The Brain, The Body & You – Learning Series

WORKSHOP 1:
Stroke Care from Prevention to Life After Stroke

- Powerpoint (see file)
- Workshop Schedule
- Reference Notes
- Screening Tool
- Medications
- Case Studies
- Resource List
- Evaluation Form

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WORKSHOP SCHEDULE

(4 hours)

10 minutes	Welcome – Introduction of facilitators – Review of handout package – Have participants introduce themselves
10 minutes	Ask participants what they think of when they know someone has had a stroke or a client is being admitted to their unit with a stroke (► record on flipchart)
1 hr 30 min	Discuss Stroke, Types Discuss Risk Factors (► have participants do questionnaire first) ► VCR/DVD – Video #1 Recognize and React tot the Signs & Symptoms of Stroke for Health Care Providers - use 1 vignette Review signs and symptoms of stroke and actions
10 minutes	Review effects of RIGHT and LEFT sided strokes
20 minutes	BREAK
1 hour	Discuss clinical management – Medication – Interprofessional support – Effects on family
25 minutes	Case study discussion (► and flipchart issues)
15 minutes	Summation & evaluation

REFERENCE NOTES

Introduction

- stroke is the fourth leading cause of death in Canada
- approximately 60% of stroke survivors are left with a moderate to severe disability
- some survivors are so severely disabled they require long-term care
- the cost of stroke care to the Canadian economy is estimated at $2.7 billion per year
- it has been said that stroke is a forgotten disease and little can be done to prevent and mitigate its potential life-altering effects
- in 1997, the Heart and Stroke Foundation of Ontario took on the challenge of changing the way stroke was viewed and treated in the province
- the end result of their accepting this challenge was the development of the Integrated Stroke Strategy for Ontario which ultimately became the Ontario Stroke System (OSS)

Objectives for this Workshop

At the completion of this workshop, the participants will:

- define a stroke (cerebrovascular event) and the types of strokes that occur
- know the risk factors for stroke
- recognize the signs and symptoms of a stroke and how to react to them
- understand the effects of a stroke on an individual, their family and their support network
- understand the interprofessional approach to post-stroke care

Definition

A **stroke** is an interruption in the blood supply to the brain causing injury to that part of the brain.

Types of Strokes

There can be 3 types of strokes.

1. **ischemic strokes**
   - the blood supply to a part of the brain is interrupted or totally occluded
   - 80% of strokes are ischemic
   - occlusions occur because of:
     (a) **thrombus** – a clot within the blood vessels of the brain/neck
     (b) **embolus** – a blood clot or other material is carried to the brain from another part of the body – for example, 20% of strokes are cardiac related; common link to cardiac atrial fibrillation

2. **<u>hemorrhagic strokes</u>**
   - is bleeding into the brain tissue, the ventricles, or subarachnoid space
   - causes include:

     (a) **aneurysm**
     - a weakening or dilatation in the arterial walls
     - cause may be due to atherosclerotic changes, aging, hypertensive vascular disease

     (b) **atriovenous malformation** (AVM)
     - a tangle of arteries and veins in the brain without a capillary bed. The absence of the capillary bed leads to a dilatation of the arteries and veins, and eventual rupture.

3. **<u>transient ischemic attacks</u>** (TIA's)
   - mini strokes
   - is a temporary episode of neurologic dysfunction
   - it manifests itself by sudden loss of motor, sensory or visual function
   - it may last a few minutes or seconds, but not longer than 24 hours
   - there is usually complete recovery between attacks
   - 5% have full-blown strokes within 48 hours
   - the symptoms result from a temporary interruption in blood flow to a specific region of the brain
   - usually due to atherosclerosis – obstruction of micro-circulation by a small embolus or cardiac dysrhythmic factors

Stroke Risk Factors

- risk factors are things or conditions that increase your risk of having a stroke
- some risk factors you cannot change
- some risk factors you can modify

► Note: have participants do Risk Questionnaire (see Resource File)

Types of Risk Factors

1. **non-identifiable risk factors**

   (a) advanced age
   - people over age of 55 (incidence of stroke more than doubles with each successive decade)

   (b) gender
   - men have a higher rate of stroke than women
   - but absolute numbers are similar

(c) race
- African-Americans have a greater risk of disability and death from stroke than Caucasians

(d) family history
- stroke risk is greater for people who have a family history of stroke

2. **hypertension**
- defined as B/P measurements that repeatedly exceed 140/90 mmHg
- longstanding increased B/P can cause increased stiffness of the vessel walls – and this can lead to vessel injury and inflammation response within the intima
- can also increase work for the left ventricle, i.e., it has to pump harder – increased work leads to hypertrophy of left ventricular muscle, and can lead to heart failure

3. **cardiovascular disease**
- anyone with heart problems (cardiac problems) has twice the risk of stroke than people with normal cardiac function
- for example: a client with a Left Ventricular Hypertrophy has an increased risk of embolic stroke; client with atrial fibrillation also has increased risk

4. **cigarette smoking**
- contributes to the development and severity of CAD in 3 ways:

(a) inhalation of smoke increases the blood carbon monoxide level
- causing hemoglobin (the O_2 carrying component of the blood) to combine more readily with the carbon monoxide than O_2
- therefore, decreased O_2 leads to a decreased amount of available O_2 – this leads to decreased pumping ability

(b) the nicotinic acid in tobacco triggers the release of catecholamines, which increases both heart rate and B/P
- nicotinic acid can cause coronary vasoconstriction

(c) cigarette smoke causes increased platelet adhesion which leads to an increased probability of thrombus formation
- second-hand smoke has the same effect

5. **high blood cholesterol**
- association of high blood pressure with heart disease is well established
- 3 elements of fat metabolism:
  * total cholesterol
  * low-density lipoprotein (LDL)
  * high-density lipoprotein (HDL)
- are the primary factors affecting the development of heart disease
- LDL – accelerates atherosclerosis

- HDL – promotes use of total cholesterol by transporting LDL to the liver
- Serum Cholesterol – levels usually controlled by diet and exercise

6. **elevated red blood cell count**
   - increased RBC's thicken the blood and make the formation of blood clots more likely

7. **diabetes mellitus**
   - is associated with accelerated atheogenesis
   - hyperglycemia leads to increased platelet aggregation and altered Red Blood Cell function, leading to the potential for thrombus formation

8. **obesity**
   - excess body weight in relation to height increases the workload and oxygen demands of the heart

9. **drug / alcohol use**
   - heavy drinking (for example, more than 1-2 drinks per day) is a risk factor for hypertension
   - drug use (particularly "street drugs" like cocaine) can cause vasoconstriction

10. **stress**
    - is also considered a risk factor
    - stimulates the cardiovascular system (releases catecholamines which increase heart rate and produce vasoconstriction, which increases B/P)
    - may also lead to less healthy lifestyle choices (for example, smoking, drinking, poor food choices)

► View Heart & Stroke vignettes: "Recognizing and reacting to signs and symptoms of acute stroke"

Signs and Symptoms of Acute Stroke

Just like the commercial says . . .

- sudden numbness or **weakness** of face, arm or leg, especially one side of the body
- sudden confusion, **trouble speaking** or understanding
- sudden **trouble seeing**
- sudden trouble walking, loss of balance or coordination; **dizziness**
- sudden **severe headache** with no known cause

Clinical Management

- to backtrack a few steps (►go back on Powerpoint presentation)
- when someone experiences the signs and symptoms of a stroke, call 911
- "TIME IS BRAIN"
- the quicker you get to the hospital, the better your chances of recovery
- every stroke is different
- with a mild stroke, the person often recovers fully – there is only mild injury to the brain
- another person can have a severe stroke with major damage
- 2 people can have the same type of stroke and may not have the same degree of disability

- effects of a stroke are determined by:
  1. location of the damage
  2. severity of the damage
  3. how well the body repairs the blood supply to the brain
  4. how quickly other areas of brain tissue take over the work of the damaged cells

Stroke Survivors

- also recover differently
- many factors determine the recovery process:
  1. the survivor's age and general health
  2. personality
  3. coping abilities
  4. emotional state
- most rapid recovery occurs during first 3-4 months **BUT** recovery does continue over many years and months

Normal Cerebral Function

- cerebral circulation – is 15% of Cardiac Output or 750 mL/min
- 4 main arteries carry blood from the neck to the brain:
  2 carotid arteries – are located at the sides of the neck
  2 vertebral arteries – at the back of the neck on either side of the spine
- vertebral arteries **join** to become the **basilar** artery at the level of the brain stem
- basilar artery divides to form 2 branches of the posterior cerebral arteries – these arteries supply most of the posterior circulation of the brain
- at the base of the brain, there is a ring of arteries formed between the vertebral and internal carotid arterial chains
- is called the Circle of Willis, and is formed from branches of the Internal Carotid Artery, Anterior and Middle Cerebral Arteries, and the Anterior and Posterior Communicating Arteries
- arterial anastomoses in circle – frequent location of aneurysms; also atherosclerotic changes

Left Side of the Brain

- controls the movement and senses on the RIGHT side of the body
- also controls the person's ability to
  - read
  - talk
  - think
  - do arithmetic
- so, a LEFT sided stroke would cause:
  (a) paralysis / weakness on the RIGHT side of the body
  (b) would alter the person's ability to THINK, i.e., altered intellectual ability
  (c) to TALK – Aphasia – expressive, receptive and global
  (d) have RIGHT visual field deficit (may be on both eyes)
- will demonstrate slow, cautious behaviour

Right Side of the Brain

- controls the movement and senses on the LEFT side of the body
- also controls:
  - creativity
  - ability to enjoy music and art
  - ability to recognize people and objects
- so, a RIGHT sided stroke would cause:
  (a) paralysis / weakness on the LEFT side of the body
  (b) LEFT visual field deficits
  (c) special-perceptual deficits
  (d) increased distractibility (or decreased attention span)
  (e) impulsive behaviour and poor judgement
  (f) lack of awareness of deficits

When a Stroke Occurs

- recall: **Ischemic Stroke**
- is a sudden loss of function resulting from a disruption of the blood supply to a part of the brain
- i.e., obstruction of blood vessel begins what is called an "ischemic cascade"
- the ischemic cascade begins when cerebral blood flow falls below 25 mL/100g/min
- at this point, neurons can no longer sustain aerobic respiration and switches to less efficient anaerobic respiration – and eventually the cells begin to fail to function
- the area of ischemic brain tissue is called the **penumbra region** – this region can be salvaged with timely intervention
- if it's an "Ischemic Stroke" caused by a blood clot and client meets criteria, then **tPA = tissue plasminogen activator** may / can be given
- tPA known as a "clot buster"

Thrombolytic Therapy

- tPA must be initiated within 3 hours of a "stroke"
- criteria:
  - 18 years or older, clinical diagnosis of stroke with NIH score < 22
  - time of onset of stroke is known and is 3 hours or less
  - B/P systolic < 185, diastolic < 110
  - not a minor or resolving stroke, no seizure at onset of stroke
  - not using Coumadin, Prothrombin time < 15 sec. or INR 1.7
  - has not received Heparin within the last 48 hours
  - platelet count > 100,000, no acute MI
  - no prior intracranial hemorrhage, neoplasm, AV malformation, aneurysm
  - no history of stroke or head injury within last 3 months
  - no GI or urinary bleeding within last 21 days
  - no lactating or post partum

- tPA:
  - recumbent tPA binds to fibrin & converts plasminogen to plasmin – stimulating fibrinolysis of the atherosclerotic lesions
  - minimum tPA dose is 0.9 mg/kg of body weight, maximum does is 90 mg
  - loading dose – 10% of the calculated dose, is given over 1 minute
  - remaining dose is given over 1 hour (infusion pump)

- nursing care:
  - constant cardiac monitoring
  - vs q 15 min X 2h, q 20 min X 6h, q1h X 16h
  - maintain B/P Sys < 180 mmHg, Dias < 100 mmHg
  - bleeding is the most common complication

- but tPA does not always resolve all signs and symptoms or deficits, so client goes on to hospitalization and rehabilitation

Common Medications Used for Stroke

► (handout attached)

Hemorrhagic Stroke

- as defined earlier: is bleeding into the brain tissue
- the bleeding causes pressure, and the decreased blood supply to the brain tissues leads to signs and symptoms of ischemia

- Recovery – begins on **Admission**

- Rehabilitation – begins on **Admission**
- is the process of assisting the individual with a deficit to realize their goals:
  physically
  mentally
  socially
  emotionally
- is an active concept
- cannot cure damage to the brain BUT can help the client to retain the best possible functions

Description of Stroke by System

1. **Respiratory System**
   - airway maintenance NB
   - with increasing age and immobility, there is an increasing risk of pneumonia
   - a risk of aspiration pneumonia - changed LOC, dysphagia
   - also, impaired chewing and food pocketing cheeks
   - N/C: positioning, suctioning available
     chest physio – auscultation

2. **Cardiovascular System**
   - need to keep cardiac status in balance
   - because client may already have decreased cardiac reserves – I/O – CVP – cardiac monitoring
   - DVT common complication - observation and stocking

3. **Neurologic System**
   - HIR / using Glasgow Coma Scale q½–q2–q4h – depending on status
   - note B/P – widening pulse pressure = increased ICP
   - may use ICP internal pressure monitor

4. **Musculoskeletal System**
   - 1. Shoulder dislocation
   - 2. Hand splints – may or may not be used
   - 3. Footdrop – high topped tennis shoes
   - need to maintain optimal functioning position

- rehabilitation starts with admission
- prevent contractures
- passive ROM (considering neuro status)
- **transfers** – vision impairment alters them

5. **Integumentary System**
   - pressure relief – position change – q2h "side-back-side" – or 20° changes
   - careful placement of paralyzed side

6. **Urinary System**
   - in-dwelling catheters initially – then briefs
   - may use In/Out catheters
   - bladder retraining

7. **Gastrointestinal (GI) System**
   - caution with feeding
   - assessed by OT
   - problem with constipation most common
   - bowel program

8. **Sensory Perceptual System**
   - hemianopsia = blindness in ½ of visual field
   - diplopia
   - ptosis

Family Impact

- long-term challenge – keep up training and activities
- seizures in the past 6 months – fairly common

Individual and Family Effects

Grief
Frustration
Fatigue
Anxiety
Emotional Lability

} ► group discusses & shares their experiences with clients / family experiences of stroke

► use flipchart to detail their input

SCREENING TOOL

Name:_____ Age:_____ Sex: _____

Date of last physical examination (year): _____

B/P: Do you know your usual B/P? Circle Y / N Enter B/P: _____ / _____

Are you on medication to control your B/P? Circle Y / N

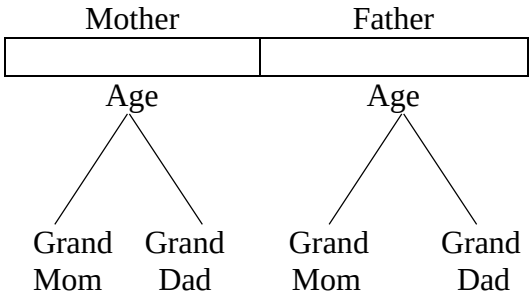
Name of medication if you are prescribed one? _____

Pulse: Do you know your pulse rate? Circle Y / N Enter P: _____

Do you have any cardiac disease in your family? Circle Y / N

Please indicate whom:

You
Siblings M____ F_____ M____ F_____



Do you smoke? Circle Y / N # of cigarettes smoked daily: _____

Did you smoke at any time in your life? Circle Y / N

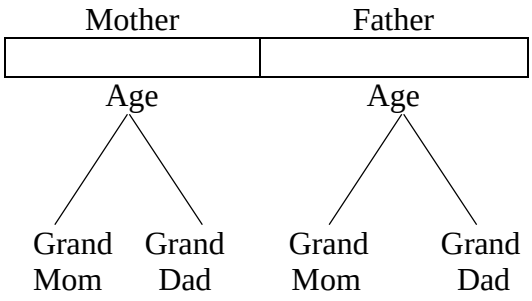
I am still smoking: _____

I quit _____ years / days ago.

Do you have history of diabetes in your family? Circle Y / N

Please indicate whom:

You
Siblings M____ F_____ M____ F_____



Are you considered overweight? Circle Y / N

Have you ever been overweight? Circle Y / N

Have you ever been told your cholesterol level is elevated? Circle Y / N

If yes, do you take medication to lower your cholesterol? Circle Y / N

Name of medication: _____

STROKE PREVENTION MEDICATIONS

These tables describe the commonly used Stroke Prevention Medications.
The list is adapted with permission from the Kingston General Hospital Pharmacy Department.

Type of medication	What medication does	Common side effects
ACE Inhibitors Enalapril (Vasotec®) Perindopril (Coversyl®) Quinapril (Accupril®) Ramipril (Altace®)	• Lowers risk of stroke and heart attack • Lowers high blood pressure	• Dry cough • Rarely, an allergic reaction can happen causing swelling and shortness of breath
Diuretics Hydrochlorthiazide (Apo-Hydro® / Novo-Hydrazide®) Indapamide (Lozide®)	• May lower risk of stroke • Lowers high blood pressure	• May lower the potassium levels in your blood (let your physician know if you experience an irregular heartbeat, muscle pain or weakness)
Lipid Lower Agents Atorvastatin (Lipitor®) Pravastatin (Pravachol®) Simvastatin (Zocor®) Rosuvastatin (Crestor®)	• Lowers risk of stroke and heart attack • Lowers total cholesterol, bad cholesterol (LDL) and triglycerides • Increases your good (HDL) cholesterol	• Rarely, may cause muscle pain and weakness or liver problems
Platelet Inhibitors Acetylsalicylic acid (Aspirin®, Entrophen®, Novasen®, ASA) Clopidogrel (Plavix®) Dipyridamole XR/ASA (Aggrenox®)	• Used to prevent platelets from sticking together • Helps reduce the chance of stroke	• Aggrenox: headache, dizziness • Clopidogrel: GI upset, diarrhea • All agents: increased risk of bleeding
Angicoagulant Medications Warfarin (Coumadin®)	• Used to prevent blood clots • Helps reduce the chance of stroke	
Lipid Lowering Agents Fenofibrate (Lipidil®) Gemfibrozil (Lopid®))	• Lowers triglycerides • Lowers total cholesterol, bad cholesterol (LDL) and triglycerides • Increases your good (HDL) cholesterol	• Rarely, an allergic reaction can happen causing swelling and shortness of breath • Can replace ACE Inhibitors if you develop a cough with them • Gas or heartburn • Rarely, may cause muscle pain and weakness

Type of medication	What medication does	Common side effects
Cholesterol Absorption Inhibitor Ezetimibe (Ezetrol®)	• Lowers bad cholesterol (LDL) and triglycerides • Increases your good (HDL) cholesterol	• Abdominal pain, diarrhea • Fatigue • Upper respiratory tract infections
Angiotension II Receptor Blockers Candesartan (Atacand®) Irbesartan (Avapro®) Losartan (Cozaar®)	• Lowers high blood pressure • May lower risk of stroke and heart attack	• Rarely, an allergic reaction can happen causing swelling and shortness of breath • Can replace ACE Inhibitors if you develop a cough with them
Beta Blockers Atenolol (Tenormin®) Carvedilol (Coreg®) Metoprolol (Lopressor®) Bisoprolol (Monocor®)	• Lowers high blood pressure and heart rate • Keeps your heart beat in a regular rhythm • Helps to prevent and treat angina • Helps prevent future heart attacks	• Dizziness or light headedness • Slight drowsiness • Trouble in sleeping • Unusual tiredness or weakness • Vivid dreams

FOR EACH CASE STUDY:

Assign a participant as "the client"
Assign a participant as "the caregiver"
Assign a participant as "the family"

OR

You may choose to have more than one caregiver (i.e., a nursing staff member and a physiotherapist and/or social worker).

You may choose to have more than one family member – perhaps a son and daughter that disagree about future plans for their parent.

You decide the script for each participant based on your experience with stroke care. A "cue card" should be given to the participants which briefly describes their position.

This is an example for Frank (Case Study 2).

You are Frank. There are 2 reasons you do not wish to go to activities. You were left alone in the auditorium last week. The Environmental Services person who came in after everyone else left brought you home. You are embarrassed by your incontinence.

Case Study 1

Anna, a 75 year old was playing the piano one afternoon and she noticed the last 2 fingers on her left hand would not depress the keys. She thought nothing of it, closed the piano and stretched out on the couch for a nap. Her son came home from work at 8 p.m. to find his Mom still on the couch. He tried to awaken her, she opened her eyes but was unable to speak. It was determined at arrival to hospital she had had a Right-sided Stroke (CVA).

After 3 weeks in hospital, she is transferred to the Rehabilitation Unit. The 2 week followup Interdisciplinary Conference report gives you the following information.

- she is a one person moderate assist standing pivot transfer – frequent cuing is required
- she has severe Left side neglect & some Left side visual impairment
- she has some memory impairment for recent events
- she is continent of bowels, continent of bladder during the day but not overnight

Discussion Questions:

1. What Stroke Survivor issues are at play here?

2. What challenges are there to Anna going home?

3. What support services / professionals would assist with your planning for Anna to return home?

Case Study 2

Frank has had a stroke that has left him with Aphasia and right sided hemiplegia. He does understand all conversation, using yes & no reliably. He uses a wheelchair for mobility & is a one person standing pivot transfer. He has experienced some urinary continence issues recently.

Frank has been a resident in your Long-Term Care facility for 2 years. He is less eager to participate in his care, is taking less interest in events that are happening in the home & at times refuses to answer questions.

Discussion Questions:

1. What Stroke Survivor issues are at play here?

2. What challenges are there to determining the cause of Frank's reluctance to attend events & participate in his care?

3. What support services / professionals would assist you in this situation?

Case Study 3

Sara is a homemaker, age 62. She lives with her spouse in a rural area in a 2 storey house. She has 2 sons who live nearby. She got up to check out a noise in the kitchen at 0214 hours. Her left leg gave out from under her & she fell to the floor. Her spouse, a sound sleeper, did not hear her. He found her lying on the kitchen floor in the a.m. She had left hemiplegia, right facial drooping & a fractured right wrist.

Her CT scan at the hospital showed a Right Middle Cerebral Ischemic Infarct. She is now in the Rehabilitation Unit & discharge planning is underway.

The Interdisciplinary report tells you the following:

- Sara is a 2 person standing pivot transfer with moderate assist
- Sara uses a wheelchair for ambulation
- Sara has a cast on her right wrist
- Sara has dyspagia, requiring minced diet with thickened fluids
- Sara is continent of bowel & bladder but does have urinary urgency
- Sara is emotionally labile

Discussion Questions:

1. What Stroke Survivor issues are at play here?

2. What are the challenges to Sara going home?

3. What support services / professionals would be available to assist with your planning?

RESOURCE LIST

Heart and Stroke Foundation of Ontario

For more information or to order any of the following resources please visit the Heart and Stroke Foundation of Ontario website at http://profed.heartandstroke.ca

- Heart and Stroke Foundation of Ontario (2002) Tips and tools for everyday living: A guide for Stroke Caregivers. Heart and Stroke Foundation of Ontario: Toronto online at http://profed.heartandstroke.ca.

- Stroke Network of Southeastern Ontario (2006). Tips and tools for everyday living: A guide for stroke caregivers: "Putting it into practice" video series online at www.strokenetworkseo.ca
  - Video #1 Recognize and React to the Signs and Symptoms of Stroke
    - Used in all 5 workshops
  - Video #2 Communication
    - Used in workshop #5 Communication and Behaviour
  - Video #3 Meal Assistance & Hydration
    - Used in workshop #4 Nutrition, swallowing, feeding and hydration
  - Video #4 Cognitive, Perceptual & Behavioural Problems
  - Video #5 Mobility
    - Used in workshop #3 Mobility

- Risk Assessment: online at www.heartandstroke.ca/assess

- Ontario Best Practice Guidelines for Stroke Care: online at http://profed.heartandstroke.ca/

- Canadian Best Practice Recommendation for Stroke Care: 2006 online at http://www.canadianstrokestrategy.ca/eng/resourcestools/best_practices.html

- Let's Talk About Stroke and other patient education resources
  - Heart and Stroke Foundation of Ontario Health Information Resource Catalogue online at http://www.heartandstroke.on.ca/site/c.pvI3IeNWJwE/b.3829047/k.91D8/Health_Information_Resource_Catalogue.htm

Additional Resources

- Stroke Network of Southeastern Ontario: www.strokenetworkseo.ca
  - Visit this site for additional educational resources and popular resource links

- RNAO (2005). Best Practice Guideline: Stroke Assessment Across the Continuum of Care. Online at www.RNAO.org

- Journal Article: Rosemarie King & Patrick Semik. (April 2006). Stroke Caregiving: Difficult Times, Resource Use and Needs During the First 2 Years. Journal of Gerontological Nursing, 32(4), 37-45. online at www.JOGNonline.com

The Brain, The Body & You – Learning Series

WORKSHOP 1: Stroke Care from Prevention to Life After Stroke

Participant Evaluation Form

1. Using the following scale (1-9), please rate your level of knowledge / skill / experience **BEFORE** today's workshop and **AS A RESULT OF** today's workshop for each of the following statements.

NONE or MINIMAL Knowledge/Skill/Experience			**SOME** Knowledge/Skill/Experience			**EXTENSIVE** Knowledge/Skill/Experience		
1	2	3	4	5	6	7	8	9

Enter a number in the boxes below

How would you rate your:	**BEFORE** the Session	**AS A RESULT OF** the Session
Ability to recognize the possible 5 signs and symptoms of a sudden stroke		
Understanding of how to react to the sudden signs and symptoms of a sudden stroke		
Ability to identify risk factors for having a stroke		
Knowledge of common deficits after a right or left sided stroke		
Knowledge of roles and functions of the interprofessional team members		

2. Was the amount of information presented…

_____ Too much _____ About right _____ Not enough

3. The length of time for the workshop was…

_____ Too much _____ About right _____ Not enough

4. What did you find most helpful about the workshop?

_____

_____

5. What did you find least helpful about the workshop?

   _____

   _____

6. What is your overall rating of the workshop?

   _____ Excellent _____ Good _____ Fair _____ Poor _____ Very Poor

7. Any other comments:

   _____

   _____

   _____