

Stroke Education series

Putting Best Practices into Practice: Caring for residents with Stroke

Part 4: Preventing Pressure Injuries for residents with Stroke

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Putting Best Practices into Practice: Caring for residents with Stroke

A collaboration by RNAO LTC Best Practice program and Central South Regional Stroke Network.

This is **part four** of the four part Stroke Education series to support LTC staff to:

1. Identify risk factors of pressure injuries for residents with Stroke.
2. Understand the relationship between prevention of pressure injuries, pain management, responsive behavior, and falls prevention in residents with Stroke.
3. Discuss the importance of an inter-professional team approach in Stroke Care.
4. Understand how to Integrate evidence-based resources in planning and improving care for residents with Stroke.

Stroke and Long Term Care

Of every 100 people who have had a stroke:

- 15 die
- 10 recover completely
- 21.3% of residents in LTC have had a stroke (CIHI 2014-15)
- Each year approximately 13,000 Ontarians are discharged from hospital following a stroke or TIA
- 1411 stroke persons were admitted to long term care homes within 6 months of an acute stroke in Ontario in 2014-15 (Ontario Stroke Evaluation: Report 2018: Stroke Quality of Care and Outcomes in LTC)
- Stroke is the third most common diagnosis in long term care (Price Waterhouse Cooper 2001)

Stroke and Long Term Care

Communication:

- 44.3% of stroke persons were understood (625/1411)
- 35.1% usually understood (495/1411)
 - Total: 79.4%
- 15.5% sometimes understood (218/1411)
- 5.2% rarely understood (73/1411)

Cognition:

- 20.3% of the stroke persons in long term care had severe cognitive impairment

(Ontario Stroke Evaluation Report 2018: Stroke Quality of Care and Outcomes in LTC)

Stroke in Long Term Care

Pain:

- 10.5% of stroke residents experience pain daily

Falls:

- 25.5% of stroke residents fall

Aggressive (Responsive) Behaviour:

- 29.8% (421/1411) are considered aggressive
- 4.9% (69/1411) are considered severely aggressive

Continence:

- 27.1% (383/1411) bladder continent 61.3% bladder incontinent
- 47.3% (667/1411) bowel continent 45.4% bowel incontinent

(Ontario Stroke Evaluation Report 2018: Stroke quality of Care and Outcomes in LTC)

Stroke Best Practice Recommendations

RNAO

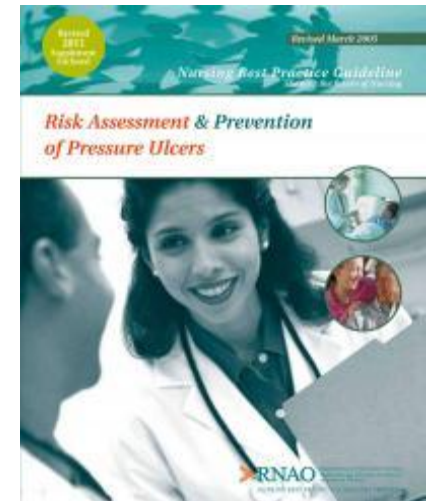
Stroke Recognition:

- Nurses in all practice settings should recognize the sudden and new onset of the signs and symptoms of stroke as a medical emergency to expedite access to time dependent stroke therapy, as **“time is brain”**.

Complications

- A head-to-toe skin assessment should be carried out with all clients at admission, and daily thereafter for those identified at risk for skin breakdown.

RNAO Best Practice Guideline
Risk Assessment & Prevention of Pressure Ulcers
Revised 2011 (archived)



Pressure Injuries

- Pressure injury development occurs in institutional and community settings, is most often observed in elderly, debilitated and immobile persons, those with severe acute illness (ICU) and in individuals with neurological deficits (NHS Centre for Reviews and Dissemination, 1995)
- Estimates indicate up to 10% of hospital admissions develop a pressure injury/ulcer
- 70% of which occur in elderly
- 29.9% prevalence in non-acute facilities- LTC and Nursing Homes (Woodbury & Houghton, 2004)
- with the increased acuity of hospital admissions, 15% of elderly will develop a pressure injury/ulcer within the first week of hospitalization (Lyder, 2002)
- in the LTC setting, pressure injury/ulcers most likely to develop within first 4 weeks of admission (Bergstrom & Braden, 1992)

Etiology

- Pressure injuries are areas of localized, ischemic damage to the skin and underlying tissue
- Usually a result of external forces- compression, shear and/or friction
- Occur when soft tissues are distorted in a fixed manner over a long period
- Distortion occurs due to soft tissue being compressed or sheared between the skeleton and a support (i.e.) bed, chair, shoe, brace, splint. Blood vessels within the distorted tissue are compressed and blood is unable to pass through and the supplied tissue become ischemic
- If ischemia persists, necrosis occurs which is the beginning of an ulcer. For susceptible patients, **pressure ulcers can result within 1-2 hours** (Kosiak, 1958: Reswick & Rogers, 1976)
- Areas especially prone to pressure damage are bony prominences - heels, ankles, hips elbows
- Large compressive forces are concentrated when the body is supported on these pressure points- small surface area with little padding to dissipate forces
- Stroke persons can be chronically susceptible and can experience acute exacerbations (i.e.) a stroke patient with residual hemiplegia may have a UTI which reduces tissue pressure tolerance and increases susceptibility

Considerations

- Costs can be high for treatment and prevention
- LTC homes may utilize their high intensity needs budget to purchase pressure relieving devices
- All health care professionals have a responsibility to prevent, to treat as per best practice and to steward resources effectively and efficiently

Pressure Injury Risk Factors with Stroke

- Altered Sensation
- Weakness or hemiplegia – loss of motor function
- Altered muscle tone
- Cognitive Impairments
- Moisture - Incontinence or Perspiration
- Visual disturbances
- Perceptual Impairments
- Communication Impairments
- Nutritional Impairments and Hydration
- Improper Positioning

Sensation

- May have little or no sensation to the affected body part
- May not:
 - be able to feel
 - be aware of touch, temperature or pain
 - know where the body is in space (proprioception)
- Significant risk factor for skin breakdown, pressure injury development, infection and mortality.
- Decreased sensation creates safety issues
- Mortality rates up to 60% for elders with a pressure ulcer within 1 year of hospital discharge reported

Care Considerations for Sensation

RNAO Risk Assessment and Prevention of Pressure Ulcers

Recommendation 3.3b

Consider the client's risk for skin breakdown related to the loss of protective sensation or the ability to perceive pain and to respond in an effective manner (e.g. impact of analgesics, sedatives, neuropathy etc)

Recommendation 3.9

Protect and promote skin integrity:

- Individualize the bathing schedule
- Avoid hot water
- Minimize force and friction on the skin during cleansing – use of pressure alleviating/reducing devices
- Maintain skin hydration by applying non-sensitizing, pH balanced, lubricating moisturizers and creams with minimal alcohol content
- Use protective barriers (e.g., liquid barrier films, transparent films, hydrocolloids) or protective padding to reduce friction injuries

Care Considerations for Sensation

- Shaving - use of electric razor
- Cutting – reduce use of sharp instruments such as knives or scissors. Meals can be pre-cut, use of nail clippers
- Immobility – OT and PT consult for proper positioning, transferring and turning techniques; use of devices such as wedges, lamb skin, lifts, trapezes
- Bathing- water temperature monitoring; reduce thermostat of hot water tank for independent users at sinks and tubs
- Reduce moisture- frequent toileting and product change (continence care); frequent linen checks and change prn, use of appropriate breathable clothing and barrier/protective products, positioning changes and mobilize

Care Considerations for Sensation

- Pain – monitor and increased awareness of analgesic impact and sedation effects when already reduced sensation
- Devices – ensure are clean, dry, odor free and in good working order, well positioned and follow schedule/guideline
- Education – for patient, family and team for skin care and repositioning; prevention and ongoing monitoring
- Positioning – turning schedules to promote vascular reperfusion with full body position change q 2 hours
 - passive repositioning if not able to do independently with good alignment, weight distribution, stability
 - comfort and pressure relief and avoid shear or friction forces when moving client
 - use of pressure relieving devices- cushions, mattresses but can compromise patient's mobility

Motor Function

- Weakness and loss of motor function usually occurs on one side of the body (hemiplegia)
- A stroke on the right side of the brain affects the left side of the body and vice versa
- A brain stem stroke can affect the motor function on both sides of the body
- Weakness can be observed in the inability of the stroke person to use their arm, leg, hand, foot or oral musculature . Weakness could also be in the core muscles and affect trunk control, balance and posture
- Significant risk factor for skin integrity and pressure injury development

Motor Function Risks

- Immobility – not able to walk
 - not able to transfer
- Ataxia
- Poor positioning and inability to adjust self in bed, in chair
- Fatigue
- Safety – increased awareness of stroke person's abilities to weight bear, to balance, to react, to control

Care Considerations for Motor Function

RNAO Risk Assessment and Prevention of Pressure Ulcers

Recommendations:

- 1.3 – Assessment for pressure, shear and friction in all positions
- 3.2 – Proper positioning, transferring and turning with OT and PT consultation
- 3.12 – Rehab programming for mobility and activity
- 3.7 - For those restricted to bed
- 3.8 - For those restricted to chair

Care Considerations for Motor Function

Arm/Hand: - ensure arm is properly supported- OT seating recommendations and use of arm trough, lap tray, sling, wedges/porcupines, splints to ensure best positioning

- apply assistive devices as prescribed by OT, PT, or SLP

- assessment for pain, ROM

- handle gently and support through movement- never pull on arm

- check hand and fingers for edema, ROM and skin hygiene (contracture)

Transfers: - assess for standing and stepping ability and if can hold and use a walker or aid safely and properly; OT and PT recommendations for 1 or 2 person and aid type

Care Considerations for Motor Function

- Leg/Foot:**
- position well in sitting on wheelchair or chair
 - to prevent foot stiffness, deformity or skin breakdown
 - ensure OT and PT recommendations followed including device use
 - assess weight bearing and standing tolerance. Weight equally distributed between legs, joints aligned and heels grounded
 - assess for foot wear type, fit and use of devices- orthosis, splint, brace, compression stockings – does the splint fit inside the shoe?
 - assess for pain, ROM, edema

Care Considerations for Motor Function

- Mobility:**
- gait assessment by PT and recommendations for 1 or 2 person and gait needs
 - ensure gait aids are safe and appropriate and footwear fits well with good support
 - stand on affected side when assisting for balance, weight bearing and visual need
 - **bed** mobility includes positioning and aide use as per OT and PT recommendations with scheduled turning and skin checks
 - immobility and inactivity has been associated with larger ulcers/injury, and bed and chair bound persons are at higher risk for ulcer/injury development. Research has shown that the use of PROM and AROM exercises promotes circulation and reduces the effects of pressure on tissue

Muscle Tone

RNAO Risk Assessment and Prevention of Pressure Ulcers

- Stroke can alter muscle tone
- Normally slight muscle tension is always present.
- Low tone: - flaccid and limb is heavy and limp
 - cannot hold position or move independently
- High Tone: - spastic and is stiff and tense/tight
 - hard to move
 - causes muscle contractures and reduces joint ROM
- Significant risk factor for skin integrity and pressure ulcer development

Muscle Tone Risks and Care Considerations

- Flaccidity - must be handled carefully at all times to prevent joint and soft tissue damage
 - OT or PT can recommend ways to safely position and manage
- Spasticity – careful and gentle handling to not further increase tone
 - gentle ROM exercises and stretching
 - contracture development- skin issues and breakdown- splint use with wearing schedule and skin checks
- Weakness and paresis contributes to decreased active and passive ROM of involved joints. This can lead to **joint contractures** which can impair mobility and lead to pressure injuries. Therefore critical to maintain ROM via exercises and functional tasks/ADL's to reduce secondary musculoskeletal impairment from decreased ROM
- Spasticity with abnormally high tone will shorten muscles and prevent normal movement- results in stiff and painful joints and can experience “muscle cramps” which can lead to contracture development

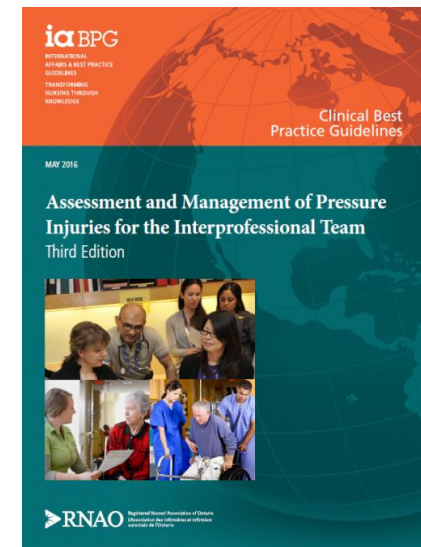
Best Practices: Skin Integrity

Canadian Best Practice Recommendations Taking Action for Optimal Community and Long Term Care (TACLS):

- Goal is to position stroke resident to maintain proper body alignment while reducing pressure on bony prominences
 - 30 degree side lying in bed
 - Use positioning devices to support and maintain position
 - Use pressure redistribution devices
- Clean areas that are contracted
- Hygiene and incontinence requires good and regular skin care and use of continence products

RNAO Best Practice Guidelines

Assessment and Management of Pressure Injuries for the Interprofessional Team. 3rd ed., 2016



Cognitive Impairments

As many as 2/3 of stroke patients experience cognitive impairment post stroke

- Unlike a physical impairment, cognitive problems are often subtle and difficult to see
- Significant impact on function, adl's, independence and well being - skin care
- Refers to how we know things and how we think
- Many aspects:
 - attention – able to concentrate
 - orientation – aware of time, place and self
 - insight - knowing and understanding our abilities and limitations
 - judgement - making good choices/decisions
 - impulsivity - doing something too quickly without careful thought/planning
 - sequencing - being able to arrange things or perform action in the right order
 - problem solving- recognizing a problem and finding a solution

Cognitive Impairment Risks and Care Considerations

- Memory: May not be able to remember how to properly position self, do daily good skin care to keep self clean and practice good hygiene especially if incontinent
 - Use visual and written memory aids to remember when to turn, reposition, apply devices
 - Repeat instructions/information
- Inattentive and not able to concentrate so education and carry-over will be a problem for ongoing skin care or prevention. Easily distracted
 - Keep instructions brief and simple for education and in care delivery
- If judgement(insight) is impaired may not choose good footwear or make good choices regarding adl's or device fit, safety, may forget to reposition self or turn if in bed
 - Make environment as safe as possible
- If cognitive impairment progresses, interventions need to focus on family and care giver education and support

Nutrition and Swallowing

- Malnutrition is a significant problem and increases the risk of pressure injury development
- 23-85% of institutionalized elderly are malnourished
- 50% of severe strokes reported malnourished at 3 weeks post-stroke onset and improves to 20% among rehab patients at 2-4 months
- Pressure injury risk increases by 74% with the combination of immobility, immune system stress and loss of lean body mass (muscle) Harris & Fraser, 2004)
- To prevent or heal wounds a balanced diet with an adequate intake of protein, vitamins c and A and zinc plus fluids for hydration as per registered dietitian recommendations
- Overweight patients place extra pounds of pressure on vulnerable skin areas and increase compression
- Underweight patients have decreased muscle mass with less fat padding over bony areas for higher risk of skin breakdown
- Dysphagia limits food intake and increases risk of choking and malnutrition and dehydration
- Malnutrition compromises response to therapy, reduces endurance and muscle mass and strength for activity

Nutrition and Swallowing

Recommendation 3.11

A nutritional assessment with appropriate intervention should be implemented on entry to any new health care environment and when the client's condition has changed. If a nutritional deficit is suspected:

- Consult with a registered dietitian
- Investigate factors that compromise an individual's dietary intake (especially protein or calories) and offer support with eating
- Plan and implement a nutritional support and/or supplementary program for nutritionally compromised individuals
- If dietary intake remains inadequate, consider alternative nutritional interventions

Care Considerations for Nutrition and Swallowing

- A stroke can alter the patient's ability to physically get food to their mouth and can affect their motor ability to chew and swallow or they may not be able to see the food on their plate due to visual deficits such as neglect. Smell and taste can also be affected. = poor nutritional intake = increased risk for pressure injury and ulcer development
- Cue them to their whole plate if have neglect or other visual/perceptual deficits
- Provide small, frequent meals using a teaspoon for small mouthfuls and to eat slowly
- Encourage to swallow twice and ensure mouth is clear before next mouthful. Teach them not to pocket food, clear throat with a cough and be aware of drooling
- Dehydration risk is high as stroke patients may reduce drinking due to fear of choking or increased need to void if immobile
- Thickened fluid if dysphagic may reduce fluid intake
- Ensure proper positioning for swallowing and reduced choking risk- seated in a chair or wheelchair or at 60-90 degrees in bed supported with pillows and encourage to stay upright 30 minutes post eating and keep head of bed elevated

Continence Impairments

Stroke can cause a loss of bowel and bladder control

- Urinary incontinence is common in stroke - 40-60% of stroke persons are incontinent after a stroke
- Upon discharge from hospital 25% of stroke persons are incontinent and at 1 year post, 15% remain incontinent
- Presented as urinary frequency where the brain conveys the bladder is full when it isn't
 - as urgency or a sudden and compelling desire to urinate that cannot be put off
 - as urge incontinence where the muscles controlling the flow of urine out of the body are weak and results in involuntary leakage

Moisture and Incontinence

- Excess sweating, wound drainage or incontinence can increase moisture on the skin and increase the risk of skin breakdown and pressure injury/ulcer development
- Use of individualized assessment and goal setting
- Protect skin by gently cleansing and drying at time of soiling or use barrier creams and wound dressings
- Promote bladder and bowel routines and follow training programs- scheduled toileting
- Use continence products when needed as want urine drawn away from the pad surface. Replace products and linens when damp
- Minimize the use of continence products as they may increase skin temperature and prevent good air circulation
- Choose clothing that breathes and does not restrict
- Use of adaptive devices- commode, urinal, bed pans, grab bars
- refer to **Recommendation 3.10**

Braden Risk Assessment Scale

NOTE: Bed and chairbound individuals or those with impaired ability to reposition should be assessed upon admission for their risk of developing pressure ulcers. Patients with established pressure ulcers should be reassessed periodically.

Patient Name: _____ Room Number: _____ Date: _____

Risk Assessment Tool for Skin Integrity

Sensory Perception	1. Completely Limited	2. Very Limited	3. Slightly Limited	4. No Impairment	Indicate Appropriate Numbers Below
Ability to respond meaningfully to pressure-related discomfort	Unresponsive (does not moan, flinch or grasp) to painful stimuli, due to diminished level of consciousness or sedation. OR limited ability to feel pain over most of body surface.	Responds only to painful stimuli. Cannot communicate discomfort except by moaning or restlessness. OR has a sensory impairment which limits the ability to feel pain or discomfort over 1/2 of body.	Responds to verbal commands, but cannot always communicate discomfort or need to be turned. OR has some sensory impairment which limits ability to feel pain or discomfort in 1 or 2 extremities.	Responds to verbal commands. Has no sensory deficit which would limit ability to feel or voice pain or discomfort.	
Moisture	1. Constantly Moist	2. Very Moist	3. Occasionally Moist	4. Rarely Moist	
Degree to which skin is exposed to moisture	Skin is kept moist almost constantly by perspiration, urine, etc. Dampness is detected every time patient is moved or turned.	Skin is often, but not always, moist. Linen must be changed at least once a shift.	Skin is occasionally moist, requiring an extra linen change approximately once a day.	Skin is usually dry. Linen only requires changing at routine intervals.	
Activity	1. Bedfast	2. Chairfast	3. Walks Occasionally	4. Walks Frequently	
Degree of physical activity	Confined to bed.	Ability to walk severely limited or non-existent. Cannot bear own weight and/or must be assisted into chair or wheelchair.	Walks occasionally during day, but for very short distances, with or without assistance. Spends majority of each shift in bed or chair.	Walks outside the room at least twice a day and inside room at least once every 2 hours during waking hours.	
Mobility	1. Completely Immobile	2. Very Limited	3. Slightly Limited	4. No Limitations	
Ability to change and control body position	Does not make even slight changes in body or extremity position without assistance.	Makes occasional slight changes in body or extremity position but unable to make frequent or significant changes independently.	Makes frequent though slight changes in body or extremity position independently.	Makes major and frequent changes in position without assistance.	
Nutrition	1. Very Poor	2. Probably Inadequate	3. Adequate	4. Excellent	
Usual food intake pattern	Never eats a complete meal. Rarely eats more than 1/3 of any food offered. Eats 2 servings or less of protein (meat or dairy products) per day. Takes fluids poorly. Does not take a liquid dietary supplement. OR is NPO and/or maintained on clear liquids or I.V.'s for more than 5 days.	Rarely eats a complete meal and generally eats only about 1/2 of any food offered. Protein intake includes only 3 servings of meat or dairy products per day. Occasionally will take a dietary supplement. OR receives less than optimum amount of liquid diet or tube feeding.	Eats over half of most meals. Eats a total of 4 servings of protein (meat, dairy products) each day. Occasionally will refuse a meal, but will usually take a supplement if offered. OR is on a tube feeding or TPN regimen which probably meets most of nutritional needs.	Eats most of every meal. Never refuses a meal. Usually eats a total of 4 or more servings of meat and dairy products. Occasionally eats between meals. Does not require supplementation.	
Friction and Shear	1. Problem	2. Potential Problem	3. No Apparent Problem		
	Requires moderate to maximum assistance in moving. Complete lifting without sliding against sheets is impossible. Frequently slides down in bed or chair, requiring frequent repositioning with maximum assistance. Spasticity, contractures or agitation lead to almost constant friction.	Moves feebly or requires minimum assistance. During a move, skin probably slides to some extent against sheets, chair restraints, or other devices. Maintains relatively good position in chair or bed most of the time, but occasionally slides down.	Moves in bed and in chair independently and has sufficient muscle strength to lift up completely during move. Maintains good position in bed or chair at all times.		
<i>NOTE: Patients with a total score of 16 or less are considered to be at risk of developing pressure ulcers. (15 or 16 = low risk; 13 or 14 = moderate risk; 12 or less = high risk)</i>					Total Score:

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The Interprofessional Team

RNAO Recommendation:

- Initiate and maintain collaborative processes within the team, especially in situations of increasing resident complexity, to improve resident outcomes
- Interdisciplinary collaboration is critical to the best possible outcomes for the stroke resident

“Interprofessional care requires collaboration between health care professionals and patients and their families and circles of care in order to identify and take advantage of each person’s care expertise”

Why?

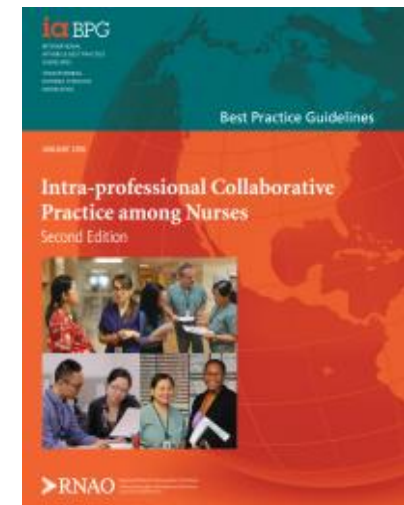
- Communication
- Treatment specificity and specialization
- Scope of Practice
- Resident complexity
- Best evidenced-practice
- Shared decision making
- Quality of Work Environment
- Safety

RNAO Best Practice Guidelines

Intra-professional Collaborative Practice among Nurses 2nd ed., 2016

Developing and Sustaining Interprofessional Health Care:

Optimizing patient, organizational and system outcomes 2013



Stroke Care Plans

The 12 Stroke Specific Care Plans :

- 1.) ADL Care Plans – Final - June 2016
- 2.) Behavior Change - Final – June 2016
- 3.) Bowel Bladder Continence Final – June 2016
- 4.) Cognition Care Plans – Final – June 2016
- 5.) Communication – Final – June 2016
- 6.) Depression – Final - June 2016
- 7.) Leisure – Final – June 2016
- 8.) Mobility Positioning Transfers – Final –June 2016
- 9.) Nutrition Hydration Swallowing – Final- June 2016**
- 10.) Pain – Final – June 2016
- 11.) Perception – Final – June 2016
- 12.)Skin Care – Final –June 2016**

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Stroke Resources

- Ontario Stroke Network: www.ontariostrokenetwork.ca
- Canadian Stroke Best Practice Guidelines: www.strokebestpractices.ca
- RNAO Best Practice Guidelines: <https://rnao.ca/bpg>
- Long Term Care Best Practices Toolkit, 2nd edition: <http://ltctoolkit.rnao.ca>
- Stroke Care Plans: www.swostroke.ca
- Taking Action for Optimal Community and Long Term Care (TACLS) : www.strokebestpractices.ca

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Questions ?



Thank you !