



The Australian and New Zealand Society of Neuroradiology *Incorporating Diagnostic and Interventional Neuroradiology and Head & Neck Radiology*

NSW Stroke Ambulance Pilot Model of Care 2022 Consultation

Thank you for the opportunity to comment on this proposed model of care.

Both the Royal Australian and New Zealand College of Radiologists (RANZCR) and the Australian and New Zealand Society of Neuroradiology (ANZSNR) applaud and support initiatives which raise community awareness and seek to provide equitable access to the assessment, diagnosis, and management of acute stroke.

The concept of mobile stroke units was first introduced to clinical practice in 2008 in Germany. In 2017, Victorian Stroke Service fielded the first mobile stroke unit in Australia and has been operational in metropolitan Melbourne. The concept of delivering the hospital to the patient has proven novel and effective, expediting the diagnostic process through clinical assessment and imaging. Use of technology to assess the imaging, provide assessment support and then commence the appropriate management strategy has the potential to offer significant clinical benefits to patients.

Published literature has in general been complementary whilst acknowledging the shortcomings of the mobile CT scanners -- specifically being unable to scan below the C2 vertebra.

Access Equity

The Australian geographic distribution offers unique challenges to health care delivery, particularly those in rural and remote areas. Consequently, there are several basic infrastructure tenets requiring attention.

A MSU may offer benefits to the patient journey for a limited cohort. The disparity between rural and metropolitan access may, however, be further widened. It would do little to enable access to rural and remote residents and confers no benefit to Aboriginal people in remote New South Wales. Stroke incidence (haemorrhagic and ischaemic) for remote Aboriginal Australians is dramatically higher than in non-Aboriginal people (Stroke incidence and subtypes in Aboriginal people in remote Australia: a healthcare network population-based study, BMJ 2020).

Resourcing Existing Infrastructure

Ensuring adequate resourcing of existing diagnostic medical imaging and interventional neuroradiology infrastructure to cater for existing service demand is a priority. This includes in hospital CT radiographers, medical imaging nurses, angiography nurses and interventional neuroradiologists to cater for most patients delivered by existing ambulance services.

Education and training are fundamental to the success of any program, and key to the clinical identification of large vessel occlusion (LVO) and transferring patients to the appropriate comprehensive stroke centre (CSC).

Pre-hospital triage on Rapid Arterial Conclusion Evaluation (RACE) score and other scores, when ambulance staff are appropriately trained, is a highly cost-effective way of triaging patients to CSCs for mechanical thrombectomy (MT). There is no indication to send a patient with RACE > 5 to a hospital site that does not offer MT.

MSU - Computed Tomography

A CT brain assessment in the MSU provides adequate detail to diagnose a haemorrhagic or ischaemic stroke and commence treatment within the first hour, breaking through the treatment ceiling of the existing ambulance model. Unfortunately, the true yield is very low, and the financial / human resourcing is high. Nonetheless, early identification of LVO and direction to a CSC a clear benefit to patients, though its limited scanning range may offer some management dilemmas, particularly as 10-15% of patients require stenting. The studies have not given an indication of the rate of re-scanning prior to neurointervention.

Conclusion

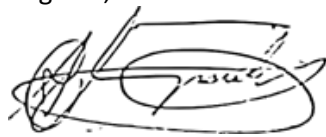
The Mobile Stroke Unit concentrates on excluding intracranial haemorrhage and delivering thrombolysis to eligible patients as soon as possible. This emphasis on thrombolysis fails to adequately recognise the importance of LVO stroke and MT.

A mobile stroke unit is labour intensive and expensive. Skilled manpower could be better deployed within the existing system. At best the MSU was involved in only 9.1% of cases requiring MT at RMH over a 21-month duration.

Ongoing pre-triage education for paramedics may be more cost effective. Money spent on improving rapid repatriation following MT and following exclusion of LVO on CT in a comprehensive stroke centre on RACE > 5 patients is also likely to improve city-wide patient flow.

Deployment of these small CT units to rural areas with no CT may be more cost effective and help address access and equity disparities.

Regards,



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ANZSNR Secretary General