



ALBERTA PROVINCIAL STROKE STRATEGY (APSS)

Stroke Systems of Care – Key Components

APSS Pillar Recommendations

March 28, 2007

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

The following is a summary of the key components and APSS Pillar recommendations that support the implementation of stroke systems of care across the province. These key components represent the full range of stroke prevention and management services for optimal stroke care. While it may not be feasible to address and implement all key components immediately, health regions shall evolve their stroke service delivery incrementally to incorporate the full range over time. If it is not feasible for health regions to provide some key components they shall partner with another health region for the delivery of an appropriate level of service.

The key components formed the basis for the inventory that was completed by each health region in January 2006. Health region Stroke Plans are based on the results of the inventory and gap analysis in relation to the key components. These Stroke Plans were submitted to the Alberta Stroke Council in April, 2006.

In order to assist health regions with decision making and as a guideline for implementation, key components are ranked according to the suggested phasing of implementation (+ work towards recommendation over time; ++ needs to be done relatively soon, in one to two years; +++ critical to implement over the next year) and relative cost (\$ some or no expense; \$\$ moderately expensive; \$\$\$ expensive). Relative expense rankings assume health regions are starting with little or no existing infrastructure.

More detailed information about the recommendations and implementation tools (protocols, order sets, planning tools etc) are available in the APSS Pillar documents soon to be available on the APSS website (www.strokestrategy.ab.ca) Health Care Provider section. These tools incorporate best practice as articulated by the Canadian Stroke Strategy and other international reviews where appropriate. APSS Pillars have developed indicators to measure the implementation of these recommendations.

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

Item	Pillar 1 Health Promotion and Disease Prevention – Key Component	Pillar 1 Implementation Recommendations
1	<p>Population health programs to decrease the <i>development of risk factors</i> for stroke and other cardiovascular diseases (eg. smoking, weight, diet)</p> <p>(+ , \$)</p>	<p>Health regions shall:</p> <ul style="list-style-type: none"> • Work in partnership with other sectors to address broader determinants of health • Incorporate both individual and population health based approaches at the community, health service and system levels • Consider determinants of health when targeting health promotion and stroke prevention interventions for individuals (eg income, ethnicity) <p>Refer to <i>APSS Planning for Primary Stroke Prevention</i> for more detail on these expectations and recommendations</p>
2	<p>Primary Prevention programs focused on <i>established disease risk factors</i> for stroke and other cardiovascular diseases (eg. hypertension, cholesterol, diabetes, AF)</p> <p>(++ , \$\$\$ - Hypertension initiative)</p> <p>(+ , \$ - integration of stroke prevention into primary health care delivery systems)</p>	<p>Health regions shall Integrate health promotion practices throughout all parts of the health continuum (wellness, latent, acute, chronic, palliative)</p> <p>It is recommended that APSS partner with HSFA to implement an organized provincial awareness campaign for identification and appropriate management of hypertension. Incorporate messaging related to hypertension and other CVD risk factors into local primary prevention initiatives. (Refer to business case)</p> <p>Health regions shall incorporate best practices related to stroke prevention and management in the implementation of Primary Care Networks, Chronic Disease Management programs and other primary health care delivery systems</p> <p>Refer to <i>Planning for Primary Stroke Prevention</i> for more detail on these expectations and recommendations</p>

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

3	<p>Organized public awareness programs (signs of stroke and emergency 911 response)</p> <p>(++, \$\$\$)</p>	<p>It is recommended that APSS implement an organized provincial awareness campaign for signs and symptoms of stroke. Led by Heart and Stroke of Alberta and aligned with local regional initiatives and messaging.</p> <p>Refer to Awareness campaign – Signs and Symptoms Business Case</p>
4	<p>Stroke prevention service for high risk individuals i.e. transient ischemic attack, previous stroke</p> <p>(+++ , \$\$)</p>	<p>Each health region shall offer secondary prevention services to individuals with a recent stroke / TIA. These specialized services include initial assessment and short term follow-up for optimum management of vascular risk factors. For long term follow up and monitoring, these Individuals should be referred back to their family physicians and to other community health services, such as Chronic Disease Management programs.</p> <ul style="list-style-type: none"> • If there are insufficient TIA/stroke volumes in a health region for a dedicated stroke prevention clinic, stroke prevention services may be offered through another appropriate specialized service within the health region, such as a vascular risk reduction clinic or other clinic (i.e., hypertension, diabetes, heart failure, etc). • If health regions have insufficient stroke volumes or resources for appropriate assessments and diagnostic interventions, individuals may be referred to Stroke Prevention Services in larger health regions for this component of care. Individuals may be referred directly or receive services via telehealth. However, individuals should receive long-term follow-up in their own health regions for ongoing monitoring of vascular risk factors, lifestyle counseling and compliance. <p>Health regions initiate education strategies to educate regional / local primary physician groups and emergency physicians about secondary stroke prevention practices and appropriate management and referral to stroke prevention services.</p> <p>Stroke prevention services and/or vascular risk reduction clinics, managing the care of post-stroke and TIA patients, shall adopt the components of the following resources to ensure delivery of best practice and standardized care and the collection of the minimum data set for evaluation purposes:</p> <ul style="list-style-type: none"> • Secondary Prevention of TIA/Stroke Initial Clinic Visit • Secondary Prevention of TIA/Stroke Interdisciplinary Team Worksheet • Patient Resources <p>Family physicians, Chronic Disease Management program and Primary Care Networks involved in longer term follow-up of TIA and post-stroke patients are encouraged to use these resources as well.</p> <p>Refer to <i>APSS Secondary Stroke Prevention</i> document.</p>

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

	Pillar 2 Emergency Response and Acute Care – Key Component	Pillar 2 Implementation Recommendations
	Notification and Response of EMS	
5	<p>Written transport protocols for Ambulance (ground/air) to nearest Comprehensive/Primary Stroke Centre</p> <p>(+++ , \$)</p>	<p>Health regions shall work with ambulance services to implement hospital direct transport protocols (<i>Prehospital Stroke Care Algorithm</i>) to minimize delays to appropriate hyper-acute treatment and provide the most expedient and safest transport to the Primary/Comprehensive Stroke Centre</p> <p>Health regions shall work with ambulance services to adopt a <i>Stroke Transport Protocol</i> to ensure appropriate treatment of potential stroke patients enroute by ground/air ambulance.</p> <p>Refer to <i>APSS Pre-hospital Care</i> document for Prehospital Stroke Care Algorithm and Stroke Transport Protocol</p>
6	<p>EMS assessment, screening protocols and documentation for signs and symptoms of stroke</p> <p>(+++ , \$)</p>	<p>Health regions shall work with ambulance services to adopt an <i>EMS Stroke Screening Form</i> for the rapid recognition of potential stroke patients in the field.</p> <p>Health regions shall work with EMS to disseminate knowledgeable about hospital direct transport processes, stroke recognition and management in the pre-hospital phase.</p> <p>Health regions shall ensure that all emergency room physicians in their respective health regions are knowledgeable about hospital direct transport processes, stroke recognition and management in the pre-hospital phase.</p> <p>Health regions and local EMS shall establish mechanisms to ensure that ongoing operational issues are discussed by EMS personnel, emergency and stroke clinicians and to share ongoing continuing education opportunities.</p> <p>Refer to <i>APSS Pre-hospital Care</i> document for example of EMS Stroke Screening Form</p>
	Acute Treatment of Stroke in the ED (Hyperacute phase)	
7	<p>Designated primary and comprehensive stroke centres linked via telestroke</p> <p>(+++ , \$\$)</p>	<p>Each health region shall designate a primary stroke centre(s) based on geographic and infrastructure capabilities and ensure appropriate communication with EMS providers regarding status of operation (24/7/365).</p> <p>Primary stroke centres shall be linked to comprehensive stroke centres via ER telestroke for</p>

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

		immediate stroke neurologist consultation for specialized services (i.e. stroke neurology, neuro-intervention, neurosurgery, neuro-critical care)
8	Each primary or comprehensive stroke centre shall have a lead stroke physician(s), a physician with a special interest in stroke. (+++ , \$)	It is recommended that all primary and comprehensive stroke centres shall have a lead stroke clinician to support and guide the implementation of best practices and protocols related to the medical management of stroke patients.
9	24-hr/day acute stroke care access (+++ , \$)	Tertiary and major regional hospitals shall provide 24/7 access to hyper-acute stroke treatment to ensure timely access to hyperacute stroke treatments.
10	Non-primary stroke hospitals have written protocols to transfer patients in a timely way to the primary/comprehensive stroke centre (+++ , \$)	Health Regions adopt the <i>Hospital to Hospital Transfer</i> protocol for patients arriving to ER by private vehicle and requiring hyperacute stroke treatment. Emergency room staff shall be knowledgeable about the criteria for the immediate transfer of t-PA eligible stroke patients to the nearest primary or comprehensive stroke centres. Refer to <i>APSS Pre-hospital Care</i> document
11	All hospitals in Alberta have written protocols for acute stroke management in ED (+++ , \$)	Time is brain. Stroke is an emergency and stroke patients shall be triaged accordingly in the ER. All health regions shall adopt the following best practices and integrate best practices into emergency management clinical algorithms and protocols: <ul style="list-style-type: none"> • Brain Imaging (CT Imaging under 1 hour, notification of stand down) • Adoption of National Institute of Health Stroke Scale • Blood Glucose • Acute Thrombolytic Treatment • Carotid Artery Imaging • Acute Aspirin Therapy • Dysphagia Assessment Health Regions adopt the Emergency Care protocols and algorithms <ul style="list-style-type: none"> • tPA Acute Disabling Stroke Algorithm • non-tPA Acute Disabling Stroke Algorithm • Minor Stroke/Transient Ischemic Attack Algorithm • Intra-Cranial Hemorrhage Algorithm • Acute Stroke t-PA Order Set (Primary/Comprehensive Stroke Centres) • Acute Stroke Non-tPA Order Set (All hospitals) Health regions shall educate emergency room staff in all hospitals related to the appropriate

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

		<p>assessment and management of potential stroke patients as per the above protocols and best practices.</p> <p>Refer to <i>APSS Emergency Management of Acute Stroke</i> document</p>
	Inpatient Unit for Stroke Admissions	
12	<p>Inpatient protocol or clinical pathways/maps for acute stroke patients to ensure organized application of interventions in for all stroke patients regardless of location (medical, rehabilitation, psychosocial, transition)</p> <p>(+++ , \$)</p>	<p>Health regions adopt inpatient best practice guidelines as recommended in the <i>Inpatient Care for Stroke Admissions</i> document. These are based on the Canadian Stroke Strategy guidelines and other international best practice reviews. These best practice guidelines are incorporated into the clinical protocols and order sets below.</p> <p>Health regions adopt the following inpatient protocols and order sets:</p> <ul style="list-style-type: none"> • Acute Ischemic Stroke with t-PA Administration • Routine Stroke Admission • Oral Care Guidelines • Psychosocial support and patient education guidelines <p>Refer to <i>APSS Inpatient Care for Stroke Admissions</i></p>
13	<p>Stroke unit or geographically designated beds for stroke patients</p> <p>(++, \$\$)</p>	<p>All patients with acute stroke admitted to hospital should be treated on a stroke unit or a defined area by an interdisciplinary team. The organization of inpatient stroke beds and the number of designated beds is dependent on the number of people admitted with stroke per year and other available clinical supports.</p> <p>Definition of stroke unit/designated beds:</p> <ul style="list-style-type: none"> • Is a geographically located area where patients with stroke are managed. It is a separate geographical area (larger centres) or a designated area within a general unit (smaller centres) • Has staff organized into a coordinated multidisciplinary team • Has staff who are knowledgeable and enthusiastic about the management of stroke • Provides ongoing education about stroke for staff, patients with stroke and caregivers • Has written protocols for the assessment and management of common problems related to stroke. <p>Patients shall be triaged to the most appropriate facility that will meet their individuals care needs.</p> <p>Refer to <i>APSS Acute Stroke Unit</i> document</p>
14	'Stroke Team' or staff with enhanced knowledge of stroke care	The team shall use written protocols for the management of common problems following stroke and

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

	(++, \$\$)	<p>provide early rehabilitation focused on managing these common post-stroke issues, factors related to stroke severity and improving the patients capacity for functional independence.</p> <p>Teams shall have a program of regular education about stroke and stroke care</p> <p>Teams shall meet regularly to discuss the care of the patient</p>
15	<p>Secondary stroke prevention protocols and patient education to prevent complications</p> <p>(+++, \$)</p>	<p>Secondary stroke prevention begins in hospital. Health regions shall adopt the Inpatient Care Best Practice Guidelines related to the secondary prevention of stroke and complications. Refer to <i>APSS Inpatient Care for Stroke Admissions</i></p> <p>Stroke patients shall be referred to stroke prevention services upon discharge from hospital. Refer to Item #4</p>
17	<p>Psychosocial support and patient/caregiver education</p> <p>(+++, \$)</p>	<p>Health regions shall adopt and offer an information guide/binder to each patient/family addressing normal emotional reactions, resources available, coping strategies and sexual functioning.</p> <p>Where available, consider referral for social work services to address legal/ financial / discharge planning and illness adjustment.</p>
18	<p>Smooth transition from acute inpatient care settings to home/outpatient/rehabilitation facility – timely transfer of information and recommendations</p> <p>(+++, \$)</p>	<p>Inpatient acute stroke units, general medical and rehabilitation units shall have processes in place to ensure that the discharge plans are comprehensive, communicated, and involve the stroke survivor, informal caregivers and primary health care providers and other community providers in their development.</p> <p>Refer to <i>APSS Inpatient Care for Stroke Admissions</i> document for the components of a comprehensive discharge plan</p> <p>Referrals shall be made to Chronic Disease Management and other health, recreation/leisure and social community programs to promote self-management, access to education and information, caregiver and social supports.</p>
19	<p>Access to neurosurgical/neurointerventional services</p> <p>(+++, \$)</p>	<p>All health regions shall have access to neurosurgical/neurointerventional services through tertiary care centres. Symptomatic ICA stenosis >70%, CEA should be offered within 2 weeks.</p>

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

	Pillar 3 Rehabilitation and Community Integration – Key Component	Pillar 3 Implementation Recommendations
20	<p>Patients receive a comprehensive screening and/or assessment to prevent complications and deal with common post-stroke issues in the acute phase</p> <p>(+++,\$\$)</p>	<p>Health regions shall ensure that occupational and/or physical therapy rehabilitation professionals screen and/or assess all stroke patients within 48 hours of admission to acute care to prevent secondary complications. Where this is not feasible, guidelines/protocols regarding positioning, mobilization etc., shall be carried out by other appropriately trained members of the health care team</p> <p>Refer to <i>APSS Rehabilitation and Community Reintegration – Stroke Rehabilitation Services Across the Continuum</i> document for more detail on these expectations and recommendations</p>
21	<p>All stroke patients receive a screen for swallowing problems in the acute phase</p> <p>(+++,\$\$)</p>	<p>Each health region ensures that all stroke patients are screened for swallowing problems as soon as medically feasible during the acute care phase. This screen shall be conducted by trained staff using a validated and reliable swallowing screen tool. All patients who fail the screen shall be referred to Speech Language Pathologist (where available) or Dysphagia Team. Consider telerehabilitation for remote dysphagia consults.</p> <p>Refer to <i>APSS Rehabilitation and Community Reintegration – Management of Dysphagia Following Acute Stroke</i> document for more detail on these expectations and recommendations</p>
22	<p>Patients receive post-stroke rehabilitation in the most appropriate setting to meet their needs</p> <p>(++,\$\$\$)</p>	<p>The <i>Rehabilitation Decision Tree for the Hospitalized Acute Stroke Patient</i> and <i>Stroke Rehabilitation Determinants</i> triage tool be used to determine the most appropriate setting for ongoing rehabilitation needs of the stroke survivor (ie tertiary, secondary, primary, inpatient, outpatient, other community based program). All health regions shall strive to provide access to secondary inpatient and outpatient rehabilitation services within their regions if a major regional hospital exists. Where major regional hospitals do not exist arrangements shall be made with another health region to accept patients that require a secondary level of care.</p> <p>Refer to <i>APSS Rehabilitation and Community Reintegration</i> document for more detail on these expectations and recommendations</p>
23	<p>Stroke rehabilitation settings have the appropriate mix of team members to meet the needs of patients</p> <p>(+,\$\$\$)</p>	<p>Health regions are encouraged to enhance rehabilitation teams in inpatient and outpatient settings to meet the needs of patients in those settings. Innovative staff mix models are encouraged to maximize resources/expertise and compensate for rehabilitation professionals in short supply. See <i>APSS Rehabilitation and Community Reintegration - Post-acute Stroke Rehabilitation Matrix / Inpatient and Ambulatory/Community/Continuing Care</i></p>

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

<p>24</p>	<p>Comprehensive evaluation and rehabilitation interventions to meet common post-stroke issues including psychosocial and communicative needs</p> <p>(++, \$\$)</p>	<p>Stroke patients shall have access to key rehabilitation components in various stages of care – early acute / hyperacute / acute care, early supported discharge, inpatient rehabilitation, outpatient rehabilitation and community care. Initially, greater emphasis is placed on maintaining or increasing the stroke survivor/s capacity for functional independence. As the survivor is ready for community-based living greater emphasis is place on participation in previous or new life roles. <i>APSS Rehabilitation and Community Reintegration - Stroke Rehabilitation Services Across the Continuum of Care.</i></p> <p>Rehabilitation intervention is provided as needed by a single/multi/interdisciplinary team. Intervention plans are based on realistic goals set together by the client/family and rehabilitation staff/team. For greatest efficiency and effectiveness, rehabilitation intervention must be based on clinical research evidence (See: <i>Canadian Stroke Strategy Best Practice Guidelines 2006</i> www.canadianstrokestrategy.ca http://www.ebrsr.com/index_home.html, http://www.rcplondon.ac.uk/pubs/books/stroke/stroke_guidelines_2ed.pdf). These clinical intervention guidelines summarize the literature and are recommended by Pillar 3 for adoption by rehabilitation staff caring for stroke patients.</p> <p>To support high quality care, mentorship and transfer of expertise, health regions shall support a system that facilitates direct consultation from one rehabilitation professional to another peer or other stroke rehabilitation expert (including Physiatry) in another health region. Direct consults shall be done in collaboration with other members of the rehabilitation team.</p> <p>Secondary and tertiary rehabilitation sites implement formal mentorship strategies for regional support as well as support to surrounding regions; to ensure that stroke rehabilitation care is consistently provided at the highest possible level of expertise within the province.</p> <p><i>APSS Rehabilitation and Community Reintegration</i> document.</p>
<p>25</p>	<p>Inpatient rehab discharge planning protocol to ensure follow-up and primary care arrangements</p> <p>(++, \$)</p>	<p>Inpatient acute care, general medical and rehabilitation units shall have processes in place to ensure that discharge plans are comprehensive, communicated, and involve the stroke survivor, informal caregivers and primary health care providers and other community providers.</p> <p>Plans should include formal referral to Chronic Disease Management and other community programs to promote self-management, access to education and information, caregiver and social supports. Formal communication and collaboration with primary care providers shall be established across the continuum.</p> <p>There shall be appropriate mechanisms to allow for reassessment of continued need for rehabilitation and easy re-entry into the health system.</p> <p>Refer to <i>APSS Rehabilitation and Community Reintegration – Stroke Rehabilitation Services Across the Continuum of Care</i></p>

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

26	<p>Secondary and Tertiary Rehabilitation sites are able to measure rehabilitation outcomes to ensure the highest quality of care possible</p> <p>(+, \$\$)</p>	<p>Secondary and Tertiary Rehabilitation facilities cooperate to collect and report standardized rehabilitation outcomes.</p> <p>(Recommended Tool – Pending)</p>
27	<p>When an individual suffers a stroke, their family is also affected. By providing supports for the caregiver, return to the home/community results in better outcomes including reduced admission rates to hospital and other assisted living environments</p> <p>Stroke rehabilitation is client-centred and includes the care and education of informal caregivers as a basic component.</p> <p>(+, \$)</p>	<p>Health regions shall adopt strategies (formal and informal) for caregiver support and education within local communities. Refer to <i>APSS Rehabilitation and Community Reintegration – Position Statement on the Value of Stroke Caregivers</i></p> <p>Health regions adopt and teach health care providers ways of applying client-centred care principles in their day-to-day practice</p> <p>Health regions facilitate community reintegration of stroke survivors through various mechanisms such as direct referral to community resources and programs, case coordination for complex cases, mechanisms for re-access to health services and health information</p>
28	<p>The goal of community reintegration is to facilitate the transformation of ‘stroke survivors’ to ‘stroke thrivers’. Reintegration may include case coordination, community or home rehabilitation, day programs, home support and referrals to community based organizations and resources or links to informal social support networks</p> <p>(+, \$)</p>	<p>Health regions are encouraged to facilitate community reintegration by:</p> <ul style="list-style-type: none"> • Engaging/partnering in the development of community resources • Creating and maintaining an accurate inventory of resources and updating the Inform Alberta database through Health Link <p>Refer to <i>APSS Rehabilitation and Community Reintegration – Community Resource Inventory Tool</i></p>
29	<p>Stroke rehabilitation in Continuing Care</p> <p>(+)</p>	<p>Health regions ensure that stroke survivors residing in continuing care will receive an appropriate level of rehabilitation support to maintain the highest functional level and quality of life possible</p>

Alberta Provincial Stroke Strategy

PILLAR RECOMMENDATIONS CHECKLIST

	Foundations for Stroke Prevention and Management	APSS Recommendation
30	<p>Short and long term Continuing Clinical Education re stroke prevention and management</p> <p>Short term education (+++, \$\$) Long term education (+ to ++, \$\$\$)</p>	<p>Health regions initiate education strategies to educate regional / local primary physician groups and emergency physicians about secondary stroke prevention practices and appropriate referral to stroke prevention services.</p> <p>Health regions shall ensure that EMS in their respective health regions are knowledgeable about hospital by-pass processes, stroke recognition and management in the pre-hospital phase</p> <p>Health regions shall establish mechanisms to ensure that EMS personnel, emergency and stroke clinicians share ongoing continuing education opportunities.</p> <p>Health regions shall educate emergency room staff in all hospitals related to the appropriate assessment and management of potential stroke patients.</p> <p>Teams on stroke units shall have a program of regular education about stroke and stroke care (basic, specialized)</p> <p>Health care providers who care for stroke patients on general medical units shall receive at least a basic level of stroke training to help provide for the needs of stroke patients.</p> <p>Health regions shall implement formal mentorship strategies between tertiary and major regional facilities to ensure that medical management of stroke and ongoing rehabilitation care is consistently applied and expertise is shared across the province</p>
31	Participation in clinical trials in stroke	Health regions are encouraged to participate in formal clinical trials and research networks
32	Telehealth Infrastructure	Health regions participate on the Provincial Telestroke Working Group and establish telestroke links to tertiary sites to facilitate consultation, training and mentorship across the stroke continuum (hyperacute, acute, rehabilitation)
34	Maintenance of Best Practices	Health regions participate on APSS Pillar committees on an ongoing basis to ensure changes in best practice are communicated to and adopted at the regional and local level.
34	Information Systems	Health regions incorporate stroke orders and protocols into electronic patient care information systems.