

# Stroke Thrombolysis

## Stream 4 Integrated Health Care

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# Potential Financial Conflicts of Interest

- › I have received honoraria payments from Boehringer Ingelheim in my role as member of the Scientific Committee for the Australian “Hearts and Minds” meeting
  - › I am not on any Advisory Boards
  - › I have no shares in medical or pharmaceutical companies
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- › The health challenge you were aiming to address
- › How your innovation came about
- › Practical steps you took to implement your innovation
- › Results achieved
- › Key learnings and advice to others wishing to tackle similar challenges

## Stroke in Australia

- › 50,000 people have a stroke each year
- › Proven acute stroke interventions include:
  - Stroke Unit Care (6 extra independent survivors per 100 treated)
  - Thrombolysis (10 extra independent survivors per 100 treated)
  - Immediate aspirin (1 extra independent survivor per 100 treated)

BUT

- › In Australia, only 3% of those with ischaemic stroke received thrombolysis in 2008

# How this innovation developed

## Stroke Network (GMT<sup>2</sup>/GMCT/ACI)

- › Cohesive and successful clinical network
- › Established as stroke units were funded across metropolitan Sydney (2003 onwards)
- › System and area wide approach fostered
- › Key issues: concentrate on intravenous thrombolysis or consider the USA model of neuro-interventional approach (analagous to the current coronary interventional approach)

- › Stroke thrombolysis a priority
- › 2006: discussions with Ambulance NSW regarding interventions required to shorten delays to hospital arrival
  - Education program
  - Redesign the “matrix”
  - Consideration of a stroke screening tool (such as the FAST assessment)
- › Neurointerventional service development NOT prioritised due to lack of Guideline Recommendations (major trials awaited)

## Research and International Experience

- › Thrombolysis rates in “best practice” centres around the world approaching 20%!
- › John Hunter PAST trial (Pre-Hospital Acute Stroke Triage) achieved a thrombolysis rate of 21.4% (from 4.7%) MJA 2008; 189:429

# Practical Steps to Implement Innovation

## Clinicians (multi-disciplinary members) at Stroke Network agreed process

- Model of Care developed with Agency for Clinical Innovation in partnership with clinicians and managers and the Ambulance Service of NSW
- Vigorous communication process, defined scope, local project governance and ownership
- ACI support of local Clinicians and managers working together to solve local barriers
- Focus on sustaining and embedding change into routine care
- Development of supporting Tools
  - Pre-implementation Checklist
  - Implementation Guide
  - Transfer of care Guidelines
- Modelling of patient flow, based on the location of the 20 ATCs, to map out any increased demand, completed by Ambulance Service
- Pre-Implementation site visits
- ASNSW developed education to train the 3,500 paramedics in the nationally validated FAST (face, Arm, Speech, Time) tool



## COPY OF THE CONTENT OF THE LETTER SENT TO CHIEF EXECUTIVES

Dear

### Stroke Program: Pre Hospital Assessment for Early Access to Stroke Thrombolysis

The NSW Reperfusion Program commenced with the State Cardiac Reperfusion Strategy and has been expanded to include the Stroke Program: *Pre-Hospital Assessment for Early Access to Stroke Thrombolysis*.

NSW Health is working collaboratively with the Ambulance Service of NSW and NSW Agency for Clinical Innovation (ACI) Stroke Service Network to shorten the patient journey from onset of acute symptoms of stroke to access to stroke thrombolysis for appropriate patients.

For both Acute Coronary Syndrome and stroke, it is important to reduce the time from symptom onset to definitive therapy. "*Time is muscle and time is brain*"

According to the Stroke Foundation, Clinical Guideline for Stroke Management 2010, Thrombolytic therapy with intravenous recombinant tissue plasminogen activator (rt-PA) is the most effective hyperacute intervention proven to reduce the combined end-point of death and disability for ischaemic stroke. (p33)

The objectives of the Stroke Reperfusion Program are to:

- Improve **early access to thrombolysis** for ischaemic stroke patients
- Improve **pre-hospital assessment** by paramedics for identification of stroke through a validated standardised assessment tool
- Improve in-hospital reception, assessment and management of stroke patients to achieve early access to safe reperfusion.

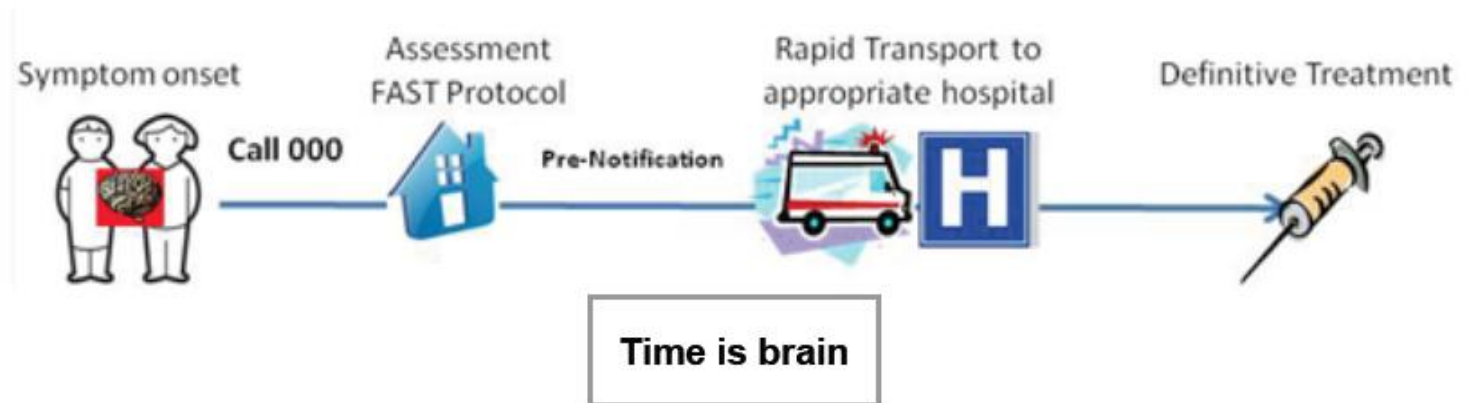
- › Stroke patients are identified by paramedics using an internationally recognised and validated tool - [Face, Arm, Speech, Time \(FAST\)](#)
- › Once identified as a FAST positive patient within three (3) hours of symptom onset, where appropriate the patient is transported to the closest [Acute Stroke Thrombolysis Centre](#)
- › Ambulance control will notify the receiving hospital of the incoming patient and provide an Estimate Time of Arrival (ETA)
- › The hospital will notify the Stroke team (hospital specific) and upon arrival the patient will receive rapid early medical assessment including brain imaging, neurology review and early decision on definitive treatment (thrombolysis)

# IST-3 Results (Lancet 2012)

- 1) Benefit was greatest with treatment within 3 hours  
(80 per 1,000 more alive and independent treated within 3 hours)
  - 2) Benefit evident
    - › Age > 80 years
    - › Severe stroke
    - › Early ischaemic change seen on baseline scan.
  - 3) Reinforced planned new model of care
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## NSW Stroke Reperfusion Service

Reperfusion is time critical



Activated in January 2013 across 20 Acute Thrombolysis Hospitals (including four rural sites)

> Three negative neurointerventional trials presented and r

## CONCLUSIONS

The trial showed similar safety  
independence with endovascular  
intravenous t-PA alone. (Fund-  
ClinicalTrials.gov number

## CONCLUSIONS

A form...

## CONCLUSIONS

The results of this trial in patients with acute ischemic stroke indicate that endo-  
vascular therapy is not superior to standard treatment with intravenous t-PA. (Fund-  
ed by the Italian Medicines Agency, ClinicalTrials.gov number, NCT00640367.)

significant difference in functional  
intravenous t-PA, as compared with  
onal Institutes of Health and others;

# Key Messages

- › Cohesive and effective clinical networks can be drivers of change
- › Some health design can take many years (ambulance matrix)
- › Design process must be responsive to new research findings during the process
- › Premature adoption of new technology, without a secure evidence base or Guideline recommendation, is unwise
- › Management buy in and local champions essential (CEO level)
- › Investment in Project Management essential
- › Leadership by Co-Chairs of Stroke Network

- › Mark Longworth, ACI
- › Nigel Lyons, ACI
- › Stroke Network Chairs: Michael Pollack, Pip Galland, John Worthington, Sandra Lever
- › Implementation Officer: Melissa Tinsley
- › CEOs of our Local Health Districts
- › NSW Health
- › Stroke Nurses, Doctors and Allied Health
- › Ambulance Service of NSW

