



# BRISBANE INTERACTIVE

***Keeping an eye on stroke:  
look and act FAST!***

Roman Serebrianik

National Manager, Public Affairs and Media

Stroke Foundation



**Optometry**  
QUEENSLAND  
NORTHERN TERRITORY

## Acknowledgement of Country

I would like to respectfully acknowledge the Traditional Owners and Custodians of Country throughout Australia and acknowledge their continuing connection to lands, waters, and community.

I pay my respect to the Peoples, Cultures and Elders past and present.



*Carissa Paglino: 'Deep Connections, Strong Community'  
2022, Digital Illustration.*

## Acknowledgement of Lived Experience

Stroke Foundation acknowledges the individual and collective expertise of people with **lived experience of stroke** who inform and guide our work and purpose.

We recognise their generous and unique contributions, so that we can learn and grow together to achieve better outcomes for all.





## About me

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- National Manager Public Affairs & Media (Stroke Foundation)
- Board member of the Australian College of Optometry
- MPH *LaTrobe*, BOptom, PGradDipAdvClinOptom, PGradCertOcTher *Melb*, FACO



## Learning Objectives

- Gain an understanding of **stroke and its impact** in Australia
- Know and recognise the **common signs and risk factors** of stroke
- Be aware what **stroke supports and resources** available for Px's, families, carers
- Share experiences in managing patients with stroke in your practice
- Understand the **greater role optometrists could play** in stroke awareness, patient education and prevention

← **THIS IS THE MAIN ONE!**

Encouragement to participate in today's discussions:

**Prizes available 😊**



## Q1 Has anyone in your family had a stroke?

A) You

0%

B) Your sibling

0%

C) Your parent

0%

D) Your child

0%

## What is a Stroke

Interruption to blood supply to brain

**2 Types: Ischaemic vs Haemorrhagic**

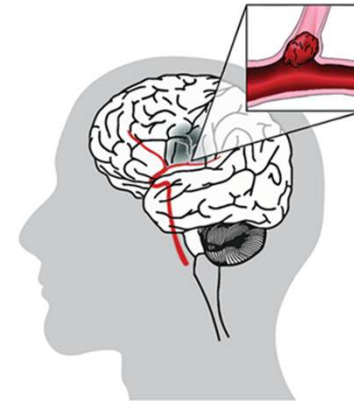
AusCR: ~80-85% strokes are ischaemic [13]

Haemorrhagic strokes often **worse prognosis**

**Medical Emergency**

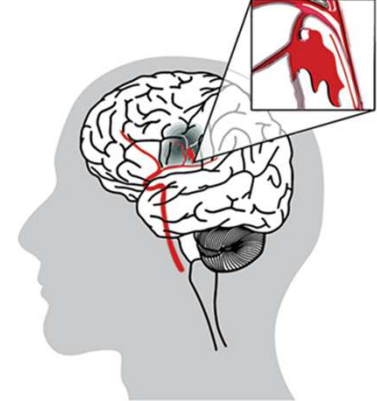
**~1.9million** neurons damaged per minute [15]

### **Block**



**Ischaemic stroke**  
(embolic and thrombotic)

### **Bleed**



**Haemorrhagic stroke**  
(subarachnoid and intracerebral)



# Stroke in Australia (a snapshot)

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Stroke is one of top 5 causes of death in Australia (~8,500/year) <sup>[1]</sup>  
Primary cause of 4.9% of all deaths <sup>[2]</sup>

In 2023 there were  
**45,785 stroke events**  
in Australia



In Australia there is  
one stroke every  
**11 minutes**



**40% of Australians**  
cannot name any  
of the **common**  
signs of stroke

Stroke can happen  
at **any age**



**1 in 4 strokes**  
occurred in people  
under the **age of 65**



**Aboriginal and Torres  
Strait Islander** people  
are **3x more likely**



to experience a stroke;  
and at a **younger age**  
than other Australians

In **2023**, there  
were **440,481**



Australians **living**  
with **stroke**

**80% of strokes**  
can be  
**prevented**



Stroke costs the  
**Australian economy**



**\$9 billion** each year

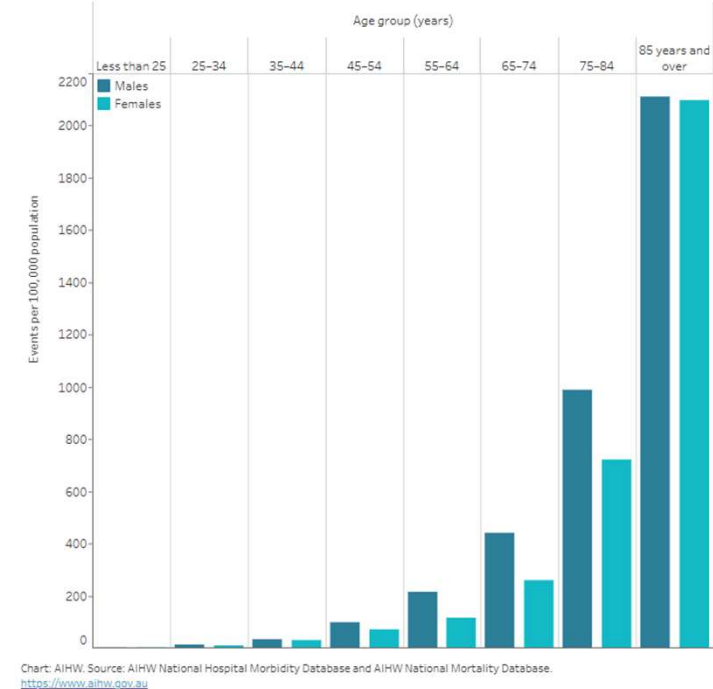


**Stroke kills more women**  
than **breast cancer** and **more**  
**men than prostate cancer.**

## Some key facts about stroke:

1. Estimated prevalence of stroke in Australian population in 2021 was ~**1.7%** <sup>[1]</sup> - **does this match our room?**
2. In 2023, there were ~**440,000** Australians living with the effects of stroke. <sup>[3]</sup> **Similar to number of people living with vision loss and blindness (453,000) - AEHS** <sup>[4]</sup>
3. The economic impact of stroke is estimated **\$9 billion per year, including health system costs, unpaid care costs, NDIS costs and lost productivity.** <sup>[24]</sup>
4. **Plus a further \$26.0 billion in lost wellbeing and premature mortality** <sup>[3]</sup> **(Vision Loss costs \$27.6 billion)** <sup>[25]</sup>
5. Rate of stroke events **increased with age**, with the rate of the 85yo+ cohort ~6x the rate of 65–74yo group <sup>[1]</sup>
6. **Stroke can happen at any age.** ~600 children experience a stroke every year in Australia <sup>[6]</sup>
7. **Males have 1.4x prevalence of stroke.** Females higher risk during certain times (e.g. pregnancy) <sup>[1,2]</sup>

Figure 3: Stroke events, by age and sex, 2021

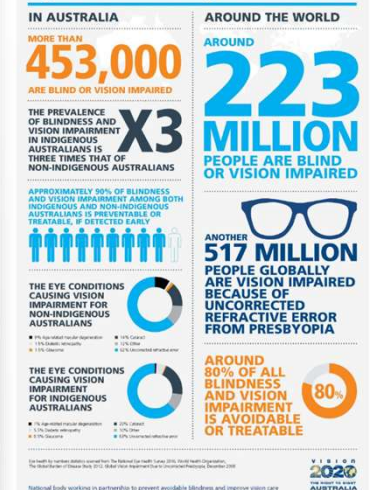


# Similarities in vision loss and stroke statistics:

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### Eye health by numbers



## First Nations Peoples and Stroke

- **3x** rate of stroke (age-adjusted) [1,9]
- **1.7x** rate hospitalizations due to stroke [1]
- **1.6x** mortality rate to stroke [1]
- Experience stroke at a **younger** age [2,10]





## Transient Ischaemic Attack (TIA):

- Signs/Symptoms similar to stroke but **self-resolve after a brief time**
- **Increases risk of a future stroke** (esp. in next few days, 5% in 1<sup>st</sup> year) <sup>[11]</sup>
- ~17,000 TIA hospital admission per year (2020) <sup>[1]</sup>

### **Guidelines for TIA Mx** <sup>[18]</sup>

- **MUST have an urgent clinical assessment**
  - TIA or may have had a localised stroke
  - Address co-morbidities & risk factors
- If symptoms are present at exam (refer to neuro ED)

#### Malcolm in the Middle actor has second 'mini stroke'

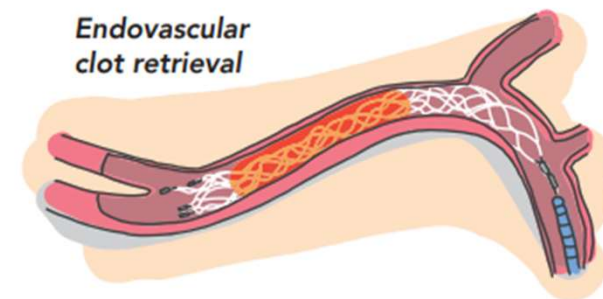
27 November 2013



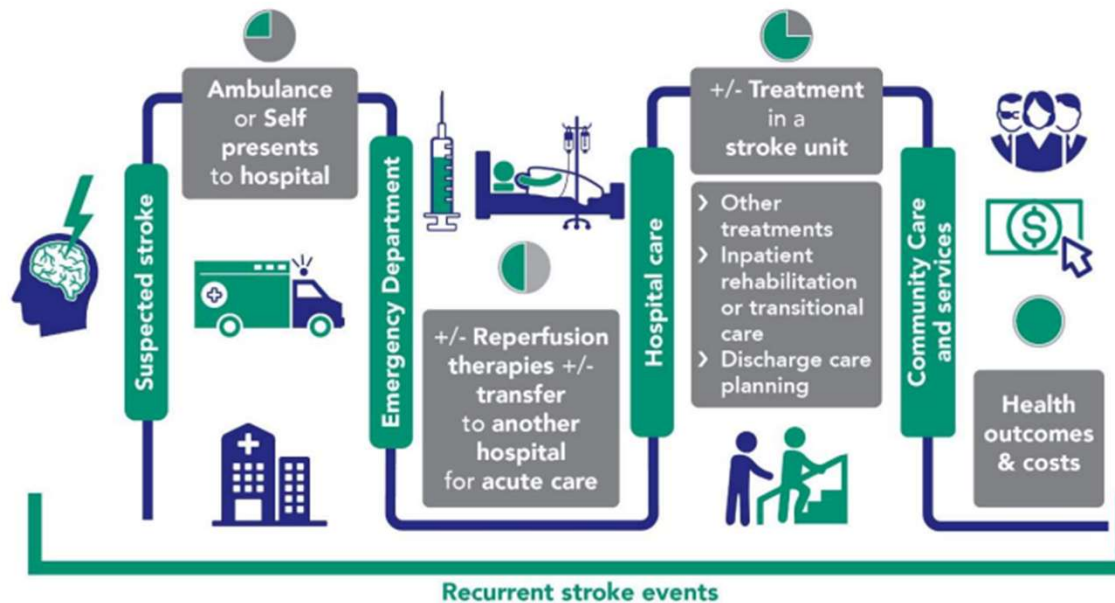
Frankie Muniz, who starred in the US comedy Malcolm in the Middle, has suffered a second transient ischaemic attack (TIA) or 'mini stroke'.

## Treatment for Acute Stroke

- Aim is to restore blood supply **ASAP** (“Golden Hour”)
- Ischaemic Strokes
  - IV clot-dissolving meds (thrombolysis) within 4.5-hour
    - Only 38% patients reach hospital within target time! [8]
  - Endovascular clot retrieval (mechanical thrombectomy)
    - Large vessels only – must be done within 24h (best if ASAP) [18]
- Haemorrhagic Strokes
  - Locate & repair damaged vessel
  - Relieve pressure on brain



## Example of a typical patient care journey after a stroke



From: Economic Impact of Stroke Report (Fig 4, p.20) [24]

# Stroke Survival Rate, Recurrence & Life Expectancy

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- **Survival Rate** for 1<sup>st</sup> time stroke

- ~73% after 1 year
- ~53% after 5 years
- ~36% after 10 years

- **Recurrence of stroke rate:**

- 11% after 1 year
- 20% after 5 years
- 27% after 10 years

- **Reduction in Life Expectancy**

- -5.5 years on average
- -7.4 years for haemorrhagic strokes




## Stroke

Volume 53, Issue 8, August 2022; Pages 2538-2548  
<https://doi.org/10.1161/STROKEAHA.121.038155>



### CLINICAL AND POPULATION SCIENCES

Long-Term Survival, Stroke Recurrence, and Life Expectancy After an Acute Stroke in Australia and New Zealand From 2008–2017: A Population-Wide Cohort Study

Yang Peng, PhD , Linh Ngo, MD , Karen Hay, PhD , Alaa Alghamry, MBChB , Kathryn Colebourne, MBChB , and Isuru Ranasinghe, MBChB, MMed (Clin Epi), PhD

**Peng et al. 10-year long, population-wide study** <sup>[14]</sup>  
**313,162** patients hospitalised with first stroke in AUS & NZ  
F/U for 10 years re further strokes, hospitalisations & death

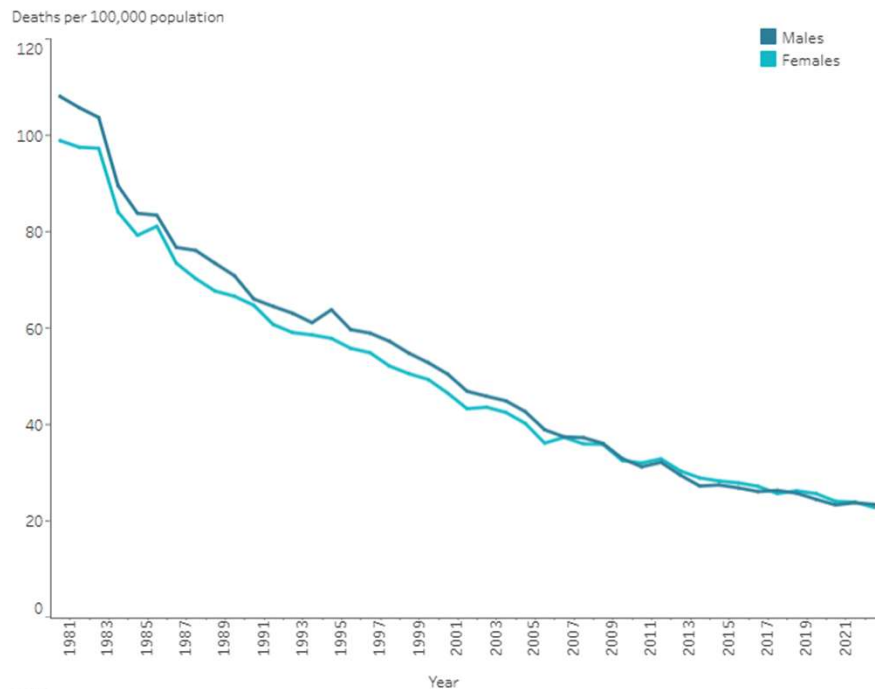
**2023 EIOS Data** <sup>[24]</sup> Of 45,785 people in Australia who suffered a stroke in 2023:  
**10,992** occurred in people who had a previous history of stroke (**~24%**)





# Good News (mortality↓) vs Not-so-good (disability↑) **BRISBANE INTERACTIVE**

Figure 9: Stroke death rates, by sex, 1980–2022



Notes

1. Age-standardised to the 2001 Australian Standard Population.
2. Deaths are counted according to year of registration of death.
3. Deaths registered in 2019 and earlier are based on the final version of cause of death data; deaths registered in 2020 are based on the revised version; and deaths registered in 2021 and 2022 are based on the preliminary version. Revised and preliminary versions are subject to further revision by the Australian Bureau of Statistics (ABS).

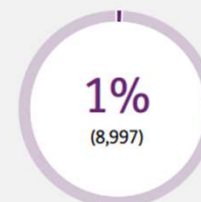
Chart: AIHW. Source: AIHW National Mortality Database.

<https://www.aihw.gov.au>

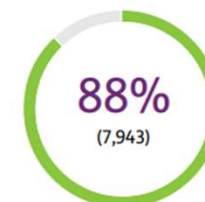
## Stroke summary June 2023

ndis

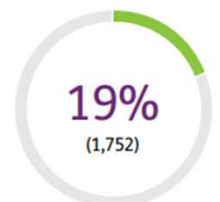
As at 30 June 2023:



of the **610,502** active participants in the NDIS have a **primary disability of stroke**.



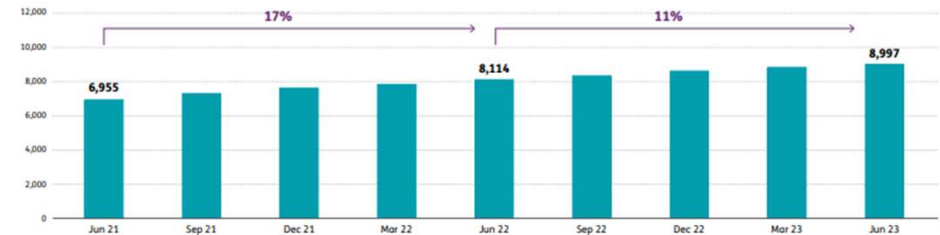
of participants with a stroke disability **are aged 45 years and over**.



of participants with a stroke disability **identified as Culturally and Linguistically Diverse**.

## Active participant trend

The number of participants with a stroke disability has increased by **17%** and **11%** in the last two years.



## Improving Diagnosis & Treatment Times:

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### **TeleStroke Service** (now in every state/territory)

- Neurologist on videocall to aid Dx and Tx decision
- QLD Statewide launched in 2024 (Hervey Bay Hospital)

### **Mobile Stroke Unit Ambulance (VIC)**

- [Ambulance VIC MSU: 360-degree interactive view](#)

### **Portable Brain Scanners (MRFF grant) – ASA**

- RFDS and Ambulance brain scanners
- In development/Research (\$15m grant announced)
- Watch this space – exciting future



## **GROUP DISCUSSION:**

**Can you Name the KEY Risk Factors for Stroke?**

## Modifiable Risk Factors

- Hypertension (**largest** single risk factor!)
- Atrial Fibrillation (irregular heart rhythm)
- Smoking (tobacco & vaping)
- Elevated Cholesterol
- Diabetes
- Obesity & excess weight
- Physical Inactivity
- Alcohol Overconsumption
- ~3-4 in 10 stroke survivors have another stroke within 10 years! – **PREVENTION IS KEY!** [14,16]
  - 2<sup>nd</sup>, 3<sup>rd</sup>... strokes carry a **higher** mortality and disability risk

### ■ Non-Modifiable Risk Factors:

Age, Sex, Congenital vascular malformations & conditions

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**National Hypertension Taskforce**

*Doubling Australia's blood pressure control rates from 32% to 70% by 2030.*

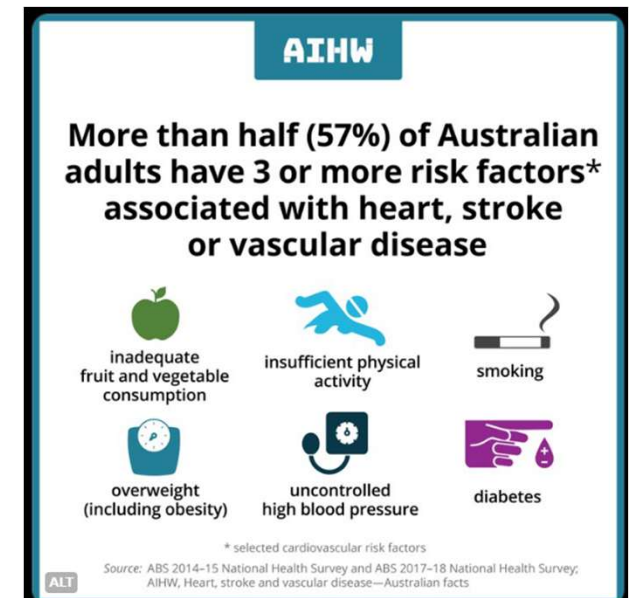
#HypertensionTaskforce



ACvA  
Australian Cardiovascular Alliance



Hypertension Australia



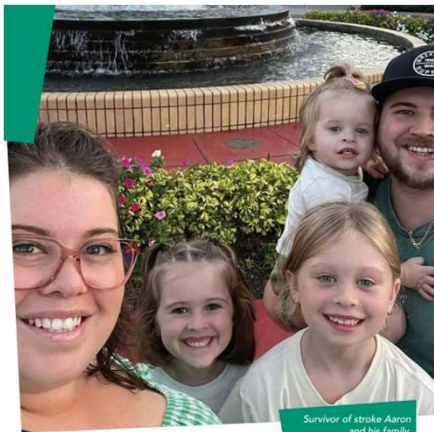


## Prevalence of Key Modifiable Risk Factors for Stroke in Australia



# Who is a survivor of stroke here?:

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## Q2 Do you know what F.A.S.T. acronym stands for in the context of stroke?

A) I know (with 100% certainty)

0%

B) I can guess (but I'm not certain)

0%

C) I don't know

0%

## Recognising a Stroke: F.A.S.T. Signs

Classic signs of stroke / TIA\*





- **FACE** – face droop (one side)
- **ARMS** – inability to lift both arms
- **SPEECH** – slurred or confused speech
- **TIME** – time is critical. Call 000

\***NOTE:** Strokes can present with OTHER symptoms than above (esp. in younger patients):


- **BEWARE: sudden migraine**, nausea, numbness, loss of vision, loss of balance, clumsiness, etc.

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**Learn the F.A.S.T. signs of STROKE**

	<b>F</b> <b>FACE</b> <i>drooped?</i>
	<b>A</b> <b>ARMS</b> <i>can't be raised?</i>
	<b>S</b> <b>SPEECH</b> <i>slurred or confused?</i>
	<b>T</b> <b>IME</b> <i>is critical! Call 000.</i>

If you see any of these signs  
**Act FAST call triple zero (000)**

 **Stroke**  
FOUNDATION



# Stroke Foundation F.A.S.T. Awareness Survey 2023 <sup>[7]</sup>

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- **40% of Australians cannot name even one signs of stroke**
- **~1 in 4 Don't know to call 000 when stroke happens**
- These stats needs to improve **urgently!**

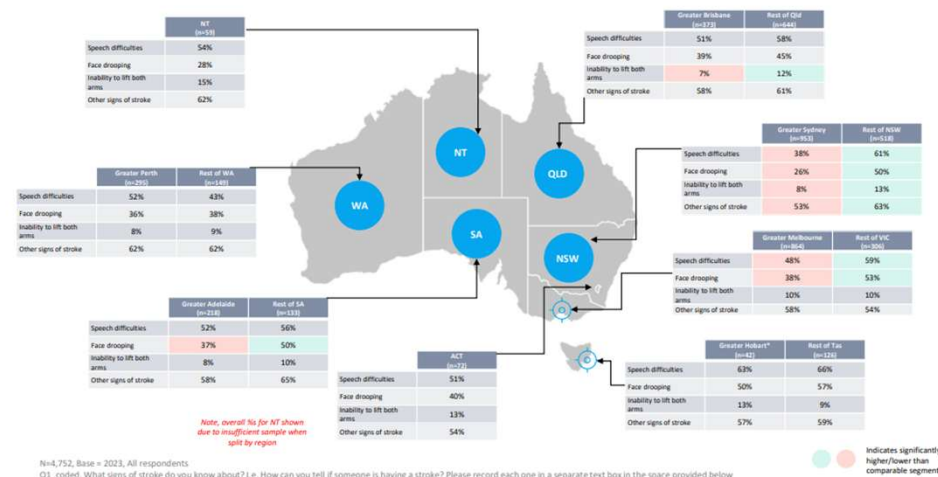


## State/Territory breakdown - First action if someone was having a stroke

Queenslanders (83%) are more likely than residents of New South Wales (76%), Victoria (77%), South Australia (78%), and Western Australia (74%) to correctly identify that calling triple zero for an ambulance would be their first action if someone was having a stroke.

	Overall (n=4,752)	NSW (n=1,471)	VIC (n=1,170)	QLD (n=1,017)	SA (n=351)	WA (n=444)	TAS (n=168)	NT (n=59)	ACT (n=72)
Call 000	78%	76%	77%	83%	78%	74%	81%	75%	76%
Lie them on their side	11%	10%	11%	9%	11%	12%	12%	20%	8%
Call out for help	5%	5%	5%	4%	5%	7%	3%	3%	8%

## Regional comparisons - Unprompted Awareness of Stroke










## F.A.S.T. vs B.E.F.A.S.T. acronyms

- In some countries, **B.E.F.A.S.T.** is used for awareness over F.A.S.T. (both are correct!)
- In Australia, F.A.S.T. generally used for community awareness
- B.E.F.A.S.T. (“balance/eyes”) mainly used as part of the various stroke screening tools that are used by Ambulance and Emergency Department staff to screen (e.g. ROSIER) for suspected stroke and assess severity (e.g. NIHSS)





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**TO SPOT THE SIGNS OF A STROKE,**


B	E	F	A	S	T
					
<b>Balance:</b> Loss of balance or coordination.	<b>Eyes:</b> Changes in vision.	<b>Face:</b> Drooping features on one side of the face.	<b>Arms (and legs):</b> Weakness in a limb.	<b>Speech:</b> Difficulty speaking or understanding others.	<b>Time:</b> Call 911 or emergency services right away.

 Cleveland Clinic

**Learn the F.A.S.T. signs of STROKE**

 <b>FACE</b> drooped?	 <b>ARMS</b> can't be raised?	 <b>SPEECH</b> slurred or confused?	 <b>TIME</b> is critical! Call 000.
--	--	--	--

If you see any of these signs  
**Act FAST call 000 (triple zero)**

 Stroke FOUNDATION

## Appendix G: ROSIER scale

### Recognition of Stroke in the Emergency Room (ROSIER)<sup>18</sup>

Assessment Date: \_\_\_\_\_ Time: \_\_\_\_\_

Symptom onset Date: \_\_\_\_\_ Time: \_\_\_\_\_

GCS E=\_\_\_ M=\_\_\_ V=\_\_\_ BP= \_\_\_ / \_\_\_ \*BG= \_\_\_\_\_

\*If BG < 3.5 mmol/L, treat urgently and reassess once blood glucose normal

Has there been loss of consciousness or syncope? Y (-1) ☐ N (0) ☐

Has there been seizure activity? Y (-1) ☐ N (0) ☐

Is there a NEW ACUTE onset (or on awakening from sleep)

I. Asymmetric facial weakness Y (+1) ☐ N (0) ☐

II. Asymmetric arm weakness Y (+1) ☐ N (0) ☐

III. Asymmetric leg weakness Y (+1) ☐ N (0) ☐

IV. Speech disturbance Y (+1) ☐ N (0) ☐

V. Visual field defect Y (+1) ☐ N (0) ☐

Total Score \_\_\_\_\_ (-2 to +5)

Provisional diagnosis

☐ Stroke ☐ Non-stroke (specify) \_\_\_\_\_

Note: Stroke is unlikely, but not completely excluded if total scores are ≤0.

	ROSIER (95% CI)	CPSS (95% CI)	FAST (95% CI)	LAPSS (95% CI)
Sensitivity	93 (89-97)	85 (80-90)	82 (76-88)	59 (52-66)
Specificity	83 (77-89)	79 (73-85)	83 (77-89)	85 (80-90)
Positive Predictive Value	90 (85-95)	88 (83-93)	89 (84-94)	87 (82-92)
Negative Predictive Value	88 (83-93)	75 (68-82)	73 (66-80)	55 (48-62)

Nor et al 2005<sup>18</sup>


## E.g. Recognition of Stroke in the Emergency Room (ROSIER) Screening Tool

For more information, see:

[Assessment of suspected stroke Module on InformMe - Stroke Foundation](#)

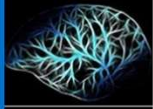
Professional development modules

[View all modules](#)




**Stroke and the emergency department**

[Start](#) Estimated Time: 90 mins Level: General



**Stroke related anatomy**

[Start](#) Estimated Time: 30 mins Level: General



**Stroke physiology and types**

[Start](#) Estimated Time: 30 mins Level: General

# F.A.S.T. vs B.E.F.A.S.T. for Community Awareness

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RESEARCH ARTICLE

Originally Published 18 September 2024 |  |  | 

 Check for updates

## BE FAST Versus FAST: A Randomized Pilot Trial Comparing Retention of Stroke Symptoms Between 2 Mnemonics

M. Ziad Darkhabani, MD  , Jennifer K. Homa-Bonell, MS , Laura Thoreson, BS , Julie A. Bobholz, PhD, Devin Spaulding, BS ,  
and Melisa Engebose, MSN | [AUTHOR INFO & AFFILIATIONS](#)

Journal of the American Heart Association • Volume 13, Number 19 • <https://doi.org/10.1161/JAHA.123.035696>

A Randomized Pilot Trial (174 Participants) comparing memory retention of learning Stroke Symptoms Between 2 Mnemonics | <sup>[26]</sup>

**Significantly higher retention and ability to recall stroke symptoms (fully or partially) was found with FAST.**

**Adding B and E to FAST resulted in lower retention of more common symptoms of stroke.**

- at 60 minutes: 86.4% (F.A.S.T.) vs 77.9% (B.E.F.A.S.T.)
- at 30 days: 76.1% (F.A.S.T.) vs 59.3% (B.E.F.A.S.T.)

**note the drop off, hence need for regular community education campaigns**



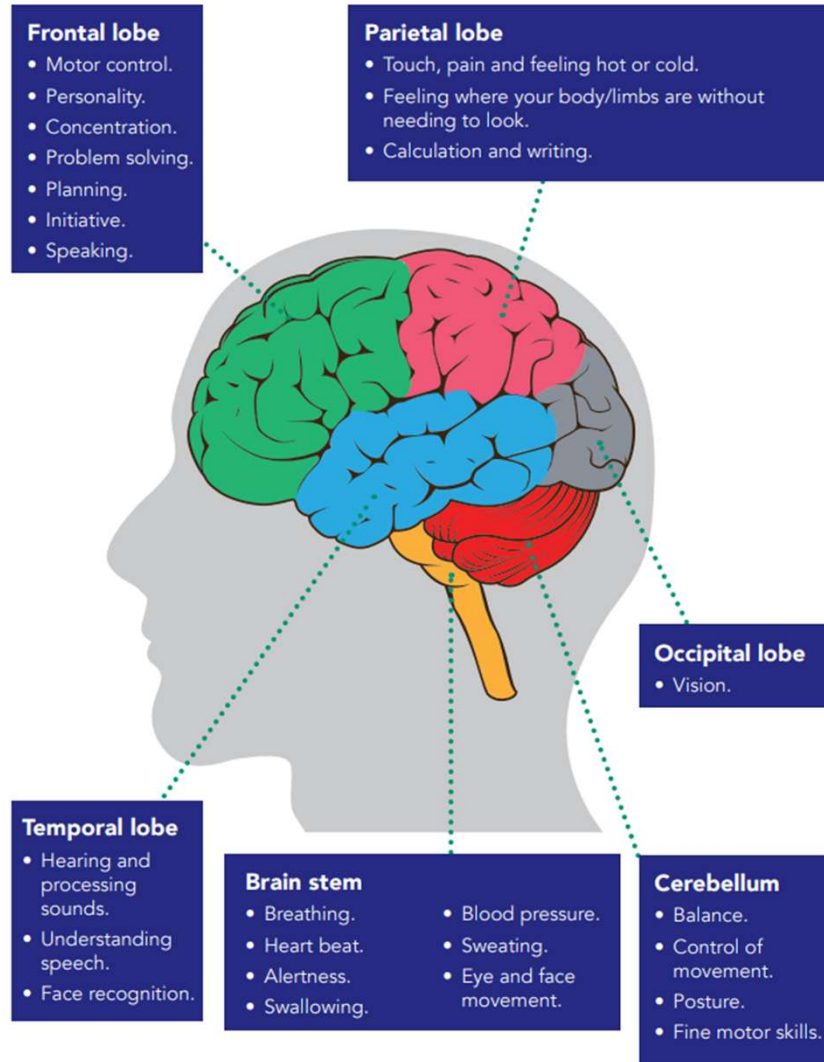


# Effects of Stroke

- Every stroke & its impacts are **unique**
- Some effects are immediate, others develop over time & require signif. rehab
- Survivors may experience:
  - Fatigue & Mood changes
  - Cognition & Memory Effects
  - Aphasia & Dysphagia
  - Incontinence
  - Mental Health / Depression / Anxiety
  - Physical Disability / Loss of Function
  - Mobility, Balance & Paralysis
  - **Vision & Eye Issues (approx. ~ 1 in 3)**
  - Sex, Intimacy and Relationships
  - Many other issues...

## ABOUT STROKE

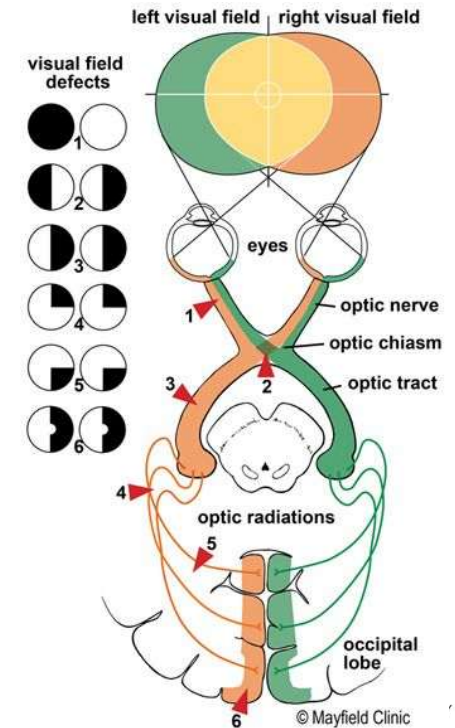
### Different areas of the brain





## Stroke and Eyes

- **Around 1 in 3 survivors of stroke will experience vision & eye issues** after stroke (depending which brain region is affected)
- Typical ocular effects of stroke include:
  - **Bilateral VF LOSS**
    - hemianopia/'pie in sky'/'pie on floor' [10]
  - **Reduced Eye Movement Control or Nystagmus**
  - **Poor Blink Reflex on affected side**
  - **Visual Neglect**

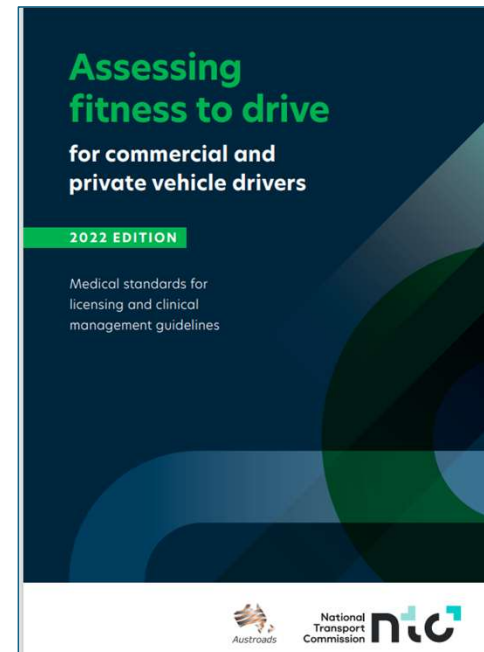


## Stroke and Driving

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- VF defect post stroke are a common reason for loss of driver's license (loss of continuous 110 degrees)
- A practical driving assessment may be required post stroke even if VF is ok, to assess driving ability, cognition etc <sup>[12]</sup>
- Minimum **non-driving period applies** after stroke & TIA (AustRoads) <sup>[12]</sup>

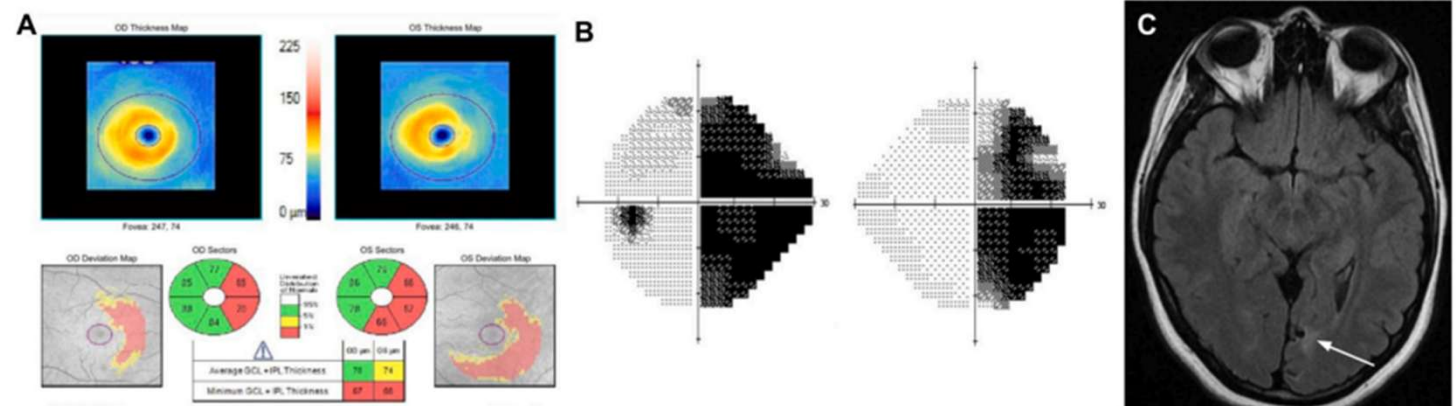
Condition:	Private Licence	Commercial License
Stroke	4 weeks	12 weeks
TIA	2 weeks	4 weeks



## Excellent Reference [17] →

- Discussion on VF and RNFL and GCC OCT mapping in neurological disorders.

Retrograde trans-synaptic degeneration of ganglion cell axons after an occipital lobe stroke



**Fig. 13.** Remote occipital lobe stroke. Adult patient with history of left occipital lobe stroke in childhood demonstrating right homonymous thinning of the macular ganglion cell complex indicating trans-synaptic degeneration (A). The thinning corresponds to the right homonymous visual field defect (B) and an area of focal encephalomalacia in left occipital lobe on T2- weighted axial MRI sequence (C).



Contents lists available at ScienceDirect

Journal of the Neurological Sciences

journal homepage: [www.elsevier.com/locate/jns](http://www.elsevier.com/locate/jns)



Review Article

Visual fields and optical coherence tomography (OCT) in neuro-ophthalmology: Structure-function correlation

Laura Donaldson<sup>a</sup>, Edward Margolin<sup>b,\*</sup>

<sup>a</sup> University of Toronto, Faculty of Medicine, Department of Ophthalmology and Vision Sciences, Toronto, Ontario, Canada

<sup>b</sup> University of Toronto, Faculty of Medicine, Department of Medicine, Division of Neurology, Toronto, Ontario, Canada



# Stroke & OCT-A... [19]

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> Front Aging Neurosci. 2021 Apr 13;13:628336. doi: 10.3389/fnagi.2021.628336. eCollection 2021.

## Reduced Retinal Microvascular Perfusion in Patients With Stroke Detected by Optical Coherence Tomography Angiography

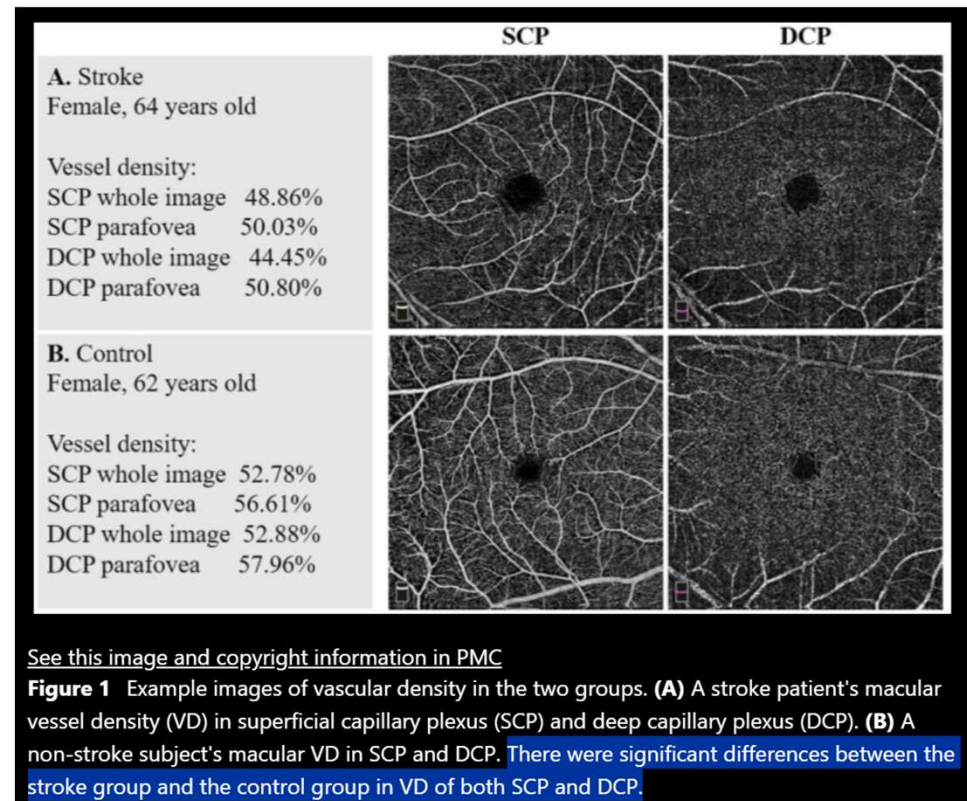
Baoyi Liu <sup>1 2</sup>, Yijun Hu <sup>1 2 3 4</sup>, Guixian Ma <sup>5</sup>, Yu Xiao <sup>1 2</sup>, Bin Zhang <sup>5</sup>, Yingying Liang <sup>1 2</sup>, Pingting Zhong <sup>1 2</sup>, Xiaomin Zeng <sup>1 2</sup>, Zhanjie Lin <sup>1 2</sup>, Huiqian Kong <sup>1 2</sup>, Guanrong Wu <sup>1 2</sup>, Zijing Du <sup>1 2</sup>, Ying Fang <sup>1 2</sup>, Manqing Huang <sup>1 2</sup>, Lijuan Wang <sup>5</sup>, Xiaohong Yang <sup>1 2</sup>, Honghua Yu <sup>1 2</sup>

Affiliations + expand

PMID: 33927607 PMCID: PMC8078175 DOI: 10.3389/fnagi.2021.628336

### Abstract

Currently there is a shortage of biomarkers for stroke, one of the leading causes of death and disability in aging populations. Retinal vessels offer a unique and accessible "window" to study the



- We partner with the community, health professionals and researchers to **reduce the impact of stroke in Australia**.
  - Raise **awareness** of stroke and its risk factors
  - **Improve treatment** for stroke (Clinical Guidelines)
  - Improve **recovery & life after stroke** for survivors & families
  - Encourage and facilitate **stroke research**
  - Advocate for (and/or deliver) initiatives to **improve stroke health outcomes** in Australia.
- Raise funds from community, corporate sector & govts



**Australia's only national  
charity focused on stroke**

### Our values



Courage



Excellence



Compassion

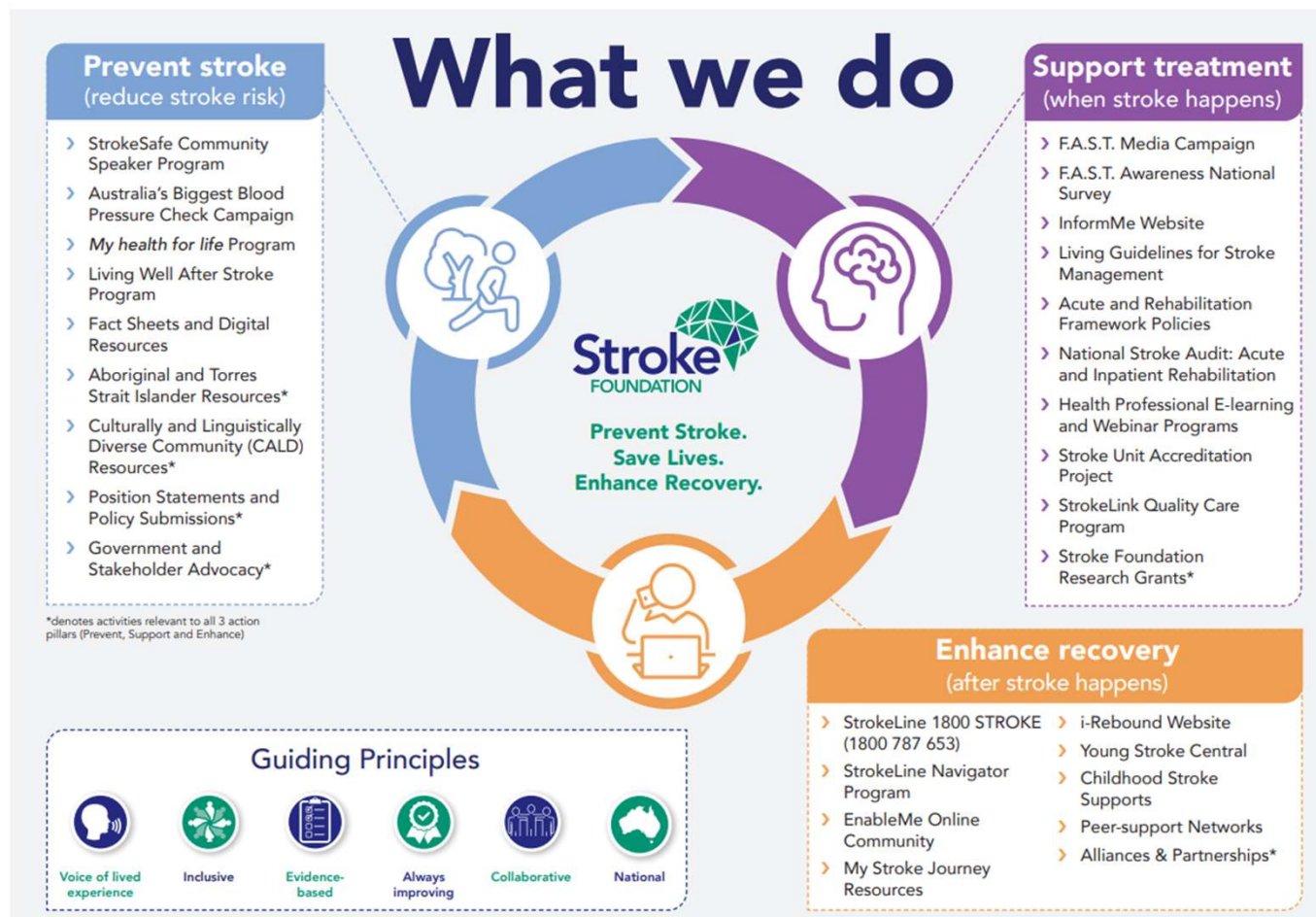


Integrity



Leadership





## Stroke Supports and Resources



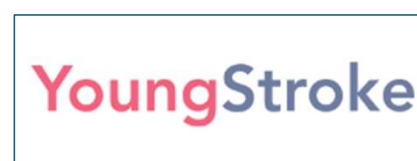
- For general **public & community**
- For **survivors**, their families and carers
- For **health professionals**



## Available Resources For Survivors and Families

**BRISBANE  
INTERACTIVE**

- Peer Support (**EnableMe.org.au**; **YoungStroke** websites; **Little Stroke Warriors**)
- **StrokeLine HelpLine** (1800 STROKE)
- Printed Materials (e.g. *My Stroke Journey*, etc)
- Resources in CALD languages
- First Nations Stroke Resources
- Podcasts & Webinars
- Events



F.A.S.T. poster (A4 size) - العربية  
(Arabic)



**YARNING  
UP  
AFTER STROKE**





A website for stroke survivors, their families and supporters, enable*me* puts stroke survivors in the driver's seat to take control of their recovery:

- resources, fact sheets and videos
- share experiences with other stroke survivors, families and carers
- set personal goals for recovery.

[www.enableme.org.au](http://www.enableme.org.au)

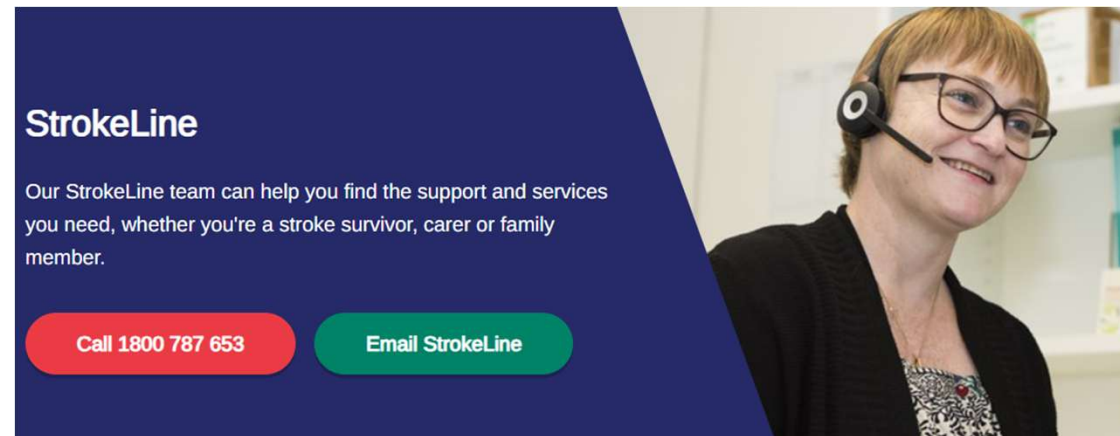
~70,000 users in 2024; 265,000 pages of information accessed!



# Stroke Foundation: StrokeLine

**BRISBANE  
INTERACTIVE**


- **Free stroke helpline** staffed by health professionals
  - 9am – 5pm Monday to Friday
  - Interpreter service available
- Advice for survivors, families and carers
- Connect to services & resources
- Peer-Support
- **1800 STROKE or 1800 787 653**
- [strokeline@strokefoundation.org.au](mailto:strokeline@strokefoundation.org.au)





- Guidelines
Learning and resources
Stroke data
Improving care
News and events


Search InformMe



### Living Clinical Guidelines for Stroke Management

Living guidelines for Australia and New Zealand that provide evidence-based recommendations for the management of stroke.


[Read more](#)



### Living guidelines updates

List of recent changes to the Clinical Guidelines, including approved recommendation updates, drafts for consultation, and changes to evidence and background information.

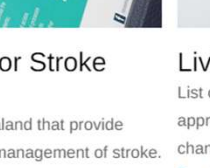
[Read more](#)



### Childhood stroke clinical guidelines

Guidelines for diagnosis and acute management, and for subacute management of childhood stroke, were developed in 2017 and 2019 respectively.

[Read more](#)



### Cardiovascular disease risk guideline

The Stroke Foundation is part of the alliance that developed the Australian Guideline for assessing and managing cardiovascular disease (CVD) risk, and the Aus CVD Risk Calculator.

[Read more](#)

### Q3 Is any optometrist here currently involved in Stroke Care in their practice?

A) Yes (part of acute/diagnosis team in hospital)

0%

B) Yes (part of rehab team)

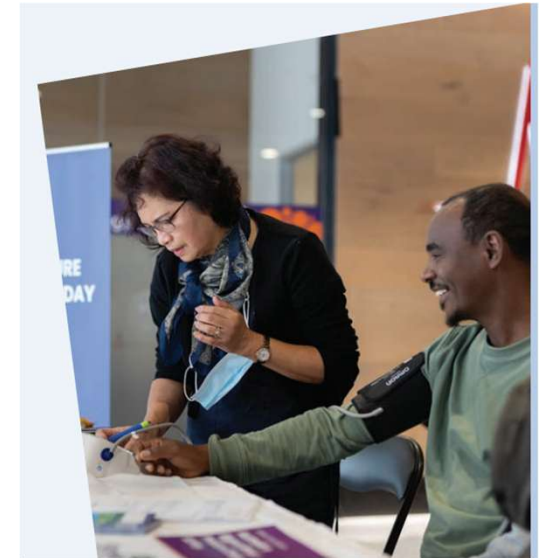
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C) No

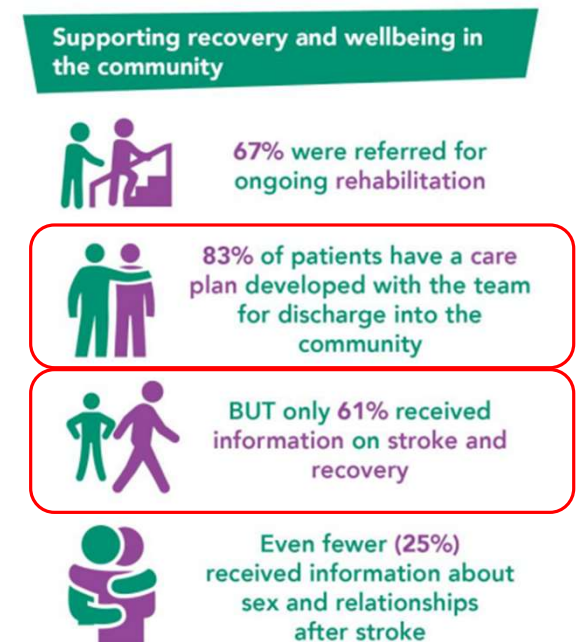
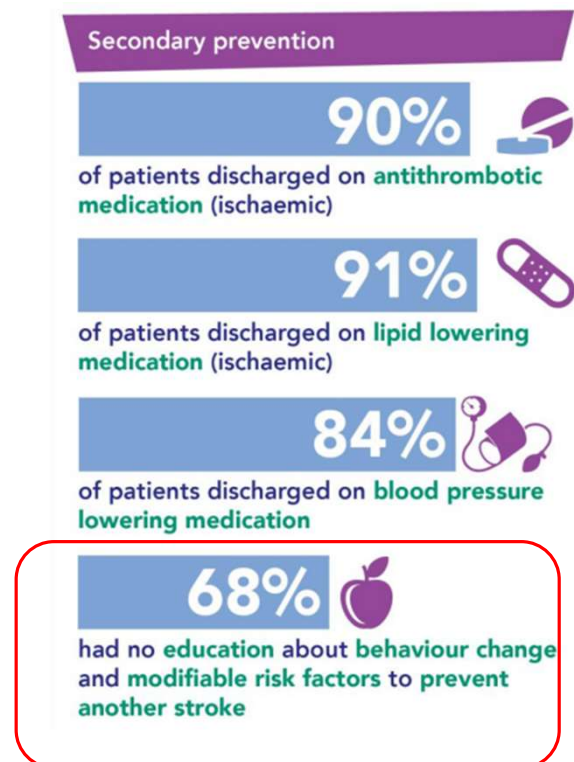
0%

## Role for Optometrists in Stroke Care:

- **>80% of strokes can be prevented through Mx of modifiable risk factors** [20]
- **History Taking**
  - TIAs, Atrial Fibrillation, HT, smoking, diabetes, etc
  - If Hx of Stroke – ask about what supports Px accessing
- **Patient Education & Stroke Prevention**
  - Smoking cessation, HT/DM management
- **Optom Examination & Low Vision Care**
  - HT/DM Retinopathy, Hollenhorst Plaques!
  - Low Vision Assistance
- **Direct Patients to Appropriate Supports**
  - GPs for Heart Health Screenings, BV workups, QUIT
  - Stroke Foundation, Mental Health supports, NDIS, etc

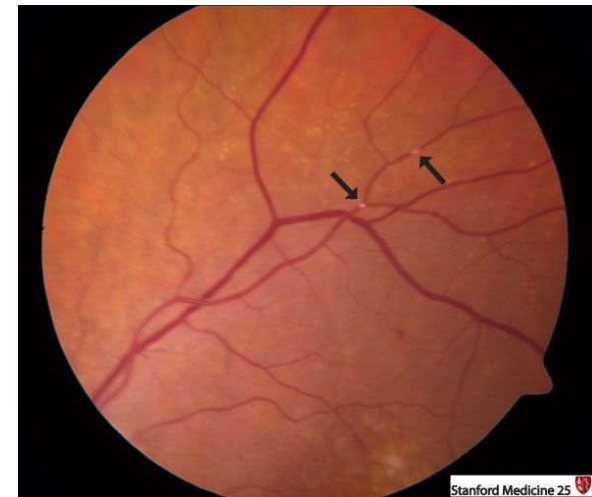


## Patient Education is **Critical** – Optometrists are perfectly placed



## Hollenhorst Plaques

- Cholesterol emboli within retinal arterioles
- **Important risk factor** for retinal ischaemia and stroke
- Up to **10x increase in risk of ischaemic stroke** <sup>[21]</sup>
  - predictive of ipsilateral carotid artery stenosis
  - Monitor and manage pro-actively via GP: blood thinners, lipids meds, etc
  - Advise Px and family re **F.A.S.T.** and **TIA** signs/symptoms



Jonathan Graff-Radford. Stroke. [History of Hollenhorst Plaques](#), Volume: 46, Issue: 4, Pages: e82-e84, DOI: (10.1161/STROKEAHA.114.007771)



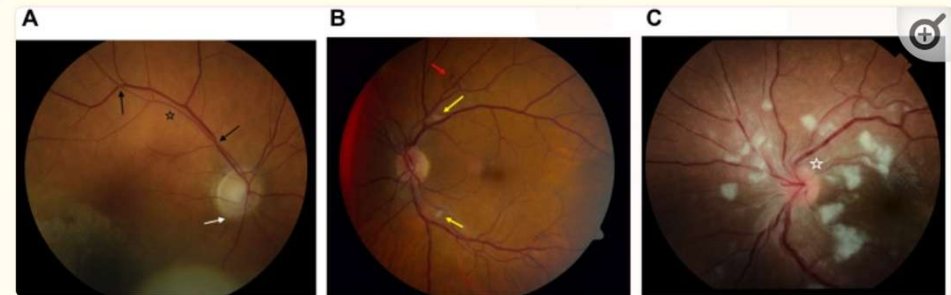
# Hypertensive Retinopathy

**BRISBANE**  
**INTERACTIVE**

- HT is the **single largest modifiable risk factor** for stroke (~40% of strokes)
- HT retinopathy (moderate+) can be **predictive** of long-term **increased stroke risk**, even in treated HT patients with “good BP control” [22]
- **Monitor closely with retinal exams, OCT-A & photography!** [22,23]

Wong and Mitchell Classification of Hypertensive Retinopathy

Mild	1 or more of the following signs: generalized arteriolar narrowing, focal arteriolar narrowing, arteriovenous nicking, arteriolar wall opacity
Moderate	1 or more of the following signs: retinal hemorrhage (blot-, dot-, or flame-shaped), microaneurysm, cotton wool spot, hard exudates
Severe	Moderate retinopathy plus optic disc swelling



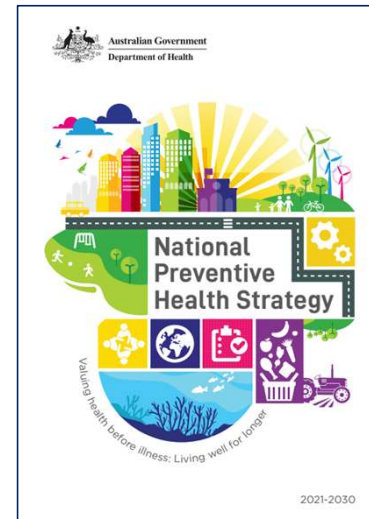
[Figure 1](#) Tsukikawa, M., & Stacey, A. W. (2020) [23]

Grades of hypertensive retinopathy. (A) Mild hypertensive retinopathy (in an eye with an unrelated chorioretinal lesion) with arteriolar narrowing (white arrow), copper wiring (black star), and AV nicking (black arrow). (B) Moderate hypertensive retinopathy with features of mild hypertensive retinopathy as well as cotton wool spots (yellow arrow) and intraretinal hemorrhages (red arrow). (C) Severe hypertensive retinopathy with features of moderate hypertensive retinopathy and optic disc swelling (white star).

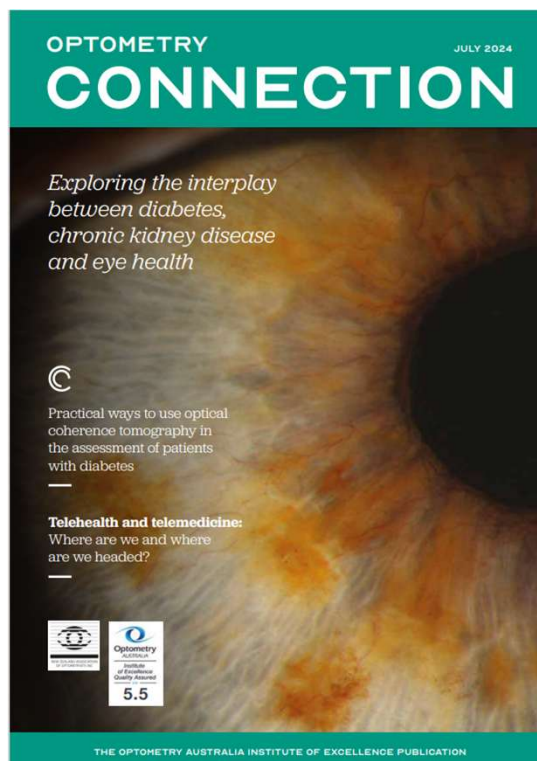
## Take Home Messages

## BRISBANE INTERACTIVE

- Stroke can strike **ANYONE** and at **ANY TIME**
- 80% of strokes are **PREVENTABLE**
- Know and share the **F.A.S.T.** Stroke Awareness Message
- Educate your patients about **RISK FACTORS** for stroke (smoking, HT, etc)
- **Screen** and **Identify** patients at Risk (Hollenhorst Plaques; HT Retinopathy, etc)
- Talk to your patients who have had a stroke about available **SUPPORTS**
  - e.g. StrokeLine (1800 STROKE), EnableMe.org.au, Mental Health, etc
- **FREE stroke information resources** from Stroke Foundation
- Engage with the broader health system!



## Look out for a companion article on stroke in: OA Optometry Connection Magazine: June 2024 Issue



### NEURO-OPHTHALMOLOGY

**Roman Serebrianiuk**  
BOptom PGDipAdvClnOptom PGDipCertsCTher FACO  
National Advocacy Advisor, Stroke Foundation;  
Clinical Council Member, Australian College of Optometry

## A look at stroke in Australia: What you need to know and what your patients may ask

This brief article aims to update optometrists regarding the latest stroke statistics in Australia and highlight our profession's role in improving stroke prevention, treatment and recovery outcomes for patients.

In my nearly 20-year optometry career, stroke has been somewhat on the periphery of my clinical practice, either as an incidental diagnosis when encountering patients with abnormal bilateral visual fields or optical coherence tomography findings, previous medical history or when consulting in low vision clinics. However, since joining the Stroke Foundation and spending more time with survivors of stroke, their families, researchers and health professionals directly involved in stroke care, it has become increasingly apparent that optometrists, as primary healthcare providers, can play a more active and crucial role, particularly in the areas of improving patient education and stroke awareness – early detection of risk factors and primary and secondary prevention. I hope that this paper will help start the conversation.

### What is a stroke

A stroke occurs when the blood supply to the brain is interrupted due to a clot or plaque occluding the artery (ischaemic stroke), or a bleed due to a ruptured vessel in the brain (haemorrhagic stroke) leading to brain cell damage (Figure 1). Haemorrhagic strokes can be further subclassified into intracerebral or subarachnoid, depending on whether the bleeding is inside the brain tissue or into the sub-meningeal space. Around 75% of all strokes in Australia are ischaemic in aetiology.<sup>1</sup>

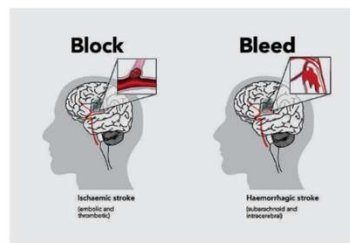
### Transient ischaemic attack (TIA)

When the interruption to the blood supply is temporary and self-resolves spontaneously, it is classified as a transient ischaemic attack (TIA). Both strokes and TIAs are medical emergencies. According to current Clinical Guidelines for Stroke Management,<sup>2</sup> all patients with TIA symptoms (even if resolved) should have an urgent clinical assessment. If symptoms are present at the initial assessment, the patient should be treated as having a stroke and be immediately referred to the emergency department and stroke specialist assessment. Having TIAs increases a person's risk of experiencing a future stroke.

### Stroke in Australia: A snapshot

Stroke is among the top 5 leading causes of death and disability in Australia and is a direct underlying cause of around 8500 deaths annually (4.9% of all deaths).<sup>3</sup> Annually, 68,000 hospitalisations due to stroke as a primary diagnosis are recorded, and stroke accounts for 2.2% of the total burden of disease in Australia.<sup>4</sup>

Every year, over 39,500 stroke events occur in Australia (including more than 27,000 first-time strokes).<sup>5</sup> This translates to over 100 strokes daily (or one stroke every 19 minutes). Males have a 1.4 times higher prevalence of stroke than females. →



Interactive Website: [www.StrokeImpact.org.au](http://www.StrokeImpact.org.au)

BRISBANE  
INTERACTIVE



Economic  
Impact of  
Stroke

Enter your postcode

Home / Queensland / Brisbane

Brisbane

2,467

People living with stroke

27.7%

Under 65

\$3.2 billion

Lifetime costs associated with strokes that occurred in 2023 in this state

In the Brisbane electorate, the total number of individuals with diabetes is approximately 7,600, representing about 6% of the population. High blood pressure affects around 16,600 residents, or 13% of the population. The rates of current daily smokers sit at 10%, while physical inactivity affects 12% of the electorate. Overweight and obesity are significant issues, with 63% of the population classified as such.

Comparatively, in Queensland, diabetes affects about 290,800 individuals, which is 7% of the state's population. High blood pressure impacts 23% statewide. The overall obesity rate in Queensland is alarming, at 64%. Notably, the figures indicate that Brisbane has lower percentages of diabetes and smoking compared to the state averages.

The estimated stroke risk in Brisbane		
Overweight and obesity	63.1%	79,714
High blood pressure	13.1%	16,588
Physical inactivity	11.9%	14,984
High Cholesterol	9.4%	11,835
Smoking daily	10.1%	12,745
Diabetes	6.0%	7,588

Economic Impact of Stroke  
Report 2024

Download the report

Visit the website

# Questions & Comments





**Thank you!**

**Roman Serebrianik**  
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