validated and reliable information and resources to individuals with stroke, their family, and caregivers, facilitating easier self-management and navigation of community-based health and social systems following discharge [Strong recommendation; Moderate quality of evidence].

*Refer to Stroke Systems of Care Module for Additional Information on Education for Individuals With Stroke, Families, and Caregivers.*[21]

## SUMMARY

The 7th update of the *Canadian Stroke Best Practice Recommendations for Stroke Rehabilitation Planning for Optimal Care Delivery* provides evidence-informed recommendations applicable to all adult Canadians who have experienced a stroke and require rehabilitation and support through recovery. These recommendations, guided by empirical evidence and the experiences and insights of people with lived experience, are comprehensive, span the spectrum of care from admission to hospital throughout the continuum of care, and attend to the issues of care transitions. Adopting the International Classification of Functioning, Disability and Health Framework has strengthened the recommendations by providing a universal language and structure emphasizing functioning and participation.

There is an urgent need for health systems to attend to the recovery needs of stroke survivors and ensure services and resources are in place to reduce fragmentation and ensure equitable access is available for all individuals recovering from stroke. These wholistic physical, emotional, psychological, social, spiritual and environmental needs are considered throughout this set of Canadian Stroke Best Practice recommendations. Evidence consistently demonstrates that timely access to specialized, coordinated rehabilitation services optimizes recovery and reduces long-term disability. As healthcare systems face increasing pressures with an aging population and growing stroke prevalence, prioritizing comprehensive rehabilitation becomes not only a clinical necessity but also a social imperative.

Considerations for equity in accessing rehabilitative services and facilitating linkages to community-based resources must be addressed at all stages of recovery. However, a comprehensive and integrated approach to planning and delivering stroke rehabilitation requires coordinated systems to be in place in all regions of Canada; a challenge given the vast geographical area with many smaller, and in some cases, isolated communities. Virtual care modalities represent a promising approach to overcoming geographical barriers and a potential mechanism for engaging family members in rehabilitation and transition planning. However, they must be implemented with careful attention to digital literacy, access to technology, and the need for some in-person assessment and treatment components.

Sex and gender differences in stroke rehabilitation outcomes warrant careful consideration in clinical practice. Women often present with different symptom profiles, may experience more severe strokes, and face unique challenges in rehabilitation related to pre-stroke functional status and social circumstances. Women are more likely to be discharged to long-term care facilities rather than home and may receive less intensive rehabilitation services. Meanwhile, men may face different challenges related to psychological adaptation, particularly around identity and traditional roles. These recommendations encourage rehabilitation professionals to apply sex and gender-specific considerations in assessment, goal setting, and treatment planning to optimize outcomes for all individuals.

With the growing number of people surviving stroke and living with long-term effects, there is an urgent need to shift focus beyond acute rehabilitation to support long-term recovery and address life after stroke issues more wholistically. As survival rates improve, the limited evidence regarding community-based services for the chronic phase of stroke recovery becomes increasingly apparent. The traditional thinking about rehabilitation is often hindered in addressing the ongoing, sometimes lifelong journey of stroke recovery, particularly as survivors face new challenges related to aging with disability, changing support systems, and evolving life circumstances. The "life after stroke" period, which may span decades, requires robust evidence and evidence-based programming that supports individuals in achieving meaningful participation in their communities, maintaining functional gains, and adapting to evolving challenges as they age with stroke effects.

Looking toward the future, several emerging trends are shaping the landscape of stroke rehabilitation with implications for life after stroke. Technology-supported rehabilitation shows promise for augmenting traditional approaches and providing sustainable, accessible supports, which may be maintained in the chronic phase. There is growing recognition of the importance of self-management strategies that empower individuals with stroke to take an active role in their long-term recovery journey. Community-based rehabilitation models are expanding to address needs beyond the traditional rehabilitation period, with innovative programs focusing on participation, wellness, and secondary stroke prevention. As these trends evolve, ongoing review and updates to the recommendations will ensure they reflect current evidence and best practices, ultimately supporting the goal of facilitating meaningful recovery and quality of life for all Canadians affected by stroke throughout their entire post-stroke lifetime.

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