Stroke is a major cause of mortality and disability in Western Australia (WA). In 2017, there are 44,693 stroke survivors in WA – 1.7% of WA population. Two thirds of these survivors are estimated to be living with a disability. To deliver efficient, safe and high quality care to stroke survivors across the health system requires the development of a coordinated, integrated and equitable service delivery model for stroke.

Two Models of Stroke Care (2006 and 2012) have been developed to provide a comprehensive framework to deliver evidence-based, organised stroke care across the journey of stroke survivors that begins at the initial recognition of symptoms, right through to discharge from the hospital and community management.

This puts WA in a strong position to provide a sustainable statewide service model for all stroke patients. The subsequent change to the capacity of WA metropolitan hospitals to manage regional patient flow from February 2015 has provided further impetus to fast-track this plan, leading to the conception of the WA Stroke Services Project.

WA Stroke Services Project

The WA Stroke Services Project was endorsed by the WA Health A/Director General, Professor Bryant Stokes in July 2014. The project is led by the WA Stroke Services Director, Dr Andrew Wesseldine, supported by the Subacute Community & Aged Care Directorate (SCACD). The aim of the project is to improve the coordination, consistency and quality of stroke care delivered to patients in WA within the core principles of equity, consolidation and excellence.

A number of priority areas were identified after extensive consultations with stakeholders:

- Dedicated acute and rehabilitation regional - metropolitan stroke pathways
- WA telestroke services
- Statewide 24/7 endovascular clot retrieval service
- WA Stroke data collection
- Workforce training

WA telestroke services

The WA telestroke services utilise WA telehealth capacity to support the stroke pathways and facilitate coordinated care planning between the linked hospitals. Regional clinicians have the capacity to contact the stroke/neurology consultants at linked metro hospitals via telephone or "Tele-cart" in the emergency departments for specialist advice in decision making with regard to acute stroke management and patient transfer.

Regional stroke coordinators can also participate in stroke team meetings (via videoconference) at the linked metro hospitals to coordinate care and discharge planning for patients transferred to metro hospitals.

Dedicated telestroke consultative sessions have been established at each linked metro hospitals to provide the telestroke service and continue to develop capacities at linked regional sites, including thrombolysis and follow up outpatient clinics for discharged stroke patients.

Endovascular clot retrieval (ECR) service has been provided in WA since 2011 through the Neurointerventional Intervention & Imaging Service (NISSwa). NISSwa provides a statewide service for both tertiary and quaternary diagnostic and therapeutic neuroradiology.

The development of the dedicated regional-metro stroke pathways and telestroke service represents a new opportunity for eligible regional patients to access ECR service. Ongoing work is being undertaken to implement rapid patient identification and transport pathways for eligible patients to access the ECR service.

The WA Health Endovascular Clot Retrieval Service Plan builds on extensive stakeholder consultations and the implementation of the dedicated regional-metro stroke pathways and outlines a staged approach to a coordinated and comprehensive ECR service for WA.

The first stage has seen the establishment of the Statewide 24/7 ECR Service in late 2016 that provides 24/7 service at Sir Charles Gairdner Hospital (SCGH) and day light hour service, Monday to Friday at Fiona Stanley Hospital (FSH). This is only the second 24/7 service in Australia.

As the service evolves, the next stage will utilise the dedicated regional – metropolitan stroke pathways to expand the access ECR service for regional patients.

Statewide 24/7 Endovascular Clot Retrieval Service

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The stroke pathways link WA country health regions to dedicated metropolitan hospitals to facilitate timely access to specialist stroke care, supported by telestroke services. The maps below show the dedicated regional-metro stroke pathways (Map 1) and the metro tertiary hospital stroke catchment (Map 2). Given the vast distance between some of the regional sites and linked metro hospitals, telestroke plays an important role to support the stroke pathways.

The benefits of the dedicated regional-metro stroke pathways include:

- Increasing access to specialist stroke care and advice to assist regional sites in decision making, patient transfer and clinical intervention
- Utilising telestroke services to facilitate communication and care coordination
- Strengthen the clinical relationships between linked regional and metro sites, increasing the skill-set of regional clinicians and improving the care delivered to stroke patients locally
- Increasing the likelihood that improved care will lead to reduced LOS, maximised ABF revenue and decreased dependence on costly longer-term support services
- Decreasing the risk of costly Royal Flying Doctor Service or St John’s Ambulance transport
- Decreasing time spent by regional clinicians sourcing a metropolitan bed
- Aligning with the WA Model of Stroke Cares 2012 recommendation to “immediately assess all patients with suspected stroke and transfer to a stroke unit where possible”

WA stroke data collection

The WA stroke data collection provides a consistent, robust statewide data collection to inform clinical practice and facilitate quality improvement in stroke care.

The WA Stroke Data and Quality Framework and twelve standardised KPIs, have been developed to provide the overarching framework that informs the collection of stroke data. The KPIs encompass both acute and rehabilitation stroke care and meet the requirement of the Australian Commission on Safety and Quality in Health Care (ACSQHC).

It has also been mapped to the 2012 WA Stroke Model of Care, the Reports on Government Services (RoGS) Performance Indicator Framework (Equity, Effectiveness, and Efficiency) as well as the recently approved COAG/AMAC Acute Clinical Care Standards from the Australian Commission on Safety and Quality in Health Care (ACSQHC).

6-monthly benchmarking reports have been developed to facilitate statewide stroke care benchmarking and improve transparency and quality improvement. Recently data from the WA stroke data collection were successfully exported to the Stroke Foundation Acute Stroke Service Audit.