

Establishing Stroke Thrombolysis in an Acute Hospital



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What treatments are available for Acute Stroke?

- Aspirin
 - Absolute risk reduction (ARR) for death or dependency of 1.2%; number needed to treat (NNT) is 77.
- Acute Stroke Units
 - ARR 5.6%; NNT 18
- Thrombolysis (<3 hours)
 - ARR 12.6%; NNT 8
- Hemicraniectomy
 - Limited subgroups and availability
- Neuroprotection
 - The Holy Grail?

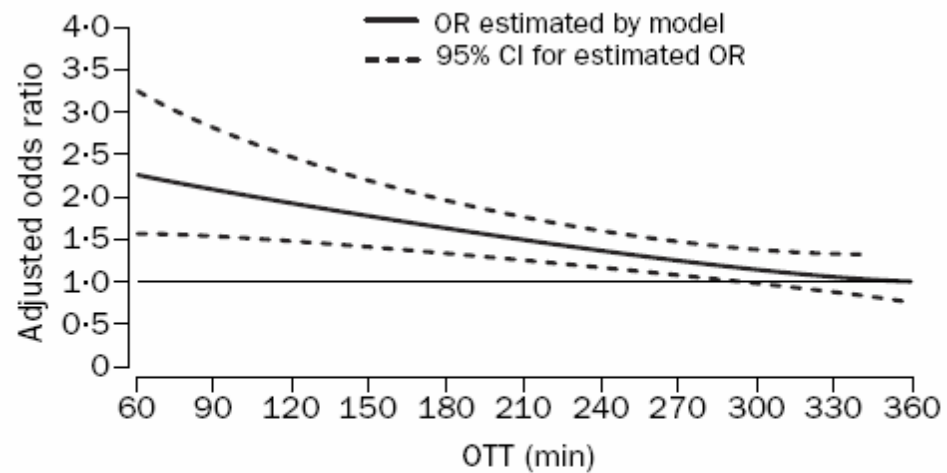


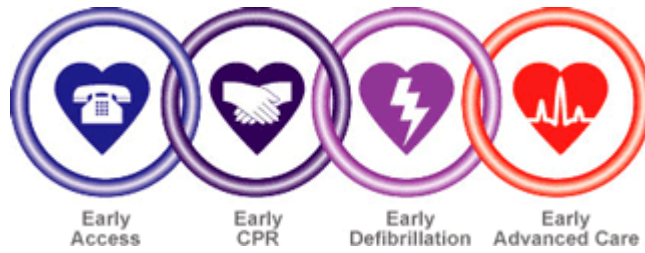
Figure 3: **Model estimating odds ratio for favourable outcome at 3 months in rt-PA-treated patients compared with controls by OTT**

Cardiac vs. stroke thrombolysis

- Cardiac
 - One disease process
 - One symptom
 - One simple test – easy and quick to perform and interpret
 - Longer treatment window (but earlier is better)
 - Low risk of intracerebral haemorrhage

Cardiac vs. stroke thrombolysis

- Stroke
 - Several disease processes
 - Ischaemic – small vessel, large vessel, cardio-embolic
 - Haemorrhagic – ICH, SAH, ED/SDH
 - Numerous symptoms – more difficult clinical assessment
 - Stroke ‘mimics’
 - The test (CT) – high tech, personnel to perform and interpret
 - Short treatment window
 - Risk of ICH – even with appropriate treatment, but especially if treated outside protocols



The Stroke Chain of Survival



Steps to setting up a stroke service (including thrombolysis)

- Identify the building blocks
- Understand local funding mechanisms
- Forge partnerships
- Engage senior managers
- Obtain training
- Be inclusive
- Adapt to local surroundings
- Maintain a clinical focus
- Be incremental
- Capitalise on the enthusiasm of others
- Lead from the front
- Provide feedback

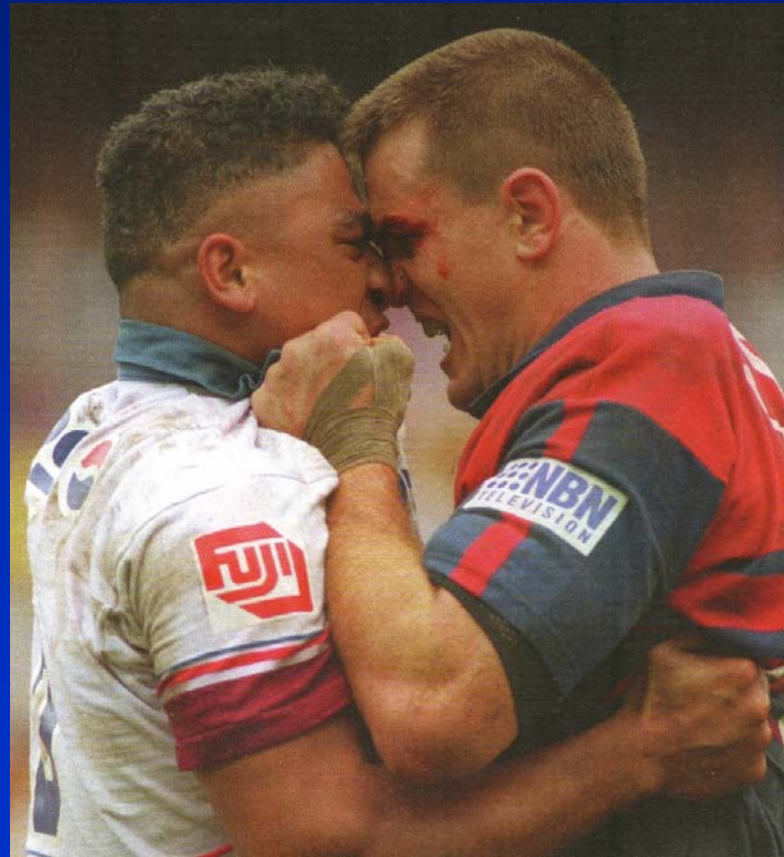
The process at MWRH Limerick

- A work in progress!
- The background
 - No stroke thrombolysis
 - No Acute Stroke Unit beds
 - No Neurologist
 - No junior doctor support
 - No allied health support – apart from physiotherapy
 - Enthusiastic staff

First steps – identifying components

- ED – medical and nursing
- Radiology
- On-call medical teams
- Nursing staff – ward and managers
- Pharmacy
- Allied health
- Hospital and network managers
- Ambulance and GPs
- General public

Teamwork – getting colleagues on-side



Convincing people

- Stroke is common
- Evidence-based treatment
- Potential cost savings
- Better outcomes for patients
- Driving the development of an Acute Stroke Unit
- The medicolegal risk

Stages of implementation – 1

- Adapting guidelines
- Discussion and consultation with:
 - ED
 - On-call physicians
 - Radiology
 - Nursing
- Office hours vs. 24/7
- Consultant-provided vs. consultant-led (ie: who actually sees the patient?)
- Treatment location
- Inpatient care after treatment

Stages of implementation – 2

- Education
 - Departmental education sessions
- Acute Stroke Beds vs. Acute Stroke Unit
- First 24 hours post-thrombolysis
 - Nursing care (risk manager)
- Out-of-hours thrombolysis
 - ED, radiology and on-call physicians

Ongoing processes

- Thrombolysis guidelines
 - Updating to incorporate out-of-hours service
 - Peripheral hospitals
- Audit and feedback
- Stroke service implementation group
 - Thrombolysis; ASU; TIA service
- Education
 - Consultants and registrars (ED and medical), nursing (ED and ward)
- Pre-hospital and peripheral hospitals
 - Local physicians
 - Ambulance
 - GPs and general public

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References

- Diagnostic accuracy of stroke referrals from primary care, emergency room physicians, and ambulance staff using the face arm speech test. *Stroke* (2003, Vol 34, p71-76)
- The recognition of stroke in the emergency room (ROSIER) scale: development and validation of a stroke recognition instrument. *Lancet Neurology* (2005, Vol 4, p727-734)
- A protocol-driven model for the rapid initiation of stroke thrombolysis in the emergency department. *Medical Journal of Australia* (2007, Vol 187, p567-570)
- Improving access to acute stroke therapies: a controlled trial of organised pre-hospital and emergency care. *Medical Journal of Australia* (2008, Vol 189, p429-433)
- Setting up an acute stroke service. *International Journal of Stroke* (2008, Vol 3, p182-187)
- Set up and run a thrombolysis service for acute stroke. *Practical Neurology* (2010, Vol 10, p145-151)

Stroke training websites

- www.stroketraining.org
- <http://nihss-english.trainingcampus.net/uas/modules/trees/windex.aspx>
- <http://learn.heart.org/ihtml/application/student/interface.heart2/nihss.html>