

Doing the simple things well

Nursing is a core discipline in health care delivery. Our trial, discussed below, has provided compelling high level evidence that *'careful attention to aspects of nursing and general care appears to generate large benefits.'*¹

Colleagues and I recently published the results of a five year cluster randomised controlled trial in the *Lancet*. Known as the Quality in Acute Stroke Care (QASC) trial, we examined the effectiveness of a multi-disciplinary 'bundled' intervention based on best clinical evidence to improve outcomes for stroke patients.² Our intervention consisted of nurse-initiated clinical treatment protocols to manage fever, hyperglycaemia and swallowing. The fever protocol asked nurses to monitor patient temperatures four to six hourly and treat all readings $\geq 37.5^{\circ}\text{C}$ with paracetamol. Our hyperglycaemia protocol did not aim to tightly control glycaemic levels as in other stroke trials³ but to treat episodes of major hyperglycaemia (fingerprick blood glucose levels ≥ 11 mmol/L for diabetics and ≥ 16 mmol/L for non-diabetics). Our swallowing protocol consisted of educating nurses to undertake swallowing screening, with referral to a speech pathologist for full swallowing assessment only when patients failed the screen. We supported the introduction of the treatment protocols into the clinical setting with multidisciplinary workshops to assess barriers, an education program and on-site support; all aimed at harnessing the untapped interest of clinicians working collectively to improve clinical outcomes. Nineteen stroke units participated and we collected outcome data from 1696 patients.

Excitingly, we found that patients cared for in the ten stroke units who received our intervention were 16% more likely to be alive and independent 90-days following their stroke than those cared for in the nine stroke units randomised to the control group who received only an abridged copy of the national stroke guidelines.⁴ This is a large effect; larger than that of any pharmacological⁵ or organisational initiative⁶ currently known to improve outcomes following stroke. Patients from intervention group stroke units also had fewer episodes of fever, lower mean temperature, lower mean glucose levels and improved screening for swallowing difficulties.²

As is the way with randomised controlled trials (RCTs), however, more questions were raised than answered. RCTs answer only the specific question(s) they were designed to answer: in our case, does a bundled intervention premised on genuine interdisciplinary collaboration in the stroke unit significantly improve outcomes? What RCTs do not explain is how the intervention in question worked. Our results have generated great interest in the stroke community and speculation about how this large effect may have been achieved.^{1, 7, 8}

To explore the 'how' of our results, we conducted a process analysis alongside our main trial in order to *'study innovation at the same time it is occurring and collect data to link new interventions to outcomes'*⁹ Dixon Woods also exhorts that researchers should *'not wait until the trial is complete before working out what is needed to adopt and implement the intervention in real life'*.⁹ In other words, when an intervention is shown in trial conditions to deliver results, data also should be available to inform clinicians how to integrate these new practices into routine hospital care. Results of our process analysis are pending but will provide key data to explain further our trial results.

One very thought provoking possibility already has been raised in the post-publication response to our trial.^{1,9}, in his commentary, suggested that our study *'raise[s] the question of whether the interventions ... are merely surrogate markers for better overall care'*. He goes on to note that clinicians *'who are more attentive to swallowing issues, control of elevated blood sugars, and aggressive evaluation of fevers may provide better care through any number of processes and*

*mechanisms, which may then translate into better 90-day outcomes*⁸ This is an explanation worthy of consideration. Is it possible that, whilst attending the patient to take their temperature, record their blood glucose levels and assess their swallowing, clinicians may have picked up other early signs of deterioration? These ‘other treatments’ were not of direct relevance to our trial and so were not measured by us. Further analyses of our process of care results will illuminate the role of fever, glucose and swallowing management and their impact on patient outcomes.

What we do know, is that, regardless of exactly how the intervention worked, it did work and with a resounding effect. Our trial is one of the few studies published internationally to show that nursing care can improve the hard endpoints of death and dependency. Our treatment protocols were evidence-based, highly pragmatic and bolstered the delivery of good clinical care deserved by every patient. Thus, our trial provides high level evidence on the value of doing the simple things well. Neither expensive technology nor resource intensive initiatives were required. What was required was attention to what nurses do best, observing the patient and initiating prompt treatment. That our intervention was based upon nurse-led clinical protocols that enabled them to promptly treat patients also bodes well for more efficient and timely nurse-initiated patient care going forward.

One of the other important lessons learnt as a result of this trial was that, prior to commencement of our trial, many nurses told us that they already were managing fever, hyperglycaemia and swallowing for their stroke patients in line with best evidence and according to the national stroke guidelines.⁴ Our pre-intervention data shows this not to be the case.¹⁰ Unless we audit our current practice, we cannot be sure of our treatment gaps. We should not assume evidence-based ‘best practice’ is being delivered to all patients, by every nurse, on every shift. Only until this is the case will we achieve the population outcomes patients deserve, be that for stroke patients or otherwise.

Importantly too, this trial also shows the pivotal role of nursing academics in conducting implementation research. Uptake of our clinical protocols was facilitated by an evidence-based implementation strategy (multidisciplinary workshops to identify barriers, education and on-site support).¹¹ Our trial has provided further evidence for the effectiveness of these implementation strategies in changing clinician behavior. This element of our trial likely is highly transferable to other clinical areas and settings beyond stroke.

While this trial is an example of nurse-led multidisciplinary research, it could not have been undertaken without the support from the multidisciplinary stroke team, specifically doctors and speech pathologists. That speech pathologists embraced nurses undertaking swallowing screening is testament to good collaborative practice aimed at improving patient outcomes.

Our stroke care collaboration has now received additional NHMRC funding to further examine facilitation of multidisciplinary collaborative evidence-based stroke care led by nurses in emergency departments in three Australian states. While this will be a challenging project, involving up to 40 hospitals across three states, it will build on our previous trial discussed here and we hypothesise that it also will provide further compelling evidence of the high impact that quality nursing care can have on our often beleaguered healthcare system.

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