




# Vascular Dementia

Alzheimer Society Care4u 2016

Nancy Dixon MC CCFP (COE)

October 29, 2016



# Questions for today


- What is Vascular Dementia?
- What places a person at risk?
- What are the symptoms of this disease?
- How is Vascular Dementia diagnosed?
- What is the treatment for Vascular dementia?
- Can Vascular Dementia be prevented?
- What are some strategies that may be helpful in caring for a person with Vascular Dementia?



# Disclosures

➤ None





# Questions for today

- What is Vascular Dementia?
- What places a person at risk?
- What are the symptoms of this disease?
- How is Vascular Dementia diagnosed?
- What is the treatment for Vascular dementia?
- Can Vascular Dementia be prevented?
- What are some strategies that may be helpful in caring for a person with Vascular Dementia?



# What is dementia?





# What is dementia?

- Decline in mental abilities from previous level
- Mental functions include complex attention, executive function, learning and memory, language, perceptual-motor, and social cognition
  - One or more of these areas affected
- **Interfere with independence in daily activities**
- Not delirium or other mental disorder



# Function

- **Basic** activities of daily living
  - Feeding, bathing, dressing, toileting
- **Instrumental** activities of daily living
  - Cooking, cleaning, shopping, medications, driving, banking





# Mental functions

- **Complex attention**

- short attention span, easily distracted, slow processing of information, difficulty holding new information in mind

- **Executive function**

- difficulty planning, making decisions, can't multitask, need to focus on one thing at a time

- **Learning and memory**

- Memory impairment, repeats self, needs reminders/cues



# Mental functions

## ➤ **Language**

- Difficulty with expressive or receptive language, word-finding difficulty (“that thing”, “you know what I mean”), difficulty understanding

## ➤ **Perceptual-motor**

- Difficulty with previously familiar activities (using tools, driving vehicle), navigating in familiar environments, “sundowning” – shadows and lowering levels of light change perceptions



# Mental functions

## ➤ **Social cognition**

- Behaviour not socially acceptable, insensitivity to social standards in dress, or of political, religious, or sexual topics of conversation, acts without regard to family/friends (embarrassing, lack of empathy), makes decisions without regard to safety, has little insight into these changes



# Other words you may read/hear

- **Aphasia**

- Difficulty with expressing or understanding language

- **Apraxia**

- Unable to do something even though they physically should be able to do it (e.g. dressing)

- **Agnosia**

- Loss of recognition e.g. persons, objects

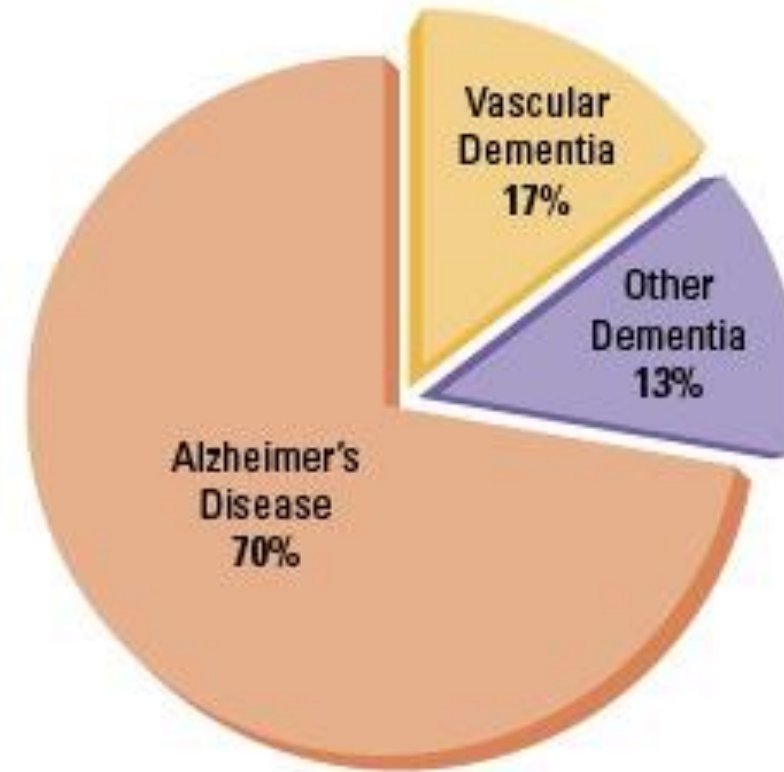
- **Apathy**

- Lack of feeling, emotion, interest, concern – state of indifference



***A person can have dementia  
without major memory  
problems***

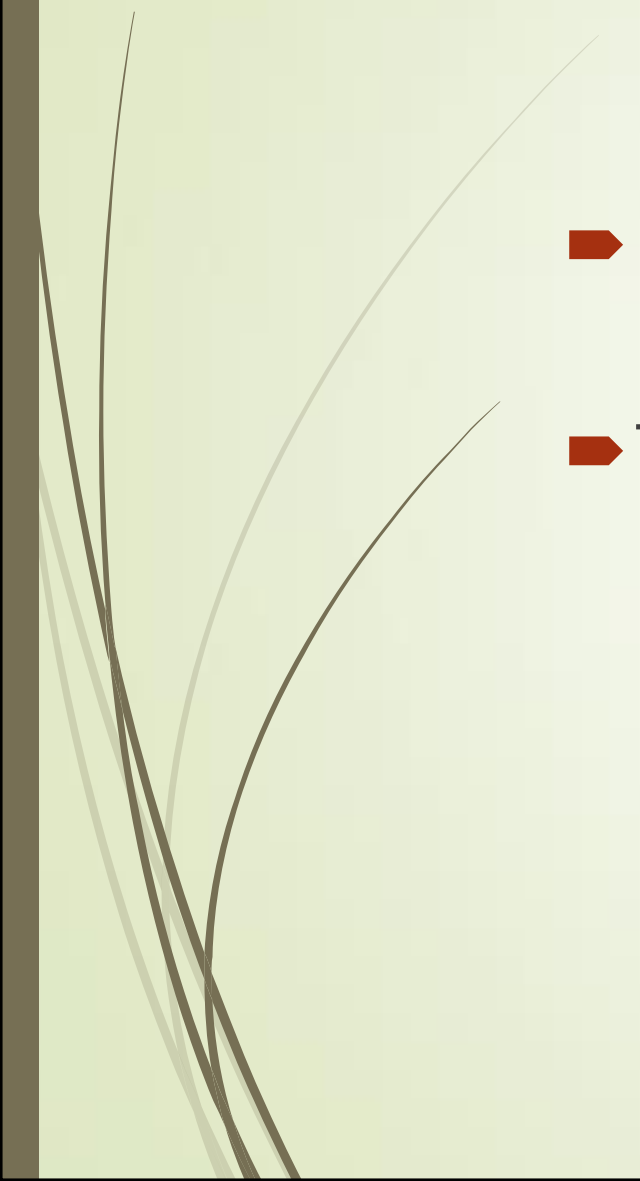
# Types of dementia

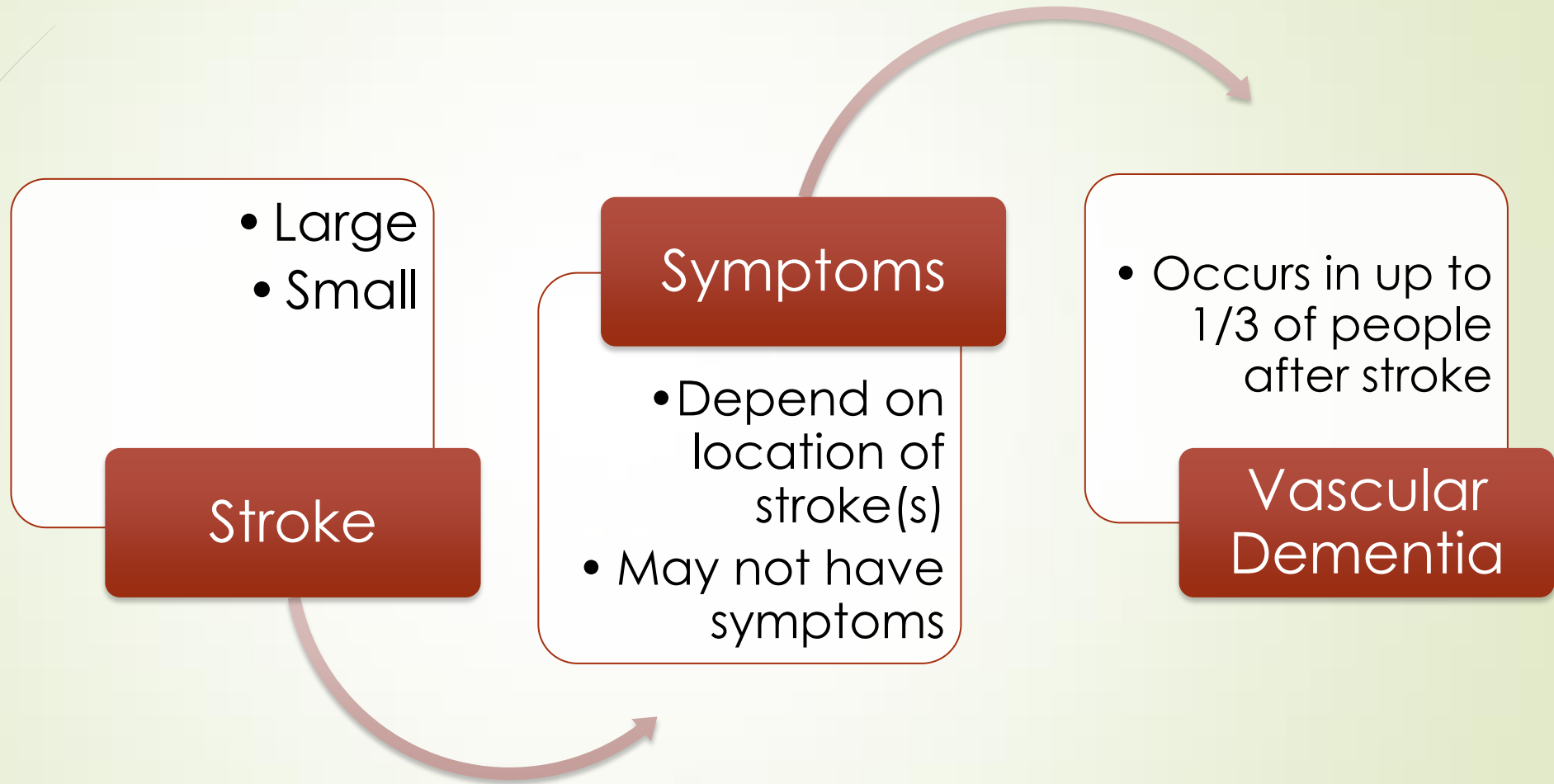


Source: Plassman, BL; Langa, KM; Fisher, GG; Heeringa, SG; Weir, DR; Ofstedal, MB, et al. "Prevalence of Dementia in the United States: The Aging Demographics, and Memory Study. *Neuroepidemiology* 2007; 29:125-132.<sup>31</sup>



# What is Vascular Dementia?

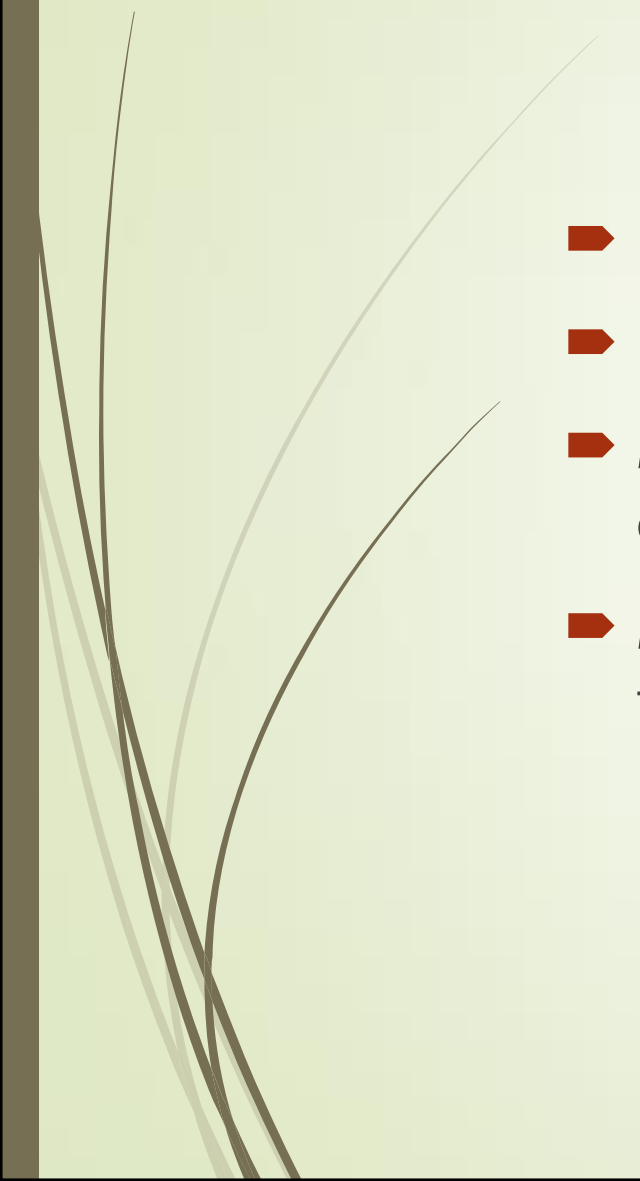
- Dementia caused by reduced blood flow to the brain
  - This can happen in several ways
    - Large stroke
    - Small stroke (lacunar infarct)
    - Reduced blood flow in the white matter of the brain
    - Other diseases
- 







# What is Vascular Dementia?

- Different symptoms than Alzheimer's Disease
  - Does not have typical "stages", like Alzheimer's Disease
  - Memory problems are not as significant early in the disease
  - More issues with complex attention and executive function
- 



# What is Vascular Dementia?

- ▶ **Complex attention**

- ▶ short attention span, easily distracted, slow processing of information, difficulty holding new information in mind

- ▶ **Executive function**

- ▶ difficulty planning, making decisions, can't multitask, need to focus on one thing at a time



# Vascular Dementia, also known as....


- Major or Minor Vascular Neurocognitive Disorder
- Multi-infarct dementia
- Vascular cognitive impairment
- Binswanger's disease
- Other medical terms (ischemic vascular dementia, arteriosclerotic dementia, cerebrovascular dementia, ischemic-vascular dementia)

***Can be difficult to diagnose!***





# What is Vascular Dementia?

- ▶ The symptoms depend on the part(s) of the brain involved and the size of the stroke
  - ▶ Large stroke
  - ▶ Small stroke (lacunar infarct)
  - ▶ Other diseases: Cerebral amyloid angiopathy, CADASIL, Mixed dementia (Alzheimer's Disease + Vascular Dementia)
- 



# Large Stroke

➤ 2 major types:

## 1. ISCHEMIC

➤ Blockage in one of the arteries of the brain

➤ Blood clot from another part of the body (e.g. the heart)

## 2. HEMORRHAGIC

➤ Bleeding in the brain

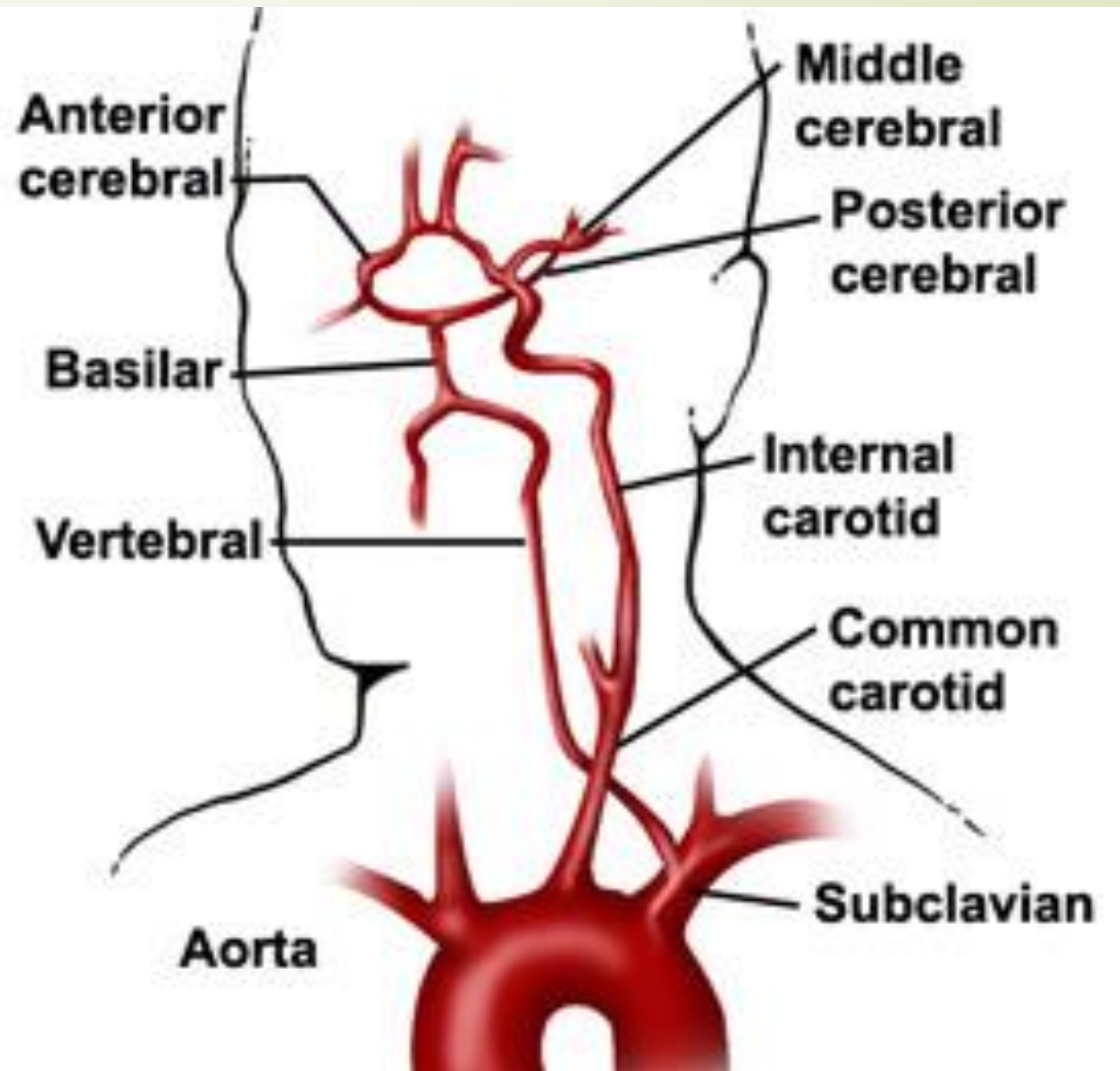
TIA >>>>>>> Mild Stroke >>>>>>>>> Moderate Stroke >>>>>>>>>>> Severe Stroke



0 1 2 3 4 5 6 7 8 9 10

No Permanent Damage >>>>>>> Some Damage >>>>> Significant Permanent Damage

# Large Stroke





**Frontal lobe**  
Executive functions, thinking, planning, organising and problem solving, emotions and behavioural control, personality

**Motor cortex**  
Movement

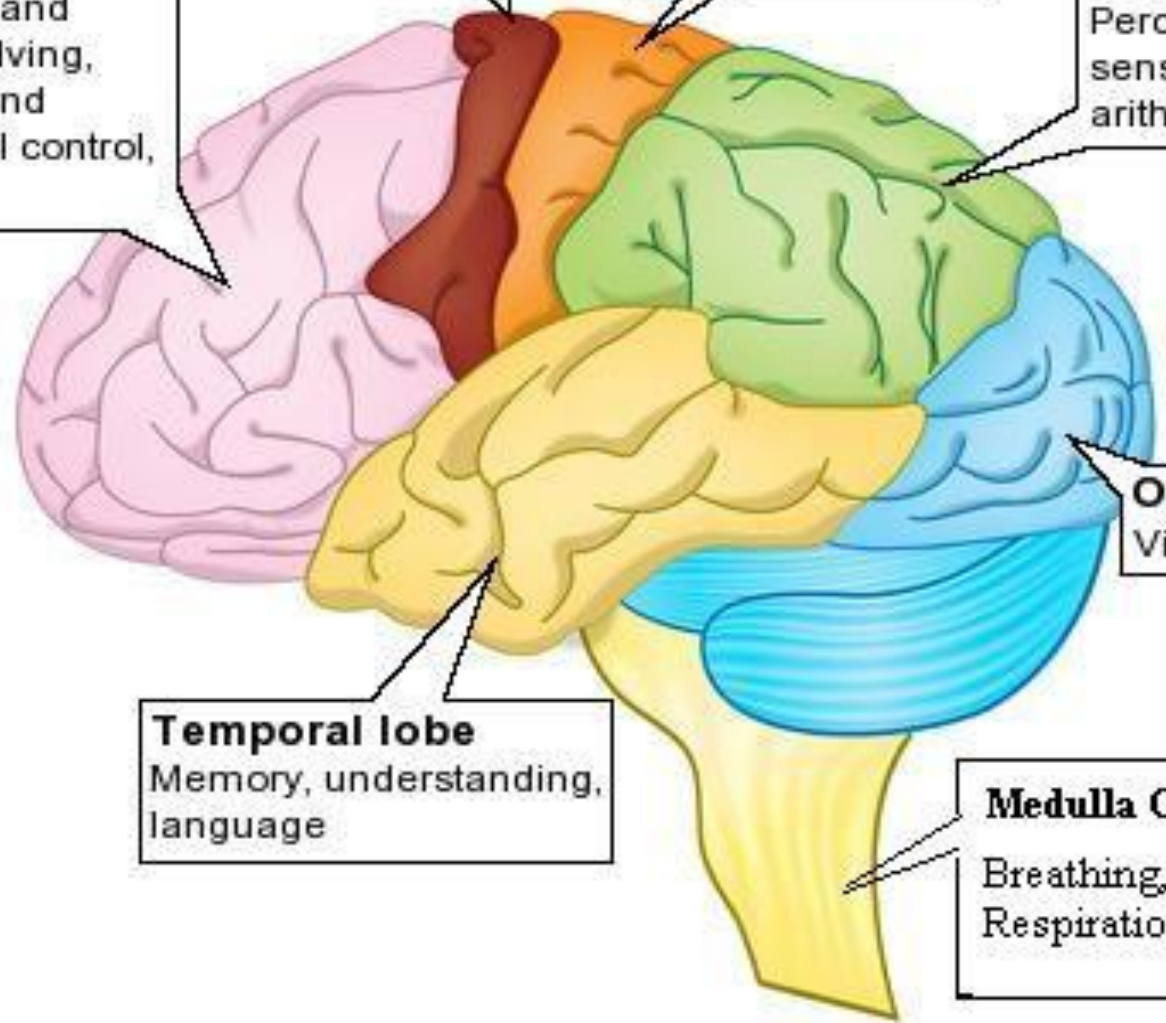
**Sensory cortex**  
Sensations

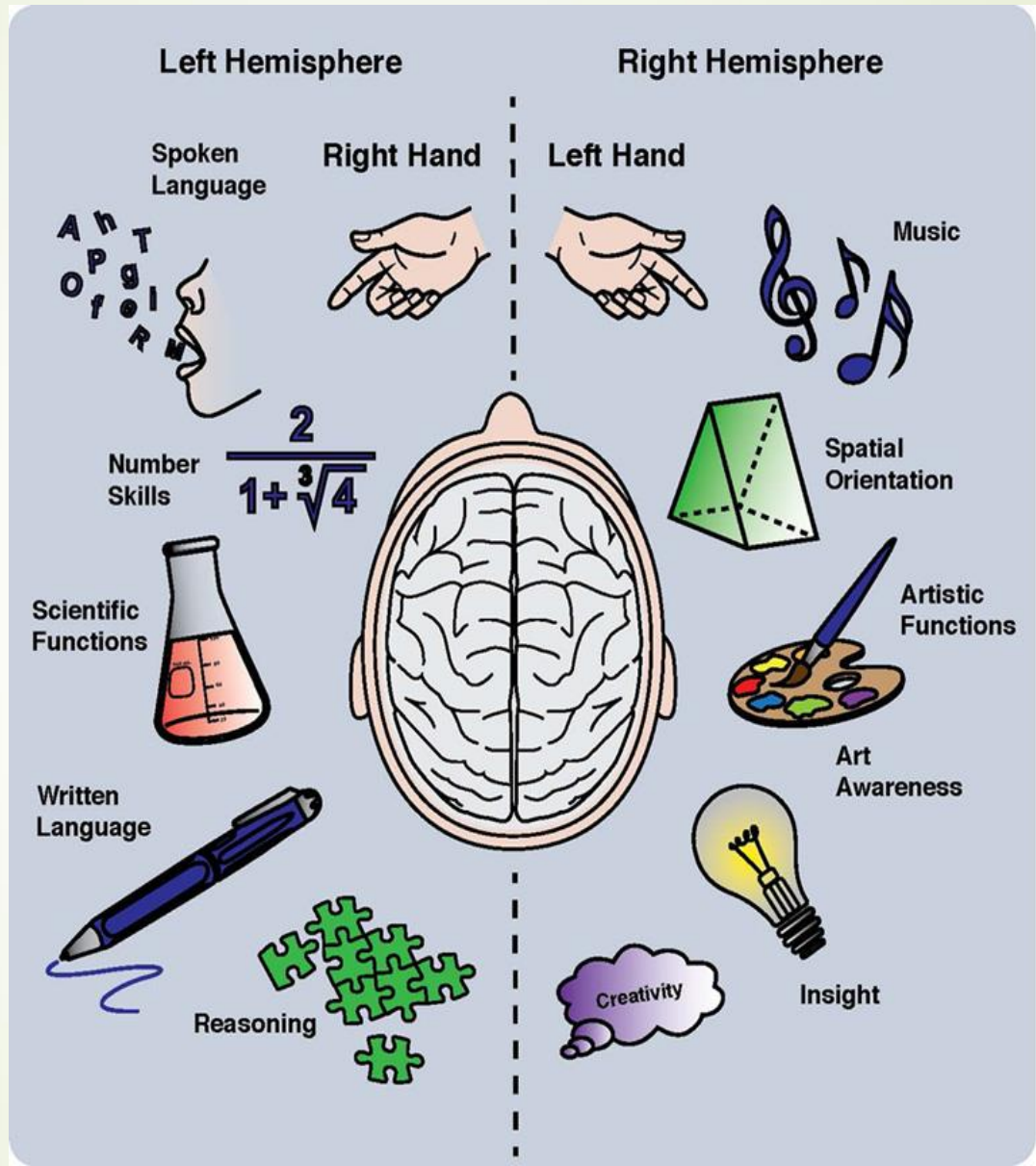
**Parietal lobe**  
Perception, making sense of the world, arithmetic, spelling

**Occipital lobe**  
Vision

**Temporal lobe**  
Memory, understanding, language

**Medulla Oblangata**  
Breathing, Heart, Respiration,





Left Hemisphere

Right Hemisphere

Spoken Language

Right Hand

Left Hand

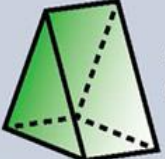
Music



Number Skills

$$\frac{2}{1+\sqrt[3]{4}}$$

Spatial Orientation



Scientific Functions



Artistic Functions



Written Language



Art Awareness

Reasoning



Creativity



Insight



# Large Stroke

- Vascular Dementia caused by a large stroke(s) may have a “step-wise deterioration”, suddenly worse, then okay for a while, then suddenly worse again
- Symptoms of stroke:
  - localized weakness
  - localized numbness
  - double vision or loss of vision
  - difficulty speaking



# LEARN THE SIGNS OF STROKE

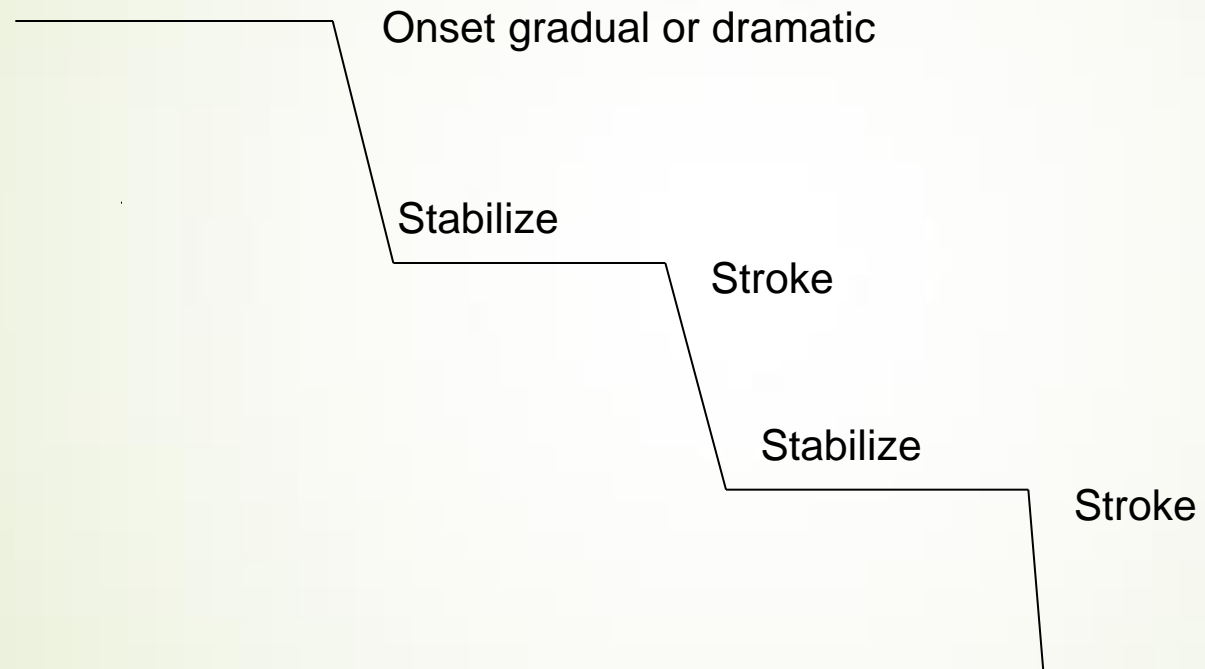
**F**ACE is it drooping?

**A** RMS can you raise both?

**S** PEECH is it slurred or jumbled?

**T** IME to call 9-1-1 right away.

# Progression of Vascular Dementia

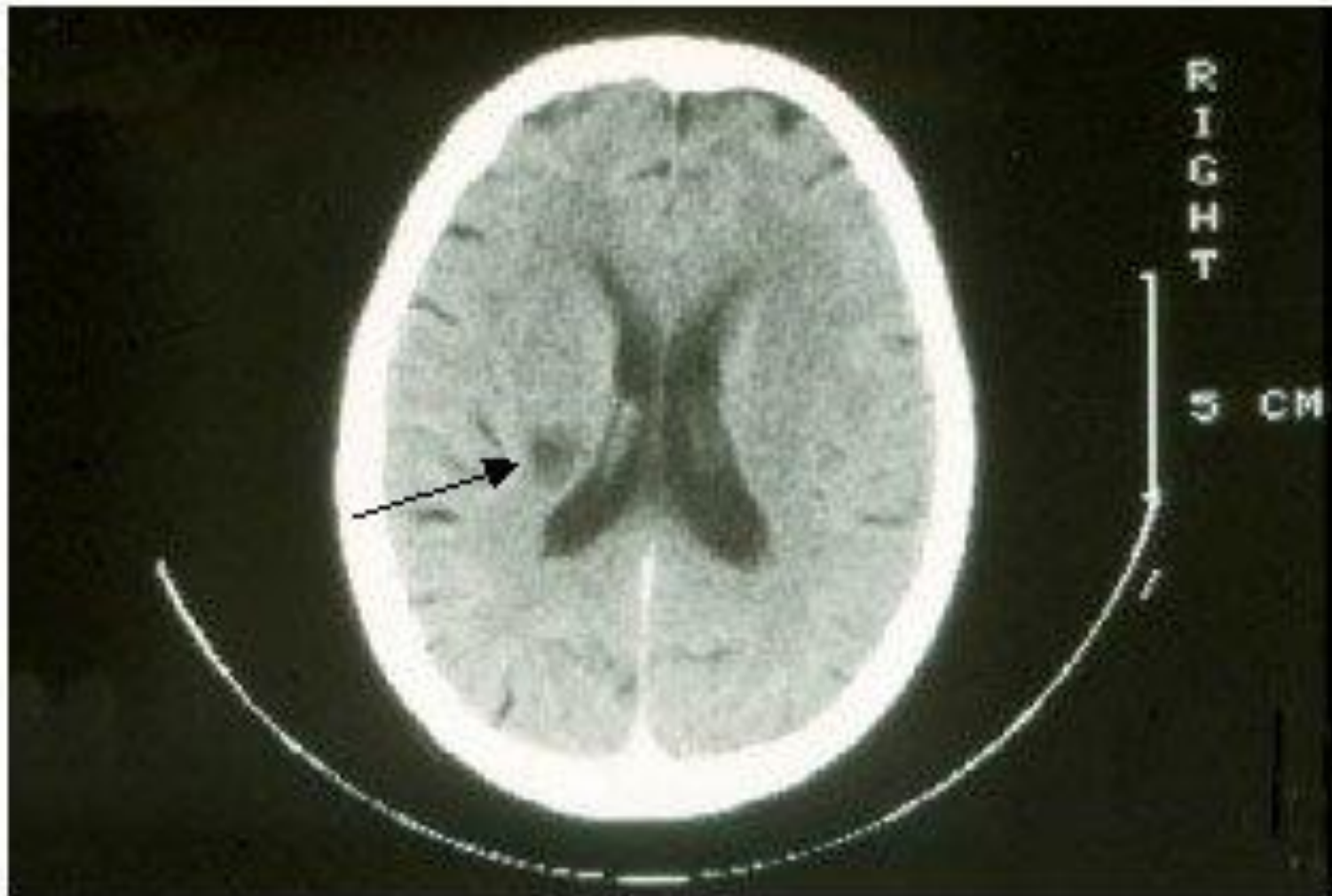


Vascular Dementia may progress gradually in a stepwise fashion in which a person's abilities deteriorate after a stroke, then stabilize until the next stroke.



# Small Stroke

- “Lacunar infarcts”
- Blockage in small arteries
- Occur deeper in the brain
- May not have obvious symptoms, but can cause cognitive impairment
- Not necessarily “step-wise” decline
- Risk factors include older age, high blood pressure, diabetes



## Lacunar infarct

Copyright JM Wardlaw, University of Edinburgh



# Questions for today

- What is Vascular Dementia?
- What places a person at risk?
- What are the symptoms of this disease?
- How is Vascular Dementia diagnosed?
- What is the treatment for Vascular dementia?
- Can Vascular Dementia be prevented?
- What are some strategies that may be helpful in caring for a person with Vascular Dementia?





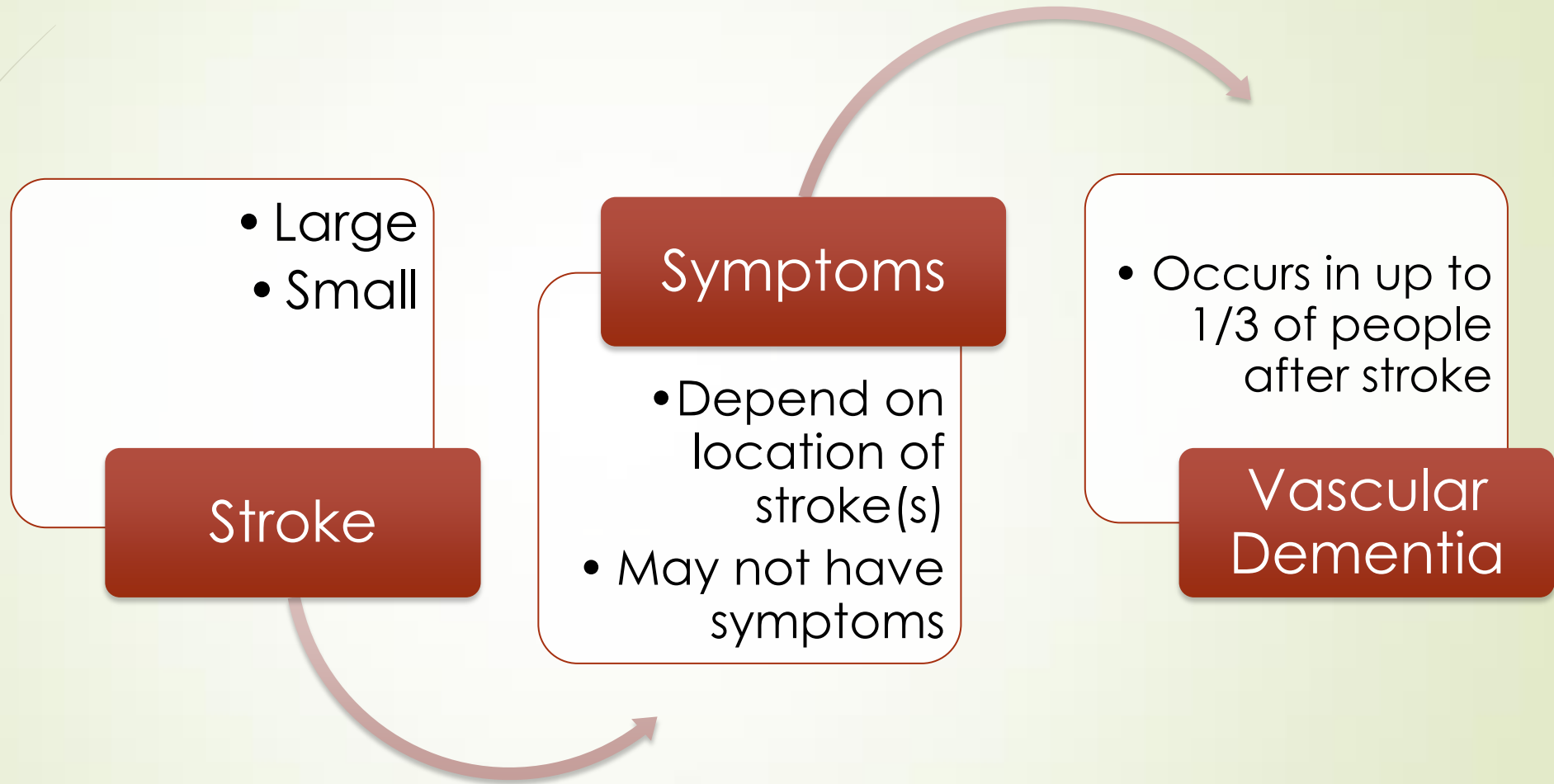
# Does everyone with a stroke get dementia?

- No!
- Studies show 6-32% of people will develop Vascular Dementia after stroke
- People with stroke almost 4 times more likely to get dementia
- Symptoms of dementia can start within months of stroke but this is variable



# Does everyone with a stroke get dementia?


- More likely if these risk factors:
  - Older age
  - Female
  - Vascular risk factors
  - Lower education
  - Stroke location
  - Multiple strokes





# Questions for today

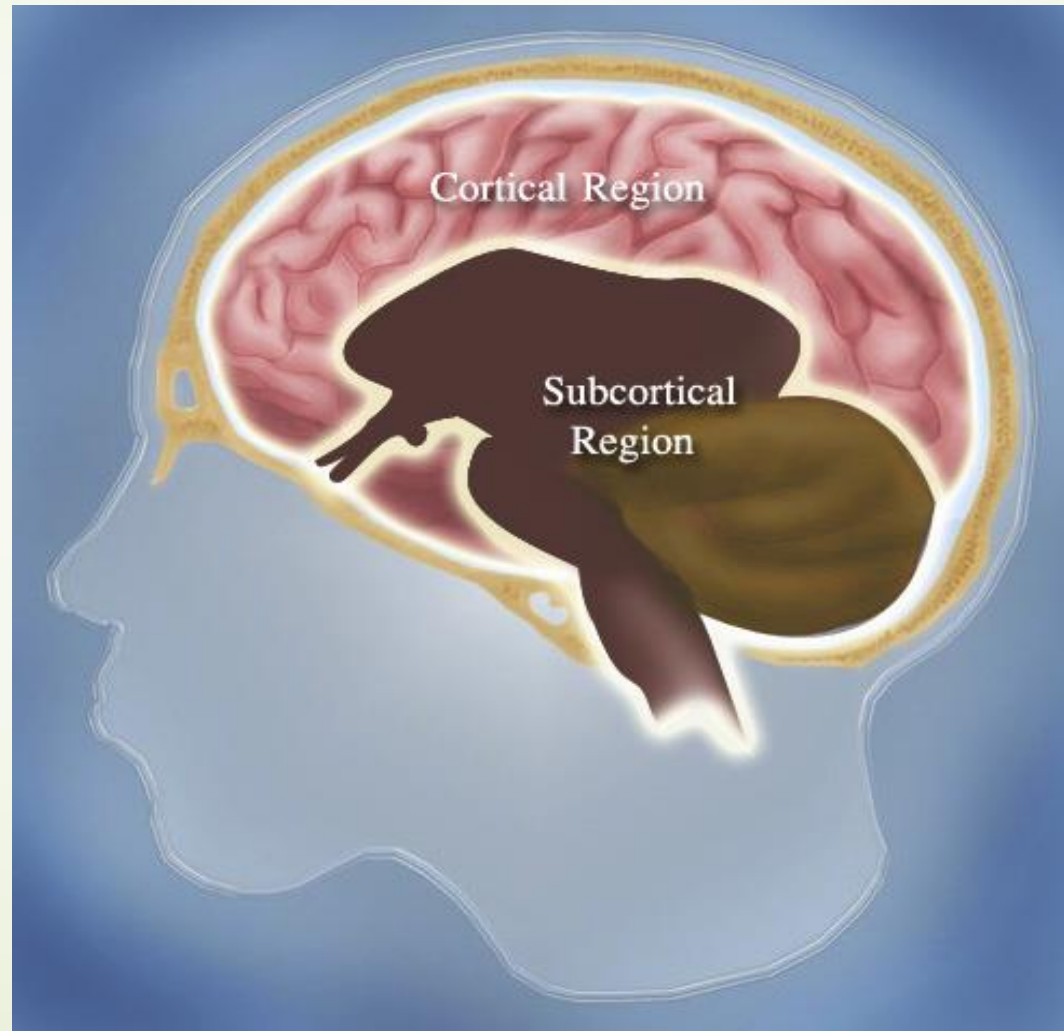
- What is Vascular Dementia?
- What places a person at risk?
- **What are the symptoms of this disease?**
- How is Vascular Dementia diagnosed?
- What is the treatment for Vascular dementia?
- Can Vascular Dementia be prevented?
- What are some strategies that may be helpful in caring for a person with Vascular Dementia?



# What are the symptoms of Vascular Dementia?

- ▶ Symptoms depend on:
  - ▶ Location of stroke(s)
  - ▶ Size of stroke (large or small)

# “Cortical Syndrome”



**Frontal lobe**  
Executive functions, thinking, planning, organising and problem solving, emotions and behavioural control, personality

**Motor cortex**  
Movement

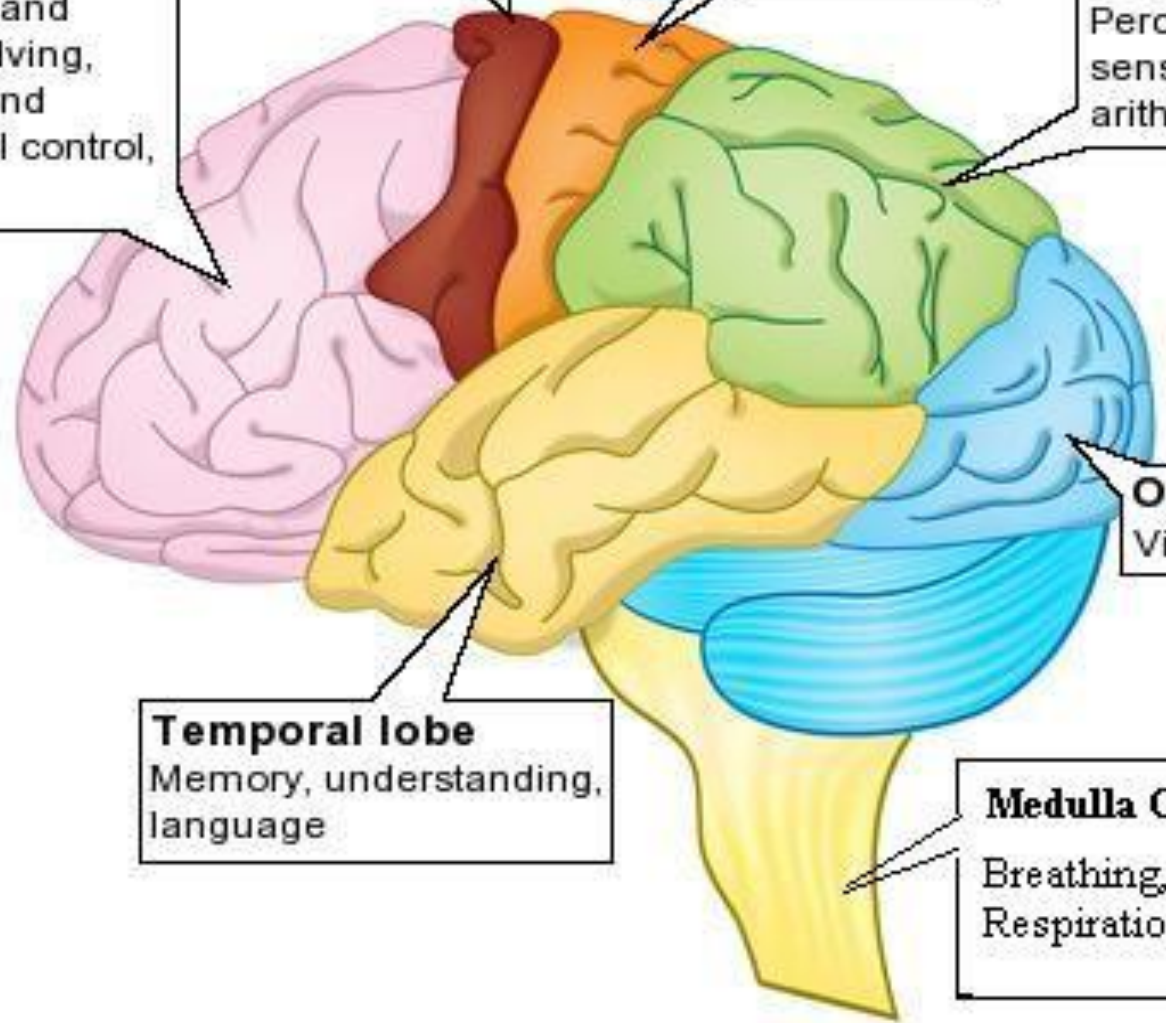
**Sensory cortex**  
Sensations

**Parietal lobe**  
Perception, making sense of the world, arithmetic, spelling

**Occipital lobe**  
Vision

**Temporal lobe**  
Memory, understanding, language

**Medulla Oblangata**  
Breathing, Heart, Respiration,





# What are the symptoms of Vascular Dementia? – “Cortical Syndrome”

- If **frontal lobe** affected can cause:
- **Loss of Executive function**
  - difficulty planning, making decisions, can't multitask, need to focus on one thing at a time
- **Apathy**
  - Lack of feeling, emotion, interest, concern – state of indifference
- **Abulia**
  - Very low motivation/drive – worse than apathy





# What are the symptoms of Vascular Dementia? – “Cortical Syndrome”

- If **left parietal lobe** affected can cause:
- **Aphasia**
  - Difficulty with expressing or understanding language
- **Apraxia**
  - Unable to do something even though they physically should be able to do it (e.g. dressing)
- **Agnosia**
  - Loss of recognition e.g. persons, objects



# What are the symptoms of Vascular Dementia? – “Cortical Syndrome”

- If **right parietal lobe** affected can cause:
- “Neglect” of one side of the body
- Confusion
- Agitation
- Difficulty with perceiving how they relate to their environment and relationship of objects to each other, difficulty with construction (eg drawing objects)
  - Getting lost in familiar environments

**Right Brain Injury**

**Left Brain Injury**

Paralyzed  
Left Side

Paralyzed  
Right Side

Special  
Perceptual  
Deficits

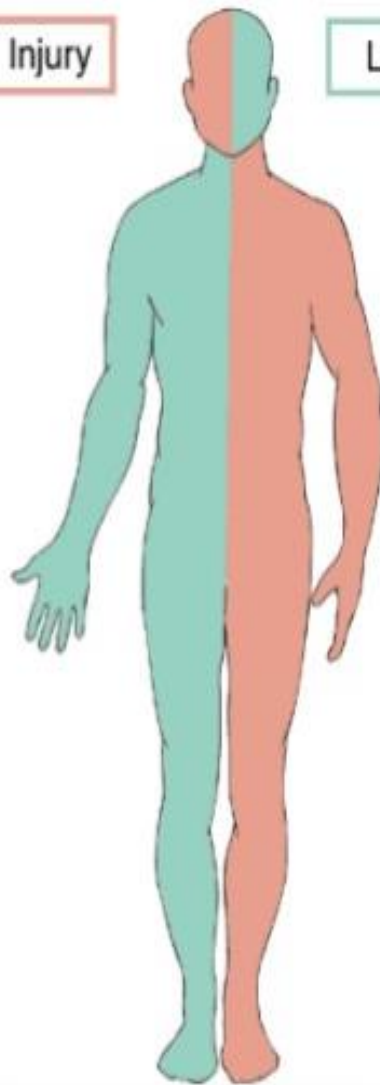
Speech-  
Language  
Deficits

Quick  
Impulsive  
Behavioral  
Style

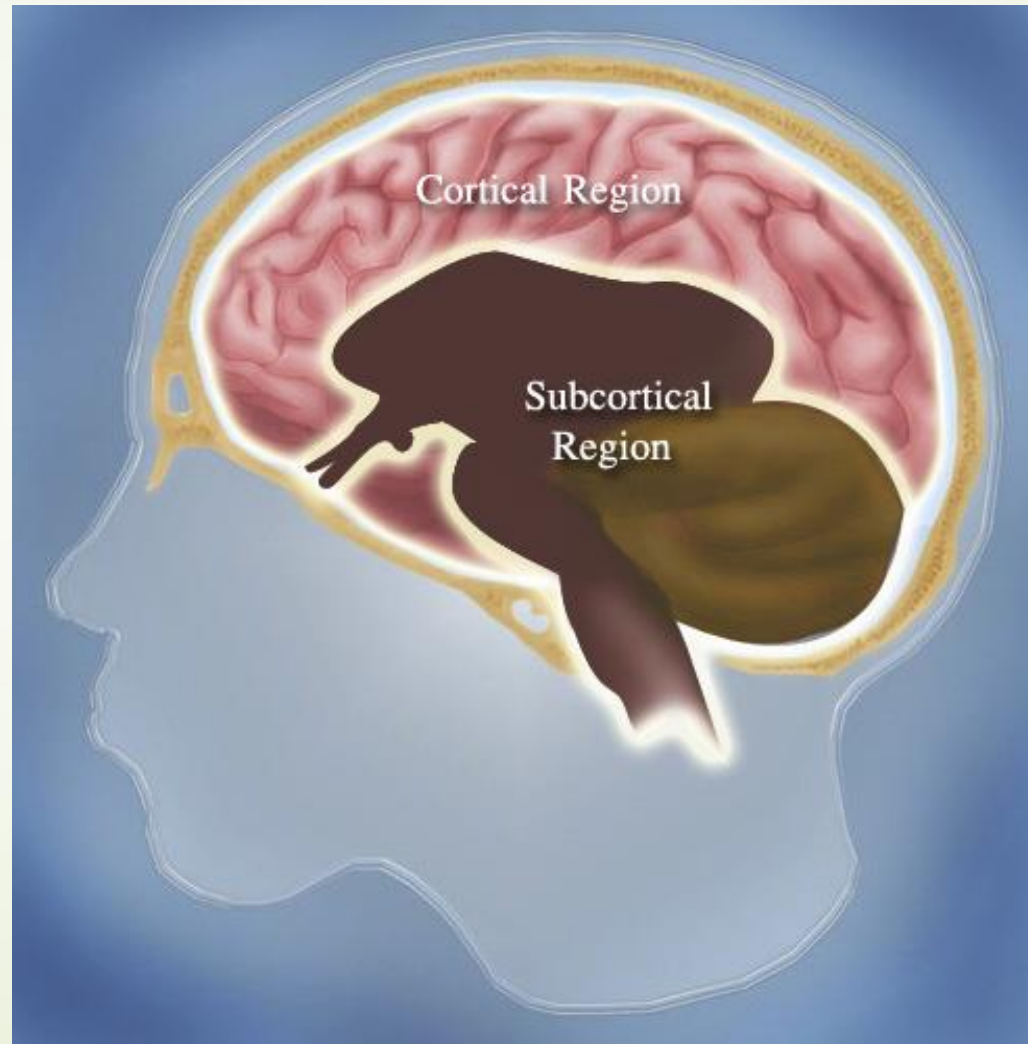
Slow, Cautious  
Behavioral Style

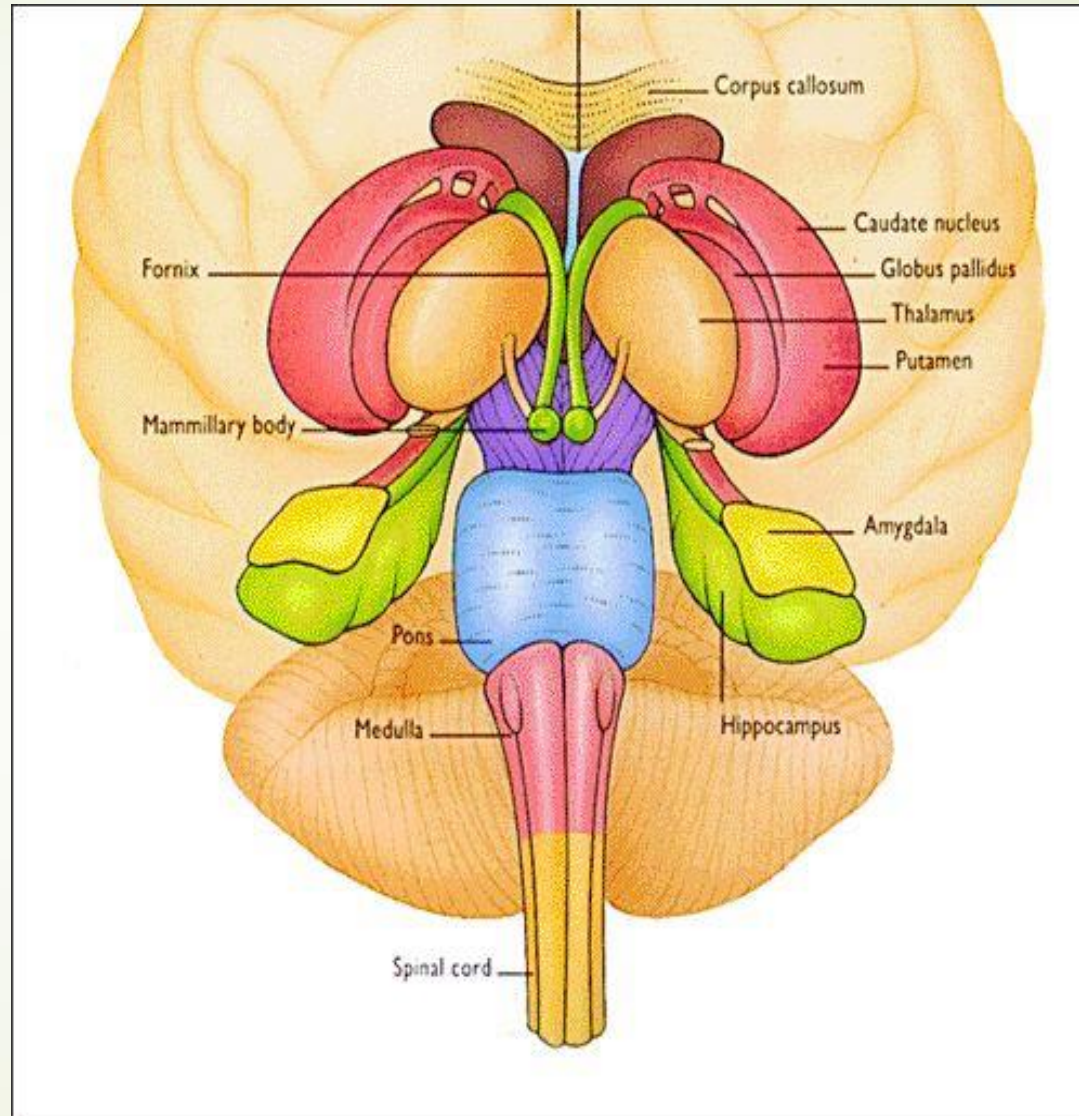
Memory  
Deficits

Memory  
Deficits



# “Subcortical Syndrome”







# What are the symptoms of Vascular Dementia? - “Subcortical Syndrome”

- Problems with walking, can look similar to Parkinson’s Disease
- Unsteadiness, falls
- Slowed down in movements/actions
- Problems with urination including loss of bladder control
- Inappropriate laughing/crying



# What are the symptoms of Vascular Dementia? - “Subcortical Syndrome”

- ▶ Personality and mood changes
- ▶ Depression, loss of interest and motivation
  - ▶ Apathy
- ▶ Memory relatively mildly affected
- ▶ Problems with planning, making decisions, can't multitask, need to focus on one thing at a time
  - ▶ Executive function



# Depression & Vascular Dementia

- Depression can occur in up to 40% of people with Vascular Dementia
- More common in left sided strokes
- Sleep problems, loss of appetite and energy, irritability, guilt, negativity
- Medications can be helpful
- May need to see geriatric psychiatrist





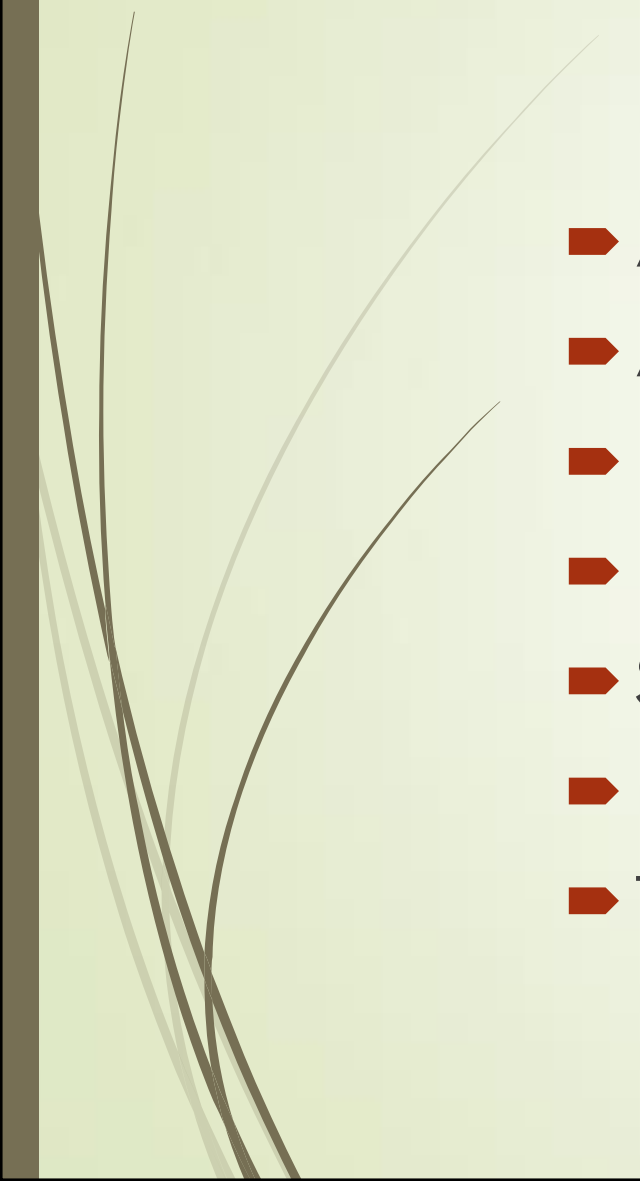
# Behavioural Changes

- ▶ Dementia can cause a person to act in different and unpredictable ways
- ▶ This can lead to misunderstanding, frustration and tension

***The person is not acting this way on purpose***




# Behavioural Changes

- Aggression, angry outbursts
  - Anxiety or agitation
  - Hiding things/hoarding, rummaging,
  - Repetition
  - Suspicion, paranoia
  - Pacing, wandering or getting lost
  - Trouble with sleep
- 



# Behavioural Changes

- **Physical discomfort**
  - Illness or medication
- **Overstimulation**
  - Loud noises or a busy environment
- **Unfamiliar surroundings**
  - New places or inability to recognize home
- **Complicated tasks**
  - Difficulty with activities or chores
- **Frustrating interactions**
  - Inability to communicate effectively



# Summary of symptoms of Vascular Dementia

- Physical
- Cognitive/Mental Functions
- Emotional
- Mood
  - Depression, apathy, delusions, hallucinations
- Behavioural

***Significant effect on relationships!***



# Questions for today

- What is Vascular Dementia?
- What places a person at risk?
- What are the symptoms of this disease?
- **How is Vascular Dementia diagnosed?**
- What is the treatment for Vascular dementia?
- Can Vascular Dementia be prevented?
- What are some strategies that may be helpful in caring for a person with Vascular Dementia?



# How is Vascular Dementia diagnosed?

- History taking and physical exam are most important
- Review medical problems and medications
- Tests of mental functions
  - Mini Mental Status Exam
  - Montreal Cognitive Assessment
  - Clock drawing test
- Blood tests, CT/MRI of brain to confirm vascular disease, other specialized tests

# The Mini-Mental State Exam

Patient \_\_\_\_\_ Examiner \_\_\_\_\_ Date \_\_\_\_\_

Maximum Score

5 ( )

### Orientation

What is the (year) (season) (date) (day) (month)?

5 ( )

Where are we (state) (country) (town) (hospital) (floor)?

3 ( )

### Registration

Name 3 objects: 1 second to say each. Then ask the patient all 3 after you have said them. Give 1 point for each correct answer. Then repeat them until he/she learns all 3. Count trials and record.  
Trials \_\_\_\_\_

5 ( )

### Attention and Calculation

Serial 7's. 1 point for each correct answer. Stop after 5 answers.  
Alternatively spell "world" backward.

3 ( )

### Recall

Ask for the 3 objects repeated above. Give 1 point for each correct answer.

2 ( )

### Language

Name a pencil and watch.

1 ( )

Repeat the following "No ifs, ands, or buts"

3 ( )

Follow a 3-stage command:

"Take a paper in your hand, fold it in half, and put it on the floor."

1 ( )

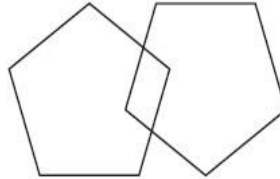
Read and obey the following: CLOSE YOUR EYES

1 ( )

Write a sentence.

1 ( )

Copy the design shown.



\_\_\_\_\_

Total Score

ASSESS level of consciousness along a continuum \_\_\_\_\_

Alert Drowsy Stupor Coma

# MONTREAL COGNITIVE ASSESSMENT (MOCA)

NAME : \_\_\_\_\_  
 Education : \_\_\_\_\_ Date of birth : \_\_\_\_\_  
 Sex : \_\_\_\_\_ DATE : \_\_\_\_\_

**VISUOSPATIAL / EXECUTIVE**

Copy cube

Draw CLOCK (Ten past eleven) (3 points)

[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Contour Numbers Hands

\_\_\_/5

**NAMING**

[ ] [ ] [ ]

\_\_\_/3

**MEMORY** Read list of words, subject must repeat them. Do 2 trials. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED	No points
1st trial						
2nd trial						

**ATTENTION** Read list of digits (1 digit/ sec.). Subject has to repeat them in the forward order [ ] 2 1 8 5 4  
 Subject has to repeat them in the backward order [ ] 7 4 2

\_\_\_/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors  
 [ ] FBACMNAAJKLBFAFKDEAAAJAMOF AAB

\_\_\_/1

Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65  
 4 or 5 correct subtractions: 3 pts, 2 or 3 correct: 2 pts, 1 correct: 1 pt, 0 correct: 0 pt

\_\_\_/3

**LANGUAGE** Repeat : I only know that John is the one to help today. [ ]  
 The cat always hid under the couch when dogs were in the room. [ ]

\_\_\_/2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] \_\_\_\_\_ (N ≥ 11 words)

\_\_\_/1

**ABSTRACTION** Similarity between e.g. banana - orange = fruit [ ] train - bicycle [ ] watch - ruler

\_\_\_/2

**DELAYED RECALL**

Has to recall words WITH NO CUE	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCUEd recall only
[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	
Optional Category cue						
Optional Multiple choice cue						

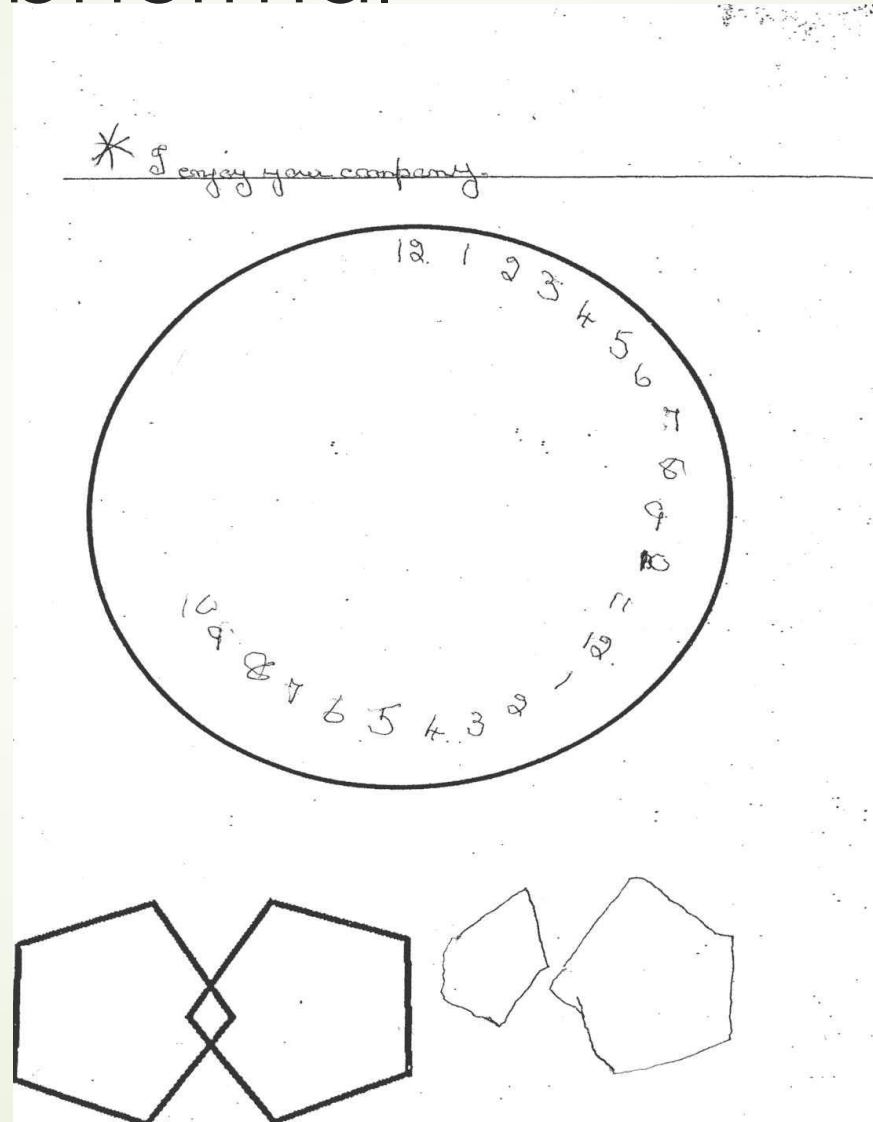
\_\_\_/5

**ORIENTATION** [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City

\_\_\_/6



# CDT: abnormal






# How is Vascular Dementia diagnosed?

- ▶ Several different organizations have developed “diagnostic criteria”
  - ▶ NINDS-AIREN
  - ▶ DSM-5
- ▶ Do not need to have major problem with memory, unlike Alzheimer’s Disease




# How is Vascular Dementia Diagnosed?

- ▶ Make sure it's not delirium, depression
  - ▶ Think about other types of dementia
    - ▶ Alzheimer's Disease
    - ▶ Lewy Body Dementia
    - ▶ Parkinson's Disease Dementia
    - ▶ Frontotemporal dementia
    - ▶ "Mixed" Dementia
  - ▶ Can't know with 100% certainty
- 




# Questions for today

- What is Vascular Dementia?
- What places a person at risk?
- What are the symptoms of this disease?
- How is Vascular Dementia diagnosed?
- **What is the treatment for Vascular dementia?**
- Can Vascular Dementia be prevented?
- What are some strategies that may be helpful in caring for a person with Vascular Dementia?



# What is the treatment for Vascular Dementia?

- ▶ Limited evidence for medication to slow or stop the progression of Vascular Dementia
  - ▶ Cholinesterase inhibitors (e.g. Aricept/donepezil)
  - ▶ Memantine
  - ▶ Calcium channel blockers
- ▶ Try to prevent future strokes
- ▶ Education and support for the person and their family
  - ▶ Alzheimer Society



# What is the treatment for Vascular Dementia?

- Future planning
  - Will, Power of Attorney, Health Care Directive
- Treatment of symptoms
  - Non-medication treatment strategies
  - Antidepressants
  - Antipsychotics
  - Sedatives
- Palliative care in end-stage dementia



# Questions for today


- What is Vascular Dementia?
- What places a person at risk?
- What are the symptoms of this disease?
- How is Vascular Dementia diagnosed?
- What is the treatment for Vascular dementia?
- **Can Vascular Dementia be prevented?**
- What are some strategies that may be helpful in caring for a person with Vascular Dementia?



# Can Vascular Dementia be prevented?

- Evidence is not clear on this
- Makes sense to address risk factors for stroke:
  - Blood pressure
  - Diabetes
  - Cholesterol
  - Antiplatelet therapy (e.g. Aspirin)
  - Treatment of atrial fibrillation with blood thinners
  - Healthy lifestyle – smoking, alcohol use, diet, exercise
- The earlier these factors are addressed, the better!





# Questions for today

- What is Vascular Dementia?
- What places a person at risk?
- What are the symptoms of this disease?
- How is Vascular Dementia diagnosed?
- What is the treatment for Vascular dementia?
- Can Vascular Dementia be prevented?
- What are some strategies that may be helpful in caring for a person with Vascular Dementia?



# What are some strategies that may be helpful in caring for a person with Vascular Dementia?

- Most important first step is to get a diagnosis!
- Resources available include:
  - Alzheimer Society
  - Family Doctor
  - Outreach Teams: Geriatric Mental Health (GMHT) and Geriatric Program Assessment Team (GPAT)
  - Geriatric Clinic (Day Hospitals)
  - Neurologist
  - Geriatric Psychiatry (McEwan Centre at St. Boniface)



# Responding to behaviours

- ▶ Person with dementia can have a “catastrophic reaction”
- ▶ Remain flexible, patient and calm
- ▶ Respond to the emotion, not the behaviour
  - ▶ The person who has dementia probably feels lost, worried, anxious, vulnerable, and helpless
- ▶ Don't argue or try to convince
- ▶ Use memory aids




# Responding to behaviours

- Look for the reasons/triggers behind each behaviour, try different responses
  - May need to get creative!
- Consult a physician or other clinician (e.g. GPAT) to identify any causes related to medications or illness
- Try not to take the behaviour personally
- Share your experiences with others



# Responding to behaviours

- Responses can be affected by:
    - Relationships
    - Family dynamics
    - Personality
- 



# Responding to apathy

- ▶ Person may become apathetic, loss of motivation and initiative
- ▶ Keep the person active but not upset
- ▶ People with dementia cannot learn as well as before
- ▶ Too much activity, pressure to learn, or stimulation can be upsetting
- ▶ Finding a balance is key, focus on what they **can** do!



# Communication Tips


- Dementia causes difficulty with communication – both speaking and understanding
  - Word finding problems, repetition, inventing new words, losing train of thought, reverting to a different language, swearing, speaking less
  - May also have hearing loss
- Communication requires patience and understanding
- Speech Language Pathologist can be helpful



# What are some strategies that may be helpful in caring for a person with Vascular Dementia?

- Maintain a sense of humour
- Give yourself credit, not guilt
- Look after your health
- Get enough rest, take a break
- Try to accept changes as they occur, and accept help when it is needed
  - Home Care
- Make legal and financial plans





# Questions for today

- What is Vascular Dementia?
- What places a person at risk?
- What are the symptoms of this disease?
- How is Vascular Dementia diagnosed?
- What is the treatment for Vascular dementia?
- Can Vascular Dementia be prevented?
- What are some strategies that may be helpful in caring for a person with Vascular Dementia?




# Vascular Dementia: Summary

- ▶ Vascular dementia is a common type of dementia, but can be difficult for health care providers to diagnose
- ▶ Caused by reduced flow to the brain
  - ▶ Large stroke, small stroke
- ▶ Symptoms depend on where the stroke(s) are in the brain
- ▶ Is different from Alzheimer's Disease as memory is not always affected early



# Vascular Dementia: Summary

- ▶ Can cause changes in personality, mood, physical function and behaviour
  - ▶ Resources are available to assist persons with Vascular Dementia and their families
- 



*Questions?*