

**Title: The Quality in Acute Stroke Care (QASC) Implementation Project: *Scale up and spread of research evidence in 36 NSW stroke services***

Sandy Middleton<sup>1</sup> Daniel Comerford<sup>2</sup> Anna Lydtin<sup>1</sup> Simeon Dale<sup>1</sup> Dominique Cadilhac<sup>3</sup> Cate DEste<sup>4</sup> Patrick McElduff<sup>5</sup> Kelvin Hill<sup>6</sup> N Wah Cheung<sup>7</sup> Christopher Levi<sup>8</sup> Mark Longworth<sup>2</sup> Jeanette Ward<sup>9</sup> Jeremy Grimshaw<sup>10</sup> On behalf of the QASC Implementation Working Group and Steering Committee

1. *St Vincent's & Mater Health Sydney and Australian Catholic University, Darlinghurst, NSW, Australia*
2. *NSW Agency for Clinical Innovation, Chatswood, NSW, Australia*
3. *Monash University, Melbourne, VIC, Australia*
4. *Australian National University, Canberra, ACT, Australia*
5. *University of Newcastle, Callaghan, NSW, Australia*
6. *National Stroke Foundation, Melbourne, VIC, Australia*
7. *Centre for Diabetes and Endocrinology Research, Westmead Hospital, NSW, Australia*
8. *University of Newcastle and Hunter Medical Research Institute, Priority Research Centre for Translational Neuroscience and Mental Health, NSW, Australia*
9. *University of Ottawa, Ottawa, Canada*
10. *Ottawa Hospital Research Institute, Ottawa, Canada*

**Introduction:** The Quality in Acute Stroke Care (QASC) Trial (Lancet 2011) proved supported implementation of clinical protocols to manage fever, hyperglycaemia and swallowing following acute stroke decreased death and dependency by 16% ( $p=0.002$ ); reduced temperatures ( $p=0.001$ ); glucose ( $p=0.02$ ); and improved swallowing management ( $p<0.001$ ). We conducted a large-scale, 12-month translational project promoting upscale and spread of this proven intervention in Australia's most populous state, New South Wales (NSW).

**Aim:** To implement the QASC Fever Sugar Swallow (FeSS) clinical protocols into NSW stroke services.

**Method:** Collaborations with government agencies, academics, clinicians and the National Stroke Foundation were formed to promote state-wide implementation of the evidence from the original QASC trial. To maximise fidelity, we mirrored the QASC trial implementation process involving: multidisciplinary barriers and enablers workshops to reinforce teamwork and provide education; reminders and clinical champion support. Medical record audits measured protocol adherence using a pre/ post study design.

**Results:** All 36 NSW (100%) stroke services participated with 2345 patients (pre-implementation:  $n=1259$ ; post implementation:  $n=1086$ ). Significantly increased proportions of patients received care according to the fever (pre: 62%; post: 78%;  $P<0.0001$ ), hyperglycaemia (pre: 16%; post: 27%;  $P<0.0034$ ), and swallowing (pre: 39%; post: 52%;

P<0.0002) protocols post intervention. Hyperglycaemic (glucose >10 mmol/L) patients who had their glucose monitored were significantly more likely to received insulin (41% vs 14%; p<0.001). Febrile (>37.5°C) patients who had their temperature monitored were significantly more likely to receive paracetamol (50% vs 17%; p=0.0038).

**Conclusion:** Upscale and spread of proven interventions is complex. Our translational project demonstrates this can be achieved on a large scale and within a short-timeframe following publication of evidence whilst maintaining intervention fidelity.