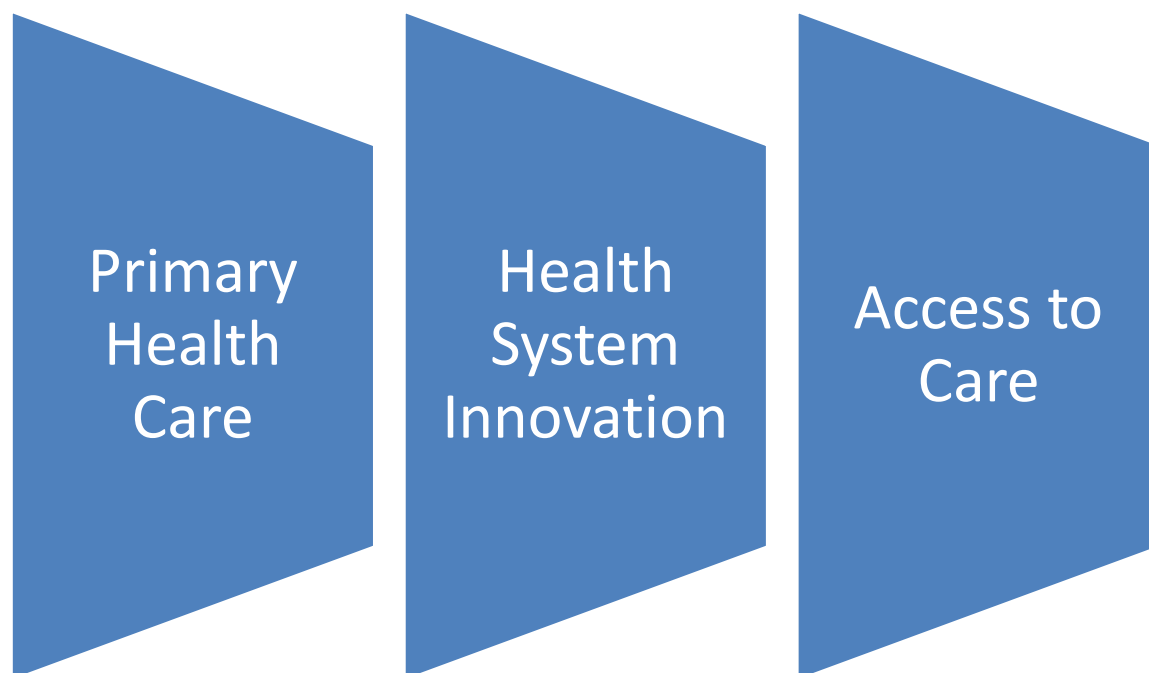


# Manitoba Stroke Strategy 2011

---



## **Supporting Prevention and Extending Access to Care**

---

**Manitoba Health, Health System Innovation Branch**

**June, 2011**

# Outline

1. Introduction

2. Executive Summary

3. Burden of Disease

4. Manitoba Health Framework: 3 pillars

- Collaboration of key stakeholders

5.0 Stroke Continuum (*Canadian Best Practice Recommendations 2010*)

- Current state, path and future state in Manitoba
- 5.1 Health Promotion/Public Awareness
- 5.2 Prevention of Stroke
- 5.3 Hyperacute Management
- 5.4 Acute stroke Management
- 5.5 Rehabilitation

6. Going Forward

References

## 1.0 Introduction

In 2011, approximately 300,000 people in Canada are living with the effects of stroke. Stroke has a significant and lasting effect on individuals, their families and the health care system. Stroke is the leading cause of death and disability, with estimated costs of \$3.6 billion in health care costs and lost economic output due to premature mortality and long-term disability.<sup>1</sup> An aging population, along with increasing rates of obesity and diabetes, signals a likely increase in the number of strokes to come over the next two decades.<sup>2</sup>

Stroke care has become increasingly sophisticated and costly with the development of technology and infrastructure to support distance based and on-site diagnostic testing and neurological consultation. Timely and efficient stroke care can result in significant reduction in some of the devastating effects of a stroke, and have correlated effects on reducing patient rehabilitation requirements, family burden of illness and related health care system costs. Many strokes can be prevented if risk factors are recognized early and appropriately managed through lifestyle changes and primary health care. Enhanced collaboration among community organizations on public education about risk factors and warning signs of stroke will support public awareness to seek medical attention and not to ignore symptoms.

While most strokes are preventable, when they do occur, the early identification of stroke symptoms and rapid response to providing emergent stroke care is critical as evidence suggests that rapid treatment of stroke and Transient Ischemic Attack (TIA) or mini-stroke improves health outcomes.<sup>3</sup> The goal of the Manitoba Stroke Strategy is to support enhanced access to integrated, high-quality and efficient stroke services for all Manitobans.

The Manitoba Health Stroke Strategy proposes a staged approach over five years to improve stroke care throughout Manitoba beginning with health promotion, primary prevention and the identification and management of modifiable risk factors to emergent and acute treatment of stroke, rehabilitation and community reintegration.

## 2.0 Executive Summary

In August 2010, an environmental scan of stroke services throughout the province was conducted. This survey indicated that the regional health authorities (RHAs) of Manitoba experience challenges and obstacles to achieving Canadian best practices for stroke recommendations. Access to necessary technological infrastructure and human resources required for supporting diagnosis and neurological consultation is limited. Access to comprehensive rehabilitation services, particularly throughout rural, northern and remote Manitoba, is limited. The Manitoba Stroke Strategy will support access to specialized stroke services for all Manitobans, from emergent and acute care through to rehabilitative care and

---

<sup>1</sup> *Tracking Heart Disease and Stroke in Canada* (2009) p. 92

<sup>2</sup> *Tracking Heart Disease and Stroke in Canada* (2009) p. 92

<sup>3</sup> *Canadians Best Practices for Stroke Care* (2010).p. 71.

community reintegration, through the development and enhancement of innovative models of care.

The Manitoba Stroke Strategy five-year plan builds on a framework of health system pillars: primary health care, health system innovation and access to care. The goals of the strategy are to improve health outcomes and support appropriate and effective stroke services by:

- strengthening the identification and management of risk factors for stroke through primary health care
- developing innovative health systems for distance delivery of health care services
- providing access to specialized services such as neurology and rehabilitation

The first year (2011/12) will focus on determining the requirements for improved and enhanced infrastructure and resourcing, raising public and provider awareness of stroke risk factors, implementing province-wide bypass and repatriation protocols and educating health care providers in the acute inpatient and rehabilitative environments on best practices in stroke care. Subsequent years will focus on implementation of infrastructure and resourcing improvements, development of associated technology, development and implementation of innovative models of stroke care and building capacity for the provision of specialized stroke expertise to northern Manitoba.

Infrastructure and system development requirements that will be planned and implemented over subsequent years of the strategy include:

- paramedic screening and transport protocols, and repatriation agreements to ensure the right patient arrives at the right facility in the least amount of time.
- a systemic, modifiable risk factor assessment and management program to increase the uptake of preventative interventions such as strategies to modify lifestyle behaviours
- primary Health Care Education strategies regarding standardized screening protocols to assess and refer patients with transient ischemic attacks (TIAs) for treatment
- triage protocols for stroke patients to expedite hyperacute stroke care and organized emergency department (ED) systems for stroke care
- emergency and diagnostic imaging staff working together to support and provide rapid access to diagnostics and neurologists and for high risk TIAs receive the appropriate diagnostic workup
- establishment of physician pools with stroke / neurology expertise
- telehealth and associated technology to enable the sharing of diagnostic imaging/CT scans, information and images electronically to provide remote access to stroke expertise/guidance
- organized acute in-patient pathways, protocols and referral systems
- transition protocols throughout the stroke care continuum

- education strategies and ongoing plans to address gaps in knowledge and education needs of physicians, nurses and allied health professionals involved with stroke care
- access to rehabilitation resources and models of care to enable people living with stroke have access to specialized stroke care and rehabilitation
- access to primary health care networks or teams to coordinate the recovery process and continuum of care by providing relevant information at the time it is needed and referral to the appropriate health, psychosocial, and community resource to promote optimal recovery and functional outcome

### 3. Burden of Disease

A stroke is a sudden and permanent loss of brain function caused by an interruption in the blood flow to the brain (ischemic stroke) or the rupture of blood vessels in the brain (hemorrhagic stroke). About 80 per cent of strokes are ischemic, caused by the narrowing of the artery, or atherosclerosis. The interruption of blood flow by a clot or the rupture of blood vessels causes the brain cells (neurons) in the affected area to die. The effects of a stroke depend on where the brain was injured, as well as how much damage occurred. A stroke can affect any number of functions including the ability to move, see, remember, speak, reason, read and write. A significant burden is placed on patients who experience stroke, their families and caregivers, and on the health care system.

According to the Heart and Stroke Foundation of Canada:

- More than 50,000 strokes occur in Canada each year
- Each year, more than 14,000 Canadians die from stroke
- About 300,000 Canadians are living with the effects of stroke
- After age 55, the risk of stroke doubles every 10 years
- A person who has had a stroke, has a 20 per cent chance of having another stroke within 2 years

Of every 100 people who have a stroke

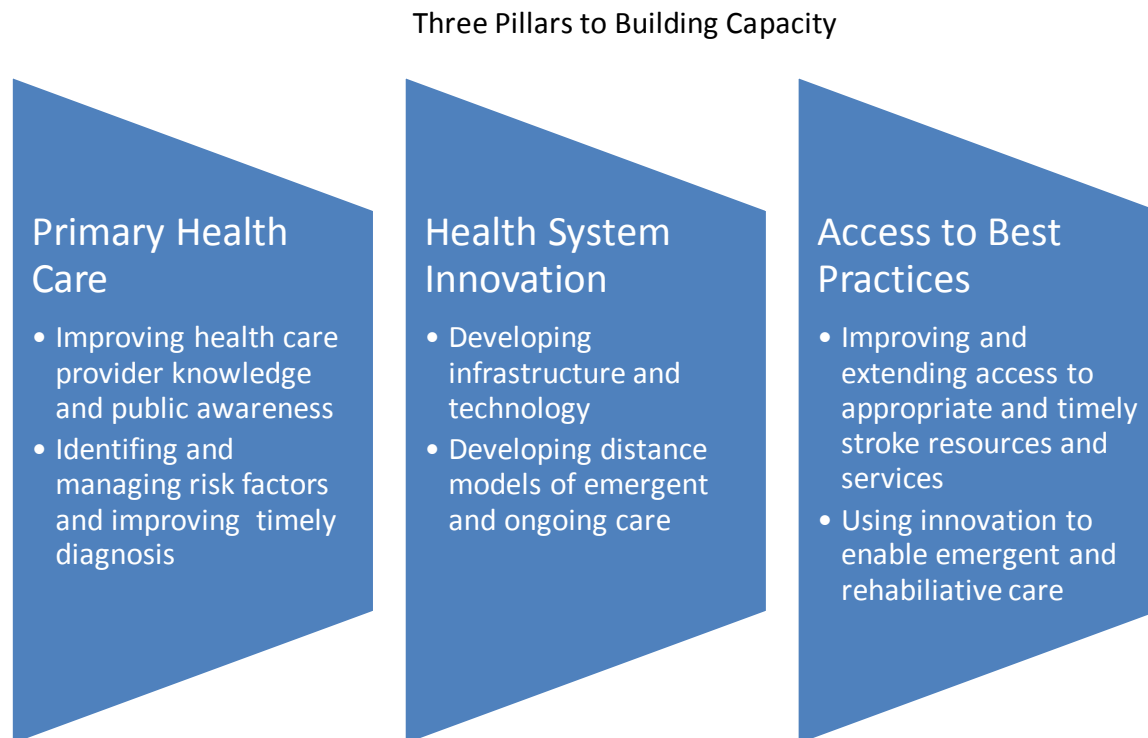
- 15 die (15 per cent )
- 10 recover completely (10 per cent )
- 25 recover with a minor impairment or disability (25 per cent)
- 40 are left with a moderate to severe impairment (40 per cent)
- 10 are so severely disabled they require long-term care (10 per cent)

In Manitoba, approximately seven people per day will suffer a stroke, resulting in 2500 strokes per year. Up to 1200 people who have a stroke will require hospital admission.

The table below lists the hospital admissions per region in Manitoba for 2009/10.

<b>Stroke Hospital Admissions to Manitoba Hospitals</b>	
<b>2009/2010</b>	
<b><u>RHA of Facility</u></b>	<b><u>Total Stoke Admissions</u></b>
Winnipeg	721
Brandon	44
North Eastman	22
South Eastman	46
Interlake	69
Central	101
Assiniboine	73
Parkland	74
NorMan	14
Burntwood	9
Churchill	0
Total	1173

## 4.0 The Manitoba Stroke Strategy Framework



The Manitoba Stroke Strategy sets out a five-year plan based on three pillars of health care that aligns with Manitoba Health's priorities and will help to improve health outcomes and regional health capacity to deliver stroke best practices through:

- primary health care
- health system innovation
- access to care.

The three pillars provide the framework for continuity of care, helping people move smoothly through the stroke continuum, from symptom onset to diagnosis, treatment, management and recovery. Access to and continuity of care both have a dramatic effect on outcomes and quality of life for stroke patients. The Manitoba Stroke Strategy proposes a staged approach to plan and implement the *Canadian Best Practice for Stroke Recommendations* over a five-year period by:

- improving public awareness of the warning signs of stroke
- improving risk factor identification and management through primary health care networks

- developing and implementing stroke education strategies to improve health care provider knowledge and capacity to provide stroke prevention and care
- developing innovative strategies for the delivery of best practice stroke care in Manitoba
- improving access to comprehensive rehabilitation services throughout rural, northern and remote Manitoba via distance health care systems and evidence based alternative models of care

The Manitoba Stroke Strategy intends to strengthen a stroke skilled workforce delivering evidence based care through the hiring of five regional stroke coordinators providing education for:

- primary health care providers
- acute inpatient nursing care
- rehabilitation (in-patient, out-patient and long term care)
- laboratory and diagnostics

The Manitoba Stroke Strategy aims to improve access to emergent and rehabilitative care in rural and remote populations via increased use of telemedicine. Examining patients by telemedicine or telehealth has been an effective means to providing diagnosis and distance care throughout the province.

“Telemedicine enables interactive videoconferencing via webcams connected to a computer or television screen, enabling health care providers to see and hear patient and family members.”<sup>4</sup>

Telestroke is a specific strategy for emergent stroke care, which enables stroke specialists to assist emergency physicians in the evaluation and management of acute ischemic stroke by viewing the CT scan electronically and consulting with the patient through Telehealth.

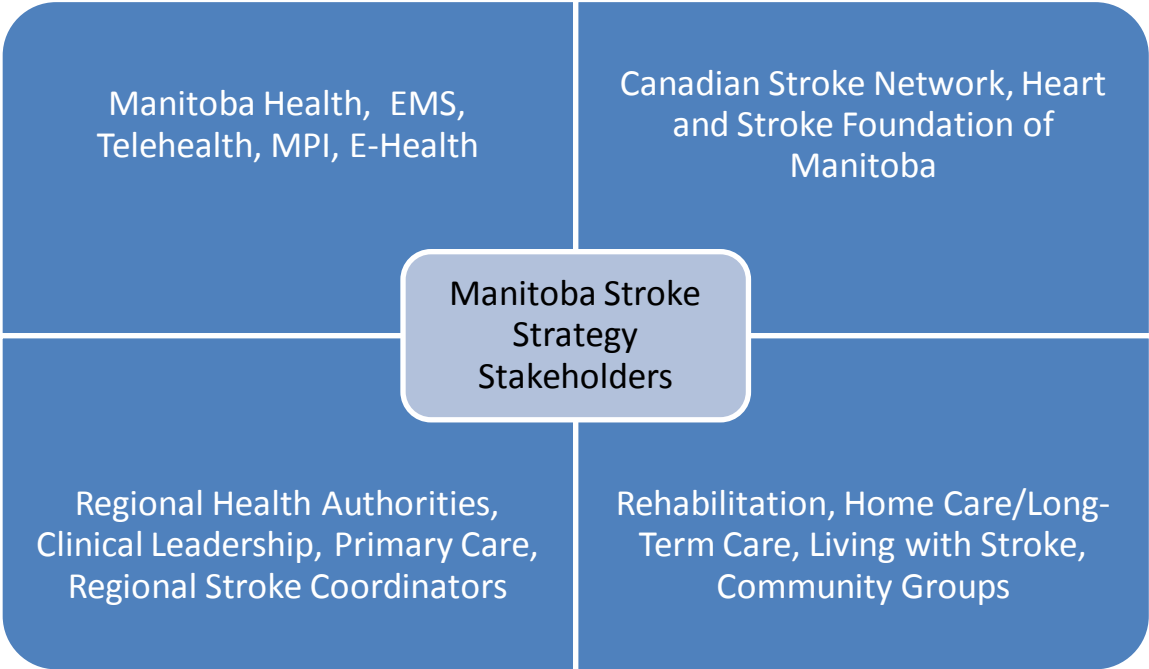
As Manitoba presently has three hospitals that provide acute and emergent stroke services in the southern part of the province, this will require a shift in thinking about how to provide acute and emergent stroke care services. By-pass protocols, repatriation agreements and coordinated, seamless transport of patients by road and air ambulance are needed to enable patients in remote and northern areas of the province to receive care. The development of emergency helicopter services in Manitoba will enhance timely access to care. By 2015, Manitoba will have acute stroke services available in at least one major centre in each Regional Health Authority, and all facilities which provide care at 95% compliance with stroke best practice recommendations.

---

<sup>4</sup> retrieved 2011/04/05 ([www.wrongdiagnosis.com/hd/news/626814.telemedicine-helps-experts-treat-stroke](http://www.wrongdiagnosis.com/hd/news/626814.telemedicine-helps-experts-treat-stroke))



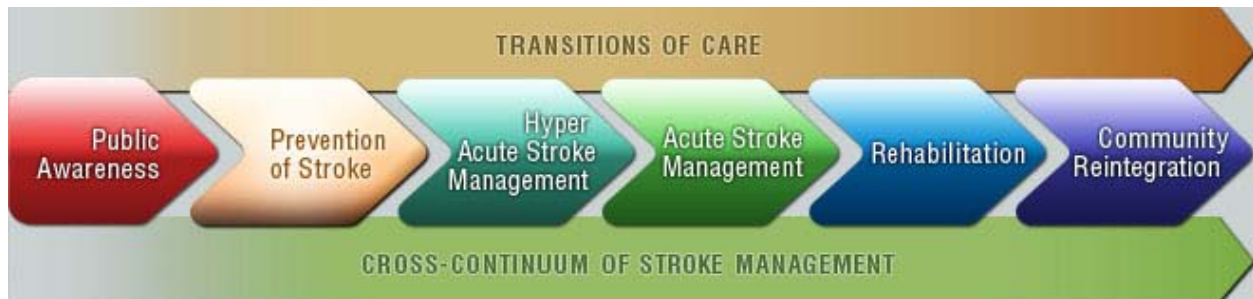
**4.1 Collaboration of key Stakeholders:**



Ongoing engagement with Manitoba stroke stakeholders and defining roles and responsibilities will be instrumental to implementing the Manitoba Stroke Strategy. It will require provincial coordination and financial resources, clinical expertise, information technology, educational strategies, human resources, public awareness and community support to build capacity for implementation and sustainability.

## 5.0 Current State, Path and Future State

*The Canadian Best Practice Recommendations for Stroke Care* presents high-quality, evidence-based stroke care recommendations in a standardized framework to support health care professionals in all disciplines. Implementation of these recommendations is expected to contribute to reducing variations and closing the gaps between evidence and practice and to contribute to improved patient outcomes for overall recovery of strokes. The stroke continuum below provides the pathway to the coordinated transitions of care.



*The Canadian Best Practice Recommendations for Stroke Care (2010)* are organized into seven sections that reflect a logical flow from public awareness and prevention of first and recurrent stroke to immediate recognition and management, ongoing acute management, rehabilitation, reintegration and collaboration across care transitions.

The following tables in this document demonstrate the current state of stroke prevention and care in Manitoba, and the future state to achieving *The Canadian Best Practices Recommendations for Stroke Care (2010)*. Each component of the stroke continuum begins with a description of the best practice recommendations.

### 5.1 Health Promotion/Public Awareness

According to the 2011 Heart and Stroke Foundation Report on Canadian's Health:

*Nine out of 10 Canadians have at least one risk factor for cardiovascular disease and cerebral vascular diseases such as stroke. About half of Canadians don't meet the physical activity and healthy eating recommendations and 25 per cent of Canadians are obese.*

These risk factors have an impact on the cerebrovascular system. The vascular system includes the heart, arteries and veins which carry the blood throughout the body. Older adults and those with a family history of vascular disease are at risk for cerebrovascular disease. These are termed "fixed factors" because they cannot be changed. However, the rate at which vascular damage progresses is determined by "modifiable factors" or factors that can be altered. Changing these can greatly reduce the probability vascular disease will strike early, bringing on premature death and disability. Strokes are considered a vascular disease and are included with

other diseases such as heart disease, diabetes and kidney disease. These diseases are all linked by the above common set of modifiable risk factors which contribute to the development of vascular disease. These include:

- smoking
- sedentary lifestyle
- high blood pressure
- elevated cholesterol
- obesity
- diabetes

Approximately 80 per cent of all strokes are ischemic strokes, which are the result of the cumulative effect of risk factors. There is a significant amount of vascular morbidity and mortality that could be prevented through primary prevention and early detection of these vascular diseases.

Best Practice Recommendations (2010) Lifestyle and Risk Factor Management p (22):

*“Persons at risk of stroke and patients who have had a stroke should be assessed for vascular disease risk factors and lifestyle management issues (diet, sodium intake, exercise, weight, smoking and alcohol intake). They should receive information and counselling about possible strategies to modify their lifestyle and risk factors.*

*All members of the public should be able to recognize and identify the signs and symptoms of stroke, public education on stroke should emphasize that stroke is a medical emergency and that immediate medical attention should be sought. All members of the public should know how to take the appropriate action- that is to call 911 or their local emergency number.”*

<b>Current State 2011:</b> <b>Health Promotion and Public Awareness</b>	<b>Future State 2015/16</b>
<ul style="list-style-type: none"> <li>• Manitoba Healthy Living Youth and Seniors and the regional health authorities provide health promotion activities addressing smoking cessation, healthy nutrition, weight loss, physical activity and alcohol consumption and partner with communities to engage</li> </ul>	<ul style="list-style-type: none"> <li>• RHA health promotion strategies that contribute to the prevention of stroke and are integrated with existing chronic disease prevention initiatives, are culturally appropriate and support self-management through education, goal setting and system navigation to health resources</li> </ul>

<p>them in developing healthy lifestyles.</p> <ul style="list-style-type: none"> <li>• Heart and Stroke Foundation of Manitoba (HSFM) have ongoing targeted Stroke Awareness Campaigns.</li> <li>• Manitoba Health planning and development of Manitoba Health eRisk web-based resources.</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing HSFM Public Awareness campaign to reinforce and strengthen public knowledge of TIAs and stroke</li> <li>• eRisk web-based online resource personal health assessment tool to empower Manitobans to self-manage lifestyle and risk factors and set goals for health improvements</li> </ul>
--	---

## 5.2 Prevention of Stroke

### **Best practice Recommendations (2010): Primary Prevention** p (21)

*“Primary prevention is an individually based clinical approach to disease prevention, directed toward preventing the initial occurrence of a disorder in otherwise healthy individuals. Primary prevention is usually implemented in the primary care setting, and the physician or advanced practice nurse and the patient discuss recommendations related to stroke such as lifestyle and risk factor management, screening and monitoring of hypertension and dyslipidemia; and the management of: diabetes, atrial fibrillation, and asymptomatic carotid stenosis.”*

- High blood pressure doubles the risk of stroke
- Smoking more than triples the risk of stroke
- Obesity increases the incidence of stroke by more than six per cent
- High cholesterol increases risk of stroke by 20 to 30 per cent
- Diabetes elevates the risk of stroke by three times
- Irregular heart rhythm contributes to half of strokes caused by blood clots
- Physical activity could prevent 25 per cent of strokes in Canada <sup>5</sup>

### **Best Practice Recommendations (2010): Secondary prevention** p.21

*“Secondary prevention is an individually based clinical approach aimed at reducing the risk of a **recurrent** vascular event in individuals who have already experienced a stroke or transient*

<sup>5</sup> (Retrieved July 26, 2010 <http://www.bcstrokestrategy.ca/awarenessPrevention/primaryPrevention/index.html>)

*ischemic attack (TIA) and in those who have one or more of the medical conditions or risk factors that place them at high risk for stroke. Secondary prevention recommendations are directed to those risk factors most relevant to stroke, including lifestyle (diet, sodium intake, exercise, weight, smoking and alcohol intake), hypertension, dyslipidemia, previous stroke of TIA, atrial fibrillation and stroke, and carotid stenosis. They pertain to patients initially seen in primary care, those treated in an emergency department and then released and those who are hospitalized because of a stroke or TIA.”*

<b>Current State 2011: Stroke Prevention</b>	<b>Future State 2015/16</b>
<ul style="list-style-type: none"> <li>• Most regions provide nurse/dietitian lead disease prevention/health promotion clinics that focus on secondary prevention of stroke and other chronic diseases</li> <li>• Regional Stroke Coordinator for Primary Care provides package of information on stroke/TIA symptoms and risk factors to over 200 primary care providers from May to September, 2011</li> <li>• Manitoba Health developing Chronic Disease Complication Screening (CDCS), an evidenced based, online education tool for health care providers designed for chronic disease screening of patients with diabetes, cardiovascular, cerebrovascular, renal disease and related complications</li> <li>• Four stroke prevention clinics in the province offer diagnosis, treatment and secondary prevention for those who have experienced a TIA or stroke:               <ol style="list-style-type: none"> <li>1. Brandon General Hospital (Brandon)</li> <li>2. St. Boniface General Hospital (Winnipeg )</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• Increased public awareness of TIAs and access to timely diagnostic services and neurological consultation</li> <li>• All RHAs have in place coordinated processes for ensuring access to and awareness of educational materials, programs and activities related to risk factor management by primary health care providers, patients, family and caregivers</li> <li>• Implementation of CDCS in an e-learning format supported by patient electronic medical records (EMRs) in primary care clinics</li>   <li>• All RHAs have in place coordinated process and referral systems across the continuum from primary health care to acute stroke care centres for the assessment and treatment of TIAs, secondary stroke prevention and post stroke management</li> </ul>

3. Health Sciences Centre (Winnipeg)	
4. Bethesda Hospital (Steinbach)	

### 5.3 Hyper acute Management

When it comes to stroke, time is brain. Most people do not recognize the five main symptoms of stroke and therefore do not seek immediate medical attention. It is critical that people with stroke symptoms arrive in the emergency department as soon as possible. In the case of strokes caused by hemorrhage or leaking arteries in the brain, earlier assessment and treatment may allow time for life-saving intervention.

An acute stroke is a medical emergency and emergency medical services (EMS) play a critical role in the pre-hospital assessment and management of suspected stroke patients. Acute interventions such as the administration of thrombolytic medications are time-sensitive and require transport of patients within 3.5 hours to a hospital with capacity to provide acute care.

According to the *Stroke Best Practice Recommendations (2010)*, 54 per cent of patients who seek acute care for stroke arrive at the emergency department by way of ambulance, while a significant proportion of the rest will seek help from their primary care physician.

Patients presenting with TIA to a family physician’s office or an emergency department (ED) need rapid assessment and management to reduce the risk of a recurrent or, possibly more serious, event. Patients presenting to hospital with suspected acute stroke often also have significant physiological abnormalities and underlying conditions. These can complicate the assessment and management of stroke and it difficult to make a diagnosis by the clinical examination alone. Brain imaging is required to guide clinical decision making and time sensitive interventions for stroke and for TIAs. Vascular imaging such as a CT scan or a MRI is important to rule out cerebral hemorrhage and refine treatment approaches.

#### **Best Practice Recommendations (2010): Hyperacute Stroke Management** p.55

*“Hyperacute stroke care is defined as the healthcare activities that take place between the time of first contact with a potential stroke patient and either admission to hospital or outpatient management in the community. The management of patients with stroke and transient ischemic attacks (TIAs) or minor stroke are addressed in the hyperacute stage of the stroke continuum.*

***Emergency Medical Services Management:*** *Hyperacute phase also includes the pre-hospital care treatment and protocols by paramedics and other ambulance personnel prior to arrival to*

*an acute setting. Emergency medical services dispatchers must triage patients showing signs of stroke as a priority dispatch and transport to an acute care setting that can provide emergency stroke services. Patients eligible for thrombolytic therapy should be transported to an emergency stroke service facility within 3.5 hours of symptom onset.*

**Emergency department** phase includes the diagnostic evaluation and consideration of treatment options, which should be 60 minutes or less.”

Patients who show signs and symptoms of stroke, usually defined as symptom onset within the previous 3.5 hours, must be treated as time-sensitive emergency cases. Timely and efficient stroke care can result in prevention of some of the devastating effects of a stroke.

CT scans are an essential element for all stroke patients, and are required urgently if the patient is considered a candidate for thromobolytic therapy. Vascular imaging should be done as soon as possible to better understand the cause of the stroke event and guide clinical management decisions. Vascular imaging may include CT angiography, magnetic resonance angiography, catheter angiography and duplex ultrasonography. Laboratory blood work provides further information about the patient’s chemistry required for diagnosis.

<b>Current State 2011: Hyperacute Stroke Management</b>	<b>Future State 2015/16</b>
<ul style="list-style-type: none"> <li>• Three sites: Health Sciences Centre (HSC), St. Boniface General Hospital (SBGH) in Winnipeg and Brandon General Hospital (BGH) in Brandon provide 24/7 emergent care for ischemic stroke</li> <li>• HSC provides 24/7 emergent care for hemorrhagic stroke and vascular surgery</li> </ul>	<ul style="list-style-type: none"> <li>• Agreements in place in all RHAs to ensure patients initially managed in rural hospitals without neurovascular imaging have timely access to CT scans</li> <li>• Telehealth availability 24/7, RIS/PACs bandwidth capacity and coordinated neurology and radiology on call to support ED physicians in major hospitals</li> <li>• EDs in major hospitals have established door to needle times to be 60 minutes</li> <li>• All RHAs have stroke skilled workforce delivering evidence based stroke care and education and protocols in place in all major hospitals for emergency medical services, physicians, and nurses to increase ability to recognize potential stroke/TIA</li> </ul>

<ul style="list-style-type: none"> <li>• Regional Stroke Coordinator for laboratory/ diagnostics determines requirements for appropriate levels of CT coverage, cross training of technicians, etc.</li> <li>• Four stroke prevention clinics (HSC, SBGH, Brandon and Bethesda Hospital in Steinbach with capacity to provide early assessment and treatment of TIAs/minor strokes.</li> </ul> <p>Under development:</p> <ul style="list-style-type: none"> <li>• Provincial bypass protocols and repatriation agreements</li> <li>• Paramedic training on stroke assessment protocols</li> <li>• Intra-facility transfer funding and ambulance payments</li> </ul>	<p>patients</p> <ul style="list-style-type: none"> <li>• Diagnostic and laboratory requirements in place in major hospitals and stroke prevention clinics to enable rapid assessment and management of stroke and TIA patients</li> </ul> <ul style="list-style-type: none"> <li>• Provincial repatriation agreements fully implemented and communication processes in place</li> <li>• EMS helicopter service available to enable rapid transport of stroke patients</li> </ul>
---	---

#### 5.4 Acute Stroke Management

Patients experiencing an acute stroke will have altered states of consciousness, cognitive impairments, neurological deficits, hypertension, reduced mobility, temperature changes, continence and swallowing/nutrition problems and be at risk for venous thromboembolism. Most stroke patients will require acute medical and nursing care for the prevention and management of complications following the acute stroke. Patients admitted to hospital because of an acute stroke or TIA should be assessed and monitored by a coordinated interprofessional team of health care providers with stroke training and expertise from medicine, nursing, occupational therapy, physiotherapy, speech language pathology, social work and clinical nutrition (dietitians). If not feasible, then mechanisms and referral systems for coordinating the care of stroke patients to ensure use of protocols and best practices must be available and implemented.

Often rehabilitation needs of a patient who has experienced a stroke are significant and can range from regaining cognitive, visual and communication function to regaining independence in personal care, mobility and activities of daily living.



**Best Practice Recommendations: Acute Care (2010) p.85**

*“Patients admitted to a hospital because of an acute stroke or TIA should be treated by an interdisciplinary stroke unit. The core disciplinary team should consist of people with appropriate levels of expertise in medicine, nursing, occupational therapy (OT), physiotherapy, speech language pathology (SLP), social work, and dietitian with additional disciplines that may include pharmacy, neuropsychology and recreational therapy. Components of the care include early assessment of rehabilitation needs, early management policies for early mobilization, treatment of hypoxia, hyperglycemia, fever and hydration and coordinated interdisciplinary team planning for discharge.”*

<b>Current State 2011: Acute Care</b>	<b>Future State 2015/16</b>
<ul style="list-style-type: none"> <li>• Most regional health authorities have acute inpatient protocols and guidelines for the prevention and management of complications following an acute stroke</li> <li>• Regions have variable levels of health care provider knowledge for acute inpatient care</li> <li>• Regional stroke coordinator for acute inpatient nursing care provides education and training on best practices to the RHAs</li> <li>• HSFM provides yearly conferences and workshops for health care providers on stroke prevention and care and web-based e-learning, such as <i>Hemispheres</i></li> <li>• All regions have inpatient rehabilitation services such as physiotherapists and dietitians, although not all sites provide rehabilitation consults or have access to a full interdisciplinary team</li> </ul>	<ul style="list-style-type: none"> <li>• Acute inpatient stroke protocols and standing order set in all major hospitals</li> <li>• All RHAs have acute stroke protocols and discharge planning guidelines</li> <li>• All RHAs have developed stroke skilled workforce delivering evidence based stroke care and mechanisms in place for ongoing professional development and educational opportunities for all health care providers</li> <li>• All RHAs have processes (relationships and formal agreements within regions) to ensure timely discharge summaries are sent to the patient’s primary care provider and other health care professionals.</li> <li>• Improved and timely access to inpatient Rehabilitation Services that align with <i>Canadian Stroke Best Practice Recommendations</i>.</li> </ul>

## 5.5 Rehabilitation

Most individuals who have had a stroke severe enough to require hospitalization will have some degree of physical, cognitive, or communication difficulty and will require assessment and management from a multidisciplinary rehabilitation team. Early consultation with rehabilitation professionals can contribute to improved outcomes for overall recovery, as well as a reduction of complications from stroke. Early consultation with rehabilitation professionals is critical to early discharge planning for transition from acute care to specialized rehabilitation in the community.

### **Best practice Recommendations (2010): Initial Stroke Rehabilitation** p.99

*“All patients who have been admitted to hospital with acute stroke should have an initial assessment by rehabilitation professionals as soon as possible after admission; preferably within 24-48 hours. The initial assessment should include assessment of patient function, safety and risk, physical readiness and ability to learn and participate and transition planning.*

*All patients with acute stroke and any residual stroke-related impairment who are not admitted to hospital should undergo a comprehensive outpatient assessment for functional impairment, which includes a cognitive evaluation, screening for depression, screening for fitness to drive, as well as functional assessments for potential rehabilitation treatment preferably within 2 weeks.*

*Clinicians should use standardized, valid assessment tools to evaluate the patient’s stroke related impairments and functional status.*

*The rehabilitation needs of survivors of a severe to moderate stroke should be reassessed weekly for the first month, and then at intervals as indicated by their health status.”*

The updated 2010 *Canadian Best Practices for Stroke Rehabilitation* (2010) p. 109-128 have recommendations for:

- management of arm and hand
- range of motion and spasticity in shoulder, arm and hand
- management of shoulder pain
- lower limb mobility and transfer skills
- lower limb spasticity following stroke
- lower limb gait following stroke
- outpatient and community-based stroke rehabilitation

These best practices for stroke rehabilitation requires timely access to specialized rehabilitation services, adequate clinician resources to provide the recommended intensity of individualized therapies for stroke patients and established protocols and partnerships between inpatient

rehabilitation and community care providers to ensure safe and efficient transitions between hospital and community.

<b>Current State: Rehabilitation Services</b>	<b>Future State:2015/16</b>
<ul style="list-style-type: none"> <li>• Inpatient rehabilitation beds are available at Riverview Health Centre and Deer Lodge Health Centre in Winnipeg and in the Brandon General Hospital in Brandon</li> <li>• Outpatient rehabilitation resources are limited in rural and northern RHAs.</li>   <li>• The Winnipeg Regional Health Authority (WRHA) has a high quality, recognized home care program for stroke patients with plans for expansion</li> <li>• Rehabilitation Health Care Aide program in Winnipeg graduates 25 people per year</li> <li>• Regional Stroke Coordinator for long term care provides onsite education to regional staff throughout the province</li> <li>• Regional Stroke Coordinator for Rehabilitation provides education programs to regional staff on best practices for rehabilitation and researches innovative models of care for the delivery of rehabilitation services</li> </ul>	<ul style="list-style-type: none"> <li>• Resources in place to enable patient access to appropriate type and intensity of rehabilitation professionals</li> <li>• RHA protocols and strategies to prevent complications and deterioration of patient’s health status</li> <li>• All RHAs have mechanisms in place for ongoing professional development and educational opportunities for rehabilitation professionals</li>   <li>• Expansion of home care rehabilitation services based on the WRHA model of home care</li> <li>• Expansion of health care rehab aide program providing care in the community</li>   <li>• Establishment and implementation of a Manitoba model of outpatient rehabilitation care for rural and northern sites</li> </ul>

## 5.6 Community Reengagement

Discharge to the community is consistently reported by people living with stroke and their families to be a difficult time. Patients and their families often lose the social, emotional and practical support offered by inpatient or hospital service. The person living with stroke often experiences anxiety and depression, and the family/caregiver experience role strain, physical exhaustion and depression which influence the quality of relationships and the post-stroke adaptation.

Both patient and family need social support, motivation and hope to prevent the downward cycle of exhaustion, depression and deterioration. Ongoing rehabilitation is often needed beyond six months to reduce impairments, enhance recovery and to promote safety and independence in meaningful daily activities.

According to the *Canadian Best Practice Recommendations for Stroke Care* (2010), rehabilitation after stroke must also address “participation.” This may require planned withdrawal of medical and rehabilitation services and substituting them with leisure and social activity to encourage independence and reintegration into normal life. Living with the disabilities of stroke is often a lifelong challenge.

Vocational counselling and supports for returning to work, modifying work environments, communication and mobility aids, driving assessment and transportation services, and home support services are needed to reintegrate the stroke survivor back into the workforce and into the community.

### **Best Practice Recommendations (2010): Community Re-engagement** p. 145:

*“Community re-engagement is the process whereby patients who have experienced a stroke and their families receive assistance with an evolving care plan to assess recovery, prevent deterioration, maximize functional and psychological outcomes and improve quality of life.*

- 1) Post-acute stroke patients should be followed up by a primary health care provider to address stroke risk factors, ongoing rehabilitation needs, and to continue treatment of co morbidities. Follow up should occur at every 6 months and for at least 3 years following a stroke.*
- 2) Stroke survivors and their caregivers should have their individual psychosocial and support needs reviewed on a regular basis.*
- 3) Stroke survivors living in the community who have difficulties with activities of daily living should have access, as appropriate to therapy to improve or prevent deterioration in activities of daily living.*
- 4) Stroke survivors and their caregivers should be monitored and assessed for depression.*

5) *Any stroke survivor with declining physical activity, activities of daily living or mobility at six months of later after a stroke should be assessed for appropriate targeted rehabilitation.”*

<b>Current State: Community Reintegration</b>	<b>Future State: 2015/16</b>
<ul style="list-style-type: none"> <li>• There are limited community resources and integrated systems for ongoing follow up to evaluate recovery, prevent deterioration and maximize functional outcomes for stroke survivors in Manitoba</li> <li>• Regional Stroke Coordinator for long term care facilities delivers education programs and resources to on site staff</li> <li>• Regional Stroke Coordinator for Rehabilitation researches and develops alternative models for out-patient care, develops transitional protocols with the acute nursing care stroke coordinator and the RHAs</li> <li>• Home care access is limited within the regions</li> <li>• Brandon has private aphasia speech language clinic</li> <li>• <i>Getting Better Together</i> provides support to people living with chronic diseases and is available throughout the province</li> <li>• HSFM are piloting <i>Living with Stroke</i>, an educational support group for stroke survivors and their families</li> <li>• Driver Assessment and Management Program (DAMP) in Winnipeg has limited access and significant wait times</li> </ul>	<ul style="list-style-type: none"> <li>• RHAs have community strategies in place to assist stroke survivors to maintain, enhance, and develop appropriate social support, and to re-engage in desired vocational, social and recreational activities</li> <li>• RHAs have transitional protocols from hospital to primary health care to community/long term care</li> <li>• Health care professionals and caregivers in the community and long-term care settings have stroke expertise and access to ongoing stroke education</li> <li>• Increased access to rehab Home Care Services</li> <li>• Increased access to aphasia and speech language pathologist services</li> <li>• Expansion of <i>Living with Stroke</i> and other support groups for stroke survivors throughout the province</li> <li>• Expansion of DAMP to other regions of Manitoba to provide increased access for driver testing throughout the province</li> </ul>

--	--

## 6.0 Going Forward

This document has been built on current best practice recommendations and provides a Manitoba roadmap for arranging existing and future stroke prevention and care services. Commitment at the most senior leadership levels, from both Manitoba Health, the Regional Health Authorities of Manitoba, the Heart and Stroke Foundation of Manitoba and other stakeholders is needed to develop and implement an organized, systemic approach for the delivery of stroke best practices. A process to establish criteria or indicators will be needed to evaluate the progress of the Manitoba Stroke Strategy roadmap.

In order to develop an organized emergent and acute stroke care system each RHA will need to determine if they have the capacity, resources and health systems developed to meet the Best Practice for Stroke Care Recommendations with respect to:

- organized EDs for rapid patient diagnostic assessments of stroke/TIA
- initiation and supervision of tPA administration
- ongoing provision of care during the first 24 to 48 hours after administration of tPA

This will involve the development of networks, communication strategies and repatriation agreements in order to support sites that have the capacity to deliver acute stroke care services. Some hospitals will not have adequate stroke patient volumes to develop and maintain stroke and tPA expertise or may not have the required facilities or diagnostic capabilities. It is essential that Manitoba Health and the regional health authorities work collaboratively to plan and develop targeted acute stroke care sites such as in northern Manitoba to extend access to specialized stroke care in these regions. The five-year Manitoba Stroke Strategy requires a staged approach as distance infrastructures are developed and the associated technology and human resources are addressed to implement an innovative model of stroke care for the province.

## References

Canadian Stroke Network; Heart and Stroke Foundation of Canada. (2010) *Canadian Best Practice Recommendations for Stroke Care*. Ottawa (ON) Available at:  
[www.canadianstrokestrategy.ca](http://www.canadianstrokestrategy.ca)

The Heart and Stroke Foundation of Canada (2011). *The Heart and Stroke Foundation Report on Canadian's Health*. [http://www.newswire.ca/en/releases/mmnr/smr/lr-FINAL-ReportcardHSF\\_2011-english.pdf](http://www.newswire.ca/en/releases/mmnr/smr/lr-FINAL-ReportcardHSF_2011-english.pdf)

The Public Health Agency of Canada (2009). *Tracking Heart Disease and Stroke in Canada*,  
[www.phac-aspc.gc.ca](http://www.phac-aspc.gc.ca)

The British Columbia Stroke Strategy, Provincial Action Plan. (Retrieved July 26, 2010)  
<http://www.bcstrokestrategy.ca/awarenessPrevention/primaryPrevention/index.html>

Telemedicine Helps Experts Treat Stroke from Afar: News @WrongDiagnosis.com (retrieved 2011/04/05) [www.wrongdiagnosis.com/hd/news//626814.telemedicine-helps-experts-treat-stroke](http://www.wrongdiagnosis.com/hd/news//626814.telemedicine-helps-experts-treat-stroke)