The Quality in Acute Stroke Care Implementation Project - a state wide translational quality improvement project

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On behalf of the QASC Implementation Project Team
QASC Survivor cohort project

NUM study

T³ Trial

International uptake on QASC resources

QASC Implementation project

QASC Quality in Acute Stroke Care
In the first days of an acute stroke:

- > 37.5° C in 20-50% patients\(^1\)
- Up to 68% become hyperglycaemic\(^2\)
- 37-78% experience dysphagia\(^3\)

All result in increased morbidity and mortality and enlarged infarct size

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1 Azzimondi et al. *Stroke*. 1995  
2 Scott et al. *Stroke*. 1999  
3 Martino et al. *Stroke*. 2005
Background
Recommendations for management of fever, hyperglycaemia and swallowing

- Regular monitoring and documentation of temperature and glucose levels
- Routine antipyretic therapy for fever
- Appropriate glycaemic therapy
- Swallowing screen within 24 hrs and before oral intake

CLINICAL GUIDELINES FOR STROKE

4 National Stroke Foundation. 2010
Overview of the QASC trial

- Implementation research
- Quality improvement study
- Rigorously evaluated using a research framework (single-blind CRCT)
- Funded by NHMRC
QASC Trial: Aim

- To develop and implement a multidisciplinary, team building intervention to improve evidence-based management of fever, hyperglycaemia and swallowing dysfunction in patients following acute stroke
- To rigorously evaluate same using a clustered randomised controlled trial (CRCT) design
**Intervention (1): FeSS protocols**

### Fever

- **(n=2 elements)**
  - 4-6 hourly temperature readings for 72 hours
  - Temperature $\geq 37.5^\circ$C treated with paracetamol

### Sugar

- **(n=5 elements)**
  - Formal venous glucose on admission
  - 1-6 hourly finger-prick glucose for 72 hours
  - On admission: 8-16 mmol/L (ND) or 8-11 mmol/L (D): saline infusion for the first six hours
  - Glucose $\geq 16$ mmol/L (ND): IV insulin
  - Glucose $\geq 11$ mmol/L (D): IV insulin

### Swallowing

- **(n=2 elements)**
  - Education program and competency assessment for nurses run by speech pathologists
  - Screen within 24 hours of stroke unit admission
  - Referral to speech pathologist for full assessment for those who failed the screen
Intervention (2) on-site actions

**Team building workshops**
- Barriers and enablers identification
- Reinforcement of multidisciplinary teamwork
- Local adaptation

**Site-based education and support**
- Interactive and didactic educational outreach meetings
- Reminders
  - Six weekly visits
  - Pro and reactive phone calls and emails

**Control stroke units received:**
- Abridged NSF Guidelines (no FeSS protocols)
- No support to identify local and unique barriers, disseminate or implement
Results

Mean age: 70 years; 60% (n=607) male

Similarities between Ix and control group for age, sex, stroke location or severity, time to arrival at stroke unit

Pre-intervention cohort
n= 687 patients

Post-intervention cohort
n= 1009 patients

1696 patients from 19 NSW stroke Units
Background: QASC Trial Results

- 15.7% more likely to be alive and independent 90 days post-stroke (*p*=0.002) (mRS)
- Lower mean temperature in first 72 hours of stroke unit admission (*p*=0.001)
- Lower mean blood glucose levels in first 72 hours of stroke unit admission (*p*=0.02)
- Improved swallow screening within 24 hours of stroke unit admission (*p*=<0.001)
- Decreased length of stay (*p*>0.144) (13.7 days v 11.3 days)
Results

1% Aspirin
5% Stroke unit
10% Thrombolysis < 4.5 hrs
15.7% FeSS Intervention

NNT
79
18
14
6.4
Where to from here?

- Where do Australian researchers go to obtain support for implementation of interventions proven to improve patient outcomes?

- What funding do we have for this in Australia?
The project

Partnership

NRI - Nursing Research Institute

ACI - NSW Agency for Clinical Innovation

Translational quality improvement project

Running from April 2013 - April 2014
Changing clinician practice remains a challenge. Production of up-to-date evidence-based clinical guidelines without targeted implementation strategies do not ensure evidence uptake. 57% of Australian adult health care encounters received appropriate care, i.e. care in line with evidence-based or consensus-based guidelines. 

5 Runciman et al. MJA 2012
Aim

1) To implement the FeSS clinical treatment protocols in stroke services in NSW

2) Evaluate project and draw comprehensive lessons learned for future projects on how to implement evidence based results on a large scale in a limited time frame
Method

• **Design:** Pre and post intervention

• **Eligibility:** All NSW hospitals with stroke services

• **Recruitment letters to:**
  – Chief Executives of Local Health Districts with stroke services
  – Director of stroke service
  – Directors of nursing
  – Directors of allied health
  – Stroke CNCs/ Coordinator
  – Nurse Unit Manager

• **Written consent obtained:**
  – identify 2-3 key clinical stroke champions to attend a workshop
  – conduct pre and post medical record audits
Method

• Design: Pre and post intervention

• Eligibility: All NSW hospitals with stroke services

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**FeSS clinical treatment Protocols**

**Fever**
- (n=2 elements)
  - 4 - 6 hourly temperature readings for 72 hours
  - Temperature \( \geq 37.5^\circ\text{C} \) treated with paracetamol

**Sugar**
- (n=5 elements)
  - Formal venous glucose on admission
  - 1-6 hourly finger-prick glucose for 72 hours
  - Glucose \( > 10 \text{ mmol/L} \): Treat with insulin

**Swallowing**
- (n=2 elements)
  - Education program and online competency assessment
  - Screen within 24 hours of stroke unit admission and before oral intake
  - Referral to speech pathologist for full assessment for those who failed the screen
Intervention

n=10 intervention sites

Workshops  Visits to each site every 6 weeks
Education
Support
Intervention

n=10 intervention sites

- Workshops
- Education
- Support

Visits to each site every 6 weeks

n=36 sites (implementation)

- Workshops
- Education
- Support

Workshop for site champions
Intervention

n=10 intervention sites

- Workshops
- Education
- Support

Visits to each site every 6 weeks

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n=36 sites (implementation)

- Workshops
- Education
- Support

One education workshop for site champions
Champions’ Implementation Training

1) The QASC Trial
   • Results
   • Physiology

2) FeSS clinical treatment protocols

3) ASSIST swallow screening training

4) Barrier assessments

5) Implementation skills

6) Audit training
QASC Implementation Team Support

1. Project coordinator and QASC Implementation Team site visits
2. Ongoing support via phone and email
Evaluation

• Process of care evaluation (not patient outcomes)
  – Medical record audit: pre and post (self report)
  – Unique and novel collaboration with the National Stroke Foundation as using their clinical audit tool

• Evaluation of implementation process to inform future projects conducted by the ACI
Participating stroke units/services in NSW
Results and Progress

36 Stroke services in NSW taking part (100%)

Workshops completed (n=100 clinicians)

Pre-audit: 34 hospitals completed

Site visits completed

Post-audit: Jan 2014

Completion: April 2014 (12 months)
**Challenges: Scale up and spread**

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<th>QASC Trial</th>
<th>QASC Implementation</th>
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<tbody>
<tr>
<td>Length</td>
<td>5 years</td>
<td>12 months</td>
</tr>
<tr>
<td>Scope</td>
<td>10 sites</td>
<td>36 sites</td>
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<tr>
<td>Setting</td>
<td>Stroke units</td>
<td>Stroke services</td>
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**Challenge: Intervention fidelity**
Acknowledgements

- NSW Agency for Clinical Innovation
- Clinical champions
- QASC Implementation Project Team
QUESTIONS?

QASC
Quality in Acute Stroke Care

QASC Implementation project