TELESTROKE
Northern Sector Proof of Concept

Kate Jackson  Stroke  Network Manager ACI
Jason Matthews Program Manager eHealth
Bill Obrien Stroke Neurologist CCLHD / Reperfusion and Telestroke Chair
Donna Parkes Telehealth Manager ACI
65% of stroke survivors living with a Disability

Significant cost of **acute** stroke care in NSW in 16/17 was $219.5m (ABM portal)
Acute Stroke Treatment

Minimum requirements

1. Patient triaged in ED
2. Rapid access to CT/CTA/CTP and post processing
3. Stroke physician assessment, access to images in real time

Definitive diagnosis

Treatment options

- Endovascular clot retrieval (ECR) (mechanical removal of a clot)
  - 10% Ischaemic strokes

- Thrombolysis (clot busting drugs)
  - 20% Ischaemic strokes

- Stroke unit care
  - all stroke patients

0-1  2  3  4  5  6
Current Pathway

Endovascular Clot Retrieval Centre
Acute Thrombolytic Centre
Acute Stroke Unit
Stroke service

FACTORS
1. Pre-hospital:
   - Distances to Specialist Stroke Centres
   - Protocols NSW
2. Access to Stroke Physician expertise 24/7
3. Access to Imaging and Post Processing
4. Multiple transfers
5. Time

Current Pathway

FAST Protocol via Paramedic
FAST Positive patients ≤ 6hrs symptom onset
Pre-notification of FAST positive patient to Acute Thrombolysis Centre

CLINICAL VARIATION IN ACCESS AND QUALITY OF CARE ACROSS NSW
Inequities of access

Ischemic Stroke Count, 2015 - 2016

- 50 to 101
- 30 to 50
- 15 to 30
- 1 to 15

Stroke Care Site
- Hospital
- 50 KM to NSW Stroke Thrombolysis Public Hospital
- 50 KM to NSW Stroke Unit
- 50 KM to NSW Stroke Service
- 50 KM to interstate Stroke Thrombolysis Public Hospital

NOTE: On this map, Stroke Units and Stroke Services in the metropolitan LHDs are concealed by the Thrombolysis Centres. Some facilities are not visible.

NOTE: 50KM green buffer to NSW Stroke Thrombolysis Public Hospitals covers entire metropolitan breakdown map above.
Population changes

SEA CHANGE OR TREE CHANGE
Thrombolysis Rates

2017 National Stroke Audit
Acute Services

Use of thrombolysis increased

7% 2015

13% 2017

NSW 11% 2017

See full results at strokefoundation.org.au
NSW: Estimate activity

**Total stroke**
14841
AMB portal 2016/17

80% Ischaemic
Estimate: 11800

20% Haemorrhagic
Estimate: 2971

**STROKE FOUNDATION AUDIT REPORTED 2017**

rTPA: 680
ECR: 256

20% TPA
Estimate: 2360

10% ECR
Estimate: 1180

Metro
Estimate: 767

Rural
Estimate: 413

Metro
Estimate: 1534

Rural
Estimate: 826

Total stroke data: ABM portal 2016/16
Stroke type based on 80:20 split
Metro/rural split ratio 65:35 from health report NSW
How can we increase access to reperfusion therapy for stroke across regional NSW?

How can we:

- Increase access to stroke physician workforce in a time critical context?
- Provide real time access to CT/CTA/CTP?
- Support multiple professionals collaborating on a case?
- Remotely access a patient?
- Provide a definitive diagnosis and treatment plan in collaboration with local teams?
- Cross skill local clinical workforce?
<table>
<thead>
<tr>
<th>Local level</th>
<th>System level</th>
</tr>
</thead>
<tbody>
<tr>
<td>24/7 time critical access to acute stroke assessment, diagnosis and access to thrombolysis that would otherwise be unavailable</td>
<td>an increase in statewide reperfusion rates improving outcomes of NSW stroke patients</td>
</tr>
<tr>
<td>the ability to identify ECR eligible patients in a timely fashion, to support transfer of patients most likely to benefit from ECR.</td>
<td>a reduction in variation in disparity of services across the state (metro/ regional access)</td>
</tr>
<tr>
<td>Build and maintain a locally sustainable workforce in hyper acute stroke management</td>
<td>a reduction in futile transfers allowing for the effective and sustainable delivery of ECR across NSW</td>
</tr>
</tbody>
</table>

Leverages existing ED and hospital work stations on wheels (Multipurpose T/H), more than one devise per ED
Owned managed & operated by NSW Health
Services available across all NSW Health LHD’s and entities
Modern, Secure, Scalable & Cloud ready
Highly available T3 Data Centre's redundant & self healing network
NSW Health Statewide Foundation Infrastructure enabling Telehealth

Communications & Collaboration

State Wide Universal Communications & Conferencing Core

Enterprise Applications

EMR  E-Mail  PACS / EIR  HealthNet

Foundational Infrastructure Enablers

Health Wide Area Network  Statewide Identity  Health Private Cloud  Statewide Wireless Core
Business solution

Coffs Harbour

ED

CT

ED

Notifications of FAST+ patient to Virtual Stroke Team Call 1300

Comprehensive Stroke Centre: Interventional Neuroradiologist

Endovascular Clot Retrieval

Thrombolysis

Stroke Unit Care

Diagnosis and Treatment plan

Virtual Stroke team
Technology
Usage Case Activity
Jan- June 2018

Coffs Harbour Telestroke Activity 2018

<table>
<thead>
<tr>
<th>Treatment provided</th>
<th>Patient numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemark consultation</td>
<td>33</td>
</tr>
<tr>
<td>Thrombolyis</td>
<td>13</td>
</tr>
<tr>
<td>ECR</td>
<td>5</td>
</tr>
</tbody>
</table>

Port Macquarie Telestroke Activity 2018

<table>
<thead>
<tr>
<th>Treatment provided</th>
<th>Patient Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telemark consultation</td>
<td>17</td>
</tr>
<tr>
<td>Thrombolyis</td>
<td>4</td>
</tr>
<tr>
<td>ECR</td>
<td>5</td>
</tr>
</tbody>
</table>
Phased Approach

REGIONAL TELESTROKE SITES

- Phase 1
  - Coffs Harbour
  - Port Macquarie
- Phase 2
  - Gosford
  - Wyong
- Phase 3 & 4
  - ?
  - ?

SUPRA-LHD TEAM

VIRTUAL TELESTROKE TEAM (24/7 Stroke Physician)

24/7 ENDOVASCUCLAR CLOT RETRIEVAL SERVICES

- ECR Centre 1
- ALL ECR CENTRES
Thank you

Northern Sector Telestroke Pilot sub-working group

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neil Spratt</td>
<td>Stroke Clinical Lead JHH</td>
</tr>
<tr>
<td>Ferdi Miteff</td>
<td>Neurologist and INR JHH</td>
</tr>
<tr>
<td>Carlos Garcia Esperon</td>
<td>Stroke Neurologist HNE</td>
</tr>
<tr>
<td>Bill O’Brien</td>
<td>Stroke Clinical Lead CCLHD</td>
</tr>
<tr>
<td>Amanda Buzio</td>
<td>Stroke CNC MNCLHD – Coffs Harbour</td>
</tr>
<tr>
<td>Kim Parrey</td>
<td>Stroke CNC MNCLHD- Port Macquarie</td>
</tr>
<tr>
<td>James Evans</td>
<td>Neurologist Gosford</td>
</tr>
<tr>
<td>Jason Matthews</td>
<td>eHealth Program Manager</td>
</tr>
<tr>
<td>Don Little</td>
<td>eHealth Systems Analyst</td>
</tr>
<tr>
<td>Ashley Young</td>
<td>Telehealth Manager HNELHD</td>
</tr>
<tr>
<td>Donna Parkes</td>
<td>ACI Telehealth Manager</td>
</tr>
</tbody>
</table>
QUESTIONS

?