



## Improving stroke outcomes

Globally, stroke is the second-leading cause of death. In 2020, more than 27,000 Australians experienced a stroke for the first time. In 2021, there were 8,500 deaths due to stroke accounting for 4.9% of all deaths in Australia, making it one of Australia's biggest killers. NHMRC-funded researchers have designed nurse-led treatment protocols for monitoring and treating common post-stroke symptoms, leading to significant improvements in survival and independence of stroke patients both in Australia and around the world.



### Origin

Strokes occur when blood supply is cut off from the brain, depriving it of oxygen and essential nutrients. Strokes are medical emergencies and require rapid treatment, including admission to a specialised hospital ward (called an Acute Stroke Unit).

After the cause of the stroke is treated, post-stroke complications can still pose a threat to the life and recovery of patients. Symptoms often include fever, elevated blood glucose and difficulty swallowing.

### Investment

NHMRC-supported research was led by Professor Sandy Middleton at the Australian Catholic University (ACU).

This research was also supported by: NSW Government Agency for Clinical Innovation (ACI); European Stroke Organisation (ESO); St Vincent's Clinic Research Foundation; St Vincent's Curran Foundation; Australian Diabetes Society; and the Australian College of Nursing.

In Australia, this research was undertaken in collaboration with the Stroke Foundation.

### Research

Middleton and colleagues conducted the Quality in Acute Stroke Care (QASC) trial to assess the impact of the nurse-led Fever, blood Sugar and Swallow (FeSS) Protocol implementation in clinical practice in stroke units across NSW.

Stroke units assisted to implement these protocols increased monitoring and treatment for these post-stroke symptoms leading to significantly improved outcomes for patients including increased survival and independence.

### Translation

The FeSS Protocols have now been incorporated into the Australian and New Zealand Clinical Guidelines for Stroke Management. Implementation of the Protocols is now recommended as best practice across Australia.

Internationally, and with the assistance of the ACU research team, the FeSS Protocols and associated resources have been translated into 13 languages, implemented into 72 hospitals across 18 countries in Europe and Central Asia, and this implementation has led to a ten-fold increase in adherence.

### Impact

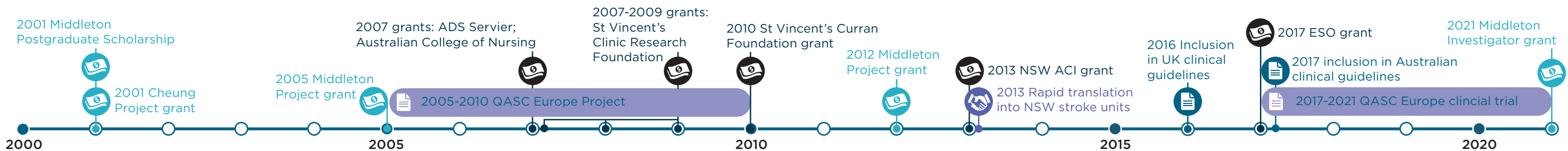
Because of their improvements to patient health, implementation of the Protocols is expected to result in significant economic benefit in Australia, saving the national healthcare system an estimated \$281 million every 12 months.

Over five years the protocols could prevent 1,154 deaths and save \$65 million in healthcare costs and \$253 million in societal costs.

The Protocols are especially useful in regions and countries with restricted access to physicians and resources.

**In Australia in 2021, an average of 23 people died of stroke each day**

*Implementation of the FeSS Protocols has led to improvements in survival and health outcomes. The Protocols have been adopted throughout Australia and in at least 18 countries worldwide*



### Researchers

Prof Sandy Middleton  
Simeon Dale  
Prof Elizabeth McInnes

Prof Dominique Cadilhac  
Kelly Coughlan  
Dr Bola Fasugba

Prof Christopher Levi  
Prof Jeremy Gimshaw  
Prof N Wah Cheung

Prof Jeanette Ward  
Prof Cate D'Este

visit [nhmrc.gov.au](http://nhmrc.gov.au)  
to read the full story

