Open Competition Poster Abstracts

1) Views of children, parents and health care providers on pediatric disclosure of medical errors
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Background/Context - Medical errors in pediatric settings are growing at an alarming rate. When a medical error occurs in pediatric settings, the child, his or her family, and the health care team are affected. Accordingly, the disclosure of medical errors in pediatrics is a complex matter. Acknowledging various perspectives, particularly those of pediatric patients, is therefore essential for formulating best practices and policies.

Aim/Objectives - Our aim is to present findings from a series of focus groups that were conducted following a systematic review of the research on pediatric disclosure (Koller et al., 2016). Our goal was to capture diverse perspectives on pediatric disclosure, and to identify gaps in our knowledge for best practices and policy uptake.

Measures - Participants included 5 parents of pediatric patients, 14 children and adolescents (current patients), and 27 members of the Patient Safety Collaborative Committee from the Canadian Association of Paediatric Health Centres. Data was collected using semi-structured questions in three separate focus groups.

Improvement/Innovation/Change Ideas - Focus groups began with a presentation of themes from a systematic review on pediatric disclosure and a summary of current Canadian and international policies (Koller et al., 2016). The presentation was followed by semi-structured questions aimed at eliciting stakeholder perspectives on the issues. Efforts were made throughout the focus groups to ensure participants had a chance to share their views despite the range of age and ability.

Impact/Lessons Learned/Results - The following were variables to consider before disclosure, based on our thematic analysis of data: whether to disclose; error severity; family dynamics; child’s coping style; and who discloses. Participants suggested that certain elements should be a part of the disclosure process, such as listening, apologizing for the error, and providing adequate support and resources for follow-up after disclosure.

Discussion/Spread - Electronic monitoring of incidents in long-term care and retirement makes it possible for any operator to automate the analysis of incidents to instead prioritize the development of collaborative action plans.

2) Automating Falls Prevention – How leveraging big data created a culture of collaborative action planning in seniors housing
Kashin Fitzsimons
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Background/Context - Over 15,000 unique incident reports have been submitted and analyzed since introducing a centralized incident reporting system for all twenty-nine Amica Mature Lifestyles residences across Canada in 2016. Traditional approaches to falls prevention and reduction have required clinical leaders to complete manual falls analysis and later find the time to create meaningful action plans. By leveraging big data and automating the analysis of falls for clinical leaders in real time, the priority for leadership teams at each residence has shifted from attempting to find patterns to creating collaborative action plans in response to automated analysis.

Aim/Objectives – Through the creation of a more agile incident reporting and analysis system, our organization hoped to reduce falls and build a culture of collaborative action planning that would be made possible without having the manual task of reviewing individual incident reports for trends.

Measures -
- Outcome Measures
  - Falls per 1,000 Resident Days
  - Percentage of Residents with a fall in the last 30 Days
  - Percentage of Falls resulting in injury
  - Number of frequent fallers

Improvement/Innovation/Change Ideas – Creation of automated falls analysis dashboard to expedite the work required to identify safety trends. Creation of a centralized action planning platform to aggregate best practices, monitor collaboration, and share best practices.

Impact/Lessons Learned/Results – Implementing an automated falls analysis system paired with a centralized action planning tool resulted in a 20% reduction in falls across the entire organization in a six month period. Residents in the top quintile of collaboration as measured by the number of departments and roles consulted in the development of action plans reduced 200% more falls than their peers in the bottom 80%. Residences with higher acuity experienced equivalent success to residents with lower acuity. While the most common roles and departments with an active role in collaborative action planning across the organization were programs managers, care providers, and housekeepers, involvement extended to include a resident-chaired safety committee with complete access to automated falls analysis in the residence.

Discussion/Spread - Electronic monitoring of incidents in long-term care and retirement makes it possible for any operator to automate the analysis of incidents to instead prioritize the development of collaborative action plans.

3) Improving Access to Service for Case Management
Gris Babcock
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Background – There was confusion around access to service and data demonstrated an average of 1864 days wait time from assessment to service initiation with all case management services in London. Through EQIP coaching and the use of QI tools we were able to plan, implement and study various change ideas. The process was inclusive of leadership and direct service staff and has led to reduced wait times to case management services in the London program.

Aim/Objectives - Our aim was to decrease “avoidable” wait times to case management services in London from referral to service initiation to under 14 days. We also wanted to ensure the right people were at the table to ensure the process was effective and that there was buy in from staff to promote successful change.

Measures -
- Outcome: wait times from referral to service initiation in Case Management
- Process: % of ICM transitioned to TCM, % of intake workers transitioned to Brief Service Worker or TCM, %TCEMs/Intake who understand their role
- Balancing: Individuals Perception of Care (access questions)
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Improvement/ Innovation/ Change Ideas – Our improvement project involved two phases. The first phase was restructuring “Intake” to a new model; “Information and Brief Support”, addressing the root cause of storytelling. This led to the change idea to create new job descriptions and to restructure staff from two sites. It also allowed for “walk-ins” to receive an assessment at first contact, addressing the root cause of waiting for assessments to be scheduled. Phase two saw the transition of the Intensive Case Management team to a Transitional Case Management model in London. This change idea included a new role for TCMs to complete the assessment without going through the former intake process addressing the root cause of scheduling an appointment for assessment.

Impact/Lessons Learned/Results – The average wait time from the assessment to service initiation from March to October 2016 was 1864 days. With the new information and brief support model implemented the average wait time was reduced to 46 days from November 2016 to April 2017. With the further restructuring of ICM’s to TCMs the average wait time from assessment to service initiation was reduced to 10.62 days! During this time referrals increased from an average of 205 per month to 305 per month and the wait times were still reduced. Although the wait times have dramatically decreased the individuals served perception of access to services as scored on the OPOC (out of 4) has remained the same at an average rating of 3.47 (Oct - Nov 2016 compared to April - June 2017).

Discussion/Spread – We learned that change is hard for staff and staff longevity has an impact. Having the right people at the table, composition and number, is essential. Slowing down to effectively go through the QI process is important for success. EQIP provided us with support and training to have a successful QI journey. The TCM program continues to see a trend in decreased wait times. There may be potential for spread in the outreach program and rural sites

4) Quality Improvement in Inpatient Blood Glucose Management: Pilot of an Insulin Stewardship Program
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Background/ Context – Hyperglycemia in hospitalized people is associated with prolonged lengths of stay, increased complications and increased mortality. Diabetes Canada clinical guidelines recommend lowering blood glucose to 5-10 mmol/L in non-critically ill inpatients. Despite these recommendations, hyperglycemia remains prevalent. Insulin is often ordered and administered in a non-standardized way, including use of sliding scale insulin as the sole therapy.

Aim/ Objectives – The goal of the insulin stewardship program is to improve inpatient glycemic control at St. Michael’s Hospital, an urban academic tertiary hospital.

Improvement/ Innovation/ Change Ideas – In 2017, a needs assessment using surveys (n=87) and focus groups (n=48) at the local institution showed that prescribers did not consistently identify patients with hyperglycemia and order appropriate insulin regimens. Based on these findings, we tested the change idea of using an audit and feedback program. Each day, Decision Support Services generated a report of patients based on the pre-determined criteria of (1) blood glucose measurement of 120 mmol/L or more; (2) least two occasions; (3) any blood glucose measurement of less than 40 mmol/L; (3) order for basal insulin without bolus insulin; or (4) order for bolus insulin without basal insulin. A member of the insulin stewardship team performed a chart review of all flagged patients daily. Based on the chart review, recommendations were made to the care team to adjust insulin orders.

Impact/ Lessons Learned/ Results – A total of 237 patients were flagged during the pilot period, with the majority (87.8%) being flagged due to having blood glucose ≥12 mmol/L on 2 or more occasions. On average, the audit and feedback process took 148 minutes per day. Ninety-six recommendations were made to care teams, of which 51 (52%) were implemented. When recommendations were implemented, interventions facilitated the resolution of hyperglycemia. No increase in hypoglycemia was observed.

Discussion/Spread – During a 3-week pilot, key lessons were learned, such as the human and system resource requirements of a stewardship program, optimal communication methods with care teams, and refinement of criteria to flag patients for chart review. These lessons will be instrumental in guiding the scale and spread of an ongoing insulin stewardship program.

5) Implementation of a practice bundle to reduce Catheter-Associate Urinary Tract Infections (CAUTI)
William Mundle, Crystal Li
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Background/ Context – Once considered part of a routine admission, indwelling catheters are now recognized as being directly related to the development of hospital acquired infections (HAI). Catheter-Associated Urinary Tract Infections (CAUTI) have significant impact on patient morbidity and mortality and have financial consequences for the health care system. This awareness, as well as meeting the ongoing requirements of Magnet Recognition™, prompted a corporate/unit specific look at CAUTI prevalence and how best to reduce CAUTI rates.

Aim/ Objectives – This initiative aimed to promote timely removal of Urinary Catheters (UC) and improve appropriate catheter care techniques ultimately resulting in decreased use of UCs, reduced CAUTI, and improved patient outcomes.

Measures – 2 metrics were used in order to identify improvements: total number of catheters (catheter days) and total number of CAUTIs.

Improvement/ Innovation/ Change Ideas – A bundle of practices were created and introduced to staff within the three General Internal Medicine (GIM) units at Mount Sinai Hospital. These practices included:

1. Creation of a Nurse Driven Removal of Urinary Catheter Algorithm to promote appropriate insertion and maintenance of UCs
2. Revised Medical Directives to facilitate removal of UCs
3. Revision of daily huddles to incorporate discussion on prevalence of UCs
4. Addition of UC discussion at daily GIM inter-professional rounds
5. Screen savers on all computers on all medical units to promote discussion of UC removal
6. Targeted education for nursing and medical residents on appropriate indications and care for UCs

Impact/ Lessons Learned/ Results – >80% of all full-time, part-time, and casual nurses on each of the 3 GIM units received education in addition to new medical residents during their residency orientation. CAUTI rates dropped from 7.14 CAUTI (combined mean of 3 units) per 1,000 catheter days at time of bundle implementation to 0 CAUTI per 1,000 patient days 1-year post implementation. Catheter days dropped from an average of 587 for the 3 inpatient GIM units at implementation to 499 1-year post implementation.
6) Evaluating the benefit of a pediatric patient intake form for a consulting pediatrics clinic
Ilan A. Fellus, Radha Jetty
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Background/ Context – Gathering accurate historical information from patients and their caregivers during an outpatient clinic encounter is crucial to the practice of pediatric medicine. Self-administered intake forms have been shown to increase the comprehensiveness of medical history gathered, decrease the time spent on history taking and documentation, carrying the potential of improving cost-effectiveness, quality and safety. There are currently no Canadian pediatric academic institutions employing a self-administered patient intake form in their outpatient consulting general pediatrics clinics. We hypothesize that introducing such an intake form to clinical practice would positively impact patient care and enhance clinician's operations.

Aim/ Objectives –

- Primary Aims:
  1. Assess patient and practitioner satisfaction with the intake form
  2. Assess perceived benefit of the form to the clinical encounter
     a. Time saved
     b. Increased comprehensiveness of history
- Secondary Aims:
  1. Identify areas for improvement in the content and process of the intake form.

Measures – physician (N=8) and patient (N=10) surveys

1. Outcome measures:
   a. Perception of time saved
   b. Comprehensiveness of history
2. Balance measures:
   a. Physician satisfaction
   b. Patient satisfaction
3. Process measures:
   a. Intake form completion rates by patients (N=14)
   b. Intake form utility rates by physicians

Improvement/ Innovation/ Change Ideas –

Test 1: Expert feedback from three staff pediatricians regarding form's content and structure.
Test 2: Trial of form with three patients of co-investigator (RI)
Test 3: Mailing of forms to patients prior to appointments instead of providing it upon arrival to the clinic.

Impact/ Lessons Learned/ Results –

Intake form completion and utility, physician satisfaction and patient satisfaction all exhibited strong positive trends after mailing the intake form to patients ahead of their appointments (vs. giving the form at the time of presentation to clinic). Intake form completion rates in all sections and physician utility were close to 100% once forms were mailed to patients.

Discussion/ Spread – The intake form, particularly when mailed to patients ahead of their appointment time, may play a key role in the care of pediatric patients. In the future, we would like to repeat the study on a larger scale and adapt the form to additional departments to assess its utility and feasibility.

7) Impact of Medicine Program Assessment Bays on Clinical Indicators and Patient Outcomes

Ilan A. Fellus, Radha Jetty
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Background/ Context – Long wait times and limited bed availability in Windsor Regional Hospitals (WRH) Emergency Department (ED) suggests inefficiencies exist in the current ED model. Previously, patients were waiting on average 29.4 hours for an inpatient bed. Based on a literature review and comparison to other hospitals we have set our quality goal at 10 hours. Delayed admission is associated with negative outcomes including frequency of iatrogenic injuries and readmissions. WRH recognized a need for improvement in patient flow and implemented a new ED model on October 30, 2017.

Aim/ Objectives –

- Reduce time from decision-to-admit in the ED at WRH to arrival in Assessment Bay (AB) to 5.5 hours by January 23rd, 2018.

Measures –

- Average time in ED from decision-to-admit to arrival in AB
- Percent of patients sent to AB from ED
- Number of ‘Grey Days’ in AB
- Average number of denied admissions due to bed unavailability at 7am

Balance:
- 7-Day readmission rates
- Patient satisfaction
- Percentage of patients beyond estimated-discharge-dates (EDD) by 5 days or more

Improvement/ Innovation/ Change Ideas –

The model uses ‘ABs’, short-stay beds on inpatient floors, to expedite diagnosis/management for inpatients up to 24 hours. Then, a decision is made to discharge or admit as an inpatient. The development of this model was based on a flow chart and root-cause-analysis which identified actionable barriers to patient flow including bed availability and adherence to EDDs.

Change Ideas:
1. Expedite diagnosis/management to reduce length-of-stay
2. Increase bed turnover on inpatient floors to streamline patient flow.

Impact/ Lessons Learned/ Results –

Initial AB data showed promising improvements in wait times:

- Average wait times from decision to admit in ED to AB decreased from 11.0 to 5.3 hours
- Percentage of patients beyond EDD by 5 or more days was 29% since AB implementation.
- 93% of eligible patients were sent to AB's approaching target of 100%
- Average number of patients admitted off-service decreased from 38/week to 8/week

Discussion/ Spread – Currently AB’s are implemented in six units throughout WRH’s two campuses. Consideration for expansion of this model to other units at WRH is warranted. Areas for improvement that have been identified include: proper identification and communication to patients; improve AB comfortability and mixed-gender rooms; and enforcing 24-hour deadline.

8) Screening for Intimate Partner Violence In Primary Care: A Quality Improvement Initiative

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Background/Context – Intimate Partner Violence (IPV) refers to any behavior within an intimate relationship that causes physical, psychological or sexual harm to those in the relationship. (1, 2) It is a Canadian and worldwide public health issue with broad-reaching health consequences whose burden is overwhelmingly borne by women. (1, 3) Family physicians are uniquely positioned to screen for IPV, as current evidence suggests that the strength of the doctor-patient relationship is most predictive of patient disclosure. (3)

Aim/Objectives – We aimed to implement and increase IPV screening in men and women aged 18-65 by 20% during periodic health exams in an office practice within the North York Family Health Team (NYFHT) between January and June 2018.

Measures – Our outcome measure was the percentage increase in IPV screening rates during periodic health examinations. Our process measures were the proportion of health providers who used the IPV screening tools and the percentage of screening done and documented through our EMR-based tool. As balance measures, we assessed the additional time the practitioner spends in the office, the time required by the practitioner, and change to allied health wait times, after implementation of the IPV screening program.

Improvement/Innovation/Change Ideas – We studied reasons family physicians do not routinely screen for IPV using a PARETO chart and stakeholder analysis. To establish baseline IPV screening rates within the NYFHT, we conducted a representative chart review. We held informal discussions with health professionals to understand perceived barriers to IPV screening. As change ideas, we (1) developed a 1-page document outlining IPV definitions, diagnosis and screening tools; and (2) we created an EMR stamp with a validated IPV screening tool and inserted it into periodic health exam templates.

Impact/Lessons Learned/Results – We increased IPV screening rates in patients aged 18-65 from 1% to 58.9%, with 4/4 health care practitioners using the EMR-based screening tool, and 97% of IPV screening documented using the EMR-based stamp, office practice.

Discussion/Spread – We successfully implemented IPV screening during periodic health reviews. Next steps include incorporating screening throughout other visits, as well as evaluating patient and physician acceptability of IPV screening.

References –

9) Scaling & Sustaining A Primary Care Quality Improvement initiative
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Background – In Alberta, a gap exists in providing screening and preventative care to patients attached to a primary care provider but do not present for screening. In 2013, 80% of Albertans had a family physician yet nearly 1/3 of patients were not receiving appropriate screening care. A Quality Improvement initiative, Alberta Screening and Prevention (ASaP) was designed to help primary care clinics reach patients who need screening and preventative care, specifically those who do not present for screening.

Aim/Objectives – ASaP had 3 objectives:
1. Primary Care teams select screening/prevention maneuvers and offer screens to paneled patients using opportunistic (as patients present) and planned outreach (initiating contact) methods.
2. Primary Care Networks (PCNs) offer improvement facilitation (IF) to clinics to develop customized practice-level screening processes.
3. PCNs build capacity through IF training to support physician/team behavior changes, Electronic Medical Records knowledge exchange, and screening/prevention methods.

Measures – Evaluation was guided by the RE-AIM (Reach, Effectiveness, Adoption, Implementation and Maintenance) framework, and a summative evaluation using mixed methods approach. Chart Reviews, as primary source of data, assessed baseline and follow-up screening offer rates. Hierarchical logistic regression modeled odds of patients receiving 13 evidence-based clinical maneuvers before and four months after the improvement period. Surveys, self-assessments, training evaluations and interviews were completed with key informants.

Improvement/Innovation/Change Ideas - Impact/ Lessons Learned/ Results – In February 2018, PCNs and 909 physicians enrolled; and 1,004,400 Albertans were on patient panels where primary care teams actively offer evidence-based screens. ASaP demonstrated successful spread across Alberta, and sustainability beyond the intervention phase. As of July 2018, the “Sustain Chart Reviews”, completed yearly after the follow-up, show a statistically sustained improvement (159% increase) in offers of appropriate screens to paneled patients. Alberta Health has implemented reporting of screening as policy resulting in 1.6 million Albertans being affected by ASaP.

Discussion/Spread - ASaP significantly increased offers of screening to a population of patients who do not typically present for care. It was scalable provincially and positioned primary care for sustainable quality improvement beyond the intervention phase. ASaP shows that wider adoption of proactive screening processes correlates with focused efforts on building capacity within PCNs, by involving IF in a dedicated role.

10) Optimizing the medication administration process – a pilot project
Marie Claude Poirier, Violette Lacroux
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Background – Literature shows that most of all medication errors occur during the administration phase of the medication management process (Blignaut et al., 2017). Hôpital Montfort is no exception as over 240 incidents or sexual harm to those in the relationship. (1, 2) It is a Canadian and worldwide public health issue with broad-reaching health consequences whose burden is overwhelmingly borne by women. (1, 3) Family physicians are uniquely positioned to screen for IPV, as current evidence suggests that the strength of the doctor-patient relationship is most predictive of patient disclosure. (3)

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Objectives – This project focused on the optimization of the medication administration process by standardizing and improving nursing practice on a surgical unit. The goal was to reduce the number of incidents related to medication administration by 20% by June 30th, 2018.

Measures – Root cause analysis (Fishbone) demonstrated gaps in nursing practice standards during medication administration. Two types of measures were used to monitor data: a process indicator measuring the application of nursing best practices during medication
administration through observation, and a performance indicator monitoring the number incidents reported.

Change Ideas –
- Implemented in April 2018;
- Development of a standard work and training for nurses based on best practice;
- Improved clarity of information on MARs;
- Use of a medication transportation tool.

Results - Preliminary results show significant improvements in the application of best practices by nurses during the drug administration process from pre to post-implementation, passing from 31% to 78% of best practice behaviors observed (N= 15). Quarterly audits through observation will continue to ensure sustainability of practice changes.

Unlike we had hoped monthly monitoring of the number of related incidents is still inconclusive. Due to process and reporting awareness created, we believe that an increase in reported incidents is possible before we observe an improvement. Monthly monitoring of incidents will be ongoing and shared.

Discussion/Spread - This project was very well received on a corporate level. Clinical managers have manifested great interest in implementing on their nursing unit. An implementation guide is presently being developed to expand this initiative across the hospital within the next year. Ongoing efforts will continue to further develop this program through additional change ideas and patient involvement.

11) Toolkit on Patient and Public Engagement in Choosing Wisely International Campaigns
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Background/Context – There are over 20 countries around the world with Choosing Wisely campaigns. Campaigns are clinician-led and aim to reduce unnecessary tests and treatments. A shared priority of campaigns is to work with patients and the public to foster awareness of overuse and promote shared decision-making. Engagement of the public is challenging, and to address this, campaign leaders from 8 countries published an evidence-based framework. Given diverse campaign contexts and local environments, there is a need to learn about the diversity of efforts. As Choosing Wisely continues to spread, there is a need to provide a resource to foster shared learnings.

Aim/Objectives – To create a toolkit drawing on an evidence-based framework. To provide examples of insights, innovations, and resources to support learning.

Measures – The primary outcome measure will be the number of downloads. Process and balance measures do not apply. There is a knowledge translation strategy for disseminating the toolkit which includes distribution to leaders of Choosing Wisely campaigns and blogs and sharing with relevant partner organizations.

Improvement/Innovation/Change Ideas – An environmental scan was conducted to gather cases of patient and public engagement in Choosing Wisely. Individuals leading the campaigns were contacted and interviewed. A summer student (AK), guided by a working group consisting of campaign leaders from 5 countries and two members of the public who serve as the Patient and Public Advisors to CWC developed and reviewed the toolkit. 28 case studies from 12 countries were included, along with relevant resources (e.g., templates, promotional material, etc.).

Impact/Lessons Learned/Results – The toolkit is advancing knowledge on innovative approaches to engaging patients and the public in health system quality and safety efforts, and specifically, in Choosing Wisely campaigns.

Discussion/Spread – The toolkit provides illustrative cases and tools to support the evidence that when patients and the public are engaged in quality and safety efforts such as Choosing Wisely campaigns, they can provide valuable insights around what is important to them. Overall, there is no singular way to engage patients; partnerships, patient roles and responsibilities, campaign messaging, and physician interactions vary depending on national context.

12) The path of least resistance: how computerized provider order entry can lead to (and reduce) wasteful practices
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Background/Context – Computerized provider order entry (CPOE) is becoming the mainstay in clinical care and has potential to improve provider efficiency and accuracy. However, this hinges on careful planning and implementation. Poorly planned CPOE order sets can lead to errors and waste. In our emergency department (ED), lactate dehydrogenase (LDH) was bundled into various blood work panels but had little clinical value, and despite this, LDH was one of the most commonly ordered tests.

Aim/Objectives – This quality improvement initiative aimed to reduce unnecessary LDH testing in the ED by 50% within 4 weeks.

Measures – We measured the daily number of LDH tests ordered and tracked the frequency of other serum tests as controls. We also analyzed the number of add-on LDH (ie. to add LDH to samples already sent to the lab) as a balancing measure, since this can disrupt workflow and delay care.

Improvement/Innovation/Change Ideas – A group of ED physicians reviewed CPOE blood work panels and uncoupled LDH in conditions where it was deemed not to provide any clinical value. The proposed changes were presented to the entire ED physician group for feedback, and there was unanimous support to remove it from the selected panels. The CPOE was then modified on June 22, 2017, and its effects were tracked.

Impact/Lessons Learned/Results – This intervention reduced LDH testing by 69% from an average of 75.1 tests per day to 23.2 (p < 0.0005), which was maintained for 4 weeks. The controls were not affected (e.g. a complete blood count was performed 197.7 and 196.1 times per day pre- and post-intervention, respectively [p = 0.7663]). There was fewer than 1 add-on LDH per day. An informal survey of the ED group was done after the intervention, and there were no issues with its removal. In fact, the majority of the group did not notice that LDH was no longer routinely ordered.

Discussion/Spread – CPOE templates can be powerful in shaping behaviours and reducing variability. However, dose oversight of these panels is necessary to prevent errors and waste. We have started review of all other panels and order sets to ensure that waste and errors have not been inadvertently introduced.

13) Reducing Waste: A Guidelines-Based Approach to Reducing Inappropriate Vitamin D and TSH Testing in the Inpatient Rehabilitation Setting
E. Ali Bateman, Alan Gob, Jan Chin-Yee, Heather M. Mackenzie
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Discussion/Spread – CPOE templates can be powerful in shaping behaviours and reducing variability. However, dose oversight of these panels is necessary to prevent errors and waste. We have started review of all other panels and order sets to ensure that waste and errors have not been inadvertently introduced.
Background/Context – Laboratory overutilization increases healthcare costs and can lead to negative health outcomes. Discipline-specific guidelines do not support routine testing for Vitamin D and TSH in the inpatient rehabilitation setting. However, patients routinely receive costly, non-evidence-based Vitamin D and TSH investigations on admission to Parkwood Institute, an academic rehabilitation hospital in London, Ontario.

Aim/Objectives – Reduce Vitamin D and TSH testing by 25% on admission to inpatient Stroke, Spinal Cord Injury, Acquired Brain Injury, and Amputee Rehabilitation by May 2018.

Measures – The frequency of Vitamin D and TSH testing on admission was the primary outcome measure. The number of electronic admission order care sets containing automatic Vitamin D and/or TSH orders was the process measure. The rate of Vitamin D supplementation and changes in thyroid-related medications were the balancing measures.

Improvement/Innovation/Change Ideas – Root cause analysis revealed potential causes underlying overutilization of Vitamin D and TSH testing. This information informed a series of PDSA cycles to reduce admission testing rates. For both Vitamin D and TSH, an academic detailing intervention with key stakeholders reviewed applicable clinical guidelines for each patient care discipline and the rationale for reducing admission testing. Simultaneously, computerized clinical decision support (CCDS) limited Vitamin D testing to specific criteria. Audit and feedback were used in a subsequent PDSA cycle.

Impact/Lessons Learned/Results – Prior to the intervention, 94% of patients had Vitamin D and TSH tested on admission to inpatient rehabilitation. All admission order care sets (N=6) included automatic Vitamin D and TSH orders. 91% of patients received Vitamin D supplementation. Thyroid-related medications changed in 34% of patients. After the intervention, 34% of patients had admission Vitamin D testing (96% reduction) and 56% of patients had admission TSH testing (40% reduction). All admission order care sets were revised to remove automatic Vitamin D and TSH orders. 92% of patients received Vitamin D supplementation. Thyroid-related medications changed in 24% of patients. The overall cost savings is approximately $16.76 per admitted patient, or $9,011.64 annualized.

Discussion/Spread – Similar to previous literature, CCDS restricting ordering was more effective than academic detailing and audit and feedback alone; however, in-person, guideline-driven, discipline-specific education and audit and feedback produced robust results.

14) Impact of auditing and teaching routine environmental cleaning of the operating room (OR) to housekeeping and OR staff – Philippe Fournier, Josée Shymanski, Marcelle B. Thibeault, Martin Carrière, Mychèle Sabourin
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Background/Context – Environmental contamination has been associated with increased risk of infection. Although the Operating Room Nurses Association of Canada (ORNAC) has clear standards for operating room (OR) cleaning, both housekeeping and OR staff in our facility reported that these standards were not always met nor well understood by all staff involved in cleaning procedures. This may have contributed to increased risk of surgical site infections (SSI).

Aim/Objectives – To optimize OR cleaning practices by developing, teaching and auditing standardized cleaning procedures using a collaborative approach.

Measures – Baseline data was collected by an infection control practitioner who completed sixteen observations of in between case cleaning over two days, evaluated if a morning cleaning was done for each of the nine operating theaters and observed one terminal cleaning. Baseline data showed a compliance rate of 58% for in between case cleaning, 0% for morning cleaning and 0% for terminal cleaning.

Improvement/Innovation/Change Ideas – A standardized auditing tool based on ORNAC standards was created to measure compliance to OR cleaning process. Results were output in an excel spreadsheet which automatically calculates compliance rates and populates graphs. Baseline data was used to develop the training material which was then taught to both environmental and OR staff. Audits are now performed on a weekly basis by our Environmental service coordinator and feedback is given to staff after each evaluation.

Impact/Lessons Learned/Results – Following this initiative, compliance improved from 58.4% to an average of 82.8% over seven months. Improvements resulted from outlining expectations, changing the sequence of certain cleaning steps or clarifying responsibility. This initiative likely contributed to improving our SSI rates, which have decreased by 58% and 89% for knee and hip respectively.

15) Reducing harm from opioids in an academic family health team: a multipronged team-based approach – Margarita Lam Antoniades, Jonathan Hunchuck, Samantha Dave, Kari Fulton, Brenda Chang, Emma Jevons, Rajesh Ghirdari, Andrew Boszary, Mary Gaudet, Anne Mullens Grey, Victoria Pho, Sam Merrifield, Tiara Tilli, Tara Kiran
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Background/Context – Canada is in the midst of an opioid crisis, with escalating overdose deaths in multiple provinces and the second highest rate of per capita opioid consumption in the world. Prescription opioids are an important therapeutic tool, however they carry risks, even when prescribed and used appropriately. Recent guidelines have provided some clinical guidance around safer opioid prescribing for chronic non-cancer pain. Guidelines, however, can be challenging to implement in practice. Creating systems to support prescribers in implementing guidelines in a complex clinical environment can be an enabling force.

Aim/Objectives – The objective of this project was to develop an approach to reducing harm from opioids in a large inner city academic family health team using a Quality Improvement framework involving:
1. Understanding the problem through reviewing prescribing and dispensing data and qualitative interviews with prescribers and patients
2. Identifying measures to allow us to quantify improvement
3. Implementing a multi-faceted approach to address the problem from a variety of angles
4. Demonstrating an improvement in our measures

Measures –
• Percentage of family health team patients on an opioid medication
• Percentage of patients on a high dose opioid
• Percentage of patients on both an opioid and a benzodiazepine
Improvement/Innovation/Change Ideas – A multi-faceted approach was used including:
1. Targeted pharmacy involvement in enhancing opioid prescribing.
2. Educational activities in the FHT to enhance skills around opioid prescribing and increase naloxone/buprenorphine prescribing capacity, including academic detailing.
3. Increasing the prescription of naloxone kits for high-risk patients.
4. Optimizing tools available in the electronic health record to support safer prescribing.

Impact/Lessons Learned/Results – Data will be presented showing a reduction in the percentage of patients in our FHT on an opioid, percentage of patients on a high dose opioids and percentage of patients on both an opioid and a benzodiazepine. Results from qualitative interviews with providers and patients will be presented, highlighting challenges in opioid prescribing. Approaches to de-prescribing will be presented.

Discussion/Spread – Our results demonstrate that a multifaceted approach to reducing harm from opioids can have a positive effect on indicators of high risk prescribing. This learning could be applied to other primary care settings.

16) Time for the Talk: Optimizing Hepatitis C treatment discussion rates in HIV-Hepatitis C co-infected patients
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Background/Context – The approval of novel direct-acting antiviral agents in Canada greatly enhances the accessibility and effectiveness of Hepatitis C (HCV) treatment. Some HCV-positive patients may not have had an up-to-date discussion about these treatments with their provider. Moreover, HIV-positive patients co-infected with HCV have a poorer prognosis.

Aim/Objectives – By June 2018, among the five providers at the SMH FHT with the greatest proportion of HIV-HCV co-infected patients, we sought to increase by 5% the proportion of those patients who discussed HCV treatment with their main provider.

Measures –
- Outcome: Proportion of HIV-HCV co-infected patients (n=140) who receive HCV treatment.
- Process: Number of co-infected patients who discuss new HCV treatments with their provider at SMH FHT.
- Balance: Time required in contacting co-infected patients to set up treatment discussions.

Improvement/Innovation/Change Ideas – An inter-professional group of HIV/HCV care providers worked to populate a fishbone diagram about barriers to HCV treatment and generate the following change ideas:
1. Analyze EMR data to characterize the HCV-HIV co-infected individuals at our FHT.
2. Create a phone script to use in inviting co-infected patients to SMH FHT for a discussion about HCV treatment. Garner feedback on this script from HCV-positive patients.
3. Call treatment-naïve patients using the phone script. If amenable, schedule them for a HCV treatment discussion.

Impact/Results –
1. 36% of co-infected patients are treatment-naïve, of which 47% are distributed among 29 different providers.
2. Themes identified from our interviews about the phone script included patient concerns about confidentiality and excitement about a new HCV treatment.
3. Many co-infected patients in our list of “treatment-naïve” patients had in fact already been treated.

Discussion/Spread –
1. A large number of providers at our FHT care for HIV-HCV co-infected patients, including many with no special HCV/HIV expertise.
2. A phone script inviting patients for an HCV treatment discussion is an acceptable outreach tool.
3. Co-infected patients at our FHT are engaged with their providers. They may be less in need of outreach methods to increase treatment than those with HCV mono-infection.

17) Improving Patient Communication in an Emergency Department’s Rapid Assessment Zone
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Background/Context – Emergency Department (ED) communication between patients and clinicians is fraught with challenges such as brevity, uncertainty and patient health literacy. A recent survey of 65 ED patients revealed low patient satisfaction with ED communication and resultant patients anxiety.

Aim/Objectives – Our aims were to increase patient-reported satisfaction with ED communication and to decrease patient anxiety related to lack of information about their ED visit (primary aims), and to decrease clinician-perceived volume of interruptions by patients (secondary aim), each by one point on a 5-point Likert scale over a six-month period.

Measures – The primary aims were measured through anonymous patient surveys administered by ED volunteers uninvolved in their care towards the end of their visit. The secondary aim was measured through end-of-shift clinician surveys. Statistical process control (SPC) charts were used, as well as two-tailed Mann-Whitney tests to assess for statistical significance between means (significance p<0.05).

Improvement/Innovation/Change Ideas – We performed wide stakeholder engagement, obtained baseline measurements of patients and clinicians, and conducted a patient focus group. An inductive analysis of surveys followed by a yield-lesser-effort grid led to three interventions, introduced through sequential and additive Plan-Do-Study-Act (PDSA) cycles.


PDSA 2: Patient information pamphlets developed with stakeholder input.

PDSA 3: A TV screen with useful information videos playing 24/7 in the patient waiting room.

Impact/Results – A total of 232 patients and 104 clinician surveys were collected over five months. Wait times, ED process, timing of next steps, and directions were the most frequently noted communication gaps, which were included in the pamphlet and video. Patient satisfaction improved from 3.28 (5 being best, all means; n=65) to 4.15 (n=59, p=0.0001). Patient anxiety improved from 296 (1 being best; n=65) to 231 (n=59, p<0.001). Clinician-perceived interruptions went from 4.33 (1 being best; n=50) to 4.18 (n=11, p=0.098). SPC charts using Likert scale points 1 to 5 did not show special cause variation.
Discussion/Spread – A sequential, additive approach undertaken with pragmatic and low-cost interventions led to increased satisfaction with patient communication and decreased patient anxiety due to lack of information about their ED visit, which could be easily replicated in other EDs.

18) **Team Dynamics within Quality Improvement Teams: A Scoping Review**
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**Background** – Much of the success of quality improvement (QI) efforts relies on the QI teams leading the work. However, little is known about how these teams actually operate, how they make use of quality improvement knowledge, and how they generate practice change. A better understanding of QI teams is required in order to advance the practice of QI.

**Aim/Objectives** – This scoping review examines what is known about the processes of QI teams, particularly related to how teams impact outcomes. The aim was to provide research-informed guidance for QI leaders and to inform future research questions that will advance the QI field.

**Data Sources and Study Selection** – Databases searched included: MEDLINE, EMBASE, CINAHL, Web of Science and SCOPUS. Eligible publications were written in English, published between 1999 and 2016. Articles were included in the review if they examined processes of the QI team, were related to health care QI, and were primary research studies. Studies were excluded if they had insufficient detail regarding QI team processes. Descriptive detail extracted included: authors, geographical region, and health sector. The Integrated Health Care Team Effectiveness Model (ITEM) was used to synthesize findings of studies along domains of team effectiveness: task design, team process, psychosocial traits and organizational context.

**Results of Data Synthesis** – Over two stages of searching, 4,813 citations were reviewed. Of those, 48 full text articles are included in the synthesis. This review demonstrates that QI teams are not immune from dysfunction. Further, a dysfunctional QI team is not likely to influence practice. However, a functional QI team alone is unlikely to create change. A positive QI team dynamic may be a necessary but insufficient condition for implementing QI strategies.

**Change Concepts and Implications** – This review provides important guidance for leaders concerned with QI, particularly around concepts of leadership, team membership, and team dynamics. Areas for further research include: interactions between QI teams and clinical microsystems, understanding the role of interprofessional representation on QI teams, and exploring interactions between QI team task, composition, and process.

19) **Communicating cardiovascular risk in rheumatoid arthritis: a quality improvement project**
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**Background/Context** – Patients with rheumatoid arthritis (RA) have an almost 50% increased risk of cardiovascular disease (CVD) compared to the general population. Nevertheless, studies show that RA patients are less likely to be screened and managed for CVD than non-RA patients. International guidelines state that rheumatologists should communicate the increased risk of CVD to primary care providers (PCPs) at least once per year.

**Aim/Objectives** – Baseline chart review at Women’s College Hospital Rheumatology Division showed that only 13% of patient charts documented the increased CVD risk associated with RA within the previous 12 months. Since RA patients are usually seen 3-4 times per year, our aim was to increase the percentage of clinic notes that communicated the increased CVD risk to 30% by July 31, 2018.

**Measures** – Our outcome measure was the percentage of clinic notes for eligible RA patients that communicated the increased CVD risk to PCPs. Our process measure was the inclusion of our “RhuCardio Smartphrase” at the end of clinic notes, and our balance measure was staff satisfaction. Our outcome and process measures were analyzed using statistical process control charts and plotted on an a weekly basis.

**Improvement/Innovation/Change Ideas** – To increase the communication of CVD risk, we designed a “smartphrase” – an easy-to-use template that could be inserted by clinicians into clinic notes – that contained information for the PCP. After obtaining feedback from PCPs, rheumatologists and cardiologists, we implemented the smartphrase and used a graduated reminder system to increase usage.

**Discussion/Spread** – Implementation of a smartphrase into clinic notes increased the communication of CVD risk in RA patients. Next steps include surveying PCPs to assess the impact of our smartphrase and adjusting content accordingly.

20) **Safe Reduction of Abdominal/Pelvic CT Imaging in Children at Very Low Risk for Intraabdominal Injury: A Quality Improvement Initiative**
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**Background** – Data indicates 17-25% of children who receive abdominal/pelvic CT imaging after trauma are at very low risk for intraabdominal injury (IAI), with expected yields of 0.1%. Unnecessary imaging for these children exposes them to ionizing radiation, procedural sedation and increases cost to the healthcare system.

**Objectives** – We aimed to reduce abdominal/pelvic CT scans in pediatric trauma patients at very low risk of IAI by 20% utilizing a dedicated Diagnostic Imaging algorithm and forced-option CT requisition, both developed using published prospective clinical decision rules.

**Methods** –

- **Setting**: Paediatric Level I Trauma Centre
- **Design**: Retrospective record review (for baseline audit) followed by prospective time series using the model for improvement.
- **Patients**: Paediatric trauma activations receiving abdominal/pelvic CT scans from December 11, 2017– April 15, 2018.
- **Measures**: Main outcome was proportion of abdominal/pelvic CT scans in patients with very low risk of IAI, defined by injury severity score <= 8 and/or by specified decision rule. CT scans ordered within 24hr of admission, return visits to the Emergency Department within 72 hr and admissions to hospital with newly diagnosed IAI were collected as balancing measures to evaluate for missed injuries.

**Results** – Pre-intervention, 103/187 (55.1%) of pediatric trauma patients in 2016/17 received abdominal/pelvic CT scans, of which 33/103 (32.0%) were suggested to be low risk for IAI with injury severity score (ISS) <= 8.
Post-intervention, the proportion of abdominal/pelvic CT scans in all trauma patients and those at very low risk for IAI decreased to 22/53 (41.5%) and 1/22 (4.5%) respectively, without any missed injuries.

Conclusions – This quality improvement initiative resulted in a 25% reduction in abdominal/pelvic CT imaging in pediatric trauma patients without missed injuries. This initiative has reduced unnecessary testing and clinically significant ionizing radiation in a vulnerable population.

Discussion/Lessons Learned – We learned engaging relevant stakeholders early and regularly is essential, and fostering enthusiasm through dissemination of both positive and negative results is important. Utilizing robust evidence as a framework for quality improvement work establishes credibility and facilitates buy-in, as does joining established programs such as Choosing Wisely. While a multifaceted approach is necessary, enforcing forced changes to workflow was most effective.

21) Pilot asthma pharmacist consultation service: Perspectives of patients and pharmacists
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This study was funded by an unrestricted grant from AstraZeneca and GlaxoSmithKline.

Background/Context: Asthma is a chronic health condition, affecting 1.7 million Ontarians, 3.8 million Canadians and over 235 million people worldwide. Effective management of asthma can prevent exacerbations and more severe negative health consequences. An opportunity exists to improve the patient management of asthma and reduce the incidence of related complications through leveraging the unique skills of community pharmacists.

Aim/Objectives: To describe patient and pharmacist satisfaction with a pharmacist-led asthma management service.

Measures – Patients enrolled in the study were asked to complete a satisfaction survey at conclusion of intervention and pharmacists that delivered the intervention were asked to participate in a 30 minute exit interview

Improvement/ Innovation/ Change Ideas – This pilot identified areas of improvement for a pharmacist delivered asthma intervention.

Impact/Lessons Learned/Results: A total of 7 pharmacies enrolled. There were 12 pharmacists remaining in the study at completion and eight completed the exit interview. Of the 81 patients identified, 19 consented, 49 declined, and 13 were ineligible based on our criteria. Of the 19 that consented, one patient never started; one pharmacy dropped out; three patients dropped out after visit 3; and one patient dropped out after visit 5. The results reported are based on the 13 patients that completed the patient satisfaction survey.

Many patients in both groups (control 71% intervention 50%) strongly agreed that the study provided them with a valuable service. In both groups 100% of patients either agreed or strongly agreed that the quality of information provided to them by their pharmacist was excellent. Many pharmacists supported a targeted asthma management program delivered within the community setting and would participate in such a program in the future if it were to become a funded professional service.

Discussion/Spread: The results of this pilot study illustrate that both patients and pharmacists respectively are interested in receiving and delivering an asthma service within the community pharmacy context. Future studies should focus on delivering a similar intervention over a shorter duration to optimize the sample size.

22) Dissemination of Quality Improvement Knowledge and Projects via a City-Wide Emergency Medicine Quality Improvement Digest
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Background/Context – Many Toronto emergency departments (EDs) have quality improvement (QI) committees to learn from adverse events and return visits and promote QI locally. But there are few mechanisms for the EDs across the city to disseminate these lessons in order to learn from each other.

Aim/Objectives – To develop a monthly “QI digest”, with a rotating schedule, for EDs across the city to 1) share de-identified adverse events using a QI framework (patient factors, provider factors and system factors), including action items to prevent similar events in the future, 2) share local QI projects and promote city-wide M&M rounds. The digest would be shared with QI teams across the city, distributed at M&M rounds, and included in the Division of Emergency Medicine’s monthly newsletter.

Measures – Number of sites who participated in the project, number of cases and QI projects shared across the different sites, and interest to continue or expand the project

Improvement/Innovation/Change Ideas – Publishing and disseminating a monthly digest for QI teams across the city to learn from each other, and to promote a culture of quality improvement more broadly

Impact/Lessons Learned/Results – Six different sites participated over the course of the 2017-2018 academic year. Through local disseminating city-wide M&M rounds and division newsletters, the digest shared 14 cases, 12 QI projects and 2 algorithms to improve patient care—from obtaining faster diagnostic imaging interpretation, to improved medication safety, to clinical decision support and surge protocols. There was unanimous interest amongst the participating sites to continue the digest in the upcoming academic year, and two more sites will be joining

Discussion/Spread – The digest disseminated multiple case lessons and QI projects across the city, to share amongst different QI committees while promoting a culture of quality improvement more broadly. The desire to not only continue the digest but also expand the number of participating sites shows the role and interest in the publication.

23) Inpatient Deprescribing: A Pilot Project Performed at Winchester District Memorial Hospital
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Background – Avoidable hospitalizations and emergency room visits due to inappropriate polypharmacy are common patient safety challenges in the elderly population. Deprescribing the careful process of medication withdrawal or dose reduction, presents a viable solution for this problem. However, despite the advancement in deprescribing knowledge and guidance, its adoption within clinical practice has been slow due to multiple barriers identified in the literature.

Aim – The project sought to explore the viability and successfulness of offering a multi-disciplinary inpatient deprescribing program to WDMH patients presenting to the hospital with geriatric syndrome and requiring
comprehensive non-single-agent deprescribing. The project aimed to address the deprescribing barriers identified in the literature.

**Measures – Outcome measures included the number of medications removed, restarted, and dose-reduced; patients’ reported health effects; as well as changes in the number of hospitalizations and emergency room visits pre and post-intervention. Process measures included team members evaluation of the communication, outcome, and implementation process. Balancing measures involved evaluation of the added workload of the leading pharmacists.**

**Improvement – The project team developed a deprescribing flowchart that began by identifying patients and ended with a post-discharge follow-up plan. The process addressed multiple deprescribing barriers such as involving the patient and family throughout the whole process, involving family physicians and specialists in the deprescribing plan and utilization of synergistic rehabilitation services. The team also developed a deprescribing guiding document that includes a list of evidence-based targeted pharmacotherapy along with the available deprescribing algorithms and tools.**

**Results – Among 11 patients, a total of 42 medications were removed, 12 reduced, and 6 introduced or substituted. Following discharge, 14% of the withdrawn medications were restarted. There was an observed 82% reduction in the combined number of emergency room visits and hospitalizations post deprescribing.**

**Discussion – This pilot study illustrated the potential of using multi-disciplinary deprescribing approaches within a rural inpatient setting to reduce adverse health outcomes resulting in hospitalization and ER visitation. These results are promising, and further research is necessary to validate the conclusions drawn from this study and to scale it up.**

24) **Checking in Daily for Safety**

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**Background/Context –** Michael Garron Hospital (MGH) designed and implemented a Daily Safety Check to provide the ‘missing link’ in strengthening its culture of safety through enhanced awareness, to work proactively in ensuring patient and organizational safety.

**Aim/Objectives –** The aim was to design a process that promotes daily awareness and identification of real-time safety concerns, and mandates that safety issues be resolved promptly.

**Measures –** Measures such as occurrence, completion & distribution of daily reports, type and number of safety events are entered into a data management system that is capable of running reports and storing historical data. A qualitative survey measured change in safety awareness and in proactive identification of safety issues.

**Improvement/Innovation/Change Ideas –** MGH’s process is unique in:

1. The inclusion of senior leadership to encourage collaboration among executive and clinical leaders to increase accountability and accelerate resolution in addressing safety concerns.
2. Staff attend early morning meetings seven days a week that involves input from both day and night staff and ensures that a plan can be implemented in a timely way.
3. Process is designed to reinforce the intent to improve the quality of care, and importance of our just safety culture.
4. Data is analyzed by using an existing incident reporting system that allows generation of meaningful data to consistently monitor outcome measures. The results are reviewed by the senior team and the Medical Quality and Patient Safety Committee which includes a patient representative.

**Impact/Lessons Learned/Results –** Teams now work together daily to develop action plans to address identified issues, creating high performing teams within various care areas and an overall sense of teamwork across the organization.

- 50% increase in proactive response to safety concerns.
- 60% increase in situational awareness for potential organizational risk.
- 100% daily safety check occurrence and completion of daily safety report.

**Discussion/Spread –** Evidence suggests an enhanced culture of safety through engagement of all hospital teams to strategize about real and potential safety risks with an increase in the number of good catches. Improvements have been sustainable over the past year and are manageable due to the versatility of our incident report management system.

25) **Teamwork, communication, and role unfamiliarity in the operating room**

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**Operating room teams consist of a constantly changing mix of healthcare professionals and trainees. Knowledge of each member’s name and role forms the basis of team cohesion and effective communication within each team. The Surgical Safety Checklist created by the World Health Organization includes confirming the name and role of each team member before the first skin incision is made. Our initial observation of five ORs showed that team introductions are often skipped, and that episodes of role unfamiliarity are common.**

**Aim/Objectives –** The objective of this study was to assess the perceived usefulness and acceptability of placing tags with each team member’s name and role on their scrub cap.

**Measures –** Five cases in five separate ORs were initially observed for instances of role unfamiliarity and adherence to the WHO checklist. The intervention was piloted in one OR. Our main outcome measure was perceived usefulness of the intervention. Other measures included perceived time lost to label scrub caps, and willingness to continue labelling scrub caps in the future.

**Improvement/Innovation/Change Ideas –** Each OR team member was asked to place a nametag listing their name and role, on the front of their scrub cap.

**Impact/Lessons Learned/Results –** Of the 8 team members present in the post-intervention OR, 7 stated that they were familiar with most members of the team, and did not find the name tags useful. One off-service resident was unfamiliar with the other members, and did find the name tags useful. No instances of miscommunication were observed. One individual declined to participate, but no other significant resistance was noted.

**Discussion/Spread –** Overall, we believe that name tags on scrub caps may represent a low-cost solution to team member unfamiliarity, but expect that changing the OR culture to accept such an intervention will be the main barrier to wider uptake. Increasing the scale of this intervention will require...
Support from hospital leadership and senior staff, as well as efforts to educate all staff about the importance of role familiarity and communication.

26) Improving prosthetic care for patients with lower limb amputation
Amanda Mayo, Matt Ratto, Sander L. Hitzig, Stephanie Gmino, Daniella Ribeiro, Evan Harvey, Daniel Maassen, Shane Gasford, Florian Sperber, Howie Safeer Khwaar, Kaveh Ashournia, Jerry Evans
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Background/Context – The Sunnybrook prosthetic clinic is experiencing increased volumes of patients due to the diabetes epidemic and higher density population living nearby. Current manual prosthetic manufacturing techniques are labour intensive and inefficient, and include having prosthetists have to travel between the prosthetic lab and rehab campus to complete the fabrication process. As a result, wait times for prosthetics are increasing and negatively impacting rehabilitation length of stay (LOS), costs and patient functional outcomes.

Aim/Objectives – Our project had two main objectives:
1. Decrease the fabrication time of prosthetic sockets from 7-14 days to 2 days;
2. Reduce labor costs, material costs and rehabilitation LOS by at least 15%.

Measures – The outcome measures included: wait times cost of prosthetic fabrication, rehabilitation LOS, patient socket comfort score and patient satisfaction.

Improvement/Innovation/Change Ideas – Currently prosthetic sockets are made using manual plaster casting and rectifying techniques and require travel between two sites. Our innovation uses NiaFit 3DPrintability technology to scan a residual limb for 3D digital shape capture, which enables prosthetists to create a digital model and 3D print a prosthetic socket all on one site. The implementation of the technology occurred as a result of a MaRS co-design process with Sunnybrook and NiaTech, which included process mapping and iterative design principles.

Impact/Lessons Learned/Results – There are several advantages to using 3D printing technologies. Using a scanner for a 3D digital image capture reduces prosthetic fabrication time significantly, and is more comfortable for patients than manual plaster casts. 3D scanning and printing also produces less waste materials. The results on wait times, LOS and cost savings will be available at the conference.

Discussion/Spread – The use of 3D printing is a promising approach for advancing the field of prosthetics, which can hold significant benefits to both the patient with an amputation and the healthcare system. We are working with partner rehabilitation organizations to expand the use of the technology and will be presenting our work at upcoming provincial and national rehabilitation conferences.

27) Reducing time to analgesia for musculoskeletal injuries in the emergency department
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Background/Context – The leading presenting symptom to emergency departments (EDs) is pain. Approximately 380,000 patients per year present with pain-related concerns in our academic hospital ED. 3,300 of those visits are for musculoskeletal (MSK) pain, which are often triaged with a lower acuity, and patients thus wait longer to be assessed. Delays to adequate analgesia result in worse patient care, decreased satisfaction, and increased patient complaints.

Aim/Objectives – Our aim was to reduce the time-to-analgesia (TTA; time from patient triage to receipt of analgesia) for patients with MSK pain in our ED by 55% (to under 60 minutes) in 9 months’ time (May 2018).

Measures – We utilized the Model for Improvement and weekly data capture for the Statistical Process Control (SPC) chart, as well as Mann-Whitney U test for our before-and-after evaluation. Our outcome measures were TTA (in minutes) and ED length of stay (LOS; in minutes). Process measures included use of medical directive, and rate of analgesia administration. Balancing measures included patient adverse events and time spent triaging for nurses. Not all can be reported here due to word count limit.

Improvement/Innovation/Change Ideas – We performed wide stakeholder engagement, root cause analyses and created a Pareto Chart. PDSA cycles included: 1) nurse-initiated analgesia (NIA) at triage; 2) new triage documentation aid for medication administration; 3) quick reference medical directive badge tag for nurses; 4) weekly targeted feedback of the project’s progress at clinical team huddle.

Impact/Lessons Learned/Results – TTA decrease from 1.29 minutes (n=153) to 100 minutes (22.5%; n=87, p<0.05) ED LOS decreased from 580 minutes (n=361) to 519 minutes (105%; n=187; p<0.07). Special cause variation was identified on the ED LOS SPC chart with 8 values below the midline post PDSA 1. The number of patients that received any analgesia increased from 42% (n=361) to 47% (n=187; p=0.13). The number of patients that received medications via medical directives increased from 22% (n=150) to 44% (n=87; p<0.001).

Discussion/Spread – We reduced mean TTA and increased the use of medical directives through front-line focused improvements. With continued success and sustainable processes, we are planning to spread our project to other EDs and broaden our initiative to all appropriate pain-related concerns.

28) Improving the Condom Ordering Process in the Condom Distribution Program at Toronto Public Health
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Background/Context - The Condom Distribution Program at Toronto Public Health provides condoms and lubricants to over 360 community agencies that service vulnerable populations in Toronto. The program’s goal is to prevent the spread of sexually transmitted and blood borne infections, and unintended pregnancies. The condom request process by community agencies was occupying a lot of time on the program and many inefficiencies were identified.

Aim/Objectives - Reduce the time spent (in days) processing condom order forms by 30% by April 12, 2018.

Measures -
• Number of days spent entering order form information into a spreadsheet (outcome)
• Percentage of customers who are satisfied with the online form (process)
• Number of additional hours spent by staff in other tasks related to processing orders (balancing)

Improvement/Innovation/Change Ideas - Process maps, a value stream map, a fishbone diagram, and surveys were created with the project team to define the current state and identify improvements. Multiple change ideas were tested as a pilot using a driver diagram. The order form was...
streamlined using a 5S approach, and Lean concepts of mistake proofing and Kanban were applied.

Proposed solutions –
- Reduce the number of questions on the order form to 16 (a 24% reduction from the baseline) and optimize the layout to fit on one page, single-sided.
- Adapt into an online version using CheckMarket software. 30 agencies tested the online form as part of a pilot to order their condoms.
- Conduct a post-feedback survey to pilot agencies to inform future implementation.

Impact/Lessons Learned/Results –
- The time spent processing condom order forms was reduced by 15% by eliminating manual entry of order form information into a spreadsheet.
- 89% of customers were satisfied with the new online form and 100% preferred to use the online form again next year. Staff didn’t spend any additional hours performing other tasks related to processing orders.
- Don’t be discouraged if the results aren’t what you planned; adjust and acknowledge all improvements made.

Discussion/Spread –
- Next year, the program will implement the online form to all agencies as part of the new ordering process and phase out the paper form.
- Another feedback survey will be administered in April 2019 to reassess if all customers are satisfied.

29) Reducing Medication Incidents: Quality Improvement Provides the Tools, Staff Provide the Expertise
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Background/Context – Every fall Toronto Public Health (TPH) delivers 425 vaccine clinics at schools. In fall 2016, TPH experienced an increase in medication incidents (MIs) at these clinics. Due to the volume of schools and students we serve, the clinic schedule is tight. Fall clinics need to be fully complete in order to ensure proper spacing of doses for subsequent spring clinics.

Aim/Objectives – To identify potential underlying factors contributing to MIs and reduce their occurrences in fall 2017.

Measures –
- Primary outcome
  - # MIs from September – December 2017
- Balance
  - # incomplete clinics from September – December 2017

Improvement/Innovation/Change Ideas –
Recognizing that frontline staff understand the reality of clinics, we conducted a staff only Root Cause Analysis (RCA) to explore underlying factors contributing to MIs. Two focus groups were conducted with a total of 16 staff. One focus group was with TPH staff and the other with contracted agency staff. Two Quality Improvement Specialists used fishbone diagrams and 5Why’s to identify potential root causes of two major categories of MIs, i.e. consent related and vaccine spacing related. The fishbone diagrams were analyzed using qualitative coding and impact vs control analysis to identify the top priority areas to address. Analysis was validated with group participants.

Impact/Lessons Learned –
Key RCA Findings
- Priority areas identified through analysis were:
  - Reduce time pressures at clinic
  - Need to revise consent form layout for greater completion
  - Include pre-clinic consent screening in business processes
  - Address key staff learning needs
  - Change training methodologies to combine procedural and electronic database components

Results –
After dedicated efforts by staff and management on the priority areas, results showed:

<table>
<thead>
<tr>
<th></th>
<th>2016 (N)</th>
<th>2017 (N)</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIs</td>
<td>25</td>
<td>7</td>
<td>↓ 72%</td>
</tr>
<tr>
<td>Incomplete clinics</td>
<td>60</td>
<td>19</td>
<td>↓ 69%</td>
</tr>
</tbody>
</table>

Discussion/Spread – Engaging frontline staff in a structured process can successfully help tackle complex problems. Not only are staff uniquely placed to identify key underlying root causes but their active engagement fosters commitment and allows them to be owners of solutions.

30) A quality improvement and human factors assessment of the use, cleaning, transfer, and storage of patient commodes in an acute medicine ward
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Background/Context – The acute medicine ward (units A5, B5, and AMA) of The Ottawa Hospital Civic Campus has demonstrated a high infection rate and inconsistent practices regarding the use of patient commodes, despite having clear policies and standard operating procedures (SOPs) for proper use. This poses significant safety concern to this elderly patient population at risk of infection.

Aim/Objectives – 1) To determine underlying barriers, challenges, and cause factors for the practice variability involved with the use, cleaning, transfer, and storage of commodes; and 2) to provide short- and long-term recommendations for process improvement in the ward to reduce risk to patients and staff.

Measures/Improvement/Innovation/Change Ideas – A formal quality improvement (QI) and human factors assessment was conducted to allow for the development of ward-specific recommendations not possible through hospital-wide SOPs. A Map-Assess-Recognize-Conclude (MARC) methodology framework was combined with traditional QI tools such as process maps, assessment of fit, Ishikawa diagram, and comparative analysis, to provide recommendations through an affinity diagram, multi-voting, and a project prioritizer. Repeated observations and informal interviews were conducted of front-line staff.

Impact/Lessons Learned/Results – A5, B5, and AMA units have unique challenges preventing optimal use of patient commodes: 1) physical space in the ward was not conducive to safe and effective care, as it increased waste and workload on staff; and 2) staff training regarding the use of commodes was insufficient. The assessment was instrumental in providing ward-specific feedback for process improvement in a previously underperforming department. A multi-disciplinary team determined recommendations which should decrease future hospital waste, costs, workload on staff, and increase patient safety and satisfaction.

Discussion/Spread – These findings lead to short- (0-3 months), medium- (3-12 months), and long-term (12+ months) plans to improve staff training, the
31) Implementing the new Health Quality Ontario Hip Fracture Quality Standard: A baseline audit of current performance and proposed quality improvement plan at St. Michael’s Hospital  
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Background – Hip fractures (HF) are life-altering injuries, which are expected to increase significantly with the aging population, contributing to increases in healthcare expenditure. Health Quality Ontario (HQO) recently developed a quality standard (containing 15 individual quality statements) to address existing variability in management of fragility-related HF in Ontario and to promote improved care for these patients.  

Objective – To conduct the first detailed Ontario hospital audit of adherence to the HQO Hip Fracture Quality Standard.  

Measures – Retrospective chart review of all patients over age 50 with a low energy HF presenting between January 1, 2017 and June 30, 2017 at St. Michael’s Hospital (SMH) in Toronto, Ontario. Percent adherence to each quality indicator was determined and adherence was categorized as either excellent (≥90%), moderate (60-90%), or poor (≤60%).  

Results – Forty-six consecutive HF patients were identified, with a mean acute care length of stay of 13.1 days. Excellent performance was demonstrated for quality indicators related to the appropriateness of the surgical procedure (100%), postoperative blood transfusions (91.3%), postoperative management (100%), rehabilitation and weight bearing status (93.5%, 97.8%), and osteoporosis management (100%). Poor performance was identified for use of preoperative peripheral nerve blocks (65%), overuse of postoperative urinary catheters (71.7%), and receipt of standardized patient and caregiver information (0%).  

Discussion – Areas of excellent performance are supported by existing standardized processes and electronic order sets at our institution, including routine bone health assessment and appropriate osteoporosis management for HF patients. Identification of areas of poor performance has prompted the development of several ongoing quality improvement projects, aimed at increasing the use of preoperative peripheral nerve blocks and reducing the postoperative use of indwelling urinary catheters. This study presents a novel framework for evaluating the quality of HF care based on the HQO quality standard and should be of broad interest to health care practitioners caring for HF patients as well as those undertaking quality improvement work in any area and looking for practical guidance on implementing improvements based on published quality standards.  

32) Balancing top-down and bottom-up approaches to implementation and spread of patient safety and quality improvement for a UHN-wide safety transformation  
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Background/Context – With the introduction of the Caring Safely transformation, UHN was able to measure for the first time the amount of preventable harm occurring throughout our hospitals by calculating a Serious Safety Event Rate.  

Aim/Objectives – Using concurrent organization-wide (top-down) and program/unit-specific (bottom-up) strategies, UHN’s Caring Safely transformation will reduce UHN’s overall Serious Safety Event Rate by 75% by 2021.  

Measures–  
Outcome  
• Serious Safety Event Rate  
• Rate of 6 Hospital Acquired Conditions  
• Rate of 3 Workplace Injuries  

Process  
• % of leaders/staff/physicians educated on safety behaviours and error prevention tools  
• % of units/areas adhering to the UHN Way daily Huddle  
• % adherence to prevention bundles for the 6 HACs  
• Number of Patient Partners engaged  

Balancing  
• Incident reporting rate  

Improvement/Innovation/Change Ideas – Solutions to UHN’s safety issues were created through a combination of organization wide (blunt end) and point-of-care (sharp end) patient safety and QI efforts. The Caring Safely Transformation Team provided organization wide education, resources and infrastructure to identify standardized, evidence-based harm prevention strategies and a model to implement and spread it across all 4 hospitals. Previously, these prevention strategies would have been identified and implemented locally, without the capability to spread it across UHN. Units were then given unit-specific data about their safety issues. Managers worked with their staff to tailor the implementation of the UHN prevention strategies to address the unique gaps in their area. Units were then encouraged to share what they learned with other areas. This combination of corporate resources and processes, and point-of-care experts has created organization-wide quality improvement capacity and local ownership.  

Impact/Lessons Learned/Results – While Caring Safely is still in its early days at UHN, after 1 year of implementation, we have seen positive results:  
• 77% (or 11,000+) staff and physicians trained  
• 84% (or 600+) leaders trained  
• 86% of fall units implemented the UHN Way Huddles  
• 20+ Zero-Awards given to units with 30/60/90 days free of one of the 6 HACs  
• Many units have achieved record days between HAC events  

Discussion/Spread – The model for Caring Safely is to scale the improvements across all areas of UHN by 2021. Based on early results, we are seeing positive results of scale and spread.  

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Background/Context – Health Quality Ontario is currently developing a provincial quality standard for transitions in care from hospital to home. Patient engagement (PE) is an integral part of the process and has been expanded for this standard to include broader input. Little is known to what extent patients have been involved by other organizations in the development of best practice recommendations related to transition from hospital to home.
Aim/Objectives - We aim to explore whether patients were involved in the development of best practice recommendations related to the transition from hospital to home and if applicable, to what extent they were involved.

Measures/Methods - We searched seven electronic databases and healthcare organization websites for published and unpublished literature to understand the extent to which patients were involved in the development of best practice recommendations (i.e., clinical practice guidelines, quality standards, consensus policy statements, guiding principles) related to transitions in care from hospital to home (long-term care facilities, nursing home, community dwellings, rehabilitation centers). AGREE II Domain 2 (Stakeholder Involvement) Item 5 was applied to records that actively engaged patients.

Results - We identified 1746 citations. We reviewed all abstracts and 46 full-text papers, of which 19 were included for narrative synthesis. These were disseminated between 1995-2018, with 14 (74%) published after 2010. Most were conducted in North America (US 37%, Canada 21%), Europe (UK 37%) and Australia (5%). Ten actively involved patients and only one involved patients at all stages of development. The average AGREE II Domain 2 Item 5 score was 5.8 out of 7, where lower scores were primarily due to poor documentation on what was gathered from patients. Only 7 out of 19 records had involved patients in the writing of the recommendations. One best practice recommendation, developed in the UK, involved patients as early as topic prioritization.

Discussion/Spread - PE has steadily increased over the last decade. More efforts are needed to include patients and caregivers in the working group that writes the recommendations. We can learn from UK government agencies in involving patients earlier in the development process in addition to considering the needs of vulnerable populations.

34) Opioid Stewardship: Implementing Pharmacist Led Assessments for Patients Co-Prescribed Opioids and Benzodiazepines at an Academic Family Health Team
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Background/Context - In 2017, almost 4000 Canadians died from opioid-related causes. Concurrent use of opioids and benzodiazepines is a risk factor for overdose. Family Health Team (FHT) pharmacists could address co-prescribing; however, implementation has not been characterized.

Aim/Objectives - Implement proactive, pharmacist-led reviews of patients with chronic non-cancer pain co-prescribed opioid(s) and benzodiazepine(s).

Measures - Process measures were the percentage of co-prescribed patients; (1) with pharmacist developed pain care plans; (2) offered an opioid taper; and (3) with an active opioid taper. Outcome measures included the patients’ mean total daily: (1) opioid doses; and (2) benzodiazepine doses. Balancing measures included rates of: (1) substance use; (2) opioid-related injury; (3) pain; and (4) breakdowns in prescriber-patient relationships.

Improvement/Innovation/Change Ideas - From November 2017 to May 2018, four PDSA cycles, of increasing sample size, were conducted across two FHT sites. The intervention consisted of a pharmacist: (1) identifying patients through EMR queries; (2) developing care plans; (3) discussing recommendations with prescribers; and (4) discussing implementation with patients. The intervention was refined, according to prescriber and patient interviews, to have the pharmacist: (1) engage with physicians in-person; (2) review all of a physician’s co-prescribed patients with them in a single meeting rather than unique meetings for each patient; and (3) increase their visibility at the FHT.

Impact/Lessons Learned/Results - The pharmacist completed chart reviews for 35 (100%) patients. There was an increase in patients with pharmacist-developed care plans from five (14.3%) at baseline to 23 (65.7%) post-intervention. Patients offered an opioid taper increased from six (17.1%) to 10 (28.6%) and those with an active taper increased from two (5.7%) to eight (22.9%). Mean total daily opioid dose decreased 11% from 50.5 mg morphine equivalent (MME) to 44.7 MME. Mean total daily benzodiazepine dose decreased 8% from 99 mg diazepam equivalent (MDE) to 93 MDE. No change in balancing measures occurred.

Discussion/Spread - Proactive, pharmacist-led reviews for co-prescribed patients were implemented and increased the rate of offering and attempting opioid tapers. In the short-term, only a moderate decrease in opioid and benzodiazepine doses and no decrease in co-prescribing occurred. Next steps include spreading the initiative to additional FHTs and involving other pharmacists and interprofessional team members.

35) Optimizing Warfarin Anticoagulation in Hemodialysis Patients at Sunnybrook Health Sciences Centre
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Background/Context - The problem is poor overall time in therapeutic range (TTR) for in-center hemodialysis (i.e., patients taking warfarin). An initial audit demonstrated that only 27% of all dialysis patients achieved a target TTR > 65% - a threshold associated with better efficacy and less harm.

Aim/Objectives - Increase the proportion of in-center hemodialysis patients that achieve a monthly TTR > 65% by June 30, 2018.

Measures -
- Outcome Measure: Proportion of patients with TTR > 65%
- Process Measure: # INR measurements / week
- Fidelity Measure: Frequency of algorithm use
- Balance Measures: Episodes of INR>5; clinical bleeding (requiring admission or transfusion); clinical thrombosis (documented by imaging).

Improvement/Innovation/Change Ideas - We identified several provider factors that contributed to poor TTR, such as variable prescribing adjustments, variable monitoring and variable prescribers. We concluded that standardizing the process of communicating results, making dose adjustments, and ordering follow up bloodwork was as important as improving the TTR.

- Problem: Low TTR
- Theory: no standardized process for communicating results, dose adjusting, and ordering follow up bloodwork
- Change concept: Standardization
- Change idea: Have NxPs / MDs interpret results directly, use algorithm to standardize dose adjustments and follow up bloodwork
- PDSA Cycles
  - The first PDSA cycle involved implementing the pre-established prescribing algorithm. Subsequent cycles rendered the algorithm more user friendly; clarified how to properly use it; described how to exclude patients from the algorithm if MDs, NxPs or patients desired to do so; and ensured that data was being recorded and collected in a rigorous fashion.

Impact/Lessons Learned/Results - Our intervention was not successful in increasing the percentage of patients with monthly TTR > 65%.
36) Time to Huddle – Determining the feasibility to support interprofessional collaboration in an ambulatory setting
Jennifer Price, Mary Burello, Debbie Childerhose, Faith Delos-Reyes, Chandra Farrar, Mireille Landry
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Background – Women’s College Hospital (WCH) is an ambulatory care setting and has experienced increased demand due to an aging population with multiple chronic diseases requiring ongoing monitoring and support. In 2016/17, the hospital exceeded its target and achieved over 37,000 visits from specialized medicine teams including cardiology and rheumatology. Over 102 safety risks were reported and highlighted the need for further action to reduce patients’ safety events where possible. In partnership with the Toronto Academic Health Science Network (TAHSN) and applying an evidence-based standardized Advancing Collaborative Teams (ACT) toolkit, enhancing collaboration and communication through huddles was identified among health care teams as a strategy to continue to provide high quality care and mitigate risks to patient safety.

Aim/Objectives – To determine the feasibility and effectiveness of huddles in enhancing communication and collaboration with an aim to reduce patient safety events in an ambulatory setting.

Methods – A literature review on interprofessional collaboration, communication and a review of the Canadian Interprofessional Competency Framework was completed. The Cardiac Rehabilitation and Rheumatology teams were selected and completed scheduled weekly 15-minute huddles for an eight-week period. Patient issues were categorized by quality domains and monitored to determine the percentage of patient safety events resolved. Process measures were collected and reviewed each week with teams. Upon study completion participant huddle surveys were conducted to obtain participant feedback. The ACT Toolkit guided the teams for pre and post assessment surveys, reflection and action planning to advance collaborative team processes and outcomes.

Impact/Results – Quality improvement and survey data demonstrated that 100% of huddles occurred, overall 75% of patient safety events identified were resolved; Access (88%), Efficiency (85%), Safety (78%), Patient-Centred (83%), Effectiveness (50%). Huddle participants found the huddles safe, supportive, and would recommend them to a colleague.

Discussion – Huddles are feasible and effective in practice as a communication intervention to enhance interprofessional collaboration and reduce patient safety events in an ambulatory setting. To realize these patient care benefits, leadership support is necessary to allow interprofessional team members the time to huddle. Our huddles continue and senior management has requested a presentation to discuss scalability across specialized medicine.

37) Ensuring a Seamless Transition to Higher Education in Young Adults with Hemoglobinopathies
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Background/Context – Health care transition is a challenging process. Multiple life transitions often occur simultaneously including moving to post-secondary education. Many youth with hemoglobinopathies (disorder of the red blood cell) aspire to complete post-secondary studies, but report concerns about how their illness will impact their studies. Support in post-secondary education exists to help address the effect of chronic conditions on academics. However, there is limited literature on the experiences of patients with chronic illnesses attending post-secondary institutions.

Aim/Objectives – To promote success in post-secondary for patients with hemoglobinopathies, resources were developed to inform them about post-secondary supports. A template letter describing the impact of hemoglobinopathies on academics was provided to post-secondary institutions. From January 2017 to present, a Transition Navigator provided all 17-18 year olds in hemoglobinopathy clinics with education about post-secondary accommodations, supported patients in registering with accessibility offices and applying for financial aid. A quality improvement project was initiated to assess the efficacy of the provided resources.

Measures – The quality improvement project involved conducting semi-structured interviews with key stakeholders about the provided resources and post-secondary accommodations for young adults with hemoglobinopathies. Convenience sampling was used to recruit patients and accessibility office staff for interviews. Nine young adults with sickle cell disease and one with thalassemia who had completed one year or more of post-secondary education, and thirteen interviews with accessibility office staff from eleven Ontario colleges and universities were conducted.

Improvement/Innovation/Change Ideas – During transfer clinics, hospital staff implemented a process for connecting all youth with hemoglobinopathies with on-campus accommodations and support using a quality improvement framework.

Impact/Lessons Learned/Results – Barriers and facilitators for a patient’s successful transition to higher education with a chronic condition were identified.

Pediatric health care professionals know their patients with chronic illness best as they have usually seen them numerous times over the years. Pediatric healthcare settings should incorporate post-secondary transition planning into their practice. They are in the best position to complete medical documentation required for patients to register with accessibility services.

Discussion/Spread – Provide pediatric healthcare staff with an overview of the importance of and process for supporting patients in managing the responsibilities of post-secondary education with a chronic illness.

38) Understanding equity in primary care patient experience
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Background/Context – Health equity is one of the six domains of high-quality healthcare, but there is concern that equity is not a priority in quality improvement efforts.

Aim/Objectives – To explore ways of understanding equity in primary care patient experience.

Measures – Our Family Health Team conducts routine surveys via email to understand patient experience. Using survey data from 2014 and 2016, we compared access measures (access when sick, after-hours access) and
patient-centredness measures (opportunity to ask questions, involvement in care decisions; enough time with provider) with four demographic characteristics (age; gender; neighbourhood income; self-rated health).

Improvement/Innovation/Change Ideas – We used two analytic approaches to understand inequity of improvements over time: 1) stratification by demographic variables; 2) relative comparison across multiple demographic variables.

Impact/Lessons Learned/Results – Performance for all outcome measures improved between 2014 and 2016, with the greatest improvement seen in after-hours access (61% in 2014; 75% in 2016). Patients residing in low income neighbourhoods reported poorer access when sick than those in high income neighbourhoods and less improvement over time (60% vs 62% in 2014, 60% vs 70% in 2016). Patients with poor self-rated health reported poorer experience in all outcome measures compared to patients with excellent self-rated health but had greater improvements in access when sick (43% vs 66% in 2014, 55% vs 72% in 2016).

Comparing across multiple demographic groups, patients with excellent self-rated health reported highest performance across all measures. Relative to this group, the greatest disparities were for patients with poor self-rated health (eg. 17.2% difference in access when sick; 28.8% difference in after-hours access; 17.0% difference in opportunity to ask questions).

Discussion/Spread – In our setting, although the greatest improvements globally were seen in after-hours access, we also saw the greatest gaps between demographic groups in this measure. Measuring and monitoring inequalities among patient experiences allows us to understand how to prioritize and target QI initiatives.

39) First Year Analysis of the Operating Room Black Box Study

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Dr. Grantcharov holds intellectual property ownership of Surgical Safety Technologies Inc. and is supported by research grants from Medtronic Canada, Ethicon Canada, Baxter Canada, Olympus Canada, Takeda Canada, and Intuitive Canada. Drs. Jung, Jüni, and Lebovic have nothing to declare.

Background/Context – Adverse events in the operating room (OR) are common contributors of morbidity and mortality in surgical patients. Adverse events often occur due to deviations in performance and environmental factors. Although comprehensive intraoperative data analysis and transparent disclosure have been advocated to better understand how to improve surgical safety, they have rarely been done.

Aim/Objectives – To characterize intraoperative errors, events, and distractions and measure technical skills of surgeons in minimally invasive surgery practice.

Measures – We conducted a prospective cohort study in 132 consecutive patients undergoing elective laparoscopic general surgery at an academic hospital during the first year after the implementation of a multiport data capture system called the OR Black Box to identify intraoperative errors, events, and distractions. Expert analysts characterized intraoperative distractions, errors, and events and measured trainee involvement as main operator. Technical skills were compared, crude and risk-adjusted, among the attending surgeon and trainees.

Improvement/Innovation/Change Ideas – Measurement of safety parameters in the intraoperative phase of patients’ stay in the hospital has not been performed using direct observation method in a large sample size. Using a novel comprehensive data recorder called the OR Black Box, we were able to capture a rich collection of data points relevant to patient safety.

Impact/Lessons Learned/Results – Auditory distractions occurred a median of 138 times per case (interquartile range (IQR), 96-190). At least one cognitive distraction appeared in 84 cases (64%). Medians of 20 errors (IQR, 14-36) and 8 events (IQR, 4-12) were identified per case. Both errors and events occurred often in dissection and reconstruction phases of operation. Technical skills of residents were lower than those of the attending surgeon (p=0.015).

Discussion/Spread – During elective laparoscopic operations, frequent intraoperative errors and events, variation in surgeons’ technical skills, and a high amount of environmental distractions were identified using the OR Black Box.

40) What We Learned about Patient Safety in Primary Care from Significant Event Analysis

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Background – Patient safety is understudied in Canadian primary care. Ignoring harmful consequences affects the quality of care. However, the engagement of primary care practitioners is a major undertaking. With the desire to improve engagement in patient safety, the Department of Family & Community Medicine at the University of Toronto established a Community of Practice in which three Family Medicine Teaching Units collaborated to study 4 years of experience with Significant Event Analysis (SEA) to learn from patients’ safety incidents (PSIs).

Aim – Our aim was to increase our knowledge about patient safety in order to improve engagement and knowledge translation about harm reduction in primary care and thus improve the quality of patient care.

Measures – A data base of 30 PSIs was established. SEA methodology was applied to each incident from which common outcomes and processes as well as levels of harm were measured quantitatively and qualitatively. A Framework for Safe, Reliable and Effective Care was used to study what we learned from SEA about patient safety.

Improvement/Results – Our results validated and added to what we knew about patient safety. SEAs greatest impact was on system improvement in transfers of information, diagnosis and medication management. Our use of SEA also impacted process improvement for systems that included administrative tasks, team communication and provider knowledge or skills.

Real harm outweighed potential harm in our data, even when harm was moderately significant but not permanent. We were surprised by the sustainability of system improvements and the likelihood of incidence recurrence. The IHF Framework forced us to reflect on the effectiveness of applying SEA especially in psychological safety.

Lessons Learned – The study of SEA to manage incidents for system improvement increased our knowledge about patient safety in primary care. Lessons learned included team building, the uniqueness of incident management in primary care and measurement challenges. This project improved the engagement of other Family Medicine Teaching Units in patient safety and expanded opportunities to present results at other venues, eg. Family Medicine Forum.

41) Identifying, treating and follow-up for children with UTI in the Paediatric Emergency Department

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Background/Context – Urinary tract infection (UTI) is a common diagnosis in children who present to the Emergency Department (ED). A recent study at our centre found that 47% of children diagnosed with a UTI and discharged on antibiotics had a negative urine culture.

Quality Improvement and Patient Safety Forum 2018 - Open Competition Poster Abstracts
Aim/Objectives – The aim of this study was to improve UTI diagnostic accuracy, promote antimicrobial stewardship through timely antibiotic discontinuation and standardize antimicrobial treatment choice and duration for uncomplicated UTIs.

Measures – The main outcomes assessed before and after the interventions were the proportion of inappropriately diagnosed UTIs (discharge diagnosis of UTI but negative culture), physician adherence to the algorithm, antibiotic days saved, and duration of antibiotics.

Improvement/Innovation/Change Ideas – There were two interventions administered in this study design. The first was the introduction of the evidence-based Choosing Wisely UTI diagnostic algorithm in October 2017 and formally embedded in the EMR in December 2017. The second was the implementation of a patient call-back system where patients who had a negative urine culture were called to stop antibiotics. To assess the impact of the interventions, patient charts were retrospectively reviewed from June 2017 to May 2018. Clinical information, urine collection method, laboratory findings, and urine culture results were gathered. Patients with underlying genitourinary tract abnormalities were excluded.

Impact/Lessons Learned/Results – A total of 514 children were included in the analysis; 78% were female; 67% of patients were over the age of 2. Prior to the Algorithm, the median percentage of UTIs that were inappropriately diagnosed was 50%. After the Algorithm incorporation in the EMR, the median slightly decreased to 43%. With the initiation of the call-back system in December 2017, the antibiotic days saved increased from 0 to 408 days. As a balancing measure, all positive urine cultures from January 2018 to March 2018 were reviewed to assess the accuracy of the algorithm to detect UTIs and physician adherence to the algorithm. Based on this data, the algorithm was followed 80% of the time.

Discussion/Spread – UTI diagnosis and management in our ED improved with the implementation of an algorithm for clinicians. Although labour intensive, the call-back system greatly impacted the antimicrobial days saved in this population.

42) Double Edged Sword: Root Cause Analysis Reveals Computerized Provider Order Entry as the Culprit Behind Two Unit Red Cell Transfusions on the Oncology Ward

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Background/Context – Despite Choosing Wisely recommendations for single unit red cell (RBC) transfusion orders, approximately 50% of orders on the oncology ward at LHSC were for two units. The oncology ward at LHSC is a 60 bed tertiary care unit. In mid 2016, LHSC was 18 months into its implementation of computerized provider order entry (CPOE).

Aim/Objectives – By December 2017, increase the proportion of one unit red cell transfusion orders on the oncology ward from 50% to 80%.

Measures – Outcome: % one unit red cell transfusion orders (aggregated monthly); balancing: nursing perception of change in workload.

Improvement/Innovation/Change Ideas – Our initial theory was that unawareness of the guidelines (established in 2014) and subscription to the obsolete doctrine of 2 unit transfusions were the primary behavioural drivers. Initial change ideas included an educational/awareness blitz including rounds presentations, memos, and posters. Failure led us to revisit our hypothesis and carry out a real time audit, where our team was notified upon each 2 unit transfusion. This revealed the true root cause: the overwhelming majority of 2 unit transfusions could be traced back to standing orders that were entered on an admission order set. After provider engagement, we proceeded to remove all admission order sets containing 2 unit transfusions.

Impact/Lessons Learned/Results – After order set removal, our one unit transfusion rate rose to 86% and was sustained for 17 months. We learned two primary lessons. First that CPOE and poor order set design combined to perpetuate poor ordering practices. Second that revisiting our hypothesis and engaging in thoughtful root cause analysis that included direct observation ultimately led to an effective, sustainable solution.

Discussion/Spread – Our study underscores the importance of executing root cause analysis on a microsystem level. We would expect the factors driving poor performance to be completely different on a service such as general internal medicine. Our study also highlights the potential pitfalls of CPOE and the importance of regular order set review to ensure adherence to current evidence.

43) Improving the Medical Aid in Dying (MAID) process: a qualitative study of family caregiver perspectives

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Background – The road to legalization of Medical Aid in Dying (MAID) across Canada has focused on legislative details such as eligibility and regulatory clinical practice standards. Details on implementing high-quality, patient and family-centred MAID programs at the institutional level have largely been secondary. While family member experiences have been previously explored, they have largely focused on understanding their role in the MAID process, the impact on family, and their general perspectives of MAID.

Objectives – Our study objective was to engage family caregivers to identify improvement (QI) opportunities in the delivery of the MAID process as implemented at a large academic centre in Toronto.

Measures – Experiential feedback was gathered from caregivers of patients who underwent MAID between July 2016 and June 2017. Our primary outcome included overall satisfaction with MAID, and the identification of QI themes.

Innovation – Caregiver perspectives were gathered using a modified version of a validated end of life survey, a focus group using Experience-Based Design methodologies, and unstructured email/phone conversations. Data were triangulated and a qualitative, descriptive approach used to derive QI themes within family perspectives of the MAID process.

Results – A 48% response rate was achieved via the three methods for participation. Of those who responded to the survey 71% rated the overall care their loved one received throughout the MAID process as the best possible care; with 100% of respondents rating the overall care as 8 or higher (10pt scale). Improvement themes identified through the narrative data were grouped in two categories: operational or experiential aspects of the MAID process. Operational QI opportunities involved: process clarity, scheduling challenges and the 10-day period of reflection. Experiential QI opportunities included: clinician objection or judgment, patient and family privacy, and access to bereavement resources.

Discussion – To our knowledge, this is the first time that Canadian family caregivers’ perspectives on the quality of the MAID process have been explored. Findings of prior studies have largely been used to further inform the assisted death debate, rather than to improve existing MAID processes.
These results provide a road map for how we can enhance the quality of the MAID experience from the perspective of Canadian family caregivers.

44) Improving Hydroxychloroquine Dosing and Toxicity Screening at a Tertiary Care Ambulatory Centre: A Quality Improvement Study
Sahil Koppikar, Natasha Gakhal
Division of Rheumatology, University of Toronto, skoppikar@qmed.ca

Background/Context – Hydroxychloroquine (HCQ) is a commonly used weight based medication that is frequently prescribed at inappropriately high doses, significantly increasing the risk of retinopathy. Furthermore, retinal toxicity screening is often not documented. Improving HCQ dosing and toxicity screening practices is one strategy to promote patient safety in rheumatology.

Aim/Objectives – (1) To characterize the frequency of inappropriate HCQ dosing and retinopathy screening and (2) to implement a quality improvement strategy aimed at improving these practices to promote guideline based management and patient safety at a tertiary care ambulatory hospital.

Measures – The main outcome measure is to increase the percentage of patients being appropriately dosed from 32.5% to 90% by September 30th, 2018. The secondary aim is to increase the percentage of patients receiving retinal screening from 60% to 80%

Process measures include the number of patients with a documented weight in the chart in the last 12 months, number of patients with HCQ dosing based on document weight, and those with a documented retinal screen in the past 24 months.

Our balancing measure is the physician’s perceived increase in time spent with each patient due to implemented interventions.

Improvement/Innovation/Change Ideas – Quality improvement tools were used to create sequential change ideas: (1) HCQ weight based dosing charts to facilitate prescription regimens, (2) addition of scales to patient rooms to promote weighing patients at each clinical encounter, and (3) HCQ auto-dosing prescription in the EMR based on document weight.

Impact/Lessons Learned/Results – The percentage of patients being weighed has doubled from 42.5% to 85% after two PDSA cycles. Subsequently, the number of patients being appropriately dosed on HCQ has also improved from 32.5% to 80% over that time. The awareness and education around this project has also improved our retinal screening practices by 32%.

Discussion/Spread – Based on current data, the addition of dosing charts and weight scales has significantly improved our outcomes. A third PDSA cycle, with an EMR clinical decision tool, will hopefully help us achieve our outcome measures. It will be important to continue to follow the data over time to truly understand if the improvement is sustained.

45) SIGNS4Kids: A paediatric clinical deterioration safety initiative
Christopher Parshuram, Carla Williams, Joanna Noble, Kristen Middaugh, SIGNS4Kids (pan-Canadian expert group)
The Hospital for Sick Children, chris@sickkids.ca

Background/Context – Preventable patient deterioration is the Healthcare Insurance Reciprocal of Canada’s (HIROC) second highest ranked claim theme in terms of costs. As part of the Canadian Patient Safety Institute’s (CPSI) patient deterioration collaborative, co-led with Patients for Patient Safety Canada and HIROC, the SIGNS4Kids project enables the effective participation of parents and non-clinical caregivers in the recognition of clinical deterioration of children at home, in hospital and other locations.

Aim/Objectives – Development of a concise itemized list to help non-healthcare professionals identify and escalate signs of pediatric deterioration regardless of their location (home/hospital) by December 2018.

Measures – The itemized list will have face validity; content validity will be evaluated against the HIROC claims dataset. The accessibility of the language describing the signs will be modified to increase understanding of parents and other caregivers. Usability will be evaluated by asking parents of children in hospital and emergency departments, and the clinical impact will be evaluated using regional datasets describing patient outcomes before and after implementation.

Improvement/Innovation/Change Ideas – Sponsored by CPSI and HIROC, a 16-member expert panel comprised of health professionals and parents participated in a half day in-person meeting during the spring 2018. The session was preceded by pre-reading. A three-phased approach was used for tool development: item generation (signs of clinical deterioration that an untrained healthcare professional would be reasonably expected to notice); voting on the most relevant items; and refinement and distillation modifiers by age.

Impact/Lessons Learned/Results – The first phase led to 20 specific items which were reduced to four items during the voting phase (i.e. clinical indicators of brain function, respiration, circulation and hydration, and lack of response to usually effective treatment).

The patient education design team from McGill University is developing the ‘checklist’ layout and editing the ‘clinical’ language for the intended audience.

Discussion/Spread – Work is underway to determine how the tool will be disseminated to the public (e.g. handouts to parents post-discharge, online and social media platforms). It is expected that CPSI will host the checklist on their SHIFT to Safety website as part of the national dissemination.

46) Increasing Recovery Room Utilization through a Merger of Ambulatory Surgery Units at Michael Garron Hospital
Melanie Wistuba, Marie Fulcher, Christine Saby, Kathleen Kennedy, Jane Harwood
Michael Garron Hospital / Toronto East Health Network, Melanie.Wistuba@tehn.ca

Background – Prior to January 2018, Michael Garron Hospital (MGH) followed a traditional method for post-surgical recovery. Patients would move from the Operating Room (OR) to the Recovery Room (RR) and then be transferred to Day Surgery (DS) or Inpatient Unit. When RR reached capacity, the Registered Nurses (RNs) would stop accepting patients. With nowhere to transfer patients, the OR would then be forced to begin recovery care and not proceed with the next patient. Between July and December 2017, OR delays totaled 204 hours, an estimated cost to the organization of $113,000.

Objectives – Operational efficiencies, maximize human resources, increase recovery room utilization, reduce OR delays.


Change Implemented – DS and RR merged into a new unit called the “Peri-Anaesthesia Care Unit”. This eliminated physically moving patients between two care teams and locations. Using a collaborative model, the Registered Practical Nurse (RPN) was integrated into the initial recovery of a patient.

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Discussion/Spread – Based on current data, the addition of dosing charts and weight scales has significantly improved our outcomes. A third PDSA cycle, with an EMR clinical decision tool, will hopefully help us achieve our outcome measures. It will be important to continue to follow the data over time to truly understand if the improvement is sustained.

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Impact/Lessons Learned/Results – The first phase led to 20 specific items which were reduced to four items during the voting phase (i.e. clinical indicators of brain function, respiration, circulation and hydration, and lack of response to usually effective treatment).

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Objectives – Operational efficiencies, maximize human resources, increase recovery room utilization, reduce OR delays.


Change Implemented – DS and RR merged into a new unit called the “Peri-Anaesthesia Care Unit”. This eliminated physically moving patients between two care teams and locations. Using a collaborative model, the Registered Practical Nurse (RPN) was integrated into the initial recovery of a patient.
We have observed that in some categories (household composition) for evaluate the outcome of our QI initiatives and objectives. We have now discussed and spread this initiative with the objective of improving the quality of data collection.

Improve Socio Demographic Information for Effective Care Delivery in Primary Care Setting
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- Incomplete socio demographic affects data quality and impacts on delivery of service as well as patient and organizational planning efforts. In 2011, TAIBU data quality level was the highest in the Community Health Sector (85%). However, with growing number of clients being served, its quality of socio demographic data collection was significantly reduced.

Aim/Objectives – By the end of fiscal year 2017, all TAIBU CHCs new client registrations will have 95% socio demo completion rate.

Measures –
- Outcome measure: to reduce the number of non-completed socio demographic data to 5%.
- Process measure: Number of forms completed by new registered clients 100% of new forms to be completed.
- Balance measure: Additional time spent on form review by the front desk staff.

Improvement/Innovation/Change Ideas – Upon review of our two sided registration forms, we realized that clients may have thought that information requested on the second page was not as important as the request for information on the front page and hence would opt not to complete it. The race and ethnicity questions were also not in a format easy to complete. Changing the format was the major change idea we implemented – simple but effective.

Impact/Lessons Learned/Results – We implemented a one page form in 2016 upon when we began to register significant reduction in the non-completion rate for socio demographic data including income and education. Our completion rate increased from 42% in March 2015 to 96% by the end of 2017.

Discussion/Spread - Through the PDSA cycle, we continued to review and evaluate the outcome of our QI initiatives and objectives. We have now realized that although clients are answering all aspects of the socio demographic data questions, we are noticing that the rate of answers for the “Do not Know” and/or “Do not want to Answer” categories have increased. We have also observed that in some categories (household composition) for certain racialized groups (e.g. Black) the number of “Do not know” or “Do not want to answer” is higher compared to other racialized groups.

Our next focus will be to investigate the reason why certain racialized community members are not completing certain socio demographic data within our current objective of improving the quality of data collection.

48) Screening While You Wait: A technology-based pilot step wedge trial to facilitate actionable exercise prescriptions in primary care
Payal Agarwal, Zachary Bouch, Natasha Kithulgoda, Beth Bosiak, Lindsay Reddemann, Jane Thornton, Roni Propp, Ilana Birnbaum, Liora Altman, Noah Ivers
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- Only 18% of Canadians meet current physical activity (PA) guidelines despite known effects on mortality and well-being. Primary care providers (PCPs) are ideally positioned to influence levels of PA among their patients, but they infrequently use evidence-based screening and counselling to encourage PA. Previous interventions attempting to address this evidence-to-practice gap have not been reliably effective nor scalable.

Aim/Objectives – This pilot cluster randomized control trial aims to establish the feasibility and preliminary effectiveness of an e-health intervention designed to improve PA in primary care by assessing current levels, and enabling PCPs to provide a personalized, evidence-based toolkit to patients.

Measures – Eligible patients received a baseline e-survey to assess PA levels (using Metabolic Equivalent of Task minutes (MET-minutes per week)). The difference in MET-minutes per week between intervention and control groups was assessed at four months follow-up. Secondary outcomes include changes in intention and self-efficacy for PA and end-user acceptability.

Improvement/Innovation/Change Ideas – Patients completed an e-survey prior to their PCP visit via email or tablet. A summary of results, along with a tailored toolkit informed by the Health Action Process Approach behaviour change theory, was automatically entered into the EMR to facilitate evidence-informed, patient-centred behaviour change discussions during the PCP visit. The intervention included personalized community-based and online resources as well as a customized exercise prescription.

Impact/Lessons Learned/Results – 530 patients participated in the trial. MET-minutes per week were 10% greater in the intervention group at 4 months (count ratio 1.10, 95% CI 0.86-1.41, p=0.44). A process evaluation showed high acceptability of the intervention, but a lack of consistent delivery by PCPs. Although results were not statistically significant, the pilot trial was acceptable and feasible in practice.

Discussion/Spread – This pilot trial indicates a potential role for tailored e-health resources informed by patient-reported measures in primary care. Process evaluations indicated a need for better training as well as modifications to eligibility criteria to ensure fidelity of implementations. Prior to a cluster-trial, we are piloting an expanded approach for a range of broader range of key determinants of health, including alcohol and smoking status.

49) Clozapine Bloodwork Adherence: A Matter of Safety
Patricia Melville, Danielle Maillet, Ilse Jean
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- Compliance appeared to be a matter of repeated decision-making processes – when to request laboratory work, how to interpret results, and what to do with the results. Clozapine bloodwork adherence is an important component of treatment adherence.

Impact/Lessons Learned/Results – 530 patients participated in the trial. MET-minutes per week were 10% greater in the intervention group at 4 months (count ratio 1.10, 95% CI 0.86-1.41, p=0.44). A process evaluation showed high acceptability of the intervention, but a lack of consistent delivery by PCPs. Although results were not statistically significant, the pilot trial was acceptable and feasible in practice.

Discussion/Spread – This pilot trial indicates a potential role for tailored e-health resources informed by patient-reported measures in primary care. Process evaluations indicated a need for better training as well as modifications to eligibility criteria to ensure fidelity of implementations. Prior to a cluster-trial, we are piloting an expanded approach for a range of broader range of key determinants of health, including alcohol and smoking status.
Background/Context – Toronto Westerns' ACT team (IMPACT) needed to improve the adherence of its patients to their bloodwork tests which are mandatory if taking the medication Clozapine.

Aim/Objectives – 1) decrease the number of overdue blood tests by more than 66% over the next five blood test cycles 2) increase the number of patients who complete blood tests on time by 50% 3) address and reduce the number of laboratory related issues resulting in failed tests

Measures –
- Process: staff to achieve higher than 90% compliance created with the steps of the process map, over five sampling cycles
- Outcome measures: i) Total number of overdue blood test days looking back 5 cycles ii) number of patients who complete their blood tests on schedule over the same five cycles
- Balancing measure: if blood tests occur more frequently, patient dissatisfaction could ensue.

Improvement/Innovation/Change Ideas – Patients were not getting their blood tests on time, primarily because they were unaware of the test date. Opportunities for change and improvement included: providing timely reminders to patients and establishing venipuncture alerts for nursing staff. Change ideas included testing various types of reminders and alerts, through PDSA cycles.

Impact/Lessons Learned/Results – Impact/results: total number of overdue days decreased 78% and the number of patients who completed blood tests on time increased by 50%. Lessons Learned: i) It was difficult to measure results in part because every one of the 24 patients had different blood test due dates ii) Change interventions must be sustainable and cannot rely on any one person; iii) It was challenging to involve patients at every stage of the project; iv) Our interventions expanded to include education to patients, as well as the reminders; v) The monthly data measurement was not consistently used in a targeted manner to inform the progression of iterative PDSA cycles.

Discussion/Spread –
- adherence to bloodwork monitoring process will be incorporated into the daily safety huddle
- the role of informatics to provide reminders/alerts will be considered in future as UHN moves to increase usability of the EPR
- the results of the project will be shared with other ACT teams at the provincial ACT conference in October, 2018

50) Measuring Quality of care during active surveillance in low-risk prostate cancer patients: a population-based approach

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Background/Context – Active surveillance (AS) has become a widely accepted management strategy for low-risk (Gleason score ≤6) prostate cancer (PC). Given the large proportion of low-risk PC (60-90%) patients who currently receive AS, adherence to clinical guidelines on AS and variations in care at the population level remain surprisingly poorly understood. Further, it is presently unclear how often patients receive high quality AS care in community settings (almost all published data come from academic centers). Thus, there is significant interest in developing system-level quality indicators (QIs).

Aim/Objectives – The aims of this project is to develop and validate quality indicators (QIs) and determine the feasibility of measuring quality of care in AS using a population-based administrative data.

Measures – After QIs were finalized, AS-specific QIs were tested among low-risk PC who were managed with AS between 2002-2011 in Ontario. We assessed adherence to clinical guidelines using QIs, and compared with health care system-related characteristics.

Improvement/Innovation/Change Ideas – Even though AS use is growing, there is limited information at a population level on the quality of care of men on AS. This study yield validated QIs that can help to measure quality of care during AS. Further, by applying these AS QIs to a large Canadian population database, we identified current gaps in the quality of AS care that could subsequently be addressed through targeted policy, educational or financial initiatives.

Impact/Lessons Learned/Results – 23 indicators were proposed [structure of care (n=3), process of care (n=16) and health outcomes (n=4)]. Overall 39% received AS, with 88% managed by a urologist. During AS follow up, only 32% of patients had a confirmatory biopsy. Only 43% of low volume (<3 positive cores) patients underwent AS. Adherence of confirmatory biopsy with guidelines was better in higher volume institutions, among higher volume physicians, and in cancer centers. 5 and 10-year PC specific survival were significantly better among high volume physicians.

Discussion/Spread – Initial data show that higher volume institution or higher volume physician and cancer center had better adherence to quality of AS care. Long term survival was better among patients treated by high volume physicians. Further validation of these QIs is ongoing.

51) Clinical Incidents and Near Miss Events Related to the Clinical Practice of Nursing Students

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Background/Context – It is currently estimated the one in 18 patients in Canadian hospitals experience a preventable, harmful safety incident (CIHI/CPHI, 2016). It is critical that health professional educational curricula incorporate patient safety principles in a meaningful and effective manner. Student nurses enter the clinical environment often for the first time during clinical placements; thus, increasing their risk of exposure to a patient safety incident. It is essential that student nurses are supported during this time to understand the importance of recognizing and reporting patient safety incidents. Within the undergraduate nursing curriculum, educational interventions have been piloted in the forms of simulation exercises and learning modules. Many of these educational interventions occur in a setting removed from clinical practice. How students learn about and interpret patient safety within the context of clinical placements remains to be explored.

Aim/Objectives – Our scoping review addressed the following question: What is known from existing literature about nursing student experiences and understanding of incidents and near misses?

Measures – The scoping review was guided by the Arksey and O'Malley (2005) framework. After identifying the research question, we developed search terms and used the following databases: CINAHL Plus, Medline and ProQuest Nursing. Selected studies met the following inclusion criteria: (1) included nursing student views on patient safety, (2) included nursing students active in clinical placement. Data extraction was conducted by two independent reviewers; differences in interpretation were discussed with a third reviewer. Data were collated, summarized and reported narratively.
Improvement/Innovation/Change Ideas - Preliminary findings demonstrate a need for patient safety education to be delivered in conjunction with students’ clinical placements.

Impact/Lessons Learned/Results - The findings of this review will provide insights into student awareness of patient safety principles related to reporting clinical, incidents and near misses. This has implications for tailoring patient safety curriculum to meet the developmental needs of nursing students.

Discussion/Spread - The results of the scopeing review will inform the next phase of the study, in which an incident reporting tool, tailored for nursing students will be developed.

52) Understanding the Patient Experience and Challenges to Osteoporosis Care Delivered Virtually by Telemedicine
Sandra Kim, Patricia Palou, Sarah Munce, Susan Jaglal, Sonya Allin, Jawad Chishtie, Arlene Silverstein
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Background - There is limited research on the role of telemedicine (TM) in the management of osteoporosis (OP). In 2005, a multidisciplinary OP TM program was developed at Women’s College Hospital (WCH), to provide specialized OP care to underserviced areas of Ontario. We previously reported that these patients had a higher prevalence of fragility fractures, comorbidities, and need for allied health resources than those serviced by the outpatient clinic.

Objectives - To understand the patient experience and benefits and challenges associated with receiving OP care by TM to inform future improvements.

Measures - This study adopted a convergent mixed methods study design whereby both the quantitative (mailed survey with Likert scales) and qualitative components (30-minute telephone interviews) were conducted simultaneously. Descriptive thematic analysis as described by Braun and Clarke was applied to full transcripts and interview notes.

Impact/Results - Across the quantitative and qualitative data, our results indicated that participants perceived that their quality of care with TM was comparable to in-person visits. 87% percent of participants indicated they strongly agreed or agreed with the statement, “I feel that the quality of care I received at my Telemedicine visit was the same as if I had been an in-person visit”. The main benefits expressed were the convenience of timely care close to home, reduced burden of travel and costs, and the reassurance of being assessed by an OP expert. Perceived barriers included the lack of follow-up with allied health professionals in the TM program (eg, physiotherapist) and the coordination of lab and bone mineral density tests. Many participants indicated interest in an OP self-management program.

Lessons Learned - Our study contributes to an area of limited research on patient perspectives on OP care delivered by TM. The TM program allows for bridging of the access gap for those living with OP in remote areas. However, we identified the need to improve our existing processes by better coordinating access to allied health team members and arrangements for investigations. Participants also expressed a desire for a self-management program, which could be a future initiative of the WCH OP TM.

53) Reducing Mental Health Readmission Rate by Improving Discharge Processes
Rita Desai, Jaime Boccongelle

ARTIC Grant – Patient Oriented Discharge Summary (PODS)

Background – The primary aim of inpatient hospitalization for mental illness is to stabilize acute symptoms and aid with the transition of patients to outpatient or community care. The period of transition from hospital to community is a particularly vulnerable time for patients. Integrated transitions in care have been shown to promote better outcomes, as well as reduce readmission to hospital.

Readmission is a measurable, and modifiable, performance indicator that is affected by system- and patient-level factors, such as the adequacy of discharge planning processes, effective transitions in care, and patient’s ability to self-manage outside of hospital care. In Ontario, 1 in 10 patients discharged from a psychiatric hospitalization will be readmitted within 30 days. Reducing readmissions will optimize resource utilization at CAMH and in the community.

Aim/Objectives – Reduce readmission rates by improving discharge processes within a 15-month implementation timeline.

Measures –
- Medication reconciliation at discharge
- Follow-up appointment booking for patients within 7 days of discharge
- Discharge note completion within 48 hours of discharge
- Sending physician discharge summary notes to patients’ outpatient providers
- Targeted dissemination of medication summary lists to patient’s local pharmacies
- Readmission within 7 and 30 days of discharge.

Improvement Ideas –
- Integrate and standardize discharge planning processes by optimizing EMR functions
- Quality Improvement/Plan-Do-Study-Act process improvement cycles in inpatient units
- Adoption of Patient Oriented Discharge Summary (PODS)
- Robust evaluation framework and data analysis support
- Leadership engagement and collaborative effort

Discussion/Spread – The project has achieved its aim to reducing readmission rates, and improved standardization and integration of discharge-related processes at CAMH. However, the project recognizes the need to improve quality of discharge information with the focus on individual patient needs, and analyse the impact of the reduced readmission rate on the system.

54) An Ounce of Prevention: A Quality Improvement Study of Strategic Pneumococcal Vaccination for Older Adults on a Geriatric Inpatient Unit
Katrina Piggott, Eric KC Wong, Mary-Anne Lee, Jawid Darvesh, Amneet Thiara, Youmna Ahmed, Melody Hung, Maria Zorzitta, Mireille Norris, Barbara Liu, Don Gandell
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Background – Older adults are at increased risk for pneumococcal infection. Canadian vaccine guidelines recommend pneumococcal vaccination with both PCV13 and PPSV23 for adults aged 65 or older to reduce rates of pneumonia, disseminated disease, and death. Our gap analysis revealed only 39.5% of patients admitted to the Acute Care of the Elderly (ACE) unit at St Michael’s Hospital had previously received either pneumococcal vaccine, and 0% of patients were vaccinated with both according to guidelines.
Previously, when admitted to the ACE unit, 0% of the patients admitted to the ACE unit received counseling or vaccination for pneumococcal infection.

Aim – Increase pneumococcal counselling provided to patients admitted to the ACE unit from 0% to 50% over 3 months, and increase pneumococcal vaccination provided to ACE patients from 0% to 30% in 3 months.

Measures – The primary outcome measure was successful counselling and vaccination of patients, prior to discharge. Process measures included provision of educational material, and chart documentation of vaccination. Balancing measures included time to assess vaccine eligibility, vaccine cost to patients, and adverse effects from pneumococcal vaccines.

Change Idea – A quality improvement bundle consisting of a pneumococcal vaccine process map, vaccine eligibility assessment in hospital, educational material, and a dedicated 0.1 FTE nurse practitioner was implemented.

Impact/Lessons Learned/Results – Five Plan-Do-Study-Act (PDSA) cycles were required to achieve a rate of 94.11% (16/17) pneumococcal vaccination in eligible, consenting patients. Rates of pneumococcal vaccine counseling increased from 0% to 76.16%, and chart documentation rose from 0% to 72.66%. The main balancing measure was time to administer the screening and vaccination process, which averaged 5.6 minutes. There were no vaccine-associated adverse events, and cost to patients was mitigated by strong keyholder engagement within the hospital.

Discussion – For older adults admitted to hospital, a robust treatment bundle of eligibility assessment, education and vaccine administration improved pneumococcal vaccination by 94.11%, targeting patients that are most vulnerable to this disease. This successful implementation makes the St. Michael’s ACE unit the first hospital in Ontario to achieve notable inpatient vaccination rates, aligning it with Canadian guidelines for infection prevention and health quality. These results are also aligned with North American guidelines that have identified the administration of pneumococcal vaccine before hospital discharge as a standard of care and quality initiative in the 21st century.

55) Improving Diabetic Ketoacidosis (DKA) Management at a Tertiary Care Hospital

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Background/Context – Diabetes Ketoacidosis (DKA) is a life-threatening medical emergency with serious adverse events. There is a large variability of DKA management across Canada and standardized DKA protocol use may reduce care gaps.

Aim/Objectives – The primary aim was to achieve a 20% reduction in length of stay (LOS) for DKA management at Sunnybrook Health Sciences Centre by December 31, 2017. This before and after study assessed the impact of a standardized DKA protocol on outcomes.

Measures – The primary outcome measure was LOS. Balancing measures included hyper/hypokalemia and hypoglycemia. The process measures were protocol uptake, time to anion gap (AG) closure and appropriate insulin transition.

Improvement/Innovation/Change Ideas – Using the Model for Improvement Quality Improvement framework, iterative PDSA cycles in addition to stakeholder feedback were utilized to develop a DKA protocol followed by education on DKA management. The protocol was implemented in June 2017. An independent reviewer collected pre (June 2016-May 2017) and post-intervention (June 2017-December 2017) data through retrospective chart review. DKA cases were defined as serum glucose >14 mmol/L, anion gap (AG) > 14, and positive serum/urinary ketones. Fisher exact and Mann-Whitney tests were used to compare categorical and continuous outcomes, respectively.

Impact/Lessons Learned/Results – There was 58% protocol uptake and outcomes are presented in Table 1.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
<th>Post-Intervention with Protocol Use</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=23</td>
<td>n=24</td>
<td>n=14</td>
</tr>
<tr>
<td>Median LOS(QR) (days)</td>
<td>2.58 (1.77, 4.63)</td>
<td>2.55 (1.23, 7.98)</td>
<td>2.62 (1.24, 9.74)</td>
</tr>
<tr>
<td>Median Time to AG Closure (hour)</td>
<td>8.43 (7.24, 10.50)</td>
<td>10.72 (3.90, 15.82)</td>
<td>10.72 (6.94, 13.74)</td>
</tr>
<tr>
<td>Overlap of SC and IV Insulin [%]</td>
<td>73</td>
<td>84</td>
<td>83</td>
</tr>
<tr>
<td>AG Re-opening [%]</td>
<td>32</td>
<td>13*</td>
<td>15*</td>
</tr>
</tbody>
</table>

Discussion/Spread - These preliminary results suggest a reduction in adverse events including hypoglycemia and AG re-opening with protocol use with no impact on the primary aim of LOS. Limitations include modest protocol uptake, patient-factors impacting LOS, and limited sample size. Next steps include revising the protocol, improving uptake and re-evaluating outcomes.

56) Understanding what drives patients with cancer to visit the emergency department: a qualitative study of patients and clinicians

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Background/Context – Visits to the emergency department (ED) are common among patients with cancer (PWGs). Previous research suggests that few ED visits are precipitated by true oncologic emergencies (Diaz-Couselo 2004). Designing initiatives to reduce ED visits requires a rich understanding of the factors that drive PWGs to visit the ED.

Aim/Objectives – We aimed to assess current patient and clinician beliefs regarding ED visits in PWGs and strategies to reduce visits. These results will inform the further development of a quality improvement initiative aimed at creating patient-support and resources for PWGs.

Improvement/Innovation/Change Ideas – Semi-structured interviews were conducted with 12 oncology clinicians and 10 PWGs at St. Michael’s Hospital. Interviews explored factors that drive ED visits, and interviewees’ insights into interventions to prevent ED visits. Interviews were audio recorded and transcribed. Transcriptions were qualitatively analyzed by two independent reviewers using the constant comparison method (Strauss and Corbin 1998).

Impact/Lessons Learned/Results – Ten themes were identified as factors that may drive ED visits, with little overlap between themes identified by clinicians versus those identified by PWGs. Clinicians identified low socioeconomic status, lack of social support, advanced age, comorbidities, anxiety and non-adherence as important factors. In contrast, PWGs focused on the severity and expectedness of symptoms, lack of access to after-hours care, and feeling of isolation.

Table 1

<table>
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ontology advice and care, and recommendations for healthcare providers, friends and family as drivers of ED visits. Regarding potential interventions, there was broad agreement between clinicians and PWCs regarding what might be helpful. Both groups identified improved access to expert cancer advice/care, improved coordination of care between clinics and ancillary health services, and patient education as important interventions. Clinicians also believed increasing community supports would help prevent ED visits. PWCs emphasized that some ED visits are not preventable.

Discussion/Spread - Clinicians and PWCs have different views on what drives ED visits. Clinicians focused on non-modifiable factors while patients focused on lack of access to after-hours oncology care, and the severity and expectedness of new symptoms. Despite identifying different drivers, clinicians and PWCs identified common solutions for reducing ED visits. Next steps include developing resources for PWCs to help guide decision about when to visit the ED.

57) Translation into Practice: Introducing Dextrose 40% Oral Gel Treatment for Hypoglycemia in Infants
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Background – This project summarizes the introduction of oral dextrose treatment for hypoglycemia in newborn infants. This innovative, evidence-based treatment has been shown to reduce neonatal intensive care unit (NICU) admissions and support exclusive breastfeeding, but there are no documented reports of translating this evidence into practice.

Aim – A knowledge translation approach guided the introduction of the use of dextrose into practice for infants hypoglycemia (blood glucose levels ≤ 2.5 mmol/L) within the first 48 hours of life.

Measures – The evidence-based approach was developed by members of the Newborn Committee in the Women and Babies Program at Sunnybrook Health Sciences Centre based on Canadian Pediatric Guidelines for hypoglycemia. We also revised our standard of care for infants with low blood sugar. Physicians, Nurse Practitioners and Nurses received education about this new treatment approach. Through chart audit, we measured NICU admission rates and exclusive breastfeeding rates for a three month period before implementation in 2016 and the three month period after implementation of dextrose treatment in 2017.

Improvement Innovation – During the three month post-implementation evaluation, there were 231 doses of dextrose given, 128 doses missed and 13 doses of dextrose refused. NICU admission rates for hypoglycemia were 13% in 2016 and 6% in 2017. Rates of exclusive breastfeeding were 4% in 2016 and 20% in 2017.

Impact Results – This was a successful knowledge translation pilot project that highlighted practice change and the opportunity to continue to fully implement this improvement. The introduction of dextrose to treat newborn hypoglycemia is now part of our standard of care. We are addressing the opportunities to decrease missed doses and further increase rates of exclusive breastfeeding.

Discussion/Spread - This knowledge translation project has been shared at two national conferences in 2018 and a manuscript is in preparation. Other centres have implemented our evidence-based algorithm.

58) Reducing the time to lung cancer diagnosis in a Lung Diagnostic Assessment Program
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Background – Lung cancer is the leading cause of cancer death in Canada, with poor 5-year survival. Delays during the lung cancer assessment period can lead to disease progression, morbidity and psychological distress for patients.

Local Problem – Evidence suggests that diagnostic programs offering rapid access and coordinated care reduce time to lung cancer diagnosis. Cancer Care Ontario (CCO) has implemented Lung Diagnostic Assessment Programs (LDAP) across Ontario to improve efficiency of lung cancer diagnosis, with a referral to diagnosis time target <28 days. The Odette Cancer Center L-DAP has exceeded CCO targets despite improving care coordination. Process mapping with value-added analysis, chart review and a Pareto chart were utilized to understand diagnostic delays. The primary delay was prolonged CT-guided needle biopsy (CTNB) wait times. Additionally, bronchoscopic biopsy techniques were underutilized.

Aim – The aim of this quality initiative was to reduce time from referral to diagnosis to <28 days in ≥ 90% of patients referred with suspected lung cancer by May 31, 2018.

Change Ideas – Using the Model for Improvement, we implemented three aligned interventions: (1) a standardized triaging process, (2) a shared electronic calendar to allocate bronchoscopy resources, and (3) increased coordination. Process mapping with value-added analysis, chart review and a Pareto chart were utilized to understand diagnostic delays. The primary delay was prolonged CT-guided needle biopsy (CTNB) wait times.

Measures –
- Outcome: Time from L-DAP referral to pathology diagnosis for patients undergoing CTNB or bronchoscopic biopsy.
- Process: Compliance with the triaging process, time from biopsy request to biopsy procedure, various metrics surrounding CTNB and bronchoscopy time.
- Balancing: Time from referral to clinic visit, weekly workload for Respirologists triaging patients, diagnostic yield of CTNB, and bronchoscopy wait times.

Results – Mean time from referral to diagnosis pre-intervention was 41.7 days (95% CI 35.6-47.9 days), and 30.1 days (95% CI 22.6-37.6 days) post-intervention, p=0.02. The percentage of patients meeting the <28 day target was 34.4% pre-intervention, and 54.2% post-intervention. Absolute increase in patients meeting the target was 20%, but was not statistically significant, p=0.1. Over the study period, mean time to diagnosis was significantly shorter for bronchoscopic biopsies vs. CTNB, p<0.001.

Discussion – We have demonstrated improvement in time to lung cancer diagnosis using three simple interventions, with expected benefits to patients. Further study is ongoing to confirm sustainability.

59) An Interprofessional Pathway for Patients Initiating Treatment with Palbociclib: Optimization of Toxicity Monitoring
Alia Thawer, Susan Singh, Jordan Sinson, Lori Mackinnon, Lisa Ng, Shikha Lawrence, Angela Boudreau, Maureen Trudeau, Sonal Gandhi
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Background – CDK 4/6 inhibitors such as palbociclib in combination with hormonal therapy are considered the new standard of care for eligible advanced breast cancer patients with ER positive, HER2 negative disease. These agents have toxicities warranting standardized monitoring algorithms.

Aim – To create an interprofessional pathway for palbociclib identifying key patient milestones and responsibilities of different care providers. The
algorithm would also set blood work (BW) parameters for dose interruption/reduction and would identify time points for proactive toxicity assessment.

Measures – The pathway identified BW and clinic visits every 2 weeks until a stable dose of palbociclib was established as an important patient safety measure. A minimum absolute neutrophil count (ANC) of 1 was defined as the threshold for continuing therapy. A retrospective chart audit was conducted to assess adherence to the biweekly BW and toxicity assessment protocol. Any improvement from baseline would be considered significant in improving patient safety. Toxicity results were compared to the PALOMA-2 trial.

Innovation/Change Concepts – The algorithm was finalized using consensus by the interprofessional members of the breast disease site. Champions in social work, medical oncology, pharmacy and nursing were identified to disseminate the pathway using email reminders and team meetings to encourage uptake. Standardized BW parameters were included in the order set for palbociclib in the computerized physician order entry system.

Impact – Consecutive patients were assessed between June 2016 and August 2017. Median follow-up was 193 days. Twenty-five patients before and 24 patients post-algorithm implementation were included. Median age was 59, and 80% had >2 lines of prior systemic treatment. Dose reductions were observed in 57% of patients, 84% of instances for neutropenia. This is higher than documented in PALOMA-2. Instances where BW and clinic assessment were indicated and completed went from 43% to 69% and 32% to 67%, respectively.

Discussion – This algorithm, with defined provider roles and patient milestones, appears feasible and effective in standardizing follow-up and optimizing patient safety. Our study included heavily pre-treated patients and used an ANC treatment continuation threshold of 1 as opposed to 0.5; this might explain the increased incidence of neutropenia and dose modifications.

60) Electronic Physician Ordering Tool Increased CT-Angiogram Use in High-Risk TIA and Minor Stroke Patients
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Background/Context – Vascular abnormalities are associated with increased disability and stroke recurrence after a TIA or minor stroke. Urgent imaging with CT-angiogram (CTA) in the emergency department (ED) for patients with high-risk TIA/minor stroke is standard of care, but these patients may not be easily identified.

Aim/Objectives – We tested whether an electronic decision-support tool embedded in the ED ordering system and a multi-level education to the ED physicians can increase the use of same-day CTA in this population.

Measures – We hypothesized that this tool will result in ≥80% CTA use in high-risk patients.

Improvement/Innovation/Change Ideas – The tool prompted ED physicians to indicate, at the time of ordering a non-contrast CT for TIA/minor stroke, whether patients were experiencing 1) any ongoing symptoms or 2) motor/speech symptoms in the last 48 hours. A “yes” to either question prompted the physicians to consider ordering a CTA instead. We introduced the protocol at an ED departmental meeting and conducted weekly Plan-Do-Study-Act cycles to provide feedback to individual ED physicians by email when high-risk cases were not imaged with CTA. Pre- and post-implementation data, including patient demographics, investigations, treatments, length of stay in ED, were obtained through chart review.

Impact/Lessons Learned/Results – We audited 120 patients in the pre-implementation phase and 82 patients post. The use of CTA in the ED for high-risk TIA/minor stroke patients increased from 8% to 69% (p < 0.01). It increased to a lesser extent in low-risk patients (11% to 35%, p = 0.036). Doppler use decreased from 98% to 39% (p < 0.01). Duplicate vascular imaging with both CTA and Doppler decreased from 35% to 8% (p < 0.01). There were 28% vascular abnormalities detected by the CTA in the post-implementation phase.

Discussion/Spread – An electronic decision-support tool and multi-level education increased the use of same-day CTA in high-risk TIA/minor stroke patients in the ED. We are completing data collection and patient follow-up to determine whether this change is sustained with time and whether an increased detection of CTA abnormalities translates into improved patient outcomes and decreased stroke recurrence.

61) Hospital Readmission Following Prostatectomy: Reasons and Successful Interventions
Alexandra Boasie, Michelle Lee, Jasmine Song, Avnish Mulukala, Alice Wei
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Background/Context – Approximately 25% of Ontarian patients who undergo a prostatectomy procedure have an unplanned hospital visit or readmission within 30 days of their surgery; this compares to an average of 12% of all patients who are readmitted to the hospital after 30 days after discharge. As hospital capacity and bed demands continues to rise, it is imperative that hospitals collectively work to reduce avoidable hospital readmissions. Patients who have undergone a prostatectomy are seen in the emergency department, post procedure, most commonly due to urinary tract infections, catheter complications and urine retention (rate of 25%). Surgical site infections and hematomas account for 12% of prostatectomy patient unplanned visit reasons.

Aim/Objectives – To determine evidence-informed best practices and/or interventions to reduce avoidable hospital readmissions and admissions for patients who have undergone a prostatectomy from the 25% baseline by April 2019. To characterize the reasons for unplanned hospital visits and successfully implemented interventions to reduce these visits.

Measures –
• Process: # of patients undergoing a prostatectomy (open vs. minimally invasive procedures); # of patients who received pre-op surgical education (or other intervention); reason(s) for unplanned/readmission
• Outcome: # / % of unplanned/readmission hospital visits within 7 days from surgery and 30 days from surgery
• Balance: patient satisfaction (if applicable); required ancillary services to reduce emergency visits; types of interventions; staff satisfaction; emergency wait time changes

Improvement/Innovation/Change Ideas – Will complete a systematic literature review to understand current state, gaps and tested interventions; will cultivate a provincial Community of Practice with administrative and clinical experts to learn and potentially test interventions at a local level; sharing/feedback of LHIN level data with leaders; integrate unplanned hospital visit rate as a Quality Based Procedure (QBP) quality measure.

Impact/Lessons Learned/Results – This will impact the provincial provision of interventions that will reduce avoidable unplanned emergency room visits
and/or hospital admissions for patients who have undergone a prostatectomy. Goal would be to see a reduction, over time, of unplanned hospital visits upon successful intervention initiation and sustainability.

Preliminary data demonstrates the reasons for prostatectomy unplanned visits/readmissions are due to both avoidable and unavoidable causes: SSI, UTI, catheter complications and urine retention issues. Other information supports that there are variabilities between age of patient and unplanned visit rate as well as potential association with average length of stay of patients and unplanned visit rates.

Discussion/Spread – Learnings within this quality improvement study will support a reduction readmission rates for other disease sites such as breast, colorectal and thyroid cancers.

**62) Transitioning Care with r-TIPS, a Radiation Treatment Information Patient Summary**

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**Background/Context** – Lack of critical clinical information exchange at care transitions can threaten patient safety. As cancer patients transition to follow-up, they express uncertainty about managing their health and who will be responsible for particular aspects of care, leading to decreased satisfaction and quality of life (QoL). Physicians report similar confusion about accountability. Currently only generic leaflets are distributed to patients post-treatment demonstrating the need to move towards an individualized plan of care.

**Aim/Objectives** – To facilitate care transitions, an individualized radiation treatment information summary (r-TIPS) will be clinically implemented within the stereotactic radiosurgery (SRS) program at Odette Cancer Centre (OCC). In order to improve communication with patients and between healthcare providers (HCPs) across settings, each patient and their referring physician (RP) will receive a copy.

**Measures** –

<table>
<thead>
<tr>
<th>Process Measure(s)</th>
<th>1. Proportion of SRS patients who receive r-TIPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outcome Measure(s)</td>
<td>2. Proportion of staff who attended the in-service training</td>
</tr>
<tr>
<td></td>
<td>3. Utility of r-TIPS for SRS patients</td>
</tr>
<tr>
<td></td>
<td>4. Utility of r-TIPS for RP</td>
</tr>
<tr>
<td></td>
<td>5. Number of phone calls to support lines</td>
</tr>
</tbody>
</table>

**Improvement/Innovation/Change Ideas** – r-TIPS was interprofessionally developed and automated. r-TIPS was given to patients in place of generic leaflets during an education session at their final treatment. A copy was also sent to their RPs. Both patients and RPs reported that r-TIPS effectively educated and empowered patients, while ensuring that critical information was shared, improving continuity of care.

**Impact/Lessons Learned/Results** – 80% of patients shared r-TIPS with family or other HCPs. Patients found r-TIPS outlined next steps to improve care coordination and enhance QoL. RPs concluded they were a useful tool for all cancer patients. A reduction in navigation-related calls to OCC support lines was also observed. In emergency situations, patients have shared r-TIPS with HCPs as a way to provide critical clinical information thus enhancing patient safety.

**Discussion/Spread** – r-TIPS is recognized as a Leading Practice by Accreditation Canada. It has also been highlighted at a Canadian radiotherapy conference to be adaptable to all treatment sites at all Cancer Centres. The content and design can be tailored to suit the needs of the specific patient population to facilitate transitions effectively.

**63) Applying human factors design principles to the use of additional precautions to improve healthcare worker adherence: A prospective multicenter before-after study**

Tanya Agnihotri, Victoria Williams, Jerome Leis, Patricia Trbovich, Wayne Lee, Joseph Benson, Lachlan Glen, Melissa Avaness, Fatema Jinnah, Natasha Salt, Jeff Powis
Sunnybrook Health Sciences Centre, Tanya.agnihotri@sunnybrook.ca

**Background/Context** – Infection Prevention and Control (IPAC) teams frequently employ additional precautions (AP) to prevent transmission of infections when routine practices are insufficient to interrupt the transmission of an infectious agent. Existing literature has demonstrated that healthcare workers (HCWs) adherence to AP is poor and has been implicated in the transmission of healthcare-associated infection. Human factors design principles offer the potential to improve HCW adherence to AP.

**Aim/Objectives** – To apply human factors design principles to improve adherence to AP including the use of appropriate personal protective equipment (PPE).

**Measures** – The primary outcome was the change in HCW adherence to recommended PPE between the baseline and intervention periods. Secondary outcomes measured included elements of PPE most commonly missed: presence of required PPE outside of the patient care area, utilization of correct signage for assigned AP and placement of the sign in the recommended location, visibility, and correct method of attachment.

**Improvement/Innovation/Change Ideas** – Prototypes of unique signage were designed separately at each facility in consultation with front-line HCWs and in accordance with recognized usability principles (heuristics). Colour coding to differentiate types of AP and symbols indicating the type of equipment to be used were clearly outlined for the HCWs, visitor and patients. Standardized locations for AP signage were identified based on usability assessment with front-line HCWs.

**Impact/Lessons Learned/Results** – A total of 521 HCW and 747 signage audits were completed. Donning of the correct PPE for the type of AP associated with average length of stay of infection. Human factors design principles to improve HCW adherence to use of AP across both academic and community teaching hospitals. This approach could be adopted by IPAC programs to address poor adherence to the use of AP.

**64) Multicenter Improvement Study Using Electronic Hand Hygiene Monitoring to Prevent Healthcare-associated Infections**

Tanya Agnihotri, Jerome Leis, Jeff Powis, Allison McGeer, Daniel Ricciuto, Sunnybrook Health Sciences Centre IPAC Team, Michael Garron Hospital IPAC Team, Mount Sinai Hospital IPAC Team, Lakeridge Health IPAC Team, St. Michael’s Hospital IPAC Team, Matthew Muller
Sunnybrook Health Sciences Centre, Tanya.agnihotri@sunnybrook.ca

**Background/Context** – Hand hygiene (HH) compliance is the single most important intervention to prevent Healthcare-associated infections (HAIs) and has been a publicly reported key quality indicator by Health Quality
Ontario. The current approach to measuring HH relies on human observers (auditors) who rapidly become recognized by staff, resulting in inflation of reported adherence by a factor of at least 2-3.

**Aim/Objectives** – This study aims to use an electronic HH monitoring system to measure and evaluate the impact of HH improvement strategies on HH compliance and associated prevention of HAIs.

**Measures** – This is a multicentre stepped wedge randomized trial involving 26 medical/surgical inpatient units across five hospitals in Ontario. The primary outcome is relative change in hand hygiene compliance from baseline as measured by electronic monitoring and the secondary outcome is a composite measure of nosocomial transmission of antibiotic resistant organisms, Clostridium difficile infection, and HAI blood stream infection.

**Improvement/Innovation/Change Ideas** – Units were randomized to launch electronic HH monitoring combined with a multimodal improvement strategy including real-time performance feedback, setting improvement targets and unit-led QI huddles to inform iterative changes in practice.

**Impact/Lessons Learned/Results** – At baseline, overall monthly HH compliance was 29% (1395450/4544144) and stable across 3-months, and improved to 37% (598035/1536643) at 1-month relative to baseline (p<0.0001). By 10-months relative to intervention, overall monthly HH compliance is 52% (555444/1059210) with 8-months remaining in study. Analysis of secondary outcomes is underway.

**Discussion/Spread** – Pairing accurate measurement of HH compliance with unit-led ownership and improvement strategies led to near doubling of hand hygiene compliance within 10-months. Further analysis is required to assess return on investment based on averted transmissions in antibiotic resistant organisms and healthcare associated infections.

**65) Identifying the Causes for Inappropriate Urine Cultures in a Canadian Urban Academic Emergency Department**

**Adrian Wu, Larissa Matuleas, Lisa Hides, Patrick O’Brien, Melissa McGowan, Amy Cheng**

*University of Toronto and St. Michael’s Hospital, Adrianmitchellwu@mail.utoronto.ca*

**Background/Context** – Inspired by Choosing Wisely©, St. Michael’s Hospital (SMH) launched an initiative to reduce unnecessary tests, treatments and procedures. Inappropriate urine cultures & sensitivities (C&S) increase workload, costs and detection of asymptomatic bacteriuria that can lead to unnecessary antibiotics. Previous interventions at SMH include a nursing education campaign to reduce the number of urine C&S sent automatically as part of nursing medical directives. However, the results and sustainability of this effort, and whether there is any further room for improvement remain unknown.

**Aim/Objectives** – To describe the scope of inappropriately ordered urine C&S in the SMH Emergency Department (ED) and to conduct a root-cause analysis to inform future QI interventions.

**Measures** – Criteria for determining appropriateness was developed a priori using evidence-based guidelines and best practices. All urine C&S ordered in the ED from Jun 1 – Aug 30/2016 were reviewed for appropriateness, demographics and ordering provider. Inappropriate urine C&S were further reviewed to identify root causes and a pareto chart was constructed to analyze the frequency of causes.

**Impact/Lessons Learned/Results** – Of 425 urine C&S ordered, 75 (17.7%) were inappropriate. The top three reasons were: unnecessary urosepsis workups (53%), order processing errors (17%) and inappropriate workups for generalized weakness (16%). 29% of patients with unnecessary tests received antibiotics, although only 10% grew bacteria. Most unnecessary tests were ordered by Emergency Medicine (37%) and Internal Medicine (32%) physicians as compared to nurses. This result differs from another Toronto ED study (>50% unnecessary rate, mostly nursing-driven) and emphasizes the importance of understanding local needs when adapting QI projects.

**Improvement/Innovation/Change Ideas** – The results were presented to the ED physicians. The lower overutilization rate compared to the literature suggests results from previous efforts may be sustained. One limitation identified is that the retrospective review may not accurately reflect ED workflow: often, physicians need to decide on sending empiric cultures with only partial information.

**Discussion/Spread** – The big question is whether a 17.7% overutilization rate is worth targeting for change. Future interventions need to consider balancing measures such as the impact on physicians’ discretion to investigate urosepsis, and whether the resources required are cost-effective. Next steps will target Emergency Medicine, Internal Medicine, in collaboration with Microbiology.