

cause analysis was performed using an Ishikawa diagram. A Pareto chart was completed via multi-voting. A Driver Diagram was developed using the highest ranked items from the Pareto chart to identify locally relevant and feasible interventions. Interventions 1) Medical directives were modified; Routine paired sending of UC with urinalysis by nurses was removed. 2) Physician Education and implementation of a clinical decision aid (CDA); A CDA was created using PDSA methodology, using an iterative approach from development through implementation. Outcome measure: rate of Urine Cultures sent per 1000 ED patient visits Process measure: percent of positive cultures Balancing measures: rate of 14-day ED return visits and hospital admission for patients diagnosed with UTI/Urosepsis/Pyelonephritis. **Evaluation/Results:** At the study's conclusion, there was a decrease in UC rate, from 95 per 1000 ED visits, to 59 per 1000 ED visits (RR 38%, AR 3.6%) There was evidence of special cause variation on the SPC chart. Positive cultures increased from 19% to 34%. There was no increase in the rate of ED 14-day return visits or hospital admission for patients with a diagnosis of UTI, urosepsis or pyelonephritis. **Discussion/Impact:** The study interventions of uncoupling routine sending of UA and UC, and physician education and use of a clinical decision aid, effectively decreased the rate of UC testing during the study period. A reduction in inappropriate UC testing is important to limit avoidable patient morbidity and reduce unnecessary health care spending. Further studies are indicated to target interventions on patient subgroups and to reduce unnecessary antibiotic prescriptions.

**Keywords:** Choosing Wisely, quality improvement and patient safety, urinary tract infections

#### LO89

**A multi-disciplinary quality improvement project to improve adherence to best practice guidelines for emergency department patients with transient ischemic attack**

A. Verma, BSc, MD, A. Kapoor, MSc, J. Kim, N. Kujbid, K. Si, BMSc, R. Swartz, MD, PhD, E. Etchells, MD, MSc, S. Symons, MBA, MD, MPH, A. Yu, MD, MSc, Sunnybrook Health Sciences Centre, Toronto, ON

**Background:** Canadian Stroke Guidelines recommend that Transient Ischemic Attack (TIA) patients at highest risk of stroke recurrence should undergo immediate vascular imaging. Computed tomography angiography (CTA) of the head and neck is recommended over carotid doppler because it allows for enhanced visualization of the intracranial and posterior circulation vasculature. Imaging while patients are in the emergency department (ED) is optimal for high-risk patients because the risk of stroke recurrence is highest in the first 48 hours. **Aim Statement:** At our hospital, a designated stroke centre, less than 5% of TIA patients meet national recommendations by undergoing CTA in the ED. We sought to increase the rate of CTA in high risk ED TIA patients from less than 5% to at least 80% in 10 months. **Measures & Design:** We used a multi-faceted approach to improve our adherence to guidelines including: 1) education for staff ED physicians; 2) agreements between ED and radiology to facilitate rapid access to CTA; 3) agreements between ED and neurology for consultations regarding patients with abnormal CTA; and 4) the creation of an electronic decision support tool to guide ED physicians as to which patients require CTA. We measured the rate of CTA in high risk patients biweekly using retrospective chart review of patients referred to the TIA clinic from the ED on a biweekly basis. As a balancing measure, we also measured the rate of CTA in

non-high risk patients. **Evaluation/Results:** Data collection is ongoing. An interim run chart at 19 weeks shows a complete shift above the median after implementation, with CTA rates between 70 and 100%. At the time of submission, we had no downward trends below 80%, showing sustained improvement. The CTA rate in non-high risk patients did also increase. **Discussion/Impact:** After 19 weeks of our intervention, 112 (78.9%) of high risk TIA patients had a CTA, compared to 10 (9.8%) in the 19 weeks prior to our intervention. On average, 10-15% of high risk patients will have an identifiable lesion on CTA, leading to immediate change in management (at minimum, an inpatient consultation with neurology). Our multi-faceted approach could be replicated in any ED with the engagement and availability of the same multi-disciplinary team (ED, radiology, and neurology), access to CTA, and electronic orders. **Keywords:** neuroimaging, quality improvement and patient safety, transient ischemic attack

#### LO90

**The clock is ticking: using in situ simulation to improve time to blood delivery in bleeding trauma patients**

A. Petrosoniak, MD, MEd, A. Gray, MD, K. Pavenski, MD, M. McGowan, MHK, L. Chartier, MDCM, MPH, St. Michael's Hospital, University of Toronto, Toronto, ON

**Background:** Massive transfusion protocols (MTP) are widely used to rapidly deliver blood products to bleeding trauma patients. Every minute delay in blood product administration in bleeding trauma patients is associated with a 5% increased odds of death. In-situ simulation (ISS) is simulation that takes place in the actual clinical work environment. We used ISS as a novel, prospective and iterative quality improvement (QI) approach to identify and improve MTP steps that impact time to blood delivery (TTBD) during actual trauma resuscitations. **Aim Statement:** To reduce the TTBD for bleeding trauma patients by 20% over a 12-month ISS-based QI initiative. **Measures & Design:** We conducted twelve high-fidelity, interprofessional ISS sessions at a Level-1 trauma center in Toronto, Canada. We used clinician video review as well as extensive stakeholder involvement, including with nurses, porters, blood bank and human factors experts, to develop Plan-Do-Study-Act (PDSA) cycles for MTP improvement. Our three major PDSA cycles revolved around: 1) decreasing MTP activation time; 2) reducing the unpredictable and inefficient transport times for the blood itself; and 3) improving the notification of blood product arrival in the trauma bay. Each PDSA cycle was iteratively tested with ISS prior to implementation into clinical care. Outcome measure was the mean TTBD for trauma patients requiring MTP (in minutes, standard deviation [SD]). Process measures included time to MTP activation and porter transport times. Balancing measures included stakeholder satisfaction. **Evaluation/Results:** Our baseline TTBD for MTP patients was 11.58min (n = 41, SD 6.8). There were 54 trauma patients that had MTP during the ISS-based QI initiative, and their mean TTBD was 10.44min (SD 6.1). The TTBD after the QI initiative was 9.12min, sustained over 1 year (n = 50, SD 5.3; 21.2% relative reduction, p < 0.05). A run chart did not show special cause variation chronologically related to our interventions. Patients in each group were similar in demographic data, trauma characteristics and injury severity score. **Discussion/Impact:** We achieved a 21.2% reduction in TTBD for trauma patients requiring MTP with an ISS-based QI initiative. ISS represents a novel approach to the identification and iterative testing of process improvements within trauma care. This methodology can and