



CQuIPS



Centre for
Quality Improvement
& Patient Safety


Abstract Booklet

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Poster Abstracts

1. Best Practices in Screening and Documenting Tobacco Use

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Background: There is robust evidence that tobacco interventions reduce healthcare costs, increase life expectancy and improve the quality of life for individuals who decrease or quit tobacco. Systematically retrievable documentation on tobacco use is necessary to identify patients who would benefit from these interventions.

Aim: The study's goal was to examine current rates of tobacco screening and documentation among providers in the cardiology clinic and to identify barriers to this practice.

Measures: A chart review was performed on a sample of 30 charts during a one-week period among cardiology providers. Data collected included: the health discipline of the provider, performance of tobacco screening, and location of documentation. Barriers and facilitators to screening and documenting in the electronic patient record (EPR) were explored using a survey deployed to providers.

Improvement, innovation, change concepts: This study was designed to examine baseline rates of screening and documentation to inform future change strategies.

Impact/Results: Results of the chart review (Table 1) demonstrate most practitioners are screening for tobacco use (72.2% of new consults and 58.3% of follow up visits), however the location of documentation is not consistent. Standardized documentation processes exist within the EPR to facilitate transfer of information across the patient's care pathway. Historical documentation of tobacco use in the standardized assessment tool (SAT) was found in 46.7% of charts, however only 6.7% were marked as reviewed by the same provider. Most providers documented manually in progress notes (66.7%) and 33.3% utilized a smart phrase linking information from the SAT. The survey response rate was 50%. The survey identified the most common barriers to screening were documentation already existed and a lack of time. Providers offered suggestions including exploring the use of flags to identify patients who would benefit from tobacco interventions and improving the usability of the SAT.

Discussion/Lessons Learned:

Most practitioners are currently screening patients for tobacco use but the documentation is not

occurring in the SAT, thus information is not easily accessible. Future initiatives should focus on improving the usability of the SAT to facilitate systematic documentation, allowing other providers to easily retrieve information. Standardized documentation facilitates flagging of patients who would benefit from tobacco cessation interventions, thus improving patient care.

2. Optimizing Management of Hip Fractures in Humber River Health's Emergency Department – Quality Improvement Project

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Background and Context: A program to access Anaesthesia consultation to perform peripheral nerve blocks (PNB) on Emergency Room Hip Fracture patients is being developed. The consultation is initiated once the hip fracture is diagnosed. A preliminary audit demonstrated that the median time from patient ER Triage presentation to X-ray diagnosis was prolonged at 2h30 min, thereby delaying the PNB.

Problem Statement: Patients presenting to the ER at Humber River Health experience prolonged wait times before receiving a confirmed diagnosis of hip fracture, causing issues with pain management and potential adverse effects of narcotic use.

Aim Statement: Reduce the time from ER Triage to X-ray interpretation from median 2h30m to less than 90 min.

Methodology: A multidisciplinary team analyzed the preliminary data. A Process stream was created, documenting time intervals for each step in the Patient journey from Triage to Xray interpretation. Using a Fishbone diagram and a Prioritization matrix we determined 3 Root Causes. We introduced our change proposals through 2 PDSA cycles.

Change Concepts:

- 1) Medical Directive for Triage nurse to order hip X-ray rather than the ER Physician.
- 2) ER Clerk to fast track Hip Fracture patient registration.
- 3) Xray Tech to call ER Team leader when xray is completed.

Measures:

Primary outcome measure was “Time from Patient Triage to Xray interpretation”.

Process Measures included “% of X-rays ordered by the Triage Nurse vs ER Physician” and “% of phone calls made by Xray Tech to ER Team Leader after X-ray completion”

Balance measure involved assessing Staff response to the proposed new work- load .

Results:

Time from Triage to Xray interpretation improved from median 2h30m to 1h31m. Use of Medical Directive and completion of the Xray Tech phone call results varied between the 2 PDSA cycles. Discussion/ Insight: Our formal QI process was especially effective in dealing with the complex ER environment. The importance of a Project Team representing all stakeholders cannot be over emphasized. Regular audits will determine continued adherence to the change proposals.

3. Evaluating Perioperative Pain Assessment and Management for Chronic Pain Patients

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Background/Context: The American Society of Anesthesiologists recommends a pain assessment be completed in the anesthetic preoperative evaluation to identify those at high risk of acute postoperative pain, such as those with pre-existing pain or opioid use. At Women's College Hospital (WCH) there is no standardized process to flag patients with baseline chronic pain and opioid use preoperatively, nor is there a formalized process for communicating the perioperative pain management plan.

Aim: The purpose of our project is to evaluate the process of chronic pain assessment and management by the anesthesiologist, for individuals on daily baseline opioids undergoing same-day ambulatory orthopedic surgeries at WCH.

Measures: A retrospective chart review was conducted in WCH patients on regular baseline opioids who underwent orthopedic surgery from January 1 to December 31, 2022. Patients on long-acting baseline opioids and/or high dose short-acting opioids were included. Patients on low-dose short-acting opioids were excluded, as authors assumed they would not have a high baseline opioid tolerance. Project members analyzed outcomes such as, flagging of patients as high perioperative pain risk, creation and implementation of perioperative pain plan, patient reported post-operative pain rating scale, length of stay, and same day admission to the WCH Acute Ambulatory Care Unit (AACU) or transfers to an acute care facility. The project members then evaluated the process of flagging chronic pain patients preoperatively, and the effect postoperatively. Data was consolidated using NQuIRE software.

Impact/Results: Our results will be completed by November. Currently we are analyzing data of 30 patients.

Discussion/Lessons learned: Our discussion will be completed by November. Hypothesis: flagging patients as high risk was perceived to be a potential positive factor for reducing length of stay, admission to AACU, and reported postoperative pain. Next steps would include creating and

implementing a standardized process to flag chronic pain patients preoperatively in hopes to reduce future AACU admissions and reduce length of stay.

4. Survival Analysis of Incident Free Days of Admission in Acute Inpatient Psychiatry

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Background: Psychiatric services have lagged behind other areas of medicine in studying patient safety. While aggression and suicide are well studied, other causes of patient harm including coercive treatment, medication errors, adverse drug events and patient injury are rarely studied. This study is part of a larger project to validate the use of a trigger tool in acute mental health settings. The aim was to gain a greater understanding of the timeline of events and difference in event rates considering factors like diagnosis and gender.

Methods: Using the Global Trigger Tool sampling protocol, 10 admissions were randomly selected for every 14-day block for a one-year period. Eligible patients were admitted to the acute care service of a large public psychiatric hospital for an admission length of 1-90 days. Charts were reviewed using the Mental Health Trigger Tool (MHTT) and adverse events determined by a second reviewer. Patient age, diagnosis, admission and discharge date were recorded. Events were classified as per the MHTT protocol as adverse events (AEs) or mental health patient safety incidents (MHPSIs) which includes aggressive behavior, suicidal behavior, restraint/seclusion, absconding and victimization. Survival analyses were completed using Kaplan-Meier and Cox Proportional Hazards Model.

Results: A total of 259 records were reviewed (one patient had withdrawn consent for quality reviews) for a total of 3957 days of patient care. The MHTT detected a total of 136 incidents arising in 96 unique admissions (35.4 incidents per 100 admissions). Male patients had significantly more events and reduced incident free survival compared to female patients (chi-square 4.639; df=1, p=0.031). Diagnosis was associated with reduced incident free survival with patients with schizophrenia, personality disorders and substance use disorders having a cumulative incident free survival of less than 0.4 (chi-square=13.962, df=4; p=0.07).

Conclusions: The timeline of incidents varies according to diagnosis, with low incident free survival seen in patients with schizophrenia, personality disorders and substance use disorders. These groups represent some of the most marginalized patients in mental health. Further investigation of incidents is required to develop approaches to provide equitable access to safe care.

5. Evaluation of a Resident Patient Safety Incident Discussion Tool

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Background: Patient safety (PS) is increasingly recognized as a vital component of medical practice; however, PS teaching is not meeting the standards and expectations of educators and regulatory bodies both in Canada and globally (Kassam, 2016; ACGME, 2018, Vogt 2022). This study aimed to evaluate the implementation of the Resident Patient Safety Discussion Tool, to facilitate teaching PS in the ambulatory family medicine context.

Methods: The study used questionnaires, interviews and focus groups with residents and faculty within St. Michael's Hospital Academic Family Health Team (SMHAFHT). Ethics approval was obtained from the Unity Health Toronto Ethics board. The study participants were asked if, how and why the tool was acceptable and usable and what its perceived value was to users. Qualitative data from interviews and focus groups were transcribed, de-identified and analyzed iteratively using descriptive thematic coding.

Results: Eight faculty members and twenty-one residents responded to the survey. In addition, interviews or focus groups were conducted with 21 residents and faculty. Findings indicate that the tool was acceptable and usable to both residents and faculty. It provided a structure for discussions around patient safety incidents. It promoted consideration of systems factors that contributed to a patient safety incident in their practice. It helped residents move beyond guilt and shame to learning. Both residents and faculty reported that a psychologically safe environment was maintained for these discussions. Residents (57%) and faculty (62%) reported that they were more likely to report patient safety incidents in the future after using the tool.

Limitations: This study is limited by its relatively small sample size.

Conclusion: The resident patient safety incident analysis tool is a concise, acceptable and usable tool, which can help promote patient safety learning in the ambulatory family medicine setting. With further evaluation it could be useful for patient safety teaching in other clinical settings both ambulatory and inpatient.

6. Improving PPID (Positive Patient Identification) with scanning in an inpatient hospital setting

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Background: PPID (Positive Patient Identification) has evolved over the years with integration of technology such as barcode scanners is recognized as an effective approach to reducing medication errors. Despite the evidence for PPID effectiveness, use rate of PPID is low. The study aims to improve the uptake of PPID. Our organization's goal is to identify and improve current PPID (Positive Patient Identification) for armband and medication scanning. The organization utilized the PDSA cycle of quality improvement.

Aim: The organization will confirm positive patient identification through increases scanning rates to 80% for all inpatient units by May 31, 2023.

Measures: The organization used an audit and feedback approach which included the percentage of armbands and medications scanned.

Improvement/Innovation/Change concepts: The organization used an audit and feedback approach which included automated weekly reports and charts presented to stakeholders. Staff were presented with the weekly results as a team and individually for those not meeting an 80% threshold. The organization incorporated messaging and education in daily huddles. Data was analyzed and automated reports went out weekly to staff leveraging HIM (Health Information Management). Quality control involved engaging management, lead nurses as well as directors. The organization engaged in a change management plan to improve results.

Results: The organization saw an improvement to 80% from 49% for arm band scanning and 82% from 65% for medication scanning for inpatient units in 52 weeks of data collection and process improvements. The weekly audit and feedback intervention was more effective than the huddles that occurred daily on medical, respiratory and cardiology floors.

Limitations: This study didn't address specimen scanning which is a vital part of patient care. Also, the study didn't look at the ED department which has its challenges with medication and specimen scanning.

Discussion: Monthly results are sent to the entire unit on the success as well as barriers to success. Consistency and process provided significant improvement in PPID. Education of management as well as staff on the "why" as well as how to operationalize data weekly required change management techniques that were out of the normal process that was accustomed to.

7. Enhancing Language Access in Healthcare - Remote Medical Interpretation - A Health Equity Initiative

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Background: Effective communication in healthcare is vital for patient understanding and active participation in their own care. The COVID-19 pandemic has underscored the urgent need for an easily accessible, robust interpreter service to address language barriers and promote health equity. This project aims to evaluate an innovative service while emphasizing the importance of equitable language access across Hamilton Health Sciences (HHS).

Aim: The project aims to evaluate a cloud-based remote interpreter solution in various clinical units, assess the device models, obtain patient and provider feedback, determine the most appropriate use for this service as compared to other services, decrease connection time to an interpreter, increase cost effectiveness, increase use of interpretation services by patients, improve patient experience supporting equal access to care, and access integration with hospital information systems.

Measures: Measures include department usage, language preferences, service duration, cost per occurrence, and feedback from providers and patients through surveys and interpreter interactions.

Improvement/Innovation Concepts: The service offers secure video/audio interpretation through a PHIPA-compliant app, providing patients and providers with on-demand access to live interpreters for over 240 languages, including American Sign Language. These interpreters are medically trained to be proficient in anatomy and physiology, medical terminology and acronyms, and common disease states to communicate more actively with patients and providers. User-friendly features, such as choice between male/female interpreters, audio/video and ability to connect to same interpreter, is enhancing patient comfort and trust. The service is primarily accessed on a tablet on a mobile stand with articulate arm, however alternate formats are available depending on patient/provider needs.

Results: Since its launch in October 2022, the project has serviced over 60 languages, eliciting overwhelmingly positive responses from patients and providers. The remote interpreter service shows promise in improving patient experience and promoting health equity by ensuring language access to healthcare.

Discussion: Ongoing evaluation will assess the service's impact on patient experience and its contribution to equitable language access. Currently, integration of the service with existing technology, devices and software is being investigated. Next steps include exploring the scope of expansion to ensure patients have access to communicate across their healthcare journeys.

8. A novel health equity curriculum: bridging the knowledge translation gap through quality improvement methodology

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Quality improvement (QI) education has been recognized as an important part of medical training and has been implemented across many medical schools and residency programs. However, there is very little literature on building community QI capacity outside of the hospital or educational setting, especially with a focus on health equity. Scarborough is home to many marginalized and underserved individuals who are adversely impacted by the social and structural determinants of health. The Scarborough Health Network's Health Equity Certificate Program (HECP) was developed to empower those involved in delivering health care within Scarborough to promote health and develop strategies to reduce disparities. To bridge the knowledge action gap, the HECP Advanced Stream QI Curriculum was specifically created to build capacity around QI and use QI methodology as a tool to improve health equity. The program consists of nine monthly interactive sessions to review QI methodology, using a reverse classroom model, with small deliverables culminating in the development of a QI project charter and presentation. A summative evaluation of the program was undertaken, including participant satisfaction with the program, learning and acquisition of QI skills, and competence through demonstration of a completed equity-focused QI project plan. The 2022-23 program had nine participants who completed the program and three completed equity-focused QI projects. All groups demonstrated mastery of QI skills by achieving passing scores for all deliverables. The QI projects addressed equity issues arising from language barriers, health literacy, and race. The participants who agreed or strongly agreed to being familiar with basic QI terminology increased from 50% prior to the program to 100% by the end of the program. The participants who strongly agreed to believing that QI makes a difference in health equity also increased from 68.8% before the program to 100% after the program. Program challenges include participant difficulty in selecting a project topic with appropriate scope and lack of protected time to work on projects. Next steps are to engage SHN leadership and Ontario Health Team partners to decrease barriers and increase resource support for participants and QI projects in the program.

9. Using Equity and Relational Care Lenses to Understand Resident Safety in Long-Term Care

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Background: Increased demand for safe long-term care (LTC) homes is being driven by aging populations and sociodemographic diversity among residents. LTC homes increasingly provide care to residents with medical complexities, and persons with varied cultural, racial, and ethnic backgrounds, sexual orientations, and socioeconomic statuses. In LTC, safety is traditionally considered in terms of physical and environmental factors, such as staffing, medications, falls, and infection control. We aimed to expand this understanding of safety by exploring social, political, and economic factors associated with resident safety in LTC using equity and relational care lenses.

Methods: This 3-phase qualitative descriptive study was implemented collaboratively with the LTC community partner. In Phase 1, individual interviews with residents and caregivers were conducted to explore perceptions of safety and identify facilitators and barriers to resident safety. In Phase 2, perceptions of safety, facilitators and barriers to providing equitable, safe, relational care and potential mitigation strategies from staff (focus groups) and leadership (individual interviews) were explored. Interview data were transcribed verbatim and inductively analyzed using thematic analysis. Equity and relational care lenses guided data analysis.

Results: Results from Phase 1 and 2 will be presented. Resident, caregiver, staff, and leadership perspectives of resident safety, including facilitators, barriers, similarities, and differences will be highlighted. Phase 1 findings indicate that residents' perceptions of safety differ from those of staff and relate to dichotomous experiences of independence, autonomy, locked facilities, relationships with staff and other residents. From an equity lens, residents perceive a lack of diversity such as available food options. Results can inform how resident safety is understood, measured, and addressed, leading to development of organizational policies and practices to support resident safety from a conceptualization beyond physical and environmental factors.

Limitations: Perspectives from participants are representative of only 1 LTC home in Ontario.

Conclusions: Using equity and relational care perspectives enhanced our understanding of the social and environmental factors affecting resident safety in LTC homes.

10. Exploring Organizational Quality & Safety Best Practices at Leading International Centres

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Background: The establishment of robust quality and safety (Q&S) infrastructure and training is crucial to ensuring patients receive the highest quality and safest care possible. The University Health Network (UHN) is embarking on a Q&S transformation centered around the Institute for Healthcare Improvement's (IHI's) Whole System Quality (WSQ) framework's three pillars of Quality Planning (QP), Quality Control (QC), and Quality Improvement (QI). This work aimed to go beyond the published literature and glean behind-the-scenes strategies, approaches, advice, and lessons learned on the design and implementation of Q&S best practices from centres with preeminent international reputations in Q&S.

Methods: Ten semi-structured interviews were conducted with Q&S leadership from centres spanning three continents. Participants were recruited by email and virtual meetings were 60 minutes in length. Questions centered on building infrastructure around QP (e.g., how did you develop and carry out your Q&S vision?), QC (e.g., how do you effectively track and report Q&S metrics?), and QI (e.g., how do you train and enable your staff to do QI work?).

Results: Thematic analysis revealed common recommendations for QP (e.g., make Q&S the central focus of entire organization; reimagine Q&S governance structures that focus on quality in addition to safety, Q&S work being directly informed by the patient experience), QC (e.g., advanced analytics and triangulation of Q&S metrics crucial to drive change, co-design quality metrics and report directly to Chief Executive Officer for accountability), and QI (e.g., enable development and growth of Q&S champions at every layer of organization, invest in frontline training programs for widespread gains).

Limitations: While this work sought to uncover a deeper understanding of Q&S best practices, the differing socio-political macrosystems of different countries and continents may potentially limit the generalizability of results to our local Canadian context.

Conclusion: Results gleaned here offer practical evidence-based approaches for the effective implementation of the IHI WSQ framework from those who have already achieved success. These findings serve as a call to action for organizations to implement robust Q&S infrastructure, and have the potential to help bridge not only the proverbial gap between theory and practice, but the quality chasm as well

11. Use of a peer champions model to build COVID-19 vaccine confidence

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Background: This project took place in the division of long-term care/palliative care in an academic teaching hospital, where staff members had priority access to the COVID-19 vaccine. Prior to vaccine availability, it was known that some healthcare workers would be hesitant to receive the vaccine given its novelty as well as historical gaps in uptake with other vaccine campaigns. It was anticipated that poor vaccine uptake would have negative implications on patient/resident and staff safety and place stress on health human resources.

Objective: This project aimed to improve staff confidence in the COVID-19 vaccine with the use of a peer champion model to ultimately increase staff vaccination rates.

Measures: Weekly vaccination rates were monitored, and qualitative information was gathered from champions to understand the successes and challenges to providing vaccine information to staff.

Change Concepts: This project utilized a four-pronged approach to promote change: a) targeted champion recruitment using vaccination rate data, b) champion engagement and ownership with rapid, iterative response to challenges and ideas via weekly champion huddles, c) provision of centralized and accessible vaccine information for champions from the corporate vaccine confidence group, and d) provision of centralized and accessible vaccine information and technological access to the vaccine booking system for workers.

Results: Over the 12 week duration of the program, the staff vaccination rate for the division increased from 54.3% to 94.8%. Champions received spontaneous feedback from staff members that they elected to schedule a vaccine following a conversation with the champion.

Discussion: The use of familiar peers with whom staff were comfortable appeared to allow for non-judgmental exploration of staff questions, concerns and values related to the COVID-19 vaccine. The main challenge for the project was time and human resources. Time requirements were mitigated with the use of brief weekly champion huddles, options for asynchronous virtual engagement with other champions, and curation of updated vaccine information by the corporate vaccine group. Further evaluation of the project was initiated to better understand which elements of the champions model were instrumental in enacting change.

12. Leveraging an educational intervention to support full scope of nursing practice and enhance integrated primary health care at a Canadian mental health hospital

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Background: Individuals with severe mental illness at the Centre for Addiction and Mental Health (CAMH) receive integrated care in an interdisciplinary team (IDT) with hospitalists providing physical healthcare with consults requested predominantly by nurses. Hospitalist feedback highlighted a need to review this process with nursing, given the high numbers of declined referrals resulting in provider frustration, ineffective workflows, and delayed patient care. The implementation of supportive environments that empower nurses and promote physician-nurse communication have shown to improve nurses' perception of IDT communication and job satisfaction (1). An important element of optimizing nursing practice to foster full scope of practice is through medical directives, continuous education opportunities, and clear IDT expectations in patient care delivery (2).

Aim: We aim to foster advanced integrated IDT care, empower full scope nursing practice and reduce the number of declined hospitalist referrals by 25% on pilot units by December 2023.

Measures: We conducted a longitudinal chart review to evaluate:

Outcome measures: Total number of (i) hospitalist referrals and (ii) declined referrals, including reasons for the decline.

Process measures: Number of: (i) focused nursing assessments completed; (ii) nursing medical directives initiated; (iii) referrals to allied health (e.g., podiatry, dentistry).

Balancing measure: Reduced total number of hospitalist and nursing referrals to allied health.

Improvement: Nurse educators delivered nursing training in 4 pilot units over 3 months covering topics including reviewing hospitalist notes, utilizing nursing medical directives, performing focused physical nursing assessment, checking for duplicate hospitalist referrals, and directly requesting referrals to allied health services.

Results: Administration of pre and post training surveys indicated an increase in self-assessed knowledge in topics covered. Data analysis is currently underway to evaluate the intervention with planned completion in October 2023.

13. Enhancing Colorectal Cancer Screening in Chronic Care Patients at CAMH

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Background: Colorectal Cancer (CRC) is the third most prevalent cancer in Canada, with early screening shown to significantly reduce mortality rates. However, patients with severe mental illness face inadequate physical healthcare, including limited access to cancer screening, resulting in higher morbidity and mortality (1). Despite evidence highlighting the importance of preventative CRC screening, its integration in chronic care inpatient units at the Centre for Addiction and Mental Health (CAMH) remains suboptimal. This health equity gap creates an opportunity to improve care for this marginalized patient population.

Aim: This project aimed to improve Colorectal Cancer Screening (CRC) rates to 30% among long stay inpatients at CAMH over the period of two years.

Measures: CRC screening completion rates were evaluated through a longitudinal chart review.

Change: In collaboration with the Informatics Clinical Applications Team, Clinical Laboratory Services, Professional Practice and the Division of Hospital Medicine, a new clinical workflow was co-developed specifically for inpatient use. This integrated approach enabled Hospitalists to identify and provide FIT screening to eligible long-stay inpatients more efficiently. Education was also conducted with Hospitalists and Advanced Practice Clinical Leaders (APCL) to ensure their familiarity with the co-designed clinical workflow.

Results: Initial chart audit identified 38 eligible patients, with a baseline rate of 13% of eligible patients who were screened and up to date. Two years following the clinical workflow modifications, chart audit identified 52 eligible patients eligible for CRC screening. 36% completed CRC screening, leading to 1 positive FIT result and 2 follow-up colonoscopies. Overall, CRC screening at the organization increased to 36% over the 2-year period.

Discussion: This health equity project highlighted the need to improve CRC screening rates in long stay inpatients at CAMH. The implementation of the clinical workflow successfully identified eligible inpatients and met the aim to increase screening rates to 30%. However, patients without screening did not have documented reasons, therefore, further investigations into the factors influencing low screening uptake are required. Addressing the lack of electronic health records (EHR) alerts, documentation challenges and the need for ongoing patient and clinician education and engagement will be crucial for streamlining the process.

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14. Screening for E-Cigarette Use in Patients with Cystic Fibrosis and Primary Ciliary Dyskinesia

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Background/Context: The prevalence of e-cigarette use has increased in recent years, particularly among the adolescent population. Among youth aged 15-19 years old, 20% have tried vaping, compared to 11% who have smoked tobacco. The impact of e-cigarettes on health is poorly understood, and adverse reactions to vaping have been reported. Improving our understanding of the burden of vaping in patients with chronic respiratory diseases is crucial

Aim/Objectives: To improve health care provider (HCP) screening for vaping use in adolescent patients with Cystic Fibrosis (CF) and Primary Ciliary Dyskinesia (PCD) ≥12 years of age from 0% to 80% between October 30, 2022 and May 30, 2023

Measures: Outcome Measures: determine the frequency of screening for e-cigarette use in CF and PCD patients.

Process Measures: determine the percentage of patients who underwent standardized screening for e-cigarette use.

Balancing Measures: determine the percentage of patients needing additional counseling during clinic appointments via number of Social Work or Adolescent Medicine referrals.

Improvement/Innovation/Change Concepts: First we provide reminders to HCPs as well as we ensured core respiratory HCPs that were assigned to potential adolescent patients, in order to bring the vaping problem to light. We then proceeded to ask for the HCP to complete a screening template. We were able to create a dot phrase to be inserted into CF and PCD clinic templates. We proceeded to implement our screening.

Impact/Results: The percentage and numbers of patients aged ≥12 years who screened positive for e-cigarette use followed in the CF (N=38) and PCD (N=21) clinics. Of all eligible patients, 1 PCD patient and 8 CF patients were not screened. From our screening we realized that 1 CF patient and 4 PCD patients were currently smoking.

Discussion/Lessons Learned: With these implemented changes, we were able to screen most of our CF and PCD population that met the inclusion criteria. During this QI project we realized that there's a poor knowledge about vaping and its risks among HCP, and this means the screening is not been standardized in the Respiratory Medicine Clinic. We also encounter mild difficulties with logistical implementation of a screening tool into EPIC. Once we were able to integrate the

template into EPIC, this allowed for ongoing reassessment for vaping in our CF and PCD clinics. This project also allowed us to realize we need to implement continuing education for HCPs on the impact of e-cigarettes. Our limitations were that it is unclear if this project could be generalized to all respiratory medicine clinics. We also noticed that the presence of families during clinic visits might be a limitation for the patient to answer our questions as honestly as possible. We also realized we need ongoing engagement of health care providers to continue asking about vaping use. The next step in our project is the implementation of standardized dependency screening tool, with management pathway dictated by screening score (RSW, adolescent medicine referrals), as well as to try to extend our screening to the rest of the Respiratory Medicine Clinics.

15. Improving discharge summary timeliness in medicine clinical teaching units in an academic tertiary care medical center

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Background: Timely distribution of hospital discharge summaries facilitates a smooth care transition. In July 2022, only 62% of London Health Sciences Centre Medicine Clinical Teaching Units (CTU) discharge summaries were distributed within 48 hours, a target set by the Province of Ontario. Although several interventions have proved effective in various clinical settings, it remains challenging to improve timeliness while balancing note quality and teaching opportunity for residents in our CTU setting, in which there is high resident turnover rate and high patient volume with complex medical conditions. Without a thorough understanding of its unique barriers and needs, we cannot reliably deliver timely quality discharge summaries that will particularly benefit this patient population.

Aim: We aim to improve timely discharge summary distribution to 75% in Medicine CTU teams by June, 2023.

Methods: We (1) engaged key stakeholders (Medicine CTU consultants), (2) reviewed root cause analysis, and (3) used discharge data (time to dictation, transcription, and sign-off) to collectively develop individual physician and team audit-and feedback metrics that distributed weekly. Other change ideas included hospital system change such as the information technology updates and the change of transcription service practice. Each change idea was coupled with rapid PDSA cycles. We analyzed data with SPC charts and applied various analytics and visualization methods to uncover causes contributed from different stakeholders, which can be difficult to differentiate by conventional methods.

Results: By the end of April 2023, the key outcome, discharge summaries distributed within 48 hours, improved to 74%. The average hours from discharge to sign-off reduced from 53 to 38 hours. The balancing measure, proportion of note edited before and after signing, did not show significant change. Approximately 900 patients were benefited from this improvement. Through the project, we demonstrated that (1) robust data analysis can inform actionable insight for senior leadership, and (2) cross team collaboration between hospital leadership and physicians to develop a concise audit and feedback metrics is key to physician buy-in and the success of a QI initiative.

16. Learning from reported near miss & minor patient safety incidents

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Patient safety incident and reporting systems are a key tool in generating learnings about the safety and quality of care delivery. A patient safety incident that does not reach a patient is termed a “near miss”. Analyzing and reviewing near miss incidents can help health care organizations learn about potential patient safety threats and mitigate them before patient harm occurs. However, there has been a historical focus on analyzing and learning from incidents where harm reaches a patient. Utilizing the Primary Care Patient Safety (PISA) framework, our multi-site academic health science center in Ontario, Canada iteratively developed and implemented an approach to analyze reported near miss safety events to support organizational learning and drive quality improvement efforts. In this session, we will share our experience on partnering with key collaborators in our multi-site organization to apply an empirically developed framework to learn from near misses and inform program quality improvement direction. Individuals who are involved in the identification, reporting, analysis of patient safety incidents, as well as the development of data-driven quality strategies should attend this session. Participants will gain practical knowledge on how to collaboratively develop and implement a near miss learning program within a healthcare organization to ultimately contribute to reducing preventable patient harm within healthcare.

17. Building Back Better Quality: Response, Recovery, Renewal and Resilience

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SHN had a robust quality and safety system pre-COVID-19 including unit level quality boards and huddles. During the pandemic, huddles shifted priority to local and regional pandemic issues. Post-

COVID-19, staff found huddles too informational and irrelevant to local quality and safety. Patient Safety Culture responses indicated worries about safety incidents dialogue and leadership support for safety. The goal of this work was to redesign and reengage staff in a short forum to share quality and safety issues/events and actions to prevent them.

Objectives were:

- Cultivate a quality and safety culture where concerns and ideas are shared
- Lower the risk of errors
- Enhance the care quality for patients
- Learn from every safety event

Outcome metrics included patient safety culture scores and reduced harm. Process metrics tracked frequency, board updates and staff attendance. Balancing measures were leaders' and staffs' satisfaction.

PDSA cycles on selected units were conducted and then spread across SHN. Change Ideas were:

- Design SHN C.A.R.E.S boards with sections for Celebrate, Achieve safety, Review quality, Engage in improvement, Share updates
- Standard work for facilitation
- Virtual option for cross-site teams
- Online library of templates and Quality Check cards

SHN C.A.R.E.S. boards were refreshed for 110 units. February audits showed:

- Updated safety data: 82%
- Updated celebrations: 60%
- Updated quality cards: 63%

Patient safety culture improved, but harm reduction was not visible. Staff engagement survey (45 responses) revealed:

- Huddles follow best practice and standard work (98%)
- Staff can share without judgment and are valued (86.6%)
- Open dialogue with manager and CPL (84%)
- Huddles improve patient safety (78%)
- Aware of incidents and outcomes (77%)
- Safety Calendars and Quality Cards are impactful (69%)

Lessons learned include obtaining leadership support and engagement for long-term sustainability, program level and unit-level metric breakdown for solid alignment and frontline staff ownership, including seeing QI as part of the daily work. The next steps for this work are to focus on cascading metrics aligned to Corporate Quality Scorecard using a Tiered huddle approach (Unit Level, Program Level, Corporate Level).

18. Stop the Pressure: An organization wide approach to decreasing the incidence of Hospital Acquired Pressure Injuries

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Hospital Acquired Pressure Injuries (HAPIs) are a significant cause of morbidity and mortality in patients. If a pressure injury is acquired while in hospital, it can substantially decrease an individual's quality of life, as it impacts their physical, social, psychosocial, as well as financial well-being (Goodman et al., 2018). At a large community hospital, a result of 8% HAPI incidence prompted a call-to-action that generated a ripple effect of change and shared accountability throughout the organization in regards to pressure injury prevention.

Through internal partnerships with Professional Practice, Clinical Systems and Informatics, and Quality Improvement an innovative way and a multi-pronged approach that hinged on interdisciplinary collaboration was developed. From dieticians, physiotherapists, respiratory therapists, nurses to physicians, every member of the interdisciplinary team plays a key role in reducing risk and preventing harm. Additionally, the decision was made to have HAPI as part of the hospital's Quality Improvement Plan (QIP), where data and quality improvement science was leveraged to enact change ideas with the goal of sustained improvement (see Fig 1).

The standard of care was reinforced via the hospital information system through enabling electronic tools including the Braden assessment, care planning, and alert functionality for at-risk patients, as well as monitoring of data via a leadership dashboard. Additionally, a review of bed surfaces also identified that over 60% of the current beds were in need of replacement, resulting in the creation of a 5-year replacement strategy to provide teams with the proper equipment to safely care for patients.

To better track clinical performance, the organization completed additional mid-year audits beyond the Annual International Pressure Ulcer/Injury Prevention (IPUP) Survey. High risk areas and units with incidence above the established benchmark were closely monitored by requiring monthly "mini-audits" and the creation of unit-specific action plans informed by data.

It is through this work and collaboration with clinical programs that this organization was able to continuously improve HAPI rates over five consecutive prevalence and incidence audits, the latest of which equalled 4.89% in March 2023, a score well-below the national benchmark of 6.3% (see Fig 2).

19. Increasing Goals of Care Discussions for Advanced Dementia Patients at a Canadian Mental Health Hospital

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Background: Advanced dementia (AD) is a terminal illness(1) whereby patients or their families often request comfort-based care when they understand expected clinical course trajectory and prognosis. Goals of care discussions (GoCD) are essential to establish treatment plans reflective of patient wishes and values, including resuscitation preferences.(2,3) When GoCD are not properly documented, adverse outcomes may arise, including healthcare providers (HCP) and patient distress from failure to intervene when necessary, or conversely, lead to unwanted interventions.(3,4,5) The Geriatric Admission Units (GAU) at the Centre for Addiction and Mental Health (CAMH), a large academic mental health hospital, represent a subset of older adults, including AD patients, who require a unique approach to care with clear care plan documentation.

Aim: We aim to increase GoCD for AD patients on the GAU by 1 month of admission or transfer to 75% by December 2023.

Measures: The outcome measure is GoCD documentation completion rates. The process measure is the time between GAU admission or transfer and GoCD documentation. The balancing measure is reduced GoCD documentation completion rates for non-AD patients.

Improvements: We developed an in-patient resuscitation status 4 level Do Not Resuscitate (DNR) order within the electronic health record (EHR) system, updated the corresponding hospital policy, and provided formal staff education. An environmental scan with GAU stakeholders was conducted to identify contributing factors for infrequent GoCD within this mental health context. A longitudinal chart review was conducted to evaluate aim and measures.

Results: Stakeholder feedback revealed common themes for lack of GoCD, including no clear HCP GoCD trigger in the EHR, no existing GoCD interdisciplinary (IDT) workflows, and no standardized or easily viewable EHR documentation tool. A retrospective chart audit and subgroup analysis of AD patients is ongoing with preliminary results expected by October 2023.

Discussion: Our findings suggest a need for improved GoCD through clear triggers and integration into IDT workflows. Ongoing engagement with GAU stakeholders will inform future work iterations, including developing an EHR documentation tool with resuscitation status order integration. Our project may provide a framework seeking to increase GoCD for AD patients in

similar healthcare settings.

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20. REACH LTC - REAssessing CHolinesterase inhibitors and memantine in Long-Term Care

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Background: In Ontario, older adults living in LTC are taking cholinesterase inhibitors (ChEIs) for many years, with 54% still taking them at death. RCT data suggest ChEI deprescribing is safe and well-tolerated in LTC. Deprescription has also been associated with decreased falls and fractures. At Sunnybrook's Veterans Centre (VC), baseline ChEI and/or memantine use was 13.2% (45 residents) and 18.6% (88 residents) at Baycrest LTC. Over 7 months, only 4.8% underwent reassessment and 4.4% underwent deprescription while 20% died on these medications at the VC. *Choosing Wisely Canada* highlights the importance of reassessing benefits and harms of these medications, and deprescribing when potential risks outweigh potential benefits.

Aims: Aims are to: 1) improve rates of ChEI/memantine reassessment at the VC to 30% by May 2024, 2) for appropriate candidates, trial deprescription in 30% by May 2024, and 3) develop a model for implementation of ChEI/memantine deprescribing guidelines that can be adapted in other LTC settings. For this aim, we involved Baycrest and may include a community LTC home.

Measures: Outcome measures are the percentage of residents who undergo reassessment and the percentage who undergo a trial of deprescription. Balancing measures include routinely recorded measures of cognition, function, and behaviour and changes in antipsychotic prescriptions.

Methods: We completed a baseline chart review, observed quarterly medication reviews, surveyed physicians, and conducted stakeholder interviews with leadership and physicians at each site.

Results: The MOHLTC mandates quarterly medication assessments however we found there are no structures to guide which medications should be prioritized for reassessment and deprescription. There are also no standards for what constitutes a reassessment or appropriate documentation. Various knowledge gaps exist and physicians reported a lack of training in deprescribing ChEIs/memantine along with knowledge of deprescribing resources.

Discussion: Many people living in LTC die on ChEIs or memantine. Despite deprescribing guidelines and Choosing Wisely Canada recommendations, reassessment and deprescription of these medications are not routinely occurring. This is the first study on implementation of these recommendations in LTC. We identified several barriers and facilitators which we will address to improve this care gap.

21. Greening the OR: Implementing a Waste Reduction Strategy in General Surgery by Optimizing Procedural Trays & Generic Packs

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Operating rooms (ORs) account for approximately 70% of hospital waste, which highlights the considerable environmental and financial impact that ORs demonstrate. This presents a large opportunity to implement green surgical practices. The two key sources for the instruments and additional items used in the OR are: the procedural trays, which consist of reusable items that the hospital's Medical Device Reprocessing Department circulates, and the generic disposable packs, which are sterile bundles bought by the hospital and disposed of after one use. These procedural trays and packs contain items that are prepared for surgeries, yet remain unused, which leads to an unnecessary form of waste, called "overage."

We aim to optimize the procedural trays and disposable packs so the items can closely reflect the needs of a given procedure, ultimately reducing unused waste (overage). To gain a baseline assessment of the overage in general surgery, we will perform a collaborative waste audit (see attachment) through the surrogate surgeries of open and laparoscopic inguinal hernias and appendectomies. These were chosen as preliminary indicators of overage in the OR because they are frequent and standardized procedures, which will eliminate confounding factors, such as major surgeon variations. After gaining a baseline assessment, we will optimize the procedural trays and disposable packs, to eliminate overage and reduce the carbon footprint of their procurement. Lastly, we will perform another assessment in the surgeries to gauge success, measured by the additional tools opened in surgery. Ultimately, we will generalize this process to reduce overage in other general surgery procedures.

Our preliminary findings show that in disposable packs, approximately 30% of items remain unused in 85% of surgeries. Further, not all waste produces equal environmental impacts, so we aim to optimize products with the lowest material life cycle CO2 emissions in our packs to minimize the carbon footprint. Our preliminary data shows that the unused disposable waste has been plastic and cotton, which have the highest CO2e per kg. Our project will optimize the procedural trays and disposable packs to tailor them to the needs of each surgery, to reduce the carbon footprint and costs in the OR.

22. Introduction of a Transition Policy to Improve the Transition of Youth with Juvenile Idiopathic Arthritis from Pediatric to Adult Healthcare

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Background: Youth with juvenile idiopathic arthritis (JIA) are at high risk for healthcare interruption while transitioning from pediatric to adult healthcare providers (HCPs). Literature has shown that this failure results in poor outcomes as young adults. Transition discussions may facilitate the development of youth self-management skills and improve their ability to navigate the adult healthcare system.

Aim: To discuss transition with at least 50% of adolescents with JIA seen in the pediatric rheumatology clinics by May 2023.

Outcome Measure: rates of transition discussion documented in the flowsheet.

Process measures: resources provided to families in the after visit summary (AVS), date of discussion documentation and identification of eligible patients before clinic.

Balancing measure: Providers' reasons for not discussing transition with patients.

Improvement/Change concept: An audit of clinic charts over one week revealed that 0/10 adolescents had documented transition discussions. A multidisciplinary stakeholder workgroup was formed to create a transition policy, identify potential barriers to distribution, and draft a distribution workflow. The workflow was modified over multiple PDSA cycles to employ automation and reduce redundancy. Educational resources for families and HCPs were created to support this initiative. HCPs distributed the policy and reviewed transition with adolescents.

Impact/Results: Transition discussion documentation was achieved with improvement from a

median of 20% to >50% of patients in clinic by the end of 2 implementation PDSA cycles over 3 months. HCPs and patients had positive feedback regarding the initiative after the first PDSA, but HCPs reported that documentation was tedious. For the second PDSA cycle, HCPs received follow-up emails about incomplete documentation and aspects of the documentation workflow were changed. One patient created an infographic of the transition policy, which was iteratively modified and is currently used to introduce the transition discussion.

Discussion/Lessons learned: Although the clinic has successfully started to distribute the transition policy to adolescents with JIA, additional PDSA cycles are needed to achieve a reliable workflow with fidelity. Having a strong multidisciplinary team of stakeholders who met regularly was imperative to the success of the project. Next steps will include additions to the workflow for the evaluation of patients' transition readiness.

23. Virtual Internal Medicine Specialist Assessment Program Reduces Emergency Department Transfers from Long-Term Care

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Background: Transfers to emergency departments (EDs) from long-term care (LTC) can expose residents to discontinuities in care and increased risks. Virtual platforms can expand the breadth of care available for residents within their facility, replacing transfers to EDs when safe and appropriate.

Aim: The Internal Medicine Virtual Specialist Program (IMVSP) aims to limit exposure to transport- and hospital-related risks by reducing the number of transfers to EDs from a LTC facility by 10% within a 16-month intervention period.

Improvement: On June 11, 2020, a LTC facility began using a virtual care platform which allowed residents to speak with specialist physicians through video and receive diagnoses and treatment plans remotely.

Measures: Data on the number of ED transfers from the facility were collected from January 2019 to October 2021. We evaluated the IMVSP using a pre- and post-study design by comparing the number of transfers to ED, and the proportion of these transfers resulting in hospital admission before and after program implementation. To understand the experiences of program end-users, we conducted unstructured phone interviews with employees at the facility. Our outcome measure was the number of transfers to ED. Our process measure was the virtual care platform for early specialist assessment. Our balancing measure was end-user satisfaction, which was gauged using

the phone interviews with key stakeholders at the facility.

Impact: The IMVSP reduced monthly transfers to the ED from the long-term care facility by 13%. The monthly proportion of transfers that resulted in hospital admission increased by 26% after program implementation. Employees at the facility were satisfied with the program, highlighting its convenience, especially for those with mobility issues, and increased accessibility to one-on-one discussions with specialists.

Discussion: The IMVSP reduced transfers to EDs and allowed for a higher proportion of transfers that resulted in hospital admission. Early access to specialist care via virtual platforms has important implications for improving accessibility to high-quality care for LTC residents and reducing risks associated with transfers. Continual extension of the IMVSP to other facilities and health networks will allow for better understanding of its impact on ED transfers and associated healthcare cost savings.

24. Quality and Safety for Stroke Care Transitions: An Interprofessional Simulation

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Background: Older adults living with stroke and other comorbidities often experience care transitions across multiple health sectors. Multiple transitions jeopardize safe patient care. Understanding best practices for integrated stroke care is critical to ensuring patients receive quality care to support full community reintegration. Interprofessional stroke specific teams are required to deliver the care required. Our team has developed a unique simulation that focuses on enhancing competencies for Advanced Practice Nurses who often work in leadership roles to support quality and safety. The simulation also is intentionally focused on managing a complex stroke patient's trajectory through a formal integrated care transition from hospital to home. The simulation incorporates concepts related to current system level changes and existing integrated models of care in Ontario. Integrated care models are people-centred approaches to address fragmented care systems to improve quality of care, through coordination of people's care needs across services, providers, and settings.

Methods: Guided by the INACSL Standards of Best Practice for simulation development, researchers and expert stroke clinicians co-designed the simulation scenario. Learning objectives were informed by experiential and reflective learning theories and the Canadian Patient Safety Institute (CPSI) Safety Competencies. Multiple types of fidelity (e.g., physical environment, conceptual, psychological) were incorporated to create a realistic case scenario representing current best practices for stroke and care transitions. The simulation will be pilot tested with content experts and students prior to final production.

Results: The simulation consists of two video-recorded scenes featuring an interprofessional integrated approach to stroke care across two care transitions from: 1) acute care to rehabilitation hospital and 2) rehabilitation hospital back to the patient's home in the community.

Limitations: This work focused on one geographical region and was informed by national stroke guidelines.

Conclusion: While the simulation was developed to support the APN role, the final product is relevant to other health professional students (e.g., OT, PT, Social Work, Speech Language Therapy) who are critical members of an interprofessional integrated stroke team. Our practice simulation team members have indicated that there is potential for uptake within the Ontario Regional Stroke Program as an interprofessional educational tool.

25. Point-of-care Ultrasonography (PoCUS) for the Assessment of Hydronephrosis in Outpatient Nephrology

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Background: Over the past decade, point-of-care ultrasonography (PoCUS) has gained traction in internal medicine and its subspecialties, with efforts predominantly geared at inpatient medicine. However, implementation of PoCUS in the outpatient setting offers a unique opportunity to improve patient care. This is of particular interest for nephrologists, as many studies have validated its use in assessing for hydronephrosis. Despite this, internal review has demonstrated that over 60% of our nephrology division has never used PoCUS and 90% has never used PoCUS to rule out an obstruction in the context of AKI.

Aim: Our aim is to increase PoCUS uptake to at least 7 scans over a 3-month period per nephrologist for 30% of the clinic's physicians, in order to encourage and incorporate PoCUS into their clinical practice.

Improvement/Innovation: Our pre-implementation work identified that interest for outpatient scanning is high, however there are major barriers to PoCUS, including the lack of training, longitudinal support and machine availability. We therefore designed our intervention to address these roadblocks, by developing didactic educational tools, including a screencast and information cheat sheet, by hosting simulation-based training sessions and inpatient beside teaching and by providing hands-on longitudinal support in the clinic with remote quality assurance of scans. We have also provided the clinic with a portable ultrasound machine.

Measures: To determine intervention impact, we will be measuring the number of PoCUS' performed weekly and the number of nephrologists meeting entrustment through the completion of 25 quality assured scans. Our process measures include the feasibility of implementation, through surveys assessing the ability, time and usefulness to perform PoCUS in the context of hydronephrosis, as well the number of nephrologists who have viewed our screencast, attended our training sessions and/or performed supervised scanning. Our balancing measures include the time to perform PoCUS and the false positive and negative rates of hydronephrosis when radiology imaging is available.

Project Impact: We hypothesize that implementation of bedside ultrasound in outpatient nephrology will be feasible and will improve the timely diagnosis and care of obstructive uropathy and the ensuing hydronephrosis, and can be further expanded to other departments in the future.

26. The bag is not always bad: Implementing a two-step pathway for urine testing on paediatric inpatient units

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Background: Urinary tract infections (UTIs) are a common source of infection in children. Best practice for diagnosing UTIs includes interpreting a urinalysis (UA) and a urine culture. Urine cultures require sterile samples, which are obtained primarily through bladder catheterization in young children. Bladder catheterizations are invasive and can be painful and time consuming. A two-step approach has previously demonstrated a reduction in unnecessary bladder catheterizations and urine cultures in children 6-24 months with suspected UTIs.

Aim: Decrease the number of bladder catheterizations in children 6-24 months with a negative screen on Point of Care Test (POCT) urinalysis by 25% over 1 year on the inpatient paediatric medicine units at SickKids.

Measures:

Outcome measures:

Number of first line bladder catheterizations completed for suspected UTIs

Proportion of POCT UA completed rather than sent to the lab

Process measures:

Number of POCT UA ordered

Number of times the pathway is followed

Balancing measure:

Number of missed UTIs

Improvement: Baseline data was collected from the paediatric medicine units for 16 months from 2020 - 2021. An inter-disciplinary team adapted a two-step pathway for collecting urine samples. This includes completing a POCT UA on a urine bag sample, and if positive, completing a bladder catheterization for UA and urine culture. Using the Model for Improvement and multiple PDSA cycles, the pathway was implemented. Intervention focused on education, reminders and process standardization with a new order set.

Impact: Baseline data demonstrated a high rate of urinary catheter cultures despite a negative UA or no UA prior (69%). After pathway implementation, this rate decreased to 23% (figure 1). The number of POCT UA performed has increased from a median of 64% pre-intervention to 80% post-intervention, resulting in fewer samples processed in the lab (figure 2).

Discussion: There is variability in practice for specimen collection and choice of investigation. This contributes to unnecessary catheterizations and requires ongoing education.

Next steps include broadening the age range to include infants 3-6 months to match the process in the Emergency Department at our institution to further reduce unnecessary bladder catheterizations and urine cultures.

27. Implementing a standardized Massive Hemorrhage Protocol and Code Transfusion at a multi-site tertiary teaching hospital

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Lack of rapid access to blood components is a preventable contributor to mortality during a massive bleed. Until recently, the massive hemorrhage protocol (MHP) at our multi-site tertiary teaching hospital was outdated when compared to the recommendations of the Ontario Regional Blood Coordinating Network (ORBCoN). This study will evaluate the implementation of an MHP and corporate emergency code, termed "Code Transfusion," aimed at improving massive hemorrhage management and reducing blood product wastage over 12 months.

The first stage of the project involved a current state analysis, that included a gap analysis using the provincial ORBCoN standards, stakeholder consultation, and direct field observations to identify areas for improvement. Baseline data identified that 46% of MHP activations from April 2021 to April 2022 were reported as a safety risk through the hospital's incident management system. Of these incidents, 9% of them were related to blood product wastage.

A new MHP policy was drafted to address and close all identified gaps to better coordinate transfusion requests. Stakeholders including various disciplines and specialties from clinical, operational and enabling teams were engaged to inform future state processes, as well as to educate and communicate the urgent need for change. Multistage targeted simulation exercises with multiple rapid PDSA cycles were then conducted to finetune the MHP prior to implementation which facilitated further input from point of care staff who are involved in the process.

Following the launch on November 1, 2022, a review and evaluation of Code Transfusion is ongoing to reinforce learning and to facilitate ongoing improvement. Following the IHI Model of Improvement, data is extracted from health records to compare outcomes, processes, and balancing measures for one year pre- and post-MHP implementation.

Through comparing patient outcomes before and after implementation of the MHP, we anticipate finding an improvement in the ORBCoN quality and safety metrics. We predict that the new MHP will be associated with reductions in patient morbidity and mortality, blood product wastage, and response times.

When implementing such a program careful consideration of the local context and repeated simulation testing is fundamental to improve and sustain safe patient care.

28. Improving data integrity and the timing of Wound Care Automated Provider Reports (APRs) within Home and Community Care Support Services Central West (HCCSS Central West)

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Background/Context: To achieve high-quality home care services within HCCSS Central West, APRs have been implemented to improve efficiency, timeliness and accuracy of electronic health information between Service Providers and Care Coordinators (CCs). However, recent data suggests inconsistent practice in submitting/approving complete and timely wound care interim APRs (WC-APRs). Given that poor communication/documentation could lead to patient safety incidents, HCCSS CW partnered with a Service Provider Organization to conduct tests of change between February-June 2023.

Aim:

- 1) To reduce the percentage of WC-APRs that were submitted/approved with missing mandatory information by 30% by April 2, 2023.
- 2) To reduce the percentage of WC-APRs that were submitted/approved with incorrect mandatory information by 30% by April 2, 2023.
- 3) To reduce the percentage of late* WC-APRs that were submitted/approved by 30% by June 25, 2023. (* APRs that were received after a pre-determined date)

Measures:

Outcome Measures:

- Percentage of WC-APRs that were submitted/approved with incorrect/missing information
- Percentage of late WC-APRs that were submitted/approved

Process Measures:

- Percentage of compliance to the Standard Work Instruction Sheet (SWIS)
- Total number of staff trained

Balancing Measures:

- Percentage of WC-APRs that were processed \leq 2 business days
- Percentage of APR resubmissions

Improvement/Innovation/Change Concepts:

- Application of forcing functions to ensure completion of required mandatory fields
- Implementation of SWIS, process map, and a mandatory wound care checklist
- Standard use of APR text fields to improve communication between nurses and CCs
- Training and reminders provided to nurses and CCs

Impact/Results:

- Targets were achieved for WC-APRs with missing mandatory information.
- Targets were also achieved for late WC-APRs.
- Targets were not reached for WC-APRs with incorrect mandatory information.
- Improved communication between nurses and CCs was noted.

Discussion/Lesson Learned:

- As forcing functions, standardization, and training have resulted in more complete and timely WC-APRs, planning is underway to sustain and spread this process improvement to other teams within HCCSS CW.
- Other change concepts will be explored to reduce WC-APRs with incorrect information.
- Leadership/champion involvement, weekly data review, and frontline feedback were key enablers in this quality improvement project.

29. Improving Surgical Safety Checklist Use with Focus Groups

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Background: The World Health Organization's surgical safety checklist has been widely touted to reduce surgical complications and mortality, but literature reports conflicting effectiveness due to variations in implementation. Previous observations in our institution revealed that checklist completion was variable, as was the operating room (OR) team's attention during checklist use.

Aim: We aimed to improve checklist use by conducting:

1. Three workshops with nursing, surgery and anesthesiology volunteers to discuss challenges with the current SSC and brainstorm new prototypes to trial in the OR.
2. Direct observations before and after the implementation of the new SSC prototypes.

Measures: Our observations targeted a convenience sample of 90 cases before and 90 cases after implementation of the new checklist prototype, across 3 surgical specialties (orthopedics, general surgery, obstetrics and gynecology (OBGYN); 30 each). Our direct observations captured the following in each surgical case:

- Applicability and completion of each checklist item and pause point (briefing, timeout, debrief).
- The profession that initiated and led each pause point (nursing, anesthesia, surgery).
- Whether each profession paid attention to the checklist when it was reviewed.

Innovation: We reduced the checklist from 44 to 21 items (see attached figure), and created 3 new designs: a) a 60-inch tall poster, b) an A3 paper sized handout, c) a reference card specifically for the anesthesiology workstation. We introduced the changes at department meetings, reinforcing that surgeons were responsible for leading the briefing, anesthesiologists for the timeout, and nursing for the debrief.

Results: Observations are in progress with statistical analyses planned (estimated completion August 2023). Interim analysis of OBGYN cases (30 pre, 21 post-implementation), show that completion rates for the streamlined items have increased 15%, 18% and 38% for briefing, timeout and debriefing respectively. Anesthesiology initiates timeout more frequently (improved from 26% to 81% of cases), and OR team members give dedicated attention to checklist discussions (improved from 65% to 82%).

Lessons learned: Surgical leadership encouraged expanding the implementation from one OR to department wide. The collaborative approach with the OR team has stimulated further discussion and interest about future changes (e.g., specialty specific checklists, onboarding training).

30. Utilizing innovative smart bed technology to improve practice at SHN

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Background/Aim: Literature suggests that integrating technology into practice enables caregivers to provide more efficient care while providing responsive patient environments. A quality improvement study was introduced at a Scarborough Health Network (SHN) inpatient medicine unit to support the implementation of 27 new Hill-Rom Centrella Max Surface smart beds using the Plan-Do-Study-Act and change management methodologies. Aiming to reduce hospital-acquired harm with a focus on falls, pressure injuries, and pneumonia, specific quality and safety indicators were aligned with bed features and organized into individual cycles.

Measures/Improvement: Process measures included percentage of beds at lowest position, adherence to side rail safety, bed exit alarms utilized when required, and patient repositioning at two-hour intervals. Outcome measures included falls over side rails or foot/head board, falls per 1000 PD, and pressure injury rates. Staff satisfaction was utilized as a balance measure. As each bed feature was introduced, staff were engaged, and education was provided at unit huddles. Weekly audits were conducted to monitor improvements and introduce new tests of change. Educational strategies were adapted according to staff needs, and immediate feedback and encouragement were provided to staff by the team's leadership.

Impact/Results: Final results show a significant improvement in practice including 71% adherence to side rail safety and 30% to bed being at the lowest position, and 15% increase in appropriate usage of bed exit alarms. A significant reduction of falls over side rails and foot/head board were also observed as a key outcome. Continuous monitoring of results and engaging staff throughout the process have contributed to practice adherence and improvement in indicator performance.

Discussion: This study allows us to understand how a structured approach for making change aligned with smart technology and strong staff engagement can lead to improvements across the organization and sustain practices in the long term. As next steps, this pilot study is being spread across to other units across SHN to improve quality and safety indicators.

31. Improving the Appropriate Use of Piperacillin-Tazobactam for Community-acquired Infections on Medical Wards

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Background/Context: Piperacillin-tazobactam is frequently prescribed for community-acquired infections despite the low risk of infection with *Pseudomonas aeruginosa*. Widespread prescription of broad-spectrum antimicrobial therapy is linked to emergence of antimicrobial resistance and increased risk of *C. difficile* infection. Agents such as amoxicillin-clavulanic acid and ceftriaxone are more appropriate for management of community-acquired infections with fewer of these risks, reduced nursing time expenditures, and lower costs.

Aim Statement: By August 2023, the proportion of patients admitted to a GIM ward with a community-acquired infection who are appropriately treated with piperacillin-tazobactam (based on predefined criteria) will increase from 48% to 90%.

Family of Measures: The outcome measure is the percentage of patients admitted to a GIM ward with a community-acquired infection appropriately treated with piperacillin-tazobactam (criteria-based). Process measures include the number of piperacillin-tazobactam orders initiated by GIM, ED and ICU; as well as the duration of therapy with piperacillin-tazobactam.

Improvement & Innovation: The use of piperacillin-tazobactam for community-acquired infection was found to be driven by unknown source of infection, uncertainty about appropriate alternative antibiotic choices, and desire to avoid changes in antimicrobials while awaiting preliminary culture results. Our change concept is standardization. Through consensus meetings with ID, GIM, ED and ICU, we developed a tool that provides appropriateness criteria for piperacillin-tazobactam use in community-acquired infections, and alternative empirical choices based on infection syndrome (Figure 1). We widely disseminated this tool throughout the hospital in key areas, as well as on a variety of electronic platforms.

Impact & Results: Evaluation and PDSA cycles are ongoing. Following implementation in April 2023, preliminary results in June 2023 demonstrated 42% of piperacillin-tazobactam orders were appropriate and 12 piperacillin-tazobactam orders were made for patients meeting inclusion criteria, both values below the central lines on our run chart (Figure 2).

Discussion: A key lesson learned was the power of engaging stakeholders, particularly physician QI leads, learners, and pharmacists. For future, we plan to scale this intervention to include patients admitted to General Surgery and Medical Oncology with community-acquired infections.

32. Improving appropriate usage of intravenous albumin at a tertiary care hospital in Ontario, Canada

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Background: Intravenous (IV) albumin is costly with few evidence-based indications. Kingston Health Sciences Centre (KHSC) has been identified as a high user of albumin in Ontario.

Aim: We aimed to reduce inappropriate albumin use amongst physicians in the Division of Nephrology at KHSC, following a hospital-wide quality improvement (QI) initiative that took place between April 2021 and January 2022.

Measures: We monitored usage of 5% and 25% albumin by the Division of Nephrology and individual nephrologists between January 2021 and June 2022.

Interventions: A multidisciplinary committee comprising of stakeholders from across the hospital system was consulted to develop a multifaceted intervention program. Several QI strategies were implemented in a stepwise manner between April 2021 and January 2022. This included the dissemination of evidence-based albumin clinical practice guidelines and a standardized electronic order set system. The return policy for albumin was also changed to reduce wastage. These changes were coupled with educational initiatives at medical grand rounds and division-specific information modules.

Results: Across KHSC, compared to the pre-intervention audit, albumin use was significantly lower during the post-intervention audit (January - February 2022) (negative coefficient, $p < 0.0001$), decreasing from approximately 800 to 450 vials per month. Albumin use in the Division of Nephrology was also reduced; excluding orders for plasma exchange (PLEX), the average monthly orders decreased from 6.4 to 2.2 vials following intervention ($p = 0.028$). Additionally, orders by prescribing nephrologists post intervention were mostly for appropriate indications; that is, for PLEX ($n = 27$) or for complications from cirrhosis ($n = 3$). While overall inappropriate albumin use was low post intervention ($n = 8$), the reasons for prescription included hypovolemia ($n = 5$), sepsis ($n = 2$), and compensated cirrhosis ($n = 1$).

Discussion and Lessons Learned: The hospital-wide QI program helped to reduce IV albumin use at KHSC and in the Division of Nephrology. Most remaining use of albumin by nephrologists following intervention was appropriate. Further improvements should target inappropriate orders for hypovolemia and sepsis. We plan to discuss these results at an upcoming Division meeting to help sustain the new level of performance and generate change ideas directed at inappropriate prescriptions.

33. Reducing perioperative RBC transfusions in Gynecologic Oncology: A work in progress

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Background/Context: Our gynecologic oncology (GO) patients have high rate of red blood cell (RBC) transfusions based on the provincial Surgical Quality Indicator Report. Perioperative transfusion is associated with worse 30-day outcomes and possibly worse oncologic outcomes. Inherent risks of liberal transfusions without improved benefits have underscored a quality gap.

Aim/Objectives: Our aim is: to increase the rate of patients receiving iron studies before surgery (specifically at time of consent) to assess for iron deficiency anemia from 0% to 80% by September 2023; to increase number of days before surgery that IV Iron therapy is received in appropriate patients from 5 days to 21 days before surgery.

Measures: The overarching outcome measure that will be tracked is the rate of RBC transfusions over time. Specifically for the implementation of change ideas, the family of measures is as follows:

Outcome measure: number of anemic GO patients who receive IV iron therapy before surgery, number of times iron studies ordered at time of consent, and number of days before surgery IV iron therapy is given

Process measures: Number of times electronic ordering bundle is used at the time of consent in the clinic level (intervention 1), number of times a referral is initiated by the clinical nurse specialist (CNS) to the patient blood management clinic (PBM) |

Balancing measures: Number of missed referrals for appropriate patients, added workload for the CNS and the PBM nurse due to increased screening

Improvement/Innovation/Change Concepts - Briefly describe the outcomes, program design, change ideas and how they have been implemented, as applicable.

Change ideas implemented are as follows: Electronic preference sheet with Iron Studies embedded for preoperative ordering at the clinic level for physicians and all other stakeholders involved in the process; Standardized referral pathway created disseminated for team awareness; Optimizing an electronic screening tool (in EPIC) for quicker screening by the PBM team

Impact/Results: Within the first five months, screening of anemic patients has increased to 93%, with the distribution of ordering of iron studies taking place 81% of time at time of consent. IV iron therapy has increased from a baseline of 4% to 38%. Time of IV Iron therapy has increased from approximately 7 days to 12 days.

Discussion/Lessons Learned: There is still room for improvement with approximately 58% of patients screened at the clinic. Next steps include focusing on optimizing the assessment and referral of appropriate patients to further increase time between IV Iron therapy and surgery.

34. Online Pocket Guide to Quality Improvement: A Preliminary Step to Build a Quality Improvement Community of Practice for Healthcare Professionals

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Background: A virtual community of practice facilitates knowledge exchange/translation of quality improvement (QI) initiatives among healthcare professionals. Our project is aimed to develop and evaluate an infographic-based online Pocket Guide to Quality Improvement (PGQI), a preliminary step to build a QI community of practice (CoP) for healthcare professionals.

Methods: We consulted national and international resources for training healthcare professionals on QI and consolidated into an infographic-based online pocket guide. We pilot tested the PGQI to a convenience sample of pharmacists in Canada. Based on Kirkpatrick's four-level training evaluation, we designed and administered a 14-item online survey to gather their user experience in October 2021. We asked about their perceived knowledge, skills, and anticipated practice changes after reviewing our PGQI.

Results: We developed an infographic-based online PGQI. Respondents' (n = 20) primary practice was diversely located in community, hospital, administrative, and regulatory authorities, from six Canadian provinces. They reviewed the PGQI within 5-15 minutes, and found the materials relevant and easy to understand. Notably, 70% respondents perceived an increase in QI knowledge; 90% would recommend the PGQI to other healthcare professionals; and 65% were interested in planning a QI project in the next 12 months. Respondents appreciated the effective use of graphics, charts, and visuals to explain QI concepts. They suggested more external resources, QI examples, and case scenarios.

Conclusion: The online PGQI presented QI concepts in an easy-to-read format. It will serve as a resource to support a virtual QI CoP for healthcare professionals. Our pilot revealed the PGQI can be easily accessible by pharmacists who wish to learn about defining, planning, and conducting a QI project.

35. Capturing Moments of Joy When It Matters Most

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Background/Context: A recent publication by Dupe et al. (2022) illustrates the roles that staff recognition and well-being play in staff retention. There is a need to ensure that staff can: share and be recognized for moments of well-being; relive joyful moments; be inspired to implement similar initiatives. Joyful moments are shared during team safety huddles, and rarely revisited or shared broadly across Sunnybrook.

Aim: The aim of this project is to increase the well-being and recognition of Sunnybrook staff by May 2023 through the co-creation of a narrative exhibit of portraits and stories of joy.

Measures: Outcome - A Likert-scale survey was used to measure attendee impact in an exit poll. Qualitative statements have been collected from staff who contributed to the exhibit to understand the impact of participation. Process: Story submissions will undergo thematic analysis, alongside understanding the number of submissions received and volume of attendees. Balance: understanding staff who did not feel joy with this work.

Improvement/Innovation/Change Concepts: Teams across all clinical programs and campuses were asked to submit images of celebrations with accompanying stories. All submissions were reviewed to ensure they showed a moment of joy that occurred within the past year. A travelling exhibit of portraits designed with visual cues for joy showcased the submissions across four campuses.

Impact/Results: Thirty-five images of joy and celebrations were received with accompanying short reflections. Portraits represented 25 different teams across four campuses and a wide variety of programs, with themes of joy including special events, wellness, and patient success stories. Exit poll results show a positive response to the exhibit. Preliminary analysis is ongoing of story submission themes, exhibit comments, and survey results to understand the impact on participating teams.

Discussion/Lessons Learned: Barriers included time constraints to create the submission as well as the perception that putting together a submission added to an already strained team. Given the overwhelming success of the exhibits, discussions are under way to offer the exhibit as an annual permanent installation for Team Sunnybrook. For future exhibits, a great allowance of time will be provided.

36. Enhancing Physician Wellness Through Tracking Self-Care Time

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Physician wellness has recently gained attention, particularly with the Covid-19 pandemic and its impact on healthcare professionals, patients, and the healthcare system. Within postgraduate medical education, formal efforts have been made to promote resident wellness through initiatives by the Departments of Family and Community Medicine at the University of Toronto and the Scarborough Health Network (SHN). However, a gap was identified in the provision of practical wellness initiatives designed for the preceptors responsible for teaching these resident physicians.

Eight family medicine preceptors from SHN developed a quality improvement project to enhance their wellness by increasing their individual total self-care time, defined as time spent doing intentional activities that give joy, by 25% within four months. Change ideas included implementing a spreadsheet for tracking self-care time, a Whatsapp chat group for support and sharing joyful activities, and targeting a specific area of self-care need. The primary outcome measure was the percentage change in individual self-care time, with a secondary measure of using the World Health Organization-Five Well-Being Index (WHO-5) score to monitor overall well-being. Balancing measures were incorporated to assess the ease of using the tools through quantitative and qualitative feedback.

Following three PDSA cycles, the average percentage change in self-care time fluctuated from a 10.36% decrease to a 69.95% increase, with the latest measurement indicating an increase of 28.69%. The average WHO-5 score showed overall improvement from a baseline of 15.86 to a range of 17.93 to 19.58. Participants reported that use of a spreadsheet was helpful in facilitating awareness of time allocation and identifying areas requiring improvement while not being burdensome to use. Opinions on the Whatsapp chat varied, with some finding it energizing for sharing experiences while others perceiving it as onerous. However, participants concluded that while increasing self-care time contributed to wellness, it did not necessarily translate into enhanced overall well-being since other unmeasured factors, such as family illness and work-related stressors, also influenced the WHO-5 score. Future directions include development of a comprehensive wellness score encompassing key aspects relevant to the group and the implementation of targeted strategies in addressing these areas of well-being.

Oral Abstracts

Community Mental Health and Addictions Clinic (C-MAC): OHT-driven care integration

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Limited access to psychiatry and community supports has resulted in a significant increase of people accessing local emergency departments for mental health and addictions (MHA) issues in Cambridge, Ontario. The Cambridge North Dumfries Ontario Health Team (CND OHT) has identified MHA as a priority for their attributed population and has established a work stream to support change ideas to improve access to care. Bringing together members across the OHT, we piloted a clinic co-located at Cambridge Memorial Hospital to offer quick access MHA services for low acuity concerns.

The aim of the Community Mental Health and Addictions Clinic (C-MAC) pilot was to create a unique environment where a co-located interdisciplinary team could collaborate in real-time, offering MHA services to support comprehensive and equitable care. The team consisted of primary care providers, social workers, outreach, and addictions counsellors. The goal was to offer immediate access to care and connection to services in the community. Given that this was a pilot project, we were intentional in building a robust evaluation plan to understand if the project was implemented as intended and if we were able to produce change. We looked at patients served, emergency department diversions, outcomes of the appointment and attachment to primary care.

In this 8-week pilot, the C-MAC served 123 unique patients and recorded 451 patient encounters. Through a partnership with Cambridge Memorial Hospital, we were able to divert 23 emergency department visits and support 11 people with attachment to primary care. A patient satisfaction survey showed that 50% of patients would have gone to the emergency department if the C-MAC did not exist.

This pilot showed the strength of the OHT and its' members to create change in the health care system. It allowed us to identify challenges in the clinical workflow and how the planning team can improve the future iteration of the clinic to best support clients. By establishing evaluation metrics early and collaboratively with partners, we increased buy-in and support for the success of the clinic.

A collaborative approach to expanding the definition of preventable patient harm

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Background/Context: Preventable patient harm is not limited to physical harm. Patients and healthcare professionals can identify harm that is not only physical, but also non-physical (e.g., emotional, psychological, spiritual, cultural). In addition, patients who experience a medical error during their own care, or care of someone close to them, can experience non-physical harm (NPH). However, most organizations view patient harm primarily from a physical lens, rather than a holistic lens.

Aim: Through this project, we aim to develop, implement, and evaluate a process to identify and learn from reported patient NPH by April 2024 at our large multi-site academic health science centre in Ontario, Canada

Measures: The project will evaluate competency and proficiency levels in defining, identifying, and addressing patient NPH across the organization. We will monitor the total number of potential NPH patient safety incidents reported and reviewed. Additionally, as a balancing measure, we will monitor unintended NPH experienced by care providers involved in the review of NPH incidents.

Improvement/Innovation/Change Concepts: A multi-disciplinary working group led by Quality & Patient Safety, Patient Relations, Clinical and Organizational Ethics, and Indigenous Health expanded the definition of patient harm to include NPH, in order to capture and better understand the patient experience. This group is also developing a framework to support consistent identification, review, classification, and learning from preventable non-physical patient harm, as well as prepare the organization to engage in the process of identifying and analyzing patient NPH using the framework (e.g., through leadership education).

Impact/Results: At this time, we do not have results to share. By Fall 2023, we will be able to report on our family of measures.

Discussion/Lessons Learned: Expanding an organization's definition and review of patient harm requires a multi-disciplinary, thoughtful, and patient-centered approach. We share the experience of gaining consensus and implementing a definition, process and framework for patient NPH at a large-multi site academic health science centre which can support other organizations also interested in expanding what it means to experience avoidable patient harm in healthcare.

The Underuse of Medical Interpretation Services: A Human Factors Analysis on Why They Aren't Used Enough and How Their Usage Can Be Increased

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Background: Language barriers can lead to health disparities for patients with limited English Proficiency (LEP), directly affecting care quality and patient outcomes. While professional medical interpretation services (IS) have been proven effective in reducing these disparities, their utilization remains low in Canadian hospitals. Previous works have cited multiple barriers to IS, such as time pressures and hospital culture. However, most of these works focused on Spanish-speaking patients in the United States. Our work aims to find barriers to IS use at St. Michael's Hospital (SMH) and develop recommendations informed by Human Factors (HF) principles to utilize IS.

Methods: The study was conducted at the General Internal Medicine (GIM) ward of SMH. SMH serves an ethnolinguistically diverse population in Toronto, Ontario, Canada. The GIM ward offers on-demand IS in video and phone modalities. Data sources encompassed relevant literature, policy documents, a previous survey of 17 clinicians, and contextual inquiry on the GIM ward. The contextual inquiry involved 14 interviewees including nurses, allied health professionals, and interpreters. Process maps and People/Environment/Tools/Task (PETT) scan were developed to examine the efficiency and organize the barriers found.

Results: There were 3 steps where healthcare providers experienced challenges in phone IS and 5 steps where users experienced challenges in video IS. We identified 22 barriers across the four areas of the PETT scan:

People: Some patients prefer ad-hoc interpreters (e.g., family members) or struggle with cognitive and sensory issues (e.g., dementia, hearing impairment, etc.), making IS usage difficult.

Environment: The limited availability of video IS tablets shared across multiple wards causes accessibility and time-related issues.

Tools: The single-screen design of video IS hampers usability as users need to rotate the screen when speaking.

Tasks: The phone IS requires setting up an access code prior to usage, leading to accessibility challenges.

Conclusion: Multiple system-related barriers contribute to the underutilization of IS; improvements are possible across all areas of the PETT scan. Recommendations based on preliminary findings include increasing tablet availability and providing a virtual manual on tablets or mobile phones.

These findings shed light on the factors affecting IS underutilization, emphasizing the importance of improving access.

Laboratory operating cost savings from an Intensive Care Unit blood testing reduction program.

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Background: Reducing unnecessary intensive care unit (ICU) blood testing prevents iatrogenic anemia, phlebotomy related blood transfusions, and environmental waste. However, securing resources for stewardship initiatives often requires a business model, which can be challenging since many laboratory operating costs are fixed. We hypothesize that underrecognized variable cost savings are possible which can support blood test reduction efforts.

Methods: This retrospective cohort uses data from a prospective lab test reduction program in an academic medical-surgical ICU in Toronto, Ontario. ICU attributable variable laboratory costs per patient day were estimated monthly pre-intervention July 2018 to January 2019 and post-intervention July 2019 to January 2020. Variable laboratory costs in Canadian Dollars (CAD) included single-use blood test reagent costs, disposable bedside blood testing equipment, and disposable blood sample tubes. Costs related to infrastructure, utilities, and personnel were excluded. Absolute cost reduction per month was calculated with 95% confidence intervals. Time series analysis using linear segmented regression and excluding the intervention wash-out February 2019 – June 2020 was used to quantify cost savings per patient-day.

Results: 1331 patients were included; 642 pre- and 689 post-intervention. There was no difference in median age 61 yrs (interquartile range [IQR] 49 – 74), sex 60.0% male, ICU length of stay 2 days (IQR 1 – 5), or hospital mortality 18.8% between groups. Variable lab testing costs pre-intervention were \$38.98 per patient-day, including: \$26.83 (68.8%) reagent costs, \$9.42 (24.1%) bedside equipment, \$1.22 (3.1%) blood sample tubes. The intervention was associated with a \$9.22 decrease in costs per patient day (p=0.03). Monthly variable costs decreased from \$30,351 to \$20,730, absolute difference \$9,621 (95% Confidence Interval [CI] \$6,337 - \$12,905). Estimated cost savings over 12-months were \$115,452 (95%CI \$76,044 - \$154,860).

Limitations: This work considers cost savings in a publicly funded health system and results may not apply to other funding models. Only operating costs directly attributable to ICU lab testing events are considered; additional benefits such as freeing laboratory system capacity were not quantified.

Conclusions: A dedicated ICU phlebotomy stewardship program resulted in laboratory operating cost savings of \$9.42 per patient-day. In a 30-bed medical-surgical ICU this amounts to \$115,452 CAD saved per year.

Implementation of a standardized point-of-care disinfectant program to reduce the incidence of healthcare-associated infections

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Background: The COVID-19 pandemic was associated with supply chain disruptions in point-of-care (POC) disinfectant wipes, resulting in suboptimal cleaning and with associated increases in some healthcare-associated infections (HAIs).

Aim: To increase adherence to use of preferred POC disinfectant wipe for cleaning of shared equipment from 50% to >90% by June, 2023.

Measures: A family of measures was analyzed at baseline (January – December, 2022) and during implementation (April – June, 2023). The outcome measure was a composite of environmental HAIs including *Clostridioides difficile*, Vancomycin-Resistant Enterococcus and Carbapenemase Producing Enterobacteriaceae. Process measures included proportion of POC disinfectant wipes used, and directly observed adherence to preferred POC cleaning of shared equipment. Preferred wipe was defined as use of bleach for patients with suspected or confirmed *C. difficile*, or on high-risk units. Use of hydrogen peroxide (HP) was preferred in all other circumstances while use of quaternary ammonium was considered non-preferred. Balancing measures included cost of POC wipes and occurrence of damaged equipment.

Innovation: A corporate working group implemented a standardized POC cleaning program where only two products were available (HP and bleach) effective April, 2023. Wipe brackets were installed in clinical areas to improve access to POC disinfectants, and corporate communication and staff training were provided.

Results: At baseline, the proportion of HP and bleach POC wipes was 38.2% and 3.1%, and increased to 87.5% and 12.1% in April-June, 2023. Observed adherence revealed no difference in the cleaning of shared equipment (52%, 92/177 vs. 50%, 143/284), while the use of preferred POC wipes increased from 75% (69/92) to 98% (140/143) ($p < 0.001$). Incidence of environmental HAIs decreased from 0.61 to 0.48 per 1000 patient-days ($p = 0.04$). Cost avoidance associated with the change in POC wipes is estimated at a savings of \$0.16 per unit/wipe, with no damaged equipment to date.

Discussion: A standardized POC cleaning program achieved its aim of ensuring the optimal POC disinfectant wipe is used, with associated trend in reduced HAIs. Future iterative improvement is planned to address adherence to cleaning of shared equipment and patient rooms, with further anticipated impact on HAIs, favourable cost outcomes and no risk to damaging equipment.

PROTECT Connected Health: Empowering Patients to Manage their Health Post-Surgery

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Background: Surgical backlog during the pandemic has been a concern for Canadian healthcare system. Remote monitoring programs have been implemented across the province to address backlogs and support postsurgical patients' recovery at home.

Aim: To empower patients in their post-operative recovery with remote patient monitoring (RPM) supports and to prevent, address, and resolve complications by utilizing the accommodated pool of nursing resources and existing technology through building a resilient, multidisciplinary care model that improves access to care for patients.

Measures: Decreased Length of Stay (LOS), emergency department visits and readmissions and improved patient and provider experiences are the measures driving the sustainability of the program.

Improvement/Innovation/Change Concepts: Adult surgical patients are given a connected health platform kit after discharge with onboarding training to ensure patient comfort with the platform. Nurses review the patients' biophysical measurements (blood pressure, heart rate, respiratory rate, oxygen saturation, temperature) and weight, wound status, medications, and recovery and pain survey results daily for 14 days. Escalations are supported by perioperative physicians or the surgeons.

Results: During the last fiscal year, supported 1039 patients, 3090 escalations, and 30731 nursing interventions were supported. The length of stay was reduced by 2 days and hospital readmits was reduced by 40%. For the patient experience survey from January 1, 2022 to November 4, 2022 (n = 552): 96% of patients were very satisfied or satisfied overall with the RPM in terms of ease of functionality of the solution, quality of information, and services provided. For the survey from November 5, 2022 to March 31, 2023 (n = 296): 98% of patients were very satisfied or satisfied overall with the program. During the early months of this fiscal year, April and May 2023 had 152 patients and 767 escalations.

Discussion: There is a need for creating a sustainable RPM program that leverages a multi-disciplinary approach. The next steps include expansion of the program to high-risk emergent and urgent, and pediatric surgical patients extending access for remote care to more patient areas. Emergent/urgent patient populations may need high-intensity and an increased monitoring period for up to 30 days.

Using computer simulation to reveal the relationships between healthcare system design, nurse workload, and care quality

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Background: Current nursing workload conditions are unsustainable and pose risks to patient safety and care quality. Yet workload is rarely measured or managed in healthcare settings. Through several studies our interdisciplinary team has developed an innovative approach to quantify the impacts of system design, policy, or patient characteristics on both nurse workload and care quality indicators. This presentation provides an overview of the workload modeling approach and examples of analyses that these models can provide related to care quality and patient safety.

Methods: Using a discrete event simulation (DES) modeling technique from engineering, we simulated nursing work in an acute care medical surgical setting pre and post covid which included testing how workload changed under pandemic conditions. The model was built using architectural, operational, and time and motion study data obtained from the study unit.

Results: Various work design factors (e.g., nurse-patient ratios, IPAC routines) directly impact the amount and type of missed care. The pre-pandemic simulation showed that a nurse had 14 hours of care to provide in 12 hours resulting in care left undone at the end of a shift. Further the model showed that as nurses were assigned more COVID-19 patients, nurse workload increased, and care quality deteriorated. Direct care time was reduced to 3.4 hours and missed care increased from baseline to 143 missed care tasks in a 12-hour shift. Frequently missed care tasks included patient teaching, emotional support, and documentation tasks all which impact patient safety, care quality and increase risks for hospital readmissions.

Limitations: While the model in question has been validated in a med-surg unit, transferability of model results should be approached with caution. Streamlining the modeling approach to create site and situation-specific healthcare system models more quickly is needed.

Conclusion: Computer modeling of healthcare systems can quantify the staff workload and care quality consequences of healthcare unit design and operational decisions. The ability to isolate the impacts of individual factors that determine staff workload pose an important tool for those making critical operational decisions in the healthcare system and a valuable tool for the better-work, better-care agenda.