Development of the RBWH Neurological Early Warning and Response System

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PURPOSE
Recognising a gap in patient safety, Clinical Excellence Queensland (CEQ) supported the Royal Brisbane and Women’s Hospital (RBWH) to develop and test a new neurological early warning and response system (assessment form), with a view to statewide implementation. This new system was designed to increase the specificity and sensitivity of outdated, traditional neurological observation forms which frequently miss focal neurological deterioration.

METHODS
Using rapid cycles of change in consultation with key subject matter experts to create the neurological assessment form. User testing and human factors consultation provided empirical feedback to inform the process. Pre-trial just-in-time training, including instructional videos, was led by clinical champions and project leads. Plan Do Study Act (PDSA) cycles in trial wards were conducted prior to whole-of-hospital implementation. Throughout implementation, staff satisfaction surveys (N=25) and form compliance audits (N=21) were undertaken.

RESULTS
The consultation took only four-months and 17 iterations to develop a suitable trial version of the neurological assessment form. A further four iterations of the form were developed based on trial feedback. Audit of form completion showed 100% compliance with Glasgow Coma Scale (GCS) and Limb Powers. There was one error in GCS score calculation. Most staff (72%) rated the form as easy-to-use, 76% found it helped identify deteriorating patients, and 68% said the form assisted in obtaining medical officer review. During the trial, one instance of early deterioration was detected in a cancer care patient with spinal cord compression because of improved escalation criteria.

• Helpful in managing hypoperfusion risk in correlation with limb power drops in stroke patients
• Visual trends assist monitoring of stroke patients that may need neurological surgical support
• Junior and senior staff have clearer guidelines to support their decision making and escalation framework
• More specific detail of GCS into E (Eyes) V (Verbal), and M (Motor) helpful during handover
• Temporary medical emergency call criteria provides clear escalation guidelines.

CONCLUSION
The neurological assessment form improves patient safety by enabling staff to complete an in-depth neurological assessment and mandated escalation for medical review. Neurological and stroke ward staff valued the form’s trending line function to assist with early detection of deterioration in their patients. The form’s escalation response guidance empowered the staff to obtain medical officer review. Due to successful RBWH development and implementation, CEQ are planning a statewide trial of the neurological early warning and response system.