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Choosing Wisely Canada's  
**VIRTUAL  
NATIONAL  
MEETING**

ABSTRACT BOOK

**LE CONGRÈS  
NATIONAL  
VIRTUEL  
de Choisir avec soin**

CAHIER DES RÉSUMÉS

# CHAIR'S FOREWORD

Dear Choosing Wisely Canada Attendees,

As I welcome you to the fifth annual Choosing Wisely Canada National Meeting, I recognize this is a profoundly different time.

The response to the COVID-19 pandemic has demonstrated the resilience and commitment to safe and quality care from health care professionals, organizations, and individuals around the world. COVID-19 has also, in an acute way, forced the public and health systems to weigh the relative value of different services and to prioritize how limited resources could be used more wisely. Our work has never been more important.

This year, our annual National Meeting will be virtual, but remains an opportunity to learn about the innovative approaches to lead and implement change in our health care system.

The Virtual National Meeting will showcase a few leading examples of the fantastic work highlighted in this abstract book. I encourage you to browse the contents of the book to learn about these impressive initiatives that reflect the breadth of work taking place across the country and beyond. The abstracts include topics on quality improvement, measurement and evaluation, patient engagement, and medical education. We hope this book will continue to serve as inspiration for the growing community of clinicians, health care organizations, and individuals who are committed to reducing overuse in health care.

Since we launched the campaign in 2014, I continue to be amazed by the energy and commitment of our community that remains six years later. I sincerely thank the Choosing Wisely Canada community for your ongoing engagement and dedication to improving the quality of health care, especially now during these challenging times.

I look forward to continuing these collective efforts in the future and hope you remain safe and healthy during this time.

Yours,

A handwritten signature in black ink, appearing to read 'Wendy Levinson', written in a cursive style.

Wendy Levinson, MD OC  
Chair, Choosing Wisely Canada & International  
Professor of Medicine, University of Toronto

# MESSAGE DE LA PRÉSIDENTE

À tous les membres de la communauté Choisir avec soin,

Je vous souhaite la bienvenue au cinquième Congrès national de Choisir avec soin, qui a lieu dans des circonstances exceptionnelles.

La lutte contre la pandémie de COVID-19 a prouvé la résilience des professionnels de la santé, des organisations du secteur de la santé et des membres du public partout dans le monde, de même que leur détermination à offrir des soins sûrs de qualité. La pandémie a aussi obligé les systèmes de santé et le public à évaluer la valeur relative des différents services et à se concentrer sur les moyens d'utiliser judicieusement des ressources limitées. Notre travail n'a jamais été aussi important.

Cette année, notre Congrès national se tiendra en ligne, mais il demeure une occasion de découvrir les approches novatrices mises en place pour diriger et mettre en œuvre des changements dans notre système de santé.

Dans le cadre de ce Congrès national virtuel, nous présenterons quelques exemples du formidable travail compilé dans notre recueil de résumés. Je vous encourage à en parcourir le contenu pour découvrir ces initiatives impressionnantes qui illustrent l'ampleur du travail effectué partout au pays et ailleurs. Les résumés abordent des thèmes comme l'amélioration de la qualité des soins, la mesure et l'évaluation des résultats, la mobilisation des patients et la formation médicale. Nous espérons que ce recueil continuera d'inspirer la communauté grandissante de professionnels de la santé, d'organisations en soins de santé et de membres du public qui se sont engagés à réduire la surutilisation des ressources.

Depuis le lancement de la campagne en 2014, je continue d'être impressionnée par l'énergie et l'engagement de notre communauté, qui persistent même six ans plus tard. Je remercie sincèrement tous les membres de la communauté Choisir avec soin pour leur engagement et leur dévouement continus en vue d'améliorer la qualité des soins, surtout en ces temps difficiles.

Je suis impatiente de poursuivre ces efforts collectifs au cours des semaines et des mois à venir et j'espère que vous demeurerez en santé et en sécurité pendant cette période.

Cordialement,

A handwritten signature in black ink, appearing to read 'Wendy Levinson'.

Wendy Levinson, M.D., O.C.  
Présidente, Choisir avec soin, Canada et international  
Professeure de médecine, Université de Toronto

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**MEASUREMENT  
AND EVALUATION**

**LA MEASURE ET  
L'ÉVALUATION**

## TARGETING VALUE: PRIMARY CARE LABORATORY TESTING IN ALBERTA

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Mike Allen, University of Alberta  
Katrina Nicholson, Physician Learning Program  
Douglas Woodhouse, Physician Learning Program  
Rod Elford, Health Quality Council of Alberta  
Denise Campbell-Scherer, Physician Learning Program  
Joe MacGillivray, Physician Learning Program  
Basil Elyas, Improving Health Outcomes Together  
Ashi Mehta, Physician Learning Program  
Christopher Rice, Physician Learning Program  
Irene Ma, University of Calgary  
Jody Pow, Health Quality Council of Alberta  
Melanie Heatherington, Physician Learning Program

### Background:

Alberta spends approximately 700 million annually on laboratory services with close to 60% of costs associated with lab tests ordered by family physicians. Approximately 70 percent of medical decisions are based on laboratory test results and failing to test for screening and diagnostic purposes when needed can lead to missed diagnoses and be detrimental to patients. However, studies find that approximately 35% of all lab testing is low value given the patient's condition. Low value testing can be associated with investigational cascades and increased patient harm and anxiety. Improving appropriateness of testing will have substantial implications on patient care and health care expenditures. A key scientifically proven strategy to reduce low value lab testing is to inform physicians about their lab utilization patterns compared to their colleagues with individual practice reports paired with expert suggestions for improvement in an online audit & feedback learning environment. The Physician Learning Program is collaborating with the Alberta College of Family Physicians, Alberta Precision Laboratories, Alberta Health Services, and the Health Quality Council of Alberta to launch an online learning environment entitled My Practice: Primary Care laboratory Services which will allow the physicians to visualize their individualized lab ordering metrics, appropriate comparators and provide appropriate resources which will empower them to make meaningful changes.



# **PEDIATRIC DENTISTRY UNDER GENERAL ANESTHESIA: A SASKATCHEWAN PROFILE AND RECOMMENDATIONS FOR CHANGE**

Mateen Raazi, University of Saskatchewan  
Jennifer M. O'Brien, University of Saskatchewan  
Keith Da Silva, University of Saskatchewan  
Kristi D. Wright, University of Regina

## **Background:**

More than 19,000 Canadian children aged 0-6 years undergo dental treatment under general anesthesia (GA) annually. National data suggest that children from neighbourhoods with a high proportion of Indigenous peoples, low socioeconomic status, and rural areas are at increased risk. Further, multiple exposures to GA before age 3 are associated with decreased processing speed and fine motor abilities, and increased deficits in reading and behaviour.

## **Goal:**

Our goal was to determine the prevalence and predictive factors for dental treatment under GA in Saskatoon, Saskatchewan.

## **Methods:**

We conducted a retrospective review of children aged 0-6 years who underwent dental treatment under GA in Saskatoon between the years 2015-2018. Demographic, dental diagnostic and treatment data, and number of previous exposures to GA were collected.

## **Impact:**

Our data show that children who live in remote and/or rural areas greater than two hours away from Saskatoon have a higher disease burden and are overrepresented amongst GA cases in Saskatoon.

## **Challenges:**

Limitations of this study included our inability to identify First Nations and Métis patients, and the lack of neurodevelopmental diagnoses in the chart.

## **Lessons Learned:**

Our results suggest geographical areas to address a higher disease burden in children who live greater than two hours away in remote and/or rural areas of the province. Targeted prevention strategies to reduce the burden of oral disease for these high-risk children must be considered to reduce the incidence of dental cases under GA. We further recommend that Health Authorities prioritize collecting information about Indigenous identity upon registration.

# THE CONSTRUCTION AND ANALYSIS OF A METRIC FOR ROUTINE BLOOD DRAWS

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Devan Tchir, Vancouver Island Health Authority  
Adele Harrison, Vancouver Island Health Authority

## Background:

Repetitive and routine blood draws are associated with increased risk for hospital-acquired morbidity and mortality, and thus Choosing Wisely Canada recommends against repetitive testing in hospitals. The goal of this project was to create a metric for Complete Blood Count (CBC) draws to identify potential inappropriate testing, and to identify possible variation across different hospital sites and over time.

## Methods:

Records of inpatients within Island Health from April 1, 2016 to June 30, 2019 who have had at least one CBC draw and three days in hospital formed our CBC hospitalization cohort and were used for the metric design and analysis. An oversight committee provided normal values for four test results of interest associated with a CBC draw (platelets, white blood cells, hemoglobin, and neutrophils). We categorized a CBC hospitalization as “inappropriate” when a repetitive succession of CBC draws happened three consecutive days when the four results were normal.

## Results:

Within the last year, we report that approximately one in twenty CBC hospitalizations are inappropriate based on our categorization, with up to 4.5 times variability in rates across different hospital sites in Island Health. Rates have remained relatively consistent over time, with some sites possibly demonstrating a slight recent increase in inappropriate draws.

## Conclusion:

Our results suggest that a number of hospitalizations have inappropriate and routine blood draws. Challenges of establishing this metric can arise from creating appropriate inclusion criteria. For example, patient populations that require blood draws irrespective of test results should be identified and excluded if possible.

## **WHAT ARE THE ATTITUDES AND BELIEFS ABOUT THE CAUSES AND MANAGEMENT OF LOW BACK PAIN OF THE GENERAL PUBLIC?**

Amanda Hall, Memorial University  
Andrea Pike, Memorial University  
Brad Furlong, Memorial University  
Rebecca Lawrence, Memorial University  
Danielle Coombs, Institute for Musculoskeletal Health  
Steven Kamper, Institute for Musculoskeletal Health

### **Background:**

Physicians report that a major reason to order an image for low back pain (LBP) is to satisfy or reassure the patient rather than to help with a diagnosis.

### **Goal:**

To understand the public's beliefs about LBP and imaging in a cross-sectional population-based survey.

### **Method:**

The validated back beliefs questionnaire as well as four additional questions relating to beliefs about imaging and physical activity mailed to a representative sample of 3000 adults in Newfoundland and Labrador in July-August 2018 and responses were collected until September 30th, 2018.

### **Results:**

426 surveys were returned (yielding a 14% response rate), of which 66% were female and 34% male with an average age of 55 years (+/- 14.6 years). The mean back beliefs score for the cohort was 27.3 (SD 7.2), indicating the presence of negative and unhelpful beliefs about back pain. In terms of imaging, 54% thought that x-rays or scans are necessary to get the best medical care for LBP, 25% were unsure, and only 20% disagreed with this statement. Similarly, 50% of the cohort thought that everyone with LBP should have an image, 25% were unsure and 25% disagreed with this statement.

### **Conclusions:**

It is likely that many people have unhelpful beliefs about LBP and approximately 75% are either unsure or believe that imaging is necessary for best care. Thus, patient facing educational materials are needed to help reduce unnecessary imaging.

### **Lessons Learned:**

Future iterations of this survey will consider the use of social media for survey administration.

# **DO INTERVENTIONS TO CHANGE PHYSICIAN'S IMAGING BEHAVIOUR TARGET PHYSICIAN-REPORTED BARRIERS?**

Amanda Hall, Memorial University  
Helen Richmond, Memorial University  
Andrea Pike, Memorial University  
Holly Etchegary, Memorial University  
Charlotte Albury, University of Oxford  
Jacqueline Thompson, University of Birmingham  
James Matthews, University College Dublin

## **Background:**

Numerous interventions have been developed to reduce physician's ordering of unnecessary imaging for low back pain. Success of these interventions relies on the components targeting the right barriers to behavior-change.

## **Goal:**

To determine if current interventions to reduce physician ordering of low back pain imaging have included behavior-change techniques that would actually address known barriers to changing this behaviour.

## **Methods:**

We present the results of two prospectively registered systematic reviews conducted according to PRISMA guidelines including electronic searches of EMBASE, Medline and CINAHL, independent screening/data extraction and quality assessment. Studies were included if they reported qualitative data on physician-reported barriers to adopting imaging-guidelines or evaluated an intervention to support the adoption of imaging-guidelines for low back pain. Barriers were synthesized using the Theoretical Domains Framework and evidence-certainty judged using the GRADE-CERQual approach. Intervention components were described using the Behavior-Change Technique taxonomy.

## **Results:**

We included 11 studies (n=270) of physician-reported barriers (10 countries). We were highly confident in evidence supporting three barriers: social influence from patient demand, beliefs about consequence regarding imaging as a reassurance mechanism and resources due to a lack of time to negotiate/explain diagnosis. We found 19 interventions that aimed to reduce imaging for low back pain. None of them targeted all three barriers, only 6 targeted one or two of these barriers.

## **Lessons Learned:**

Current interventions to reduce imaging do not target physician-reported barriers to using imaging-guidelines and thus have low likelihood of success. The use of behavior-change theory to inform future interventions is recommended.

## **ANTIMICROBIAL USE IN CANADA: A FOCUS ON CARBAPENEMS IN THE COMMUNITY**

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Glenys Smith, Public Health Agency of Canada  
Claudia Rank, Public Health Agency of Canada  
Jayson Shurgold, Public Health Agency of Canada  
Denise Gravel-Tropper, Public Health Agency of Canada  
James Brooks, Public Health Agency of Canada

### **Background:**

Antimicrobial resistance is a global health threat and one of the Government of Canada's priorities. A well-recognized driver for antimicrobial resistance is antimicrobial use, which is monitored by the Canadian Antimicrobial Resistance Surveillance System.

### **Goal:**

To describe the use of carbapenems in the community in Canada.

### **Methods:**

Data on antibiotics dispensed from community pharmacies were obtained from IQVIA and Indigenous Services Canada. Antibiotic use (defined daily dose (DDD) per 1,000 inhabitants) between 2014 and 2018 was assessed.

### **Results:**

Overall carbapenem use in the community increased from 3.04 to 6.77 (123%) DDDs per 1,000 inhabitants. Meropenem and ertapenem use increased from 0.42 to 1.99 (374%) and 2.57 to 4.69 (82%) DDDs per 1,000 inhabitants, respectively.

### **Discussion and Challenges:**

The use of carbapenems, traditionally confined to the hospital setting, is now increasing in the community. This increased use is concerning as it is a risk factor for the development of carbapenem-resistant organisms (CRO) for which treatment options are limited. Given the continuous flux of patients between community and hospital settings, CROs in the community may also pose a challenge for infection prevention and control activities within hospitals. Whether the increasing use of carbapenems in the community is proportional to increased multidrug-resistant infections or results from inappropriate prescribing is unknown.

### **Lessons Learned:**

The use of carbapenems increased significantly in the community. These surveillance data provide vital insight into the previous unexplored use of an antibiotic class of last resort in the community and inform antimicrobial stewardship activities.



## **VARIATIONS IN USE OF HIGH-COST IMAGING ACROSS LOCAL HEALTH NETWORKS IN QUÉBEC**

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Laurie Lambert, INESSS

Bernard Candas, INESSS

Véronique Gagné, INESSS

Mike Benigeri, INESSS

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Catherine Truchon, INESSS

Michèle de Guise, INESSS

### **Introduction:**

Initiatives to promote appropriate use of imaging modalities have the greatest potential impact when they target clinical practices with extensive variations. Our evaluation team used available medico-administrative data to systematically measure variation in use of high-cost, high-volume imaging across Québec's local health networks.

### **Methods:**

Medical service billing data for five imaging tests (head CT with contrast, head CT without contrast, spine CT  $\pm$  contrast, head and spine MRI) were extracted from 2009-2018. For each test, standardized rate ratios were calculated for 93 local health networks and used to estimate the systematic component of variation (SCV) for each imaging test. The SCV is an estimate of non-random variation, with a value of  $\geq 3$  considered to reflect true differences in practice.

### **Results:**

Across the five imaging tests, the SCV ranged from 2.8 for head CT without contrast to 51.7 for head CT with contrast. The SCV for head MRI was 10.1. Variation in imaging of the spine was substantially higher for use of CT scans (SCV=36.7) than for MRI (SCV=5.9).

### **Conclusion:**

Moderate to very high variation in use of four imaging tests were observed across Québec's local health networks. Particularly high SCV estimates for head CT without contrast and spine CT suggest practice variations unlikely to be explained by patient need. Investigation of the causes of these variations is warranted. Clinical decision aids are being developed to reduce unnecessary use of imaging tests for targeted conditions. The impact of this initiative will be measured through a repeat analysis of variation.

# REDUCING UNNECESSARY INVESTIGATIONS IN THE EVALUATION OF THYROID NODULES

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Kalesha Hack, Sunnybrook Health Science Centre  
Ilana Halperin, Sunnybrook Health Science Centre  
Adina Weinerman, Sunnybrook Health Science Centre

## Background:

Thyroid nodules are present in up to two-thirds of the population, and the majority of which are benign. In recent years, multiple guideline committees have developed risk stratification systems to reduce unnecessary investigations relating to thyroid nodules.

## Objective:

This project assessed the utility of thyroid ultrasounds and biopsies at Sunnybrook Health Science Centre. Specifically, we aimed to reduce a) unnecessary ultrasounds for incidental thyroid nodules found on other imaging modalities, b) unnecessary ultrasounds for monitoring of thyroid nodules, and c) unnecessary fine needle aspiration (FNA) of thyroid nodules.

## Method:

A retrospective chart review was performed on patients who underwent thyroid ultrasounds (n=100, 10% sample of total) and FNAs (n=119, including 138 nodules) between July and December 2019. Unnecessary investigations were identified based on Choosing Wisely's recommendations on incidental nodules as well as American College of Radiology (ACR)'s Thyroid Imaging, Reporting and Data System (TI-RADS) guideline on FNA and monitoring of thyroid nodules.

## Results:

22% of ultrasounds ordered for incidental thyroid nodules (2 out of 9), 29% of ultrasounds ordered for monitoring of thyroid nodules (13 out of 45) and 25% of FNAs (35 out of 138) were found to be unnecessary.

## Conclusion:

A significant number of thyroid ultrasounds and FNAs were identified to be unnecessary, leading to waste and potential harm to patients. A quality improvement project was initiated in January 2020 with implementation of a revised sonographer worksheet and a radiology dictation template that incorporated TI-RADS guidelines. Data collection of the post-intervention period is currently underway.

## **POTENTIALLY AVOIDABLE ADMISSIONS TO GENERAL INTERNAL MEDICINE (GIM) AT AN ACADEMIC TEACHING HOSPITAL**

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Ushma Purohit, Sunnybrook Health Sciences Centre  
Ellen Shadowitz, Sunnybrook Health Sciences Centre  
Adina Weinerman, Sunnybrook Health Sciences Centre  
Kaveh Shojania, Sunnybrook Health Sciences Centre  
Edward Etchells, Sunnybrook Health Sciences Centre  
Lynfa Stroud, Sunnybrook Health Sciences Centre  
Brian Wong, Sunnybrook Health Sciences Centre  
Steven Shadowitz, Sunnybrook Health Sciences Centre

### **Background:**

Potentially avoidable admissions (PAA) waste resources, reduce efficiency, and may expose patients to harm. We sought to measure the rate of PAAs at our institution and characterize contributing factors to inform QI interventions.

### **Local Problem:**

After adjusting for diagnosis and patient factors, our GIM admission rate is 10% higher with more frequent short length-of-stay admissions compared to peer hospitals. We hypothesize that some admissions are PAA; patients who could be managed efficiently, effectively and safely in our ED/ ambulatory-care setting to avoid hospitalization.

### **Methods:**

We conducted real-time prospective review of GIM admissions over five months. Attending physicians received daily admission data to flag PAAs and for flagged admissions, a case summary was prepared and supplemented with debriefs with frontline clinicians. Weekly research team meetings were held where an Avoidability score was applied to each flagged admission. For all PAAs that met our consensus threshold, contributing factors were documented from the medical record and clinical debriefs.

### **Results:**

433 patients were screened with median age of 72 years. 85 (19%) were flagged as PAAs, of which 53 (12%) were deemed PAAs by consensus. Perceived need for patient monitoring (44%), diagnostic uncertainty (42%) and hospital stipulated 4-hour time limit for admission decision (40%) were factors that occurred in highest frequency.

### **Lessons Learned:**

1 in 8 GIM admissions at our institution were deemed PAAs. Provider uncertainty and hospital stipulated 4-hour time limit for admission decision were identified as major contributors. These results may inform local QI interventions to improve systems of care.

# **DIAGNOSTIC IMAGING RATES IN WORKPLACE AND NON-WORKPLACE INJURIES IN THE EMERGENCY DEPARTMENT: A TEN-YEAR REVIEW**

Constance LeBlanc, Dalhousie University  
Amrit Sampalli, University of Toronto  
Manoj Vohra, Workers Compensation Board of Nova Scotia  
Samuel Campbell, Dalhousie University

## **Background:**

In Canada, injuries represent 21% of Emergency Department (ED) visits, with 20% of adult ED injuries involving workers compensation. Faced with occupational injuries, physicians may feel pressured to provide urgent imaging to expedite return to work. The Choosing Wisely Canada (CWC) campaign may promote the reduction of unnecessary testing in this patient population. We conducted a quality review to determine imaging rates among injuries suffered at work and outside work, and additionally to determine if there was an overall reduction in testing rates over the decade.

Emergency Department Information System (EDIS) information was collected on a total of 282,860 ED visits patients 16 years of age and over with acute injuries. Imaging ordered in EDs across Nova Scotia from July 1, 2009 to June 30, 2019 were analyzed. Patients presenting under the Workers' Compensation Board of Nova Scotia (WCB) and those covered by the Department of Health and Wellness (DOHW) were compared. Imaging rates were trended over the ten-year period. Imaging rates were higher in the WCB group (55.3% of visits) than the DOHW group (43.1% of visits). Our analysis revealed a decrease of over 10% in mean imaging rates for both WCB and DOHW between 2009-2013 and 2013-2018.

Campaigns promoting value-added care may have impacted imaging rates during the ten-year study period, explaining the decline in ED imaging for all injuries. While this 10% decrease in overall imaging is encouraging, there is further need for education on resource stewardship especially for patients presenting to the ED with workplace injuries.

## **FREQUENCY OF FOOD ALLERGY SCREENING PANELS ORDERED IN SASKATCHEWAN FROM 2013-2019**

Andrea Fong, Saskatchewan Health Authority  
Michelle Degelman, Saskatchewan Health Authority

### **Background:**

Choosing Wisely Canada lists screening panels for food allergies as one of five investigations that should be questioned by healthcare providers and patients in its pediatrics campaign from 2016. While this panel has a high likelihood of yielding false positives and almost always has no clinical indication for its use, it is available to order in Saskatchewan. This quality improvement project has two goals: 1) To evaluate the use of screening panels for food allergies in Saskatchewan before and after Choosing Wisely Canada's 2016 campaign, and 2) to identify possible factors related to the test being ordered. The project will use a pre-post design to compare the frequency of panels ordered three years before and after the campaign. The orders will be stratified by physician (primary care provider/specialist), the patients' age (pediatric/adult), sex (male/female), and location (rural/urban). The yearly cost will also be evaluated. Based on the results, we will develop possible solutions to further reduce the number of food allergy screening panels ordered, including the potential of removing the ability to order the test in Saskatchewan. As we work through challenges in determining the origin of the test, identifying the location of provincial data, and understanding ordering practices, the importance of investing ample time and resources into quality improvement is becoming apparent. Besides saving healthcare costs, this project has the potential of preventing unwarranted stress, anxiety, and harmful nutritional deficiencies due to unnecessary food avoidance among patients who are misdiagnosed with food allergies resulting from the test being ordered.



# **COMPARATIVE PROCESS MAPPING TO IDENTIFY SYSTEMS-LEVEL FACTORS ASSOCIATED WITH LOW VALUE PERIOPERATIVE TESTING IN ALBERTA, CANADA**

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Kelly Mrklas, University of Calgary  
Yamile Jasoui, University of Calgary  
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Kyle Kirkham, University of Toronto  
Shawn Dowling, University of Calgary  
Submitted as part of the De-implementing Wisely Research Group

## **Background:**

Process maps are quality improvement tools with broad applicability. They reduce waste, improve safety, and engage stakeholders. The time and resource demands of traditional process mapping limits its use in studies where process assessment over multiple settings or time points is required. Our objective was to develop novel methods to rapidly develop accurate process maps to answer a specific question about structure factors associated with low value preoperative testing in Alberta, Canada.

## **Methods:**

We created and pilot-tested use of an electronic survey to generate process maps of preoperative test ordering in multiple centres with wide geographic range. Process maps were created from survey responses using a standardized template and verified with semi-structured interviews of preadmission clinic managers. Maps were linked to administrative data to examine contextual factors that may influence adherence to Choosing Wisely Canada recommendations on low value preoperative testing.

## **Impact:**

Highest rates of low value preoperative testing were located in urban clinics and were less likely to deviate from pre-defined order sets.

## **Challenges:**

Use of electronic surveys to generate process maps requires an in-depth understanding of clinical processes, including the ability to anticipate potential process deviations.

## **Lessons Learned:**

Use of electronic surveys to generate multiple process maps and compare settings is feasible when (1) the study question requires process comparison across multiple sites; (2) the clinical process is well understood; (3) stakeholder engagement is not the primary aim of mapping. This method generated multi-site knowledge of structural factors that may reinforce low value test ordering.

# LOW VALUE INJURY HOSPITALISATIONS: A MULTICENTER COHORT STUDY

Lynne Moore, Université Laval  
Marc-Aurèle Gagnon, Université Laval

## Background:

Apart from representing a significant financial burden, unnecessary hospitalisations can have serious consequences for patients through hospital-related adverse events and functional decline. Injury represents \$27 billion in healthcare costs and 260 000 hospitalisations each year in Canada and is therefore an interesting target for reducing low-value hospitalisations.

## Goal:

Estimate the prevalence of low-value hospitalisations following injury, identify dominant patient groups and assess inter-hospital variation.

## Methods:

We developed an algorithm to identify potentially low-value injury hospitalisations in an inclusive Canadian trauma system between 2013 and 2018. We then evaluated inter-hospital variation in the risk-adjusted prevalence of potentially low-value hospitalisations with intraclass correlation coefficients (ICC). Analyses were stratified by age (1-15; 16-64; 65-74; 75+ years).

## Results:

The prevalence of low-value hospitalisations was 16% (19 155/118 032) globally, 26% (2 126) in paediatric patients, 11% (4 693) in young adults and 19% (12 336) in older adults. Low-value hospitalisations were most frequent for children with mild concussion (43% of low-value pediatric hospitalisations; n=922); young adults with superficial injuries (14%, n=660) or minor spine injuries (14%, n=634), and older adults with superficial injuries (22%, n=2 771). We observed strong inter-hospital variation in the prevalence of potentially low-value admissions (ICC=37%).

## Conclusion:

One out of six hospitalisations following injury may be low value. Children with mild concussion, young adults with superficial injuries or minor spine injuries as well as older adults with superficial injuries may be good targets for future research efforts seeking to reduce overuse.

# UNNECESSARY ULTRASOUNDS IN CHILDREN WITH UNDESCENDED TESTES: AN INTERROGATION OF THE IMPACT OF GUIDELINES

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Martin A. Koyle, The Hospital for Sick Children  
Michael Chua, The Hospital for Sick Children  
Karen Milford, The Hospital for Sick Children

## Background:

Guidelines issued throughout North America and Europe over the past decade, including the Choosing Wisely Canada campaign, counsel against ordering routine ultrasounds (US) for the clinical diagnosis of undescended testes (UDT). We aimed to establish whether there has been change in the proportion of children with UDT receiving scrotal US prior to referral to a tertiary paediatric urological centre over the past 10 years.

## Methods:

We examined the charts of a sample of children undergoing orchidopexy at a single tertiary paediatric urological referral centre between 2010 and 2019. Data regarding age at surgery, cryptorchidism diagnosis, type of referring physician (pediatrician, family physician, urologist, or other), and evidence of a scrotal US as part of diagnostic work-up were extracted.

## Results:

Five hundred charts were examined (50 charts per year for 10 years). The proportion of children undergoing US each year remained consistently between 50 and 62%, except in 2014, when only 36% had US. On subset analysis, paediatricians ordered less US for children with palpable UDT in 2014 ( $p=0.025$ ) than other referring physicians, which was the year the American Urological Association and Choosing Wisely Canada guidelines were released. In 2018, the year after the Paediatric Urologists of Canada guideline was released, urologists ordered no US ( $p=0.015$ ).

## Conclusion:

Despite guideline recommendations, a significant number of children still undergo scrotal US as part of their work-up for UDT. Transient changes in sub-specialty guideline adherence may be observed. Strategies to improve sustained guideline awareness in referring clinicians need to be considered.

## **LOOKING BACK TO GO FORWARD: CREATING HISTORICAL MAPS TO FACILITATE DE-ADOPTION**

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K. Stewart, University of Toronto  
H. Polatajko, University of Toronto  
H. Colquhoun, University of Toronto

### **Background:**

While systematic reviews assist in determining if a clinical practice should be de-adopted, their focus on summaries of efficacy studies is insufficient for understanding historical publication trends which may serve to maintain low-value practice use. Understanding historical publication trends may assist in identifying determinants that maintain adoption, and support efforts to reduce use of unnecessary treatments. Objectives: 1) To describe historical publication trends for a longstanding, low-value practice; and 2) to understand how trends have contributed to continued use.

### **Methods:**

A scoping review (ScR) with historical mapping was employed to describe trends in research on sensory-based interventions (SBIs), occupational therapy practices that are commonly practiced without sufficient evidence. We visually depicted trends in study design, intervention type, and population, and discerned potential relationships between these trends and SBI practice over time.

### **Results:**

We screened 10842 citations from five databases to yield 370 articles. Our maps indicated that the volume of research on SBIs are steadily increasing, though not becoming more rigorous. Single-case designs were the most common study design. Steady publication rates were evident even following the publication of a critical consensus paper recommending de-adoption in 2012. Terminology describing SBIs is highly inconsistent.

### **Conclusions:**

Historical mapping provided an opportunity to understand the influence of publication trends on de-adoption of a longstanding, low-value practice. Heterogeneity of terminology describing SBIs may account for practice variation and challenges measuring the practice gap. Increases in research production despite publication of a critical consensus paper strongly suggest extra-scientific influences perpetuating research interest in SBIs.

# **IMPACT OF AUDIT-AND-FEEDBACK ON THE INCIDENCE OF ACUTE KIDNEY INJURY (AKI) IN ADULTS RECEIVING PIPERACILLIN-TAZOBACTAM AND VANCOMYCIN (PT/VAN)**

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Christopher Clapperton, Université de Montréal  
Philippe Morency-Potvin, Université de Montréal  
Sandra Chapados, Université de Montréal  
Pierre-Louis Desautniers, Université de Montréal  
Anita Ang, Université de Montréal  
Annie Routhier, Université de Montréal

## **Background:**

Recent studies have suggested an association between PT/VAN, a common empiric antimicrobial therapy, and increased incidence of AKI. This study aims to determine the impact of an antimicrobial stewardship intervention on the incidence of AKI among patients receiving PT/VAN.

## **Methods:**

A quasi-experimental pre-post intervention study was conducted in a 772-bed teaching hospital. Patients who received PT/VAN for at least 48 hours were included. The intervention consisted of a continuous educational strategy as well as an “audit-and-feedback” documented in the patient file. Incidence of AKI, promptness of de-escalation and overall consumption of PT/VAN and other broad-spectrum antibiotics were assessed.

## **Results and Impact:**

125 patients who received PT/VAN between February and October 2019 were included (72 and 53 in pre-intervention and intervention groups, respectively). In the intervention group, 14 (26.4%) patients had AKI before the start of PT/VAN versus 20 (28.8%) in the pre-intervention group. Among the remaining patients, 7 (17.9%) from the intervention group and 13 (25.0%) from the pre-intervention group developed AKI during the 10 following days ( $p=0.45$ ). De-escalation at 48 hours was significantly higher in the intervention group (45.3% VS 23.6% in the pre-intervention group,  $p=0.009$ ). Overall, the most frequent type of de-escalation was discontinuation of vancomycin. There was no increase in consumption of other broad-spectrum antibiotics.

## **Lessons Learned:**

A PT/VAN focused audit-and-feedback had a significant impact on time to de-escalation in patients receiving PT/VAN. Despite no significant impact on AKI, the intervention was maintained as part of our hospital's stewardship program.



## **FACTORS THAT INFLUENCE PSA TESTING AND OVER-DIAGNOSIS AMONG PRIMARY CARE PROVIDERS IN MANITOBA**

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Sarah Kirby, George and Fay Yee Centre for Healthcare Innovation, University of Manitoba

Eric Bohm, George and Fay Yee Centre for Healthcare Innovation, University of Manitoba

Roger Suss, University of Manitoba

Jeff Saranchuk, University of Manitoba

Laurel Thorlacius, University of Manitoba

Michelle Driedger, University of Manitoba

### **Background:**

Many family physicians continue to use prostate-specific antigen (PSA) tests for prostate cancer screening despite evidence that harms may outweigh benefits. Our team conducted a study to understand the factors that influence the ordering of PSA tests in Manitoba.

### **Methods:**

A survey was mailed to the 50 primary care providers (PCPs) who most frequently utilized PSA testing. The response rate was 68%; nearly all respondents (92%) reported using PSA tests as a screening tool the majority of the time. Twelve of these PCPs participated in semi-structured interviews along with a comparison group of 10 PCPs whose use of PSA testing fell into the median range.

### **Results:**

Data analysis revealed distinct differences in the two groups. High ordering PCPs were older and had been in practice longer. They tended to draw on their practice experiences and patient relationships over current guidelines and recommendations when making decisions and considered over-diagnosis a necessary consequence to ensure they did not miss a cancer diagnosis. PCPs in the median ordering group had a more negative perception of the harms of over-diagnosis and were more likely to spend time with their patients discussing the risks and benefits associated with PSA tests. They drew on current guidelines and decision aids to inform their decisions.

### **Conclusion:**

There are distinct factors that influence PCPs' approaches to PSA testing and over-diagnosis. Future interventions to address over-use or misuse of PSA tests and other low value care are more likely to succeed if they take into account this practice variation.

# **USE OF ROUTINE BLOODWORK ON GENERAL INTERNAL MEDICINE INPATIENTS: A RETROSPECTIVE COHORT STUDY**

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Rick Wang, St. Michael's Hospital  
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Wendy Levinson, University of Toronto  
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Amol A Verma, St. Michael's Hospital

## **Introduction:**

Choosing Wisely Canada (CWC) recommends against routine bloodwork (RBW) on stable inpatients because it is unlikely to improve patient care, is associated with anemia, and increases costs. No population-level analyses have assessed the use of RBW on hospitalized patients in the CWC era. We described the use of RBW by physicians caring for GIM inpatients at 7 hospitals in the Greater Toronto Area.

## **Methods:**

We performed a retrospective cohort study using the General Medicine Inpatient Initiative (GEMINI) database. We included all patients included in GEMINI, admitted from April 1, 2010, to March 31, 2017. Our primary outcome was the mean volume of RBW ordered per patient per day by the MRP. To examine changes in the distribution of RBW ordering over time, we report RBW use at the following physician percentiles: 10, 25, 50, 75, 90.

## **Results and Conclusion:**

We included 65,507 patients. The mean volume of RBW ordered per patient per day significantly decreased from 2010 to 2016, for all percentiles ( $p < 0.001$ ; ie. 7.23cc in 2010 to 6.17cc in 2016 for patients admitted to physicians in the 25-50th percentile). The spread between the 10th and 90th percentile physicians did not change significantly between 2010 (1.77cc/patient/day) and 2016 (1.84 cc/patient/day). There was a dose-response relationship between MRP use of RBW and reductions in patient Hgb, independent of patient-level confounding. While RBW use has decreased with time, the spread in utilization between the 10th and 90th percentile physicians have not changed, suggesting that opportunities to reduce RBW use at the hospital and physician level exist.

## **ASSESSMENT OF ANTIMICROBIAL PRESCRIBING PRACTICE AND CULTURE IN A MONTRÉAL TEACHING HOSPITAL**

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Annie Routhier, Université de Montréal, Centre hospitalier de l'Université de Montréal (CHUM)

Sandra Chapados, Université de Montréal, Centre hospitalier de l'Université de Montréal (CHUM)

Pierre-Louis Desaulniers, Université de Montréal, Centre hospitalier de l'Université de Montréal (CHUM)

### **Goals and Background:**

Antimicrobial resistance (AR) is one of the most critical threats to Global Health. One of its root causes, misuse of antibiotics, can stem from prescribers' preconceived ideas and lack of knowledge. Canadian data on this subject is scarce. This study aimed to understand the culture of antimicrobial prescribing in order to optimize local antimicrobial stewardship program (ASP).

### **Methods:**

An anonymous online survey was distributed to antimicrobials prescribers at a 772 beds hospital to conduct a prospective cross-sectional study.

### **Results:**

240 respondents completed the survey (CI: 95%, MOE: 5.47%). Participation amongst attending physicians, residents and specialized nurse practitioners was 16%, 37% and 29%, respectively. All agreed that AR is a significant challenge. However, only 46% of respondents believed that antibiotics are misused locally. Several knowledge gaps were identified: respondents failed to identify treatment indications for asymptomatic bacteriuria 25% of the time, 61% chose an unnecessarily broad antibiotic when presented a susceptibility report from a common clinical situation, and only 28% identified an appropriate length of therapy. Prescribers' confidence did not correlate with knowledge. Correct knowledge answers decreased with years of practice ( $p < 0.01$ ). Respondents felt more confident about when to start antimicrobial therapy (88%) than when to stop it (62%).

### **Conclusion and Lessons Learned:**

Respondents recognized AR as a critical issue but awareness and knowledge on antibiotic misuse were lacking. Our results are consistent with prior similar surveys. Barriers to optimal antimicrobial prescribing were identified and strategies to improve ASP will be developed. Survey participation will be extended to similar hospitals.

## PANEL REPORTS HIGHLIGHT NEED-TO-KNOW AREAS OF UNNECESSARY CARE

Jody Pow, Health Quality Council of Alberta

### Background:

The Health Quality Council of Alberta's Primary Healthcare Panel Reports are a trusted source of information for physicians, clinics, and Primary Care Networks. Over 1,400 family physicians out of 4,000 province-wide use the reports for improvement. The 2020 panel report highlights seven Choosing Wisely recommendations to address low-value care:

- Screening blood tests – Alberta spends approximately \$700 million annually on laboratory testing with almost 60 per cent of the costs associated with tests ordered by family physicians;
- Lower-back imaging – unnecessary back imaging exposes patients to radiation and extra procedures;
- Antibiotics for acute sinusitis – approximately 75% of acute sinusitis cases are treated with an antibiotic, when, in most cases, an antibiotic is not needed;
- Sedating medications – studies show certain sedatives increase the risk of falls, delirium, hip fracture and mortality in older adults;
- Proton pump inhibitors (PPIs) – PPIs are the 4th most commonly dispensed class of medications in Canada. Up to 60% of patients on PPIs may not need them;
- Screening outside of guidelines for mammograms and pap smears.

In each panel report, a physician is provided their data on the above topics, along with peer comparators, and improvement resources. Physicians have the option of identifying patient health numbers of individuals who are provided unnecessary care in these areas, so they can action improvements.

Increasing physician uptake of this information is an ongoing challenge. However, through the use of audit and feedback strategies, reflection narratives, a summary of relevant resources and sharing of actionable data, physicians are increasingly seeing the value.

## **VIRAL PRESCRIPTION PAD - UTILITY OF AN EDUCATIONAL TOOL FOR ANTIMICROBIAL STEWARDSHIP IN PRIMARY HEALTH CARE**

Christine Lee, University of Saskatchewan  
Maryam Jafari, Dr. T. Bhanu Prasad Medical Professional Corporation  
Regan Brownbridge, University of Saskatchewan  
Casey Phillips, Saskatchewan Health Authority  
Jason Vanstone, Saskatchewan Health Authority

### **Background:**

Our research aimed to determine which antimicrobial stewardship interventions are optimal to introduce into primary health care (PHC) clinics when engaging with an antimicrobial stewardship program (ASP). This work focused around management of viral upper respiratory tract infections (URTIs), one of the main sources of inappropriate antibiotic use.

### **Methods:**

This study used surveys and interviews with healthcare providers and the public to determine the perceived needs for a PHC-based ASP. From this work, a “viral prescription pad” was developed to provide a tool to help PHC providers engage in patient education regarding appropriate antimicrobial use, specifically for URTIs.

### **Results:**

PHC providers indicated they were improperly equipped with tools to help promote conversations with patients about the appropriate use of antimicrobials. While the viral prescription pad was deemed to be a useful educational tool, about half of the physicians interviewed indicated they did not provide one to patients when counselling on symptom management for viral URTIs. Seventy-six percent of respondents to the public survey indicated they would prefer to receive written or a combination of verbal and written information in this circumstance.

### **Conclusions:**

PHC providers indicated a need for educational tools to promote conversations with patients about the appropriate use of antimicrobials, and viral prescription pads were regarded as useful tools for this purpose. PHC providers should exercise caution in opting out of providing written forms of information, as many respondents to the public survey indicated their preference in receiving both verbal and written information.





**MEDICAL  
EDUCATION**  
**LA FORMATION  
MÉDICALE**

# **A NOVEL CASE-BASED CURRICULUM FOR PHARMACOLOGIC STEWARDSHIP IN UNDERGRADUATE MEDICAL EDUCATION**

Zachary Urquhart, University of Calgary  
David Keegan, University of Calgary

## **Background:**

The current paradigm of undergraduate medical education places an emphasis on pharmacologic therapy in a “diagnosis to drug” approach. Curriculum is developed by system specialists whose high-acuity patients benefit disproportionately from pharmacotherapy. This is less applicable to family-medicine where the burden of disease and benefit of drugs is lower. Consequently, students who graduate into family-practice do so with an approach unsuited for their patient population.

Characteristic of this divide is management of depression, a mainstay of family-practice taught primarily by psychiatrists. To address this gap, we developed a case-based curriculum for 2nd year medical students completing their pre-clerkship psychiatry training. Students conducted interviews with standardised patients simulating cases of mild-moderate depression (PHQ-9=7 and 10) for which standard of care is lifestyle modification. Students were tasked with diagnosis and negotiation of a treatment plan. Interviews were observed by family medicine residents and faculty who provided feedback on the application of treatment guidelines. Students completed pre and post self-assessments to evaluate curriculum effectiveness on a 10-point scale.

Pilot data demonstrated improvement in students' confidence to differentiate between patients who do and do not need pharmacotherapy (Pre-workshop Median=4.5, somewhat-confident; Post-workshop Median=7, confident) and in negotiating a common grounds management plan (Pre-workshop Median=5, somewhat-confident; Post-workshop Median=8, confident). Students perceived a large benefit to their overall approach to depression care (Median-score=8.5, very beneficial), with a strong desire for incorporation into UME curriculum (Median-score=10)

We observed improved student understanding of indications for pharmacotherapy in depression management in primary care settings after exposure to our curriculum.

## **COST OF OUR ORDERS: RESIDENTS ESTIMATES OF COSTS ASSOCIATED WITH CHOOSING WISELY CANADA'S INTERNAL MEDICINE RECOMMENDATIONS**

Conor Bell, McMaster University  
Ameen Patel, McMaster University

### **Background:**

Approximately 5 years ago, Choosing Wisely Canada (CWC), partnered with a global movement to create a guide for Canadian clinicians to practice more efficiently. The basic idea is to reduce futile testing or interventions in healthcare and promote evidence-based resource utilization. Many of the recommendations within the internal medicine category, if followed more rigorously, have significant positive financial implications.

We created a survey for residents in our institution to estimate various in-hospital costs, each related to one of the CWC Internal Medicine recommendations. Our best estimates at true cost were collected from various publications and from provincial databases. These costs were circulated to residents after they completed the survey as an educational component.

Only 58% of our internal medicine residents had ever read the CWC recommendation for internal medicine. Residents were within 25% of our reference costs on only 16% of estimates and overestimated costs 53% of the time. They tended to overestimate cheaper costs and underestimate more expensive costs. Greater than three quarters thought that there should be more teaching in residency surrounding healthcare costs.

Our survey responses identify a gap in resident's knowledge of CWC and poor ability to estimate the cost of many tests that may be unnecessary. This, combined with resident's interest towards learning in the area, provides evidence for more devoted curriculum time. The large percentage of residents who had never read the CWC recommendations highlights an opportunity for development of a knowledge translation campaign directed towards individuals with significant ordering power.

## **COLLABORATING ON CLINICIAN EDUCATION TO REDUCE HARMS ASSOCIATED WITH OPIOID PRESCRIBING IN NEW BRUNSWICK**

Emma Boulay, New Brunswick Medical Society

Julie Atkinson, New Brunswick Medical Society

Stephanie Smith, The Canadian Agency for Drugs and Technologies in Health (CADTH)

### **Background:**

Canada has been facing an opioid crisis. Evidence confirms that opioids continue to be prescribed too frequently, too liberally than medically necessary and in contexts not supported by evidence - all of which can inadvertently lead to drug abuse and diversion of opioids into the community. Supporting greater education and better prescribing and monitoring practices among all clinicians is critical. In response, New Brunswick has established an Opioid Prescribing Task Force that has involved extensive engagement and collaboration across various stakeholders, including physicians, pharmacists, nurse practitioners, government, clinician champions and CADTH.

### **Activities:**

Accredited continuing medical education sessions were developed that addressed treatment guidelines, approaches to assessing and managing pain, as well as resources. An online module was developed and recently implemented to enhance accessibility and reach. Building on the success of the provincial eConsult program, Opioid Dependence Management has been added to the list of specialties available for primary care providers to access for advice via a secure online application.

### **Impact:**

In-person sessions reached over 350 clinicians, including physicians, pharmacist and nurse practitioners. While the online module launched in August 2019 has had 32 physicians participate in the first six months. eConsult had 121 consults in first year of operation and 200 in the second year. Evaluations from all three approaches have indicated the education to be relevant, practical and influenced practice change.

### **Lessons Learned:**

Medical education requires many channels to reach the 1800 NB physicians, however extensive promotion and championing of new online platforms is required.

# **IMPLEMENTATION AND EVALUATION OF INTERVENTIONS FOR MEDICAL RESIDENTS TO REDUCE UNNECESSARY TREATMENT**

Chaocheng (Harry) Liu, University of British Columbia  
Bei Yuan (Ethan) Zhang, University of British Columbia

## **Background:**

British Columbia is one of the few provinces that not yet developed an official provincial level Choosing Wisely Canada (CWC) campaign to address the issue of over-testing and over-treating in the province. In addition, education on CWC Recommendations is limited among medical residents being trained at the University of British Columbia (UBC). The goal of this work is to raise the awareness of CWC Recommendations by implementation of various interventions among UBC residents in a tertiary hospital in Vancouver.

## **Methods:**

After identifying relevant CWC Recommendations on the aspect of reducing unnecessary treatment, four different interventions will be implemented among first-year medical residents rotating through general internal medicine, general surgery, family medicine, and emergency medicine. They include 1) lectures and talks, 2) pocket cards, 3) posters in resident lounges, and 4) mobile app. The participants will be invited to complete surveys both pre- and post-intervention periods.

## **Results:**

The content for the specific interventions is being developed with specialists in different disciplines. The interventions will be implemented for 2020 to 2021 academic year. Pre- and post-implementation data will be gathered to identify and compare the effectiveness of different interventions to influence clinical practice and medical education among medical residents at UBC.

## **Conclusions:**

This multidisciplinary work could enhance resident education and improve patient care and outcome. It also has the potential to identify effective and accessible interventions to promote the understanding of CWC Recommendations among medical residents, which could be applied in different institutions across Canada.

## **BUILDING A COMMUNITY OF PRACTICE FOR RESOURCE STEWARDSHIP IN PEDIATRICS: A NATIONAL APPROACH**

Olivia Ostrow, The Hospital for Sick Children  
Lauren Whitney, The Hospital for Sick Children  
Jeremy Friedman, The Hospital for Sick Children

### **Goal:**

Choosing Wisely in paediatrics has had slower uptake compared with some other areas in medicine, yet children like adults, frequently experience low-value care. In 2019, The Hospital for Sick Children launched a Choosing Wisely in Paediatrics Community of Practice (CoP) to build capacity in this area. The goal is to foster knowledge sharing and collaborative learning to promote resource stewardship and high-value healthcare for children.

### **Activities:**

The CoP is a national, virtual platform that organizes quarterly webinars targeting all Canadian children's hospitals and other pediatric community sites. Webinar topics focus on building capacity in resource stewardship by sharing stewardship initiatives and lessons learned, supporting and spreading evidence-based practice recommendations.

### **Impact:**

Since launching in January, the CoP has hosted three webinars. Topics included reducing low-value bronchiolitis care, engaging trainees in resource stewardship, and choosing wisely for respiratory viral season and urinary tract infections. Five academic sites across Canada, as well as four community hospitals, have participated to date. While physicians have been the main target audience, ranging from 19 to 28 participants per webinar, future directions include involving trainees, other health professions, and patient and family partners. The CoP is also exploring opportunities to partner with a national organization to develop a central repository for resources.

### **Challenges:**

Scheduling and developing programming that will attract the widest available audience has proved challenging but may improve once the CoP is further established.

### **Lessons Learned:**

A CoP is a forum for knowledge sharing, collaboration and capacity building in paediatric resource stewardship across Canada.

## **EMPOWERING MEDICAL STUDENTS TO CHOOSE WISELY THROUGH RESIDENT-LED TEACHING SESSIONS**

Chandandeep Bal, University of Toronto  
Megan Tesch, University of British Columbia  
Laila Premji, University of Toronto  
Olivia Ostrow, University of Toronto  
Geoffrey Blair, University of British Columbia

### **Goal:**

Current literature suggests that medical trainees order more diagnostic tests than practicing physicians. While often multifactorial, this variation may stem from insecurity, inadequate understanding, and/or misguided expectations. Our goal was to test resident-led, case-based teaching sessions for medical students to highlight principles of resource stewardship.

### **Activities:**

Residents from the Universities of Toronto and British Columbia led 60-minute teaching sessions in collaboration with members of the Students and Trainees Advocating for Resource Stewardship (STARS) program. Core topics using cases of childhood bronchiolitis and adult kidney disease were reviewed from a resource stewardship perspective. Students completed a 10-question survey following the sessions.

### **Impact:**

Forty-two students attended the sessions. 95% (40/42) of students felt that the content was valuable to their training, and 93% (39/42) indicated that they learned new strategies that will help reduce their ordering of unnecessary tests and treatments. 90% (38/42) stated they would like to attend similar sessions in the future. When asked open-ended questions about what they learned, common themes included “asking why a test was ordered” and “bringing up concerns with supervisors”.

### **Challenges:**

Recruitment of busy medical students proved challenging, and attendance was reflective of that. Whereas a lunch hour session drew 35 students, an after-hours session drew only seven.

### **Lessons Learned:**

Residents—not far-removed from medical school, but active on the frontlines of medical care—are well-positioned to effectively teach resource stewardship. Our data encourages pursuit of novel, larger scale opportunities for near peer resident-led education on the importance of, and barriers to, resource stewardship.





**PATIENT  
ENGAGEMENT  
LA MOBILISATION  
DES PATIENTS**



## **DE-IMPLEMENTATION OF LOW-VALUE CARE: WILL PATIENTS ACCEPT THE ALTERNATIVE TREATMENT?**

Richelle Singotani, Talma Institute - VU Amsterdam  
Marianne Donker, Talma Institute - VU Amsterdam  
Sierk Ybema, Talma Institute - VU Amsterdam  
Eric van der Hijden, Talma Institute - VU Amsterdam

### **Goal:**

Research shows that de-implementation of low-value treatments in general proceeds slow. Both from an ethical and economic perspective, it remains unclear why those treatments are still performed on a large scale. Strong preferences of patients for a type of treatment can hamper de-implementation. To understand these preferences, we aim to explore the barriers patients perceive when common, but ineffective procedures are replaced by alternative treatments.

### **Activities:**

We developed a literature-based framework to explore the “impact” of de-implementation from a patient’s perspective. Qualitative data was collected through focus groups and interviews. Patients were asked to reflect on relevant differences between the common intervention and the alternative, consequences of the alternative treatments, barriers to accept the alternative treatment and perceived advantages of the ‘traditional’ treatment. Subsequently, patients were asked whether they would accept the alternative treatment if offered.

### **Impact:**

This study is part of a national research program (Talma Institute - VU Amsterdam, the Netherlands) which is focused on exploring effective strategies on de-implementing low-value care. The developed framework will be tested using a broad range of comparative effectiveness research studies and subsequently used on a national scale for de-implementing low-value care.

### **Challenges and Lessons Learned:**

Our preliminary findings show that alternative and more conservative treatments are perceived by patients as leading to longer treatment, social burden and chance of recurrence of disease. Given those barriers the likelihood of acceptance of the alternative treatment is low. Incorporating perceived barriers in the strategy to optimise acceptance of the alternative treatment can contribute to the de-implementation of low-value care.

## **PATIENT ENGAGEMENT IN THE DE-IMPLEMENTING WISELY RESEARCH GROUP: A CHOOSING WISELY CANADA INNOVATIVE CLINICAL TRIAL**

Erin Gionet, University of Calgary  
D'Arcy Duquette, Health Quality Council of Alberta  
Holly Etchegary, Memorial University  
Vanessa Francis, Patient Family Advisor  
Susan Goold, Choosing Wisely Newfoundland and Labrador  
Brian Johnston, Choosing Wisely Newfoundland and Labrador  
Géralyn L'Heureux, Patient Family Advisor  
Andrea M. Patey, Ottawa Hospital Research Institute  
Michaela Santos, Patient Family Advisor  
Todd Sikorski, Choosing Wisely Canada  
Barbara Sklar, Choosing Wisely Canada  
Gloria Wilkinson, Patient Family Advisor  
Jeremy M Grimshaw, Ottawa Hospital Research Institute  
Submitted on behalf of the De-implementing Wisely Research Group

### **Goal:**

An integral part of a CIHR-funded multi-year, multi-provincial De-implementing Wisely research project, the Patient Partnership Council (PPC) aims to build partnerships among patients, public and researchers to advise and guide research involving patients; to provide patients' perspectives in all stages of the project to ensure the patient voice is present throughout.

### **Activities:**

PPC members have been involved in reviewing the grant proposal, hiring Patient Engagement (PE) Coordinator and collaborating on the Council's structure and function. They have developed ways in which Patient Partners can be involved in the project and sought feedback from Team Leads about how PE can support research. Involvement of the PPC within the research team has resulted in the addition of patient surveys and interviews for two components of the project. The PPC is currently working to develop detailed PE plans and evaluation strategy for the project.

### **Impact:**

The PPC is an autonomous group, working closely within the research team and is composed of nine Patient Partners (three each from Ontario, Alberta, and Newfoundland & Labrador), a PE Coordinator, PE Advisor, and Research Lead. As essential members of the research team, contributions made by the PPC will only enhance the science of the project.

### **Challenges:**

This project targets healthcare providers rather than patients; the role of patients is less clear. We are working together to determine how best to accomplish this.

### **Lessons Learned:**

We are learning every day, but clear expectations and communication among all members of the team and a growth mindset are key.

## **THE BUCK DOESN'T STOP HERE: COST CONVERSATIONS BEYOND THE POINT OF CARE**

Susan Perez, Sacramento State University  
Kelly Rand, American Board of Internal Medicine  
Amy Cunningham, Thomas Jefferson University  
Kate Carmondy, American Board of Internal Medicine

### **Goal:**

The goal of this presentation is to outline the ways and which to engage patients in cost conversations for a holistic understanding of the social, financial, and day-to-day burdens of added treatments, costs, and medications.

### **Activities:**

We conducted a survey with hospitals in the United States and interviewed patients to capture a complete understanding of patients' experiences with cost. While out-of-pocket costs are often the most obvious costs of care to address, practitioners and patients rarely consider the lifestyle costs associated with treatments and medications.

### **Impact:**

Recognizing costs to patients are not isolated to direct out-of-pocket costs our research found that hospital and health system staff rarely address these issues with patients. Patients did not feel comfortable bringing-up cost due to concerns about the appropriateness of the discussion or whether staff will know how to respond to their cost questions.

### **Challenges:**

Treatment decisions and cost conversations rarely address the potential financial burdens to patients beyond the treatment itself.

### **Lessons Learned:**

Healthcare professionals at all points in the care continuum report that patients are asking questions about cost and want training on how to address cost questions. Patients want to have questions about cost and, if empowered, are eager to discuss cost during medical visits.

### **Measurement:**

We launched a survey to 35 health care systems and hospitals across the United States. We had a total of 523 responses from physicians, pharmacists, administrators, billing staff, social support services, and medical support staff. Patients (N=20) were interviewed across the United States.

## **ASSESSING PATIENT KNOWLEDGE OF MEDICAL IMAGING EXAMS AND RADIATION EXPOSURE**

Kate MacGregor, St. Michael's Hospital  
Marienell Talla, University of Toronto  
Karen Nguy, St. Michael's Hospital  
Ran Zhou, University of Toronto  
Mateo Sanchez De Lozada Ossio, University of Toronto  
Bruce Gray, St. Michael's Hospital  
Tim Dowdell, St. Michael's Hospital  
Karen Weyman, St. Michael's Hospital

### **Background:**

Ideally, in non-acute settings, patients and clinicians would enter into a shared decision-making process regarding the need for medical imaging. Patients with adequate knowledge of risks and benefits might choose to forgo unnecessary tests. Our goal was to survey ambulatory patients when they arrived for imaging to determine whether they had the basic information needed to make an informed choice. Questions included the type of imaging test they were scheduled for; whether that test used ionizing radiation; what benefits and risks might be associated with imaging; how their test would be conducted; and how they would receive their test results. A question on health literacy, along with two questions to determine the ability to assess numerical probability, were included.

We surveyed 101 racially and ethnically diverse English-speaking adult patients from December 2019 to January 2020. A vast majority were determined to have basic health literacy (88%), however, almost a third of participants (31%) incorrectly assessed the probability of one in five as equal to 20%. Nearly one third of the patients (31%) could not say whether the test they were having used radiation. While 75% of patients knew there was a risk associated with the use of radiation in imaging, 75% did not know that CT used more radiation than an X-ray. These results demonstrate the need to develop materials for patients on medical imaging tests and their risks and benefits.



**QUALITY  
IMPROVEMENT  
L'AMÉLIORATION  
DE LA QUALITÉ**

## **REDUCTION IN SERUM IGE ALLERGY TESTING IN NEWFOUNDLAND AND LABRADOR**

Sarah Strong, Memorial University  
Alison Haynes, Memorial University  
Andrew O'Keefe, Memorial University  
Michelle Ryan, Memorial University  
Asghar Mohammadi, Memorial University  
Robert Wilson, Memorial University

### **Background:**

Immediate hypersensitivity reactions are mediated by IgE antibodies against a particular protein. Choosing Wisely Canada recommends against performing serum specific IgE testing for an allergy without previous consideration of pertinent medical history. Provincial data was acquired on IgE testing from January 1, 2015 to December 31, 2016. Analysis was conducted to evaluate test ordering patterns and appropriateness of tests ordered. In consultation with specialists in the province, ordering more than three IgE allergy tests at one time was deemed likely inappropriate.

### **Methods:**

Based on the analysis of the data received for 2015-2016, Quality of Care NL/Choosing Wisely NL provided medical education to physicians via personal ordering data and a CME accredited online module in May 2018. Data from January 1, 2017 to August 31, 2019 were further obtained to evaluate overall impact.

### **Results:**

From January 1, 2015 to December 31, 2016, 16,822 tests were ordered, 69% of which were deemed inappropriate. From January 1, 2017 to August 31, 2019, 14,861 tests were ordered, 66% of which were deemed inappropriate. There has been a 38% decrease in overall test ordering annually from 2015 to 2018, and adjusting for the remainder of 2019, there will be a decrease of 50%.

### **Conclusions:**

Since the Quality of Care NL/Choosing Wisely NL initiatives, there has been a steady decrease in both the volume and inappropriateness of IgE tests and bundles ordered.

## **FROM ORDER SET TO MINDSET: DIVING IN WITH DATA**

Brandon Wagar, Vancouver Island Health Authority  
Devan Tchir, Vancouver Island Health Authority  
Adele Harrison, Vancouver Island Health Authority

### **Goal:**

To reduce unnecessary variation in care processes and achieve Diving into Overuse designation at a multi-site health organization.

### **Activities:**

The Campaign was included in the Organizational Strategic Plan. An Oversight Committee was formed to promote Choosing Wisely at Island Health, and current state analysis performed. Focused local improvement activities were initiated.

### **Methods:**

Data from the EHR was used to conduct a current state analysis of ordering practice for each Level 1 recommendation. Each site was statistically compared to the benchmark (the site with the lowest rate) to gauge variation in ordering practice and to identify opportunities for improvement.

### **Impact:**

Two of five Level 1 recommendations were already met. For 3 of the recommendations, some sites had significantly higher rates of unnecessary ordering despite a single order set being available. Sites with significantly higher rates of unnecessary ordering were identified for improvement. Further exploration of local, workflow and processes were required to reduce practice variation across the organization.

### **Lessons Learned:**

Support from senior executive to devote resources and set clear priorities is a key first step. Establishing a collaborative Oversight Committee ensures buy in across different disciplines. Revision to order sets is one factor influencing unnecessary ordering practice. Using current state analyses to evaluate ordering practice, beyond the implementation of order sets, allows finite resources to provide focused improvement in a large organization. Monitoring across time allows quantification of success.

## **A “DROP THE PRE-OP” MEDICAL DIRECTIVE: COMPARISON OF TWO HOSPITALS IN ST. JOHN’S, NEWFOUNDLAND**

Krista Mahoney, Memorial University  
Brendan Barrett, Memorial University  
Pat Parfrey, Memorial University

### **Background:**

Since 2016, Choosing Wisely NL (CWNL) has targeted pre-op testing in patients undergoing low-risk surgeries as an area of low-value care. CWNL partnered with the local health district, Eastern Health, to implement and evaluate Choosing Wisely Canada’s “Drop the Pre-op” recommendations at two city hospitals; the Health Sciences Centre (HSC) and St. Clare’s Hospital (SC).

### **Methods:**

A medical directive delineating the adoption of the “Drop the Pre-op” recommendations was administered in January 2017 at two city hospitals. An uncontrolled before-after study design was used to compare the effect of the medical directive on the rates of testing (hemoglobin, creatinine, INR, ECG and chest X-ray) between the two hospitals. Data was obtained for the year previous and the year post roll out.

### **Results:**

The HSC does 4 times the number of low risk surgeries compared to SC. Following the medical directive, there was little change in ordering of hemoglobin and creatinine at the HSC, but over 40% reductions in INR and chest X-ray. At SC, the reduction in hemoglobin and creatinine was over 20%, of INR 56%, and of chest X-ray 72%. However, at baseline, the percentage of patients tested was higher at SC than HSC.

### **Conclusion:**

The response to the medical directive to follow CWC guidelines regarding pre-operative testing before low risk surgery was bigger at SC than at the HSC. This may reflect that barriers to implementation of the directive were greater and/or different at HSC compared to SC. Barrier assessment is underway.



## **OPTIMIZING THE USE OF ENDOSCOPY IN OTHERWISE HEALTHY ADULTS WITH DYSPEPSIA THROUGH AUDIT AND FEEDBACK**

Kelly Burak, Physician Learning Program, University of Calgary  
Jennifer Halasz, Physician Learning Program, University of Calgary  
Brenna Murray, Physician Learning Program, University of Calgary  
Shawn Dowling, Physician Learning Program, University of Calgary  
Tarun Misra, Physician Learning Program, University of Calgary  
Jennifer Williams, Physician Learning Program, University of Calgary  
Mark Swain, Physician Learning Program, University of Calgary  
Gilaad Kaplan, Physician Learning Program, University of Calgary  
Linda Slocombe, Physician Learning Program, University of Calgary  
Kerri Novak, Physician Learning Program, University of Calgary

### **Background:**

The Physician Learning Program and Calgary gastroenterologists engaged in audit and feedback (A&F) around endoscopy utilization in adults with dyspepsia < 55 years old. From Q2 of 2015-17, 38% of endoscopies were low yield (no alarm symptoms, other indications). A repeat data pull evaluated the impact of facilitated A&F done in March 2018.

### **Goals:**

1. Quantify change in volume of low yield endoscopy for adults < 55 years with dyspepsia.
2. Design education materials for physicians and patients to reduce referrals for endoscopy.

We reviewed endoscopy reports for the 2nd quarter of five consecutive years, and records were cross matched with lab, diagnostic imaging and prescribing databases to identify alarm symptoms and other appropriate indications. Calgary GIs will receive follow-up A&F reports on endoscopy utilization in March 2020.

We also interviewed physicians and patients to map their experiences managing dyspepsia and motivations for endoscopy referrals. We are drafting patient pathway and education materials.

### **Impact:**

Following A&F, the average number of low yield endoscopies per quarter decreased by 51% (171 to 83). In Q2 2018 & 19, 22% of endoscopies were low yield (~332/year) versus 38% in 2015-2017 (~685/year),  $p < 0.0001$ . Clinically significant pathologic findings were uncommon (no malignancies found).

### **Challenges:**

A new endoscopy software program and a change in H. pylori testing were introduced in 2018.

### **Conclusion:**

Facilitated A&F contributed to reduction of low yield endoscopies and improved alarm symptom reporting (a quality indicator). Human-centred design has aided the development of additional tools to further reduce utilization of endoscopy in this population.

## **REDUCING UNNECESSARY TESTING AND TREATMENTS IN THE EMERGENCY DEPARTMENT THROUGH PHYSICIAN EDUCATION AND FEEDBACK**

Rohit Gandhi, Montfort Hospital  
Raphael Lessard, Montfort Hospital  
Sebastien Landry, Montfort Hospital

### **Background:**

At our Ottawa based academic emergency department (ED), we conducted a year-long personalised physician Audit and Feedback pilot project, in order to attempt to reduce two common, unnecessary, and potentially harmful tests.

We conducted a single center, prospective controlled trial with the goal of reducing unnecessary physician ordering of 1) Rib X-rays and 2) Urine Cultures.

With a population of 31 emergency physicians, we held an educational intervention (via animated videos) which highlighted evidence, indications, and guidelines for appropriate ordering of the study tests. Each physician was given their personalised ordering rates compared to the rest of the group for a one-year period prior to the intervention. Additionally, they were given personalised chart audits, which provided direct patient examples and feedback regarding proper indications of test ordering based on available chart documentation and if non-indicated tests had any impact to patient outcomes. Physicians were then given subsequent scorecards at two-month intervals to provide ongoing feedback.

Four months after the launch of our study, we have realised a total reduction in ordering rates of 86.4% and 28.1% for Rib X-rays and Urine Cultures respectively. Currently, the audit and feedback phase of our study has ceased and we are now gathering data on the long-term sustainability of our intervention which seems promising.

There were several challenges and lessons learned, namely around achieving physician buy-in, trust in data quality and anonymity of physician specific data (achieved through ethics board support and approval), and outlier motivation for change.

# **TRANSFUSION GUIDELINES IN THE EMERGENCY DEPARTMENT - A TOOL FOR LIMITING UNNECESSARY TRANSFUSIONS**

Catherine Williams, Dalhousie University  
Samuel Campbell, Dalhousie University  
Irene Sadek, Dalhousie University  
Calvino Cheng, Dalhousie University  
Constance LeBlanc, Dalhousie University

## **Background:**

Blood transfusions are a critical intervention in patients presenting to emergency departments (ED). As blood availability is limited, balancing optimal patient outcomes with prudent use of scarce resources has driven new research to inform and delineate transfusion guidelines. The

Nova Scotia Guideline for Blood Component Utilization in Adults and Pediatrics was implemented in June 2017 to reflect current best practice in transfusion medicine. The guideline lowers the hemoglobin threshold from 80g/L to 70g/L for transfusion initiation and recommends reassessment of a patient's hemodynamic status before transfusing a second unit. Our study aims to augment understanding of changes in ED physician transfusion practices at the Halifax Infirmary Emergency Department in Nova Scotia following guideline implementation.

A retrospective chart review was conducted on one-third of all ED visits involving red-cell transfusions one year prior to and one year following guideline implementation. A total of 350 charts were reviewed. Data abstracted for the initial transfusion, and subsequent transfusion if applicable, from each reviewed chart included clinical and laboratory data reflective of the transfusion guideline. Overall, single-unit transfusions increased by 28.0%, from 47 of 146 patient cases in the year before guideline implementation to 56 of 136 patient cases in the year following guideline implementation.

These data suggest that implementing transfusion guidelines successfully increased the number of single-unit transfusions administered in the ED setting, saving a second unit of blood 28% of the time. No patient outcome differences were documented in this review. These data support implementation of similar guidelines in other departments.

## **ANTIBIOTIC PRESCRIBING FEEDBACK TO HIGH-VOLUME PRIMARY CARE PHYSICIANS: A RANDOMIZED CONTROLLED TRIAL**

Kevin Schwartz, Public Health Ontario  
Noah Ivers, Women's College Hospital  
Bradley Langford, Public Health Ontario  
Monica Taljaard, Ottawa Hospital Research Institute  
Valerie Leung, Public Health Ontario  
Kevin Brown, Public Health Ontario  
Nick Daneman, Sunnybrook Research Institute  
Michael Silverman, London Health Sciences Centre  
Sameer Elsayed, London Health Sciences Centre  
Julie Wu, Public Health Ontario  
Emily Shing, Public Health Ontario  
Jerome Leis, Sunnybrook Research Institute  
Jeremy Grimshaw, Ottawa Hospital Research Institute  
Gary Garber, Public Health Ontario

### **Objectives:**

To evaluate the effectiveness of providing peer comparison antibiotic prescribing feedback to primary care physicians.

### **Methods:**

We used the IQVIA Xponent database to identify the 3500 of 13,102 Ontario primary care physicians prescribing the highest number of antibiotics by volume dispensed. These physicians were randomized 3:3:1 to the antibiotic initiation letter (with Choosing Wisely Canada material), antibiotic duration letter, and control (no letter). The mailed letters provided normative social comparisons by identifying physicians as within the top quartile of prescribers. We analyzed repeated measures at the physician-level using robust Poisson regression, to assess for between-arm differences in total number of antibiotic courses and number of prolonged courses (defined as >7 days). NCT03776383

### **Results:**

Randomization was successful with no major differences between arms. Approximately 70% of physicians were male and 60% had been in practice  $\geq 25$  years. The median number of antibiotic courses per year, per physician, at baseline was 745 (IQR 560-1148). At 0-3 months there was a 4.7% relative difference in the number of antibiotics prescribed between the average of the two letters compared to control (RR 0.95; 95%CI 0.85-1.07). There were no differences between the letter groups. In a pre-specified subgroup analysis, physicians with baseline antibiotic volumes >90th percentile had a 10% reduction (RR 0.90 95%CI 0.81-0.99). Results from the 12-month primary endpoint are pending.

### **Conclusions:**

In this interim analysis antibiotic prescribing feedback resulted in a non-statistically significant 5% relative difference in antibiotic prescribing, and a statistically significant 10% relative difference to the highest prescribers.

# **REDUCING SEDATIVE-HYPNOTICS AMONG HOSPITALIZED PATIENTS: A STEPPED-WEDGE TRIAL**

Christine Soong Sinai Health System  
Yuna Lee, St. Michael's Hospital  
Cheryl Ethier, Sinai Health System  
Dalia Othman, Sinai Health System  
Peter Wu, University Health Network  
Karen Ng, Sinai Health System  
Barbara Liu, Sunnybrook Health Sciences Centre

## **Importance:**

Sedative-hypnotic initiation in hospital for insomnia is prevalent and associated with preventable harms. Reducing inappropriate sedative-hypnotic use is feasible.

## **Objective:**

To examine whether a sedative reduction bundle improves appropriate sedative-hypnotic prescribing among hospitalized patients.

## **Design, Setting and Participants:**

This participatory stepped-wedge trial occurred between June 1, 2016 and January 31, 2019. Baseline data was collected for 1-year prior to intervention implementation and post-intervention data for 1-year following the end of the implementation period. The study occurred on 6 inpatient wards (3 general medicine, 1 cardiology, 1 cardiovascular and 1 surgical) across 5 teaching hospitals in Toronto, Canada.

## **Intervention:**

Participating wards implemented a sedative reduction bundle that aimed to reduce in-hospital sedative-hypnotic initiation for sleep. Each inpatient ward iteratively refined and adapted the intervention bundle prior to sustaining the intervention for a minimum of 12 months.

## **Main Outcomes and Measures:**

The primary outcome measure is the proportion of sedative-hypnotic naïve inpatients newly prescribed a sedative-hypnotic for sleep in hospital. Secondary measures include prescribing rates of other sedating medications (e.g., quetiapine, trazodone), delirium, falls, patient-reported sleep quality, and length of stay.

## **Results:**

We included 9,050 patient discharges in the pre-intervention period and 10,212 patient discharges in the post-intervention period. Adjusted sedative-hypnotic prescriptions among naïve patients decreased from 11.27% to 7.25% (OR 1.63, 95% CI: 1.26-2.06;  $p < 0.001$ ). Secondary measures were unchanged: mortality OR 0.93 (95% CI: 0.63-1.39;  $p = 0.703$ ), falls rate ratio 1.15 (95% CI: 0.85-1.58;  $p = 0.353$ ), other sedating drug prescriptions rate ratio 0.87 (95% CI: 0.73-1.04;  $p = 0.123$ ) and Richards-Campbell Sleep Questionnaire score of 46.72 in pre-intervention to 54.11 in post-intervention periods (absolute difference of 7.36, 95% CI: -2.47-17.14;  $p = 0.142$ ).

## **Conclusion:**

A sedative reduction quality improvement bundle implemented across 5 hospitals was associated with a sustained reduction in sedative-hypnotic prescriptions. The intervention is estimated to have prevented 80 patients on 6 inpatient units from potentially experiencing a sedative-hypnotic associated adverse event over a 1-year period.

## **METHODS FOR DE-IMPLEMENTATION OF LOW-VALUE CARE: A NATIONAL STRATEGY FOR 40 COMMON HOSPITAL TREATMENTS**

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Eric van der Hijden, Talma Institute - Vrije Universiteit Amsterdam  
Maarten Vink, Talma Institute - Vrije Universiteit Amsterdam  
Veronique van Doorn, The National Health Care Institute  
Hanna Willems, Vrije Universiteit Amsterdam  
Sjoerd Repping, The National Health Care Institute  
Xander Koolman, Talma Institute - Vrije Universiteit Amsterdam

### **Goal:**

In the Netherlands, the Talma Institute (VU Amsterdam) developed a research program to design a national strategy on lowering institutional barriers for the de-implementation of 40 common low-value interventions.

### **Activities:**

Interviews with national experts (e.g. healthcare providers, medical specialists, policy makers and health insurers) were conducted to explore institutional barriers for de-implementation, successful and unsuccessful cases, and characteristics of de-implementation interventions.

### **Impact:**

We propose a de-implementation strategy consisting of measures with a focus on 1) supporting the learning culture among medical professionals, 2) lower barriers to acceptance of comparative effectiveness research (CER) outcome, and 3) enforcement if de-implementation still fails. The proposed strategy will be tested using 40 CERs in the Netherlands.

### **Challenges and Lessons Learned:**

Based on experts' opinions, we recommend that a de-implementation strategy should include: (a) audit and feedback on the progress of de-implementation of low-value interventions per hospital in order to create awareness, (b) systematic impact analyses of barriers for patient, professionals and hospitals for accepting the alternative treatment for low-value care, (c) financial compensation if de-implementation leads to funding problems at hospital level and (d) consensus on acceptable legislation to enforce de-implementation if de-implementation rate is still slow.

## **PREVENTING UNNECESSARY RED CELL TRANSFUSION, ENHANCING PATIENT SAFETY**

Arjuna Ponnampalam, CancerCare

Christine Peters, Shared Health Manitoba, Diagnostic Services

### **Background:**

Manitoba is one of the highest users of red blood cells. Transfusing multiple units is common practice.

Strong clinical evidence and Choosing Wisely recommendations support restrictive transfusion protocols and patient reassessment after each unit transfused. Planning the implementation of these recommendations through process changes and medical education would reduce unnecessary transfusions.

The Red Cell Stewardship Project is designed to safely restrict inappropriate red cell requests with provincial, regional and site leadership support and provide case specific education to physicians through follow up discussions.

Building on other province's successes, Manitoba customized the process for issuing requests from the blood bank. Using hemoglobin ranges in carefully selected patients, some requests require TM approval. Single units are issued with a requirement to repeat hemoglobin and re-evaluate symptoms prior to issuing additional units.

Comprehensive change strategies were used to communicate process changes to physicians, nurses and lab staff within person and teleconference meetings. Tools included a provincial clinical practice guideline, poster, video presentation and case studies. Postcards attached to the units of blood were used to increase awareness of the change prior to implementation.

Initial successes include learner satisfaction and acceptance, no delays in provision of needed product and an increase in physician education. Long term benefits predicted are reduced utilization, increased awareness of CWC recommendations, and improved collaboration among health team members.

This presentation will highlight the challenges and lessons learned and offer advice to achieving success in this type of quality improvement project.

## **REDUCING UNNECESSARY ISOLATIONS ON GENERAL MEDICINE AT LONDON HEALTH SCIENCES CENTRE**

Joseph Carson, London Health Sciences Centre  
Cody Sider, London Health Sciences Centre  
Yassmin Behzadian, London Health Sciences Centre  
Mary-Margaret Taabazuing, London Health Sciences Centre  
Alice Newman, London Health Sciences Centre  
Elaine Hunter Gutierrez, London Health Sciences Centre  
Linda Elliot, London Health Sciences Centre  
Brittany Devoe, London Health Sciences Centre  
Michael Payne, London Health Sciences Centre

### **Goal:**

Reduce unnecessary droplet+contact (D/C) precautions on general medicine by 30% by April 1, 2020.

### **Background:**

London Health Sciences Centre (LHSC) uses D/C precautions to prevent the spread of acute respiratory infections. However, staff report that patients often remain isolated longer than necessary. Research suggests that overused isolations negatively impact patient outcomes, experience, and costs.

### **Methods:**

We are using the Model for Improvement as a project framework. Our outcome measures, (%) unnecessary precautions, and (%) precautions >5 days, are tracked on process control charts.

### **Activities:**

Baseline audits showed that 68% of D/C precautions were unnecessary at the time of assessment, and 17% of precautions lasted > 5 days. We conducted root cause analyses through surveys, process mapping, and fishbone diagramming to identify discontinuation barriers. Our driver diagram focussed on patient identification, reassessment triggers, and standardized decision-making. In PDSA Series 1, we implemented new discontinuation criteria with a decision-support tool.

### **Impact:**

Physicians (n=8) have correctly applied new discontinuation criteria in 92% (37/40) of test cases. The criteria and decision-support tool have been implemented across LHSC. We will continue to collect outcome data to learn if this change and others lead to improvement.

### **Challenges:**

We are exploring the feasibility of an automated trigger tool for reassessment; however, electronic medical record modifications require regional support.

### **Lessons Learned:**

While only 17% of precautions last >5 days, they account for 44% of total isolation days. Our simplified criteria and decision support tool may reduce precaution overuse.



## **REDUCING PROTON PUMP INHIBITOR USAGE IN HOSPITALIZED PATIENTS: A QUALITY IMPROVEMENT INITIATIVE (RIPPLE STUDY)**

Ushma Purohit, University of Toronto  
Juliana Lombardi, Sinai Health System  
Sangeeta Mehta, Sinai Health System  
Lisa Burry, Sinai Health System  
Dalia Othman, Sinai Health System  
Sarah McKenna, Sinai Health System  
Christine Soong, Sinai Health System

### **Background:**

A retrospective cohort study conducted in 2018 at Mount Sinai Hospital (MSH) characterizing Proton Pump Inhibitor (PPI) use among inpatients found patients admitted to the Intensive Care Unit (ICU) had the highest rate of new PPI starts in-hospital (36%) compared to patients admitted to other units (10-28%). The most common indications for use were GERD (39%) and NSAID use (16%), with 27% of patients having an unclear indication. Most patients continued PPI use on transfer out of the ICU (n=35, 83%) and at discharge (n=27, 87%). Mean hospital length of stay for ICU patients was 24.7 days, representing an opportunity for patient/family engagement and deprescribing.

### **Goal:**

To design and scale-up an intervention that reduces the inappropriate ongoing prescription of PPIs.

### **Activities:**

An evidence-driven PPI Deprescribing Educational Tool was developed using literature, national guidelines and input from MSH gastroenterologists. The ICU pharmacist implemented the tool in addition to a PPI deprescribing algorithm. The ICU pharmacist reviewed the PPI indication of all patients in the ICU daily (by consulting patients/family/ICU team and the electronic medical record) and recommended any changes to the PPI prescription (i.e., stop PPI, change dose, modify duration), as necessary. Pre- and post-intervention data was collected through chart reviews.

### **Impact:**

This intervention has resulted in a decrease in the number of patients with PPI prescriptions in the ICU and will scaled-up to other MSH wards to broaden its impact. Deprescription of PPIs has important implications for resource stewardship and patient outcomes.

# **IMPACT OF A POSTOPERATIVE PAIN INTERVENTION ON PRESCRIBING PATTERNS OF ANALGESICS**

Michael Lisi, Collingwood General and Marine Hospital  
Jennie Lee, McMaster University  
Robin Matchett, Collingwood General and Marine Hospital  
Grace Scott, Laurentian University

## **Introduction:**

Canadians are amongst the highest consumers of opioids. In the context of post-surgical pain control, over-prescription has been demonstrated in general surgery, orthopedic surgery, and gynecology. Patients prescribed opioids after surgery are at 10- to 20-fold increased risk of becoming chronic users. Patients over 50 years of age carry an additional 2-fold increase in risk for chronic opioid use.

## **Methods:**

A postoperative pain management intervention was assessed using two-phase sequential review of analgesic prescribing patterns at Collingwood General and Marine Hospital. Data collection was divided in 2 segments: a retrospective chart review from October 1st 2017 to March 31st 2018, and prospective collection of patient data from July 9th to August 14th 2018. In each of these cases, patients over the age of 18 were included. The results of the initial retrospective review were incorporated into the postoperative pain educational intervention alongside current American Pain Society opioid prescription guidelines.

## **Results:**

The two sequential reviews included 225 and 146 patients respectively. The initial review revealed that 25% of postsurgical patients were discharged with narcotics. Conversely, 15% of patients were discharged with non-opioid analgesia alone. The second review expanded on the first to include not only admitted patients, but also day surgery patients. This review revealed a 7.8% absolute reduction in opioids prescribed in hospital following the postoperative pain management intervention.

## **Discussion:**

Local adherence to current guidelines for postoperative pain management remains to be optimized in this region. Multimodal non-opioid systemic analgesics – acetaminophen, NSAIDs, and gabapentin/ pregabalin – is recommended.

## **A NURSE-LED CHRONIC PAIN SELF-MANAGEMENT PROGRAM TO DECREASE OPIOID USE AND IMPROVE PAIN – IT WORKS**

Hillel M. Finestone, Bruyère Continuing Care  
Metasebia Assefa, University of Ottawa  
Isabelle LeClerc, Bruyère Academic Family Health Team  
Elizabeth Muggah, Bruyère Academic Family Health Team  
Raywat Deonandan, University of Ottawa

### **Goal:**

Chronic pain poses a heavy burden to patients and the health care system. Resources for management of chronic pain in Canadian society have been simultaneously overused and underutilized. Some medical treatments like medications (particularly opioids) are excessively used but yet the known benefits of multidisciplinary physical, psychological, and social care are often not provided. The goal of this initiative was to test a new chronic pain multi-disciplinary treatment model based in family medicine.

### **Activities:**

From 2016 to 2018, a registered nurse (RN) led a chronic pain management program that was integrated into a multidisciplinary family medicine clinic. The RN met with patients individually for the intervention and used self-management principles to provide the patient with education and support. A tool called the Pain Explanation and Treatment Diagram helped to inform the patient about their diagnosis and “pain risk factors”. Outcomes included pain, function, and opioid use.

### **Impact:**

Fifty-nine participants had at least one follow-up appointment. A clinically meaningful decrease in pain severity and pain interference was reported by 27.5% (14/51) and 59.1% (26/44) of patients, respectively. We also observed a statistically significant decline in opioid use, with 7/39 participants eliminating opioid medication. Patients felt listened to while physicians noted patient engagement and empowerment.

### **Challenges:**

Ensuring follow-up.

### **Lessons Learned:**

Specialty pain clinics and centers are not the only answer to better management of chronic pain. Delivery of services early and effectively, embedded in family medicine units, by a nurse, is an important initiative that should be pursued in Canada.

## **SUSTAINABILITY OF A QUALITY IMPROVEMENT INITIATIVE TO REDUCE ANKLE X-RAYS IN THE PEDIATRIC EMERGENCY DEPARTMENT**

Dayae Jeong, University of Toronto  
Tania Principi, The Hospital for Sick Children

### **Goal:**

To assess the sustainability of a quality improvement (QI) initiative to reduce ankle x-rays in the Emergency Department (ED)

### **Activities:**

In 2016, several initiatives were implemented as part of a trainee QI project which resulted in decreased rates of ankle x-rays from 91% to 53% over 7 months. The project was part of a hospital Choosing Wisely campaign and initiatives included 1) Staff (medical, nursing) education surrounding the Low Risk ankle Rule (LRAR), 2) LRAR reference posters within the ED, and 3) Development of a new mandatory diagnostic requisition for ankle injuries in collaboration with the Division of Radiology that encouraged use of the LRAR. After completion of the project, ongoing interventions were limited to posters and a yearly Choosing Wisely update highlighting initiatives in the department.

### **Impact:**

The decreased rates of ankle x-rays continued to be sustained at a rate of 59% when examined for 18 months after the trainee project was completed despite limited ongoing interventions. This suggests evidence of a change in culture around x-rays for low risk ankle injuries despite staff turnover and that periodic education may help sustain ongoing initiatives.

### **Challenges:**

The project highlighted the difficulty with ongoing surveillance after a project has ended and the loss of interventions as workflows and technologies change.

## **RECOVERY AFTER HIP AND KNEE SURGERY – “MORE CARE” IS NOT ALWAYS “BETTER CARE”**

Marsha Alvares, Toronto Western Hospital  
Samra Mian-Valiante, Toronto Western Hospital  
Christian Veillette, Toronto Western Hospital

### **Goal:**

To reduce inpatient rehabilitation referrals after total joint replacement (TJR) replacement surgery while improving patient experience.

### **Background:**

Overuse of inpatient (IP) rehabilitation after TJR replacement surgery persists despite robust evidence suggesting no incremental benefit. In fact, research shows that patients are safer when discharged home with supports after TJR, facing lower risk of complications and hospital readmissions. However, achieving valued-based care is often challenged by independent provider functions without common accountabilities.

### **Implementation:**

Introduction of Integrated Funding Models in Ontario for TJR presented an opportunity to realign resources, functions and accountabilities to coordinate a patient's journey in order to deliver high-value necessary care. To this end, the Arthritis Program at University Health Network developed and delivered an integrated care pathway that optimized surgical patients' transitions home after TJR and reduced unnecessary IP rehabilitation referrals

### **Measures:**

In one year, our IP rehabilitation referrals decreased by 67% (% TJR patients going to IP rehab 15% baseline vs <5% 1-year post intervention) for uncomplicated TJR surgery. Patients reported a 96% satisfaction rate when discharged from their integrated pathway.

### **Challenges:**

Building trust and support for the realignment of funding structures to support pathway redesign and sustaining consistent messaging to patients across the health care team on discharge plans consistent with pathway redesign were fundamental challenges.

### **Lessons Learned:**

It is critical to define the key values up front that all partners across the care journey can support and leverage to build trust, engagement and support for the change management initiative.

## **ADVANCE CARE PLANNING IN CANADA: A PAN-CANADIAN FRAMEWORK AND IMPLEMENTATION INITIATIVE**

Amanda Nitschkel, Advance Care Planning in Canada (Speak Up), Canadian Hospice Palliative Care Association  
Aia Raafat, Advance Care Planning in Canada (Speak Up), Canadian Hospice Palliative Care Association  
Ryley Garagan, Advance Care Planning in Canada (Speak Up), Canadian Hospice Palliative Care Association  
Laurel Gillespie, Advance Care Planning in Canada (Speak Up), Canadian Hospice Palliative Care Association

### **Background:**

Upstream thinking is required to mitigate rising health care costs while maintaining quality person-centered care for people experiencing life-limiting illnesses. Advance care planning (ACP) is a process of reflection and communication on a person's values, wishes, and preferences for their future care in the event they are unable to speak for themselves. Since the first National ACP Framework was introduced in 2012, attitudes towards ACP have started to change. Results from a recent national poll show that while 80% of Canadians believe ACP is important, less than one in five has actively engaged in the process.

### **Goal:**

In order to increase Canadians' literacy and capacity to act and engage in ACP, the 2012 National ACP Framework was updated to incorporate new strategies, legislation, and plans for implementation.

### **Activities:**

The new framework was first released in November 2019 and is restructured to focus on: (1) extending partnership networks and engaging interprofessional collaboration, (2) building supportive systems and removing systemic barriers, (3) engaging and educating all stakeholders to normalize ACP, and develop respectful strategies to address under-served communities and cultural diversity, (4) measuring impact and quality improvement.

### **Impact to Date/Future Direction:**

Successful partnerships have been formed with the legal, long-term care (LTC) and home care sectors. Complimentary public-facing and lawyer-directed resources have been developed and disseminated. Current resources under development include LTC and home care toolkits. Community engagement pilot studies will employ 'workshop-in-a-box' templates. Future partnerships are directed at correctional services Canada and anti-poverty organizations.

## **REDUCING REPETITIVE DIAGNOSTIC PHLEBOTOMY IN AN INTENSIVE CARE UNIT: A QUALITY IMPROVEMENT PROJECT**

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Thomas Bodley, University of Toronto  
Orla Smith, St. Michael's Hospital  
Michelle Sholzberg, St. Michael's Hospital  
Shannon Swift, St. Michael's Hospital  
Drake Yip, St. Michael's Hospital  
Hina Chaudhry, St. Michael's Hospital  
Jan O. Friedrich, St. Michael's Hospital  
Lisa K. Hicks, St. Michael's Hospital

### **Goal:**

Repetitive diagnostic phlebotomy may contribute to anemia and increased transfusion burden, especially in the intensive care unit (ICU) where patients are tested more frequently and often have impaired hematopoiesis. Our aim was to reduce the average volume of blood collected per patient-day by 15% in the Medical-Surgical ICU at St. Michael's Hospital.

### **Activities:**

A series of change strategies were implemented between February and June 2019, including stakeholder engagement, education sessions, electronic order set modifications, add-on testing, and audit and feedback. The main outcome measure was average volume of blood collected per patient-day in the MSICU, the secondary outcome measure was number of transfusions per patient day. Balance measures included average discrete blood draws, ICU length of stay (LOS) and mortality. The student's T-Test was used to compare the average blood volume collected and transfusion burden, at baseline versus post-intervention.

### **Impact:**

Average blood volume collected decreased from 44.9 ml per patient-day to 38.9 mL per patient day ( $p < 0.001$ ) after changes were introduced. The average number of discrete blood draws decreased from 4.1 to 3.7 per patient day. Transfusions decreased from an average of 0.40 transfusions per patient-day to 0.24 transfusions per patient-day ( $p < 0.001$ ).

### **Challenges/Lessons Learned:**

Sequential, patient-centered interventions discouraging reflexive and repetitive blood testing in an ICU were associated with a significant decrease in average blood volumes collected per patient-day and with a decreased burden of transfusion. We found that frequently consulting key stakeholders and incorporating feedback even after an intervention's rollout was integral to the project's success.

## WHAT IS THE NATURE AND MAGNITUDE OF OVERUSE OF HEALTH CARE SERVICES IN CANADA?

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Christina Krause, BC Patient Safety & Quality Council  
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Alies Maybee, Patient Advisors Network  
Steve Morgan, University of British Columbia  
Letitia Nadalin-Penno, University of Ottawa  
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Tamara Rader, CADTH  
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Jeremy M. Grimshaw, Ottawa Hospital Research Institute

### Background:

Overuse of low-value care that provides no benefit to patients, wastes resources and can cause harm is widespread globally. While there is extensive professional and policy interest in reducing low-value care in Canada, we lack a comprehensive evidence base that identifies which clinical practices are overused and in which geographical jurisdictions.

### Objective:

To estimate the nature and magnitude of low-value care in Canada.

### Methods:

We searched online databases and grey literature sources to identify quantitative studies reporting objective or subjective (patient-reported) measurements of low-value care in Canada. Two authors independently screened, assessed quality and extracted the data. Study findings were synthesized narratively in three care categorizations: tests, treatments, and procedures.

### Results:

Sixty studies were included in the review, 43 (72%) from acute care, 25 (42%) from primary care, and 8 (13%) from long-term care. Equal proportions of studies examined overuse of tests ( $n=29$ , 48%) and treatments ( $n=28$ , 47%) while few studies ( $n=3$ , 5%) examined overuse of procedures. In all studies, there was evidence of low-value care: overuse of tests ranged from 0.09% (carotid imaging) to 92.7% (breast cancer imaging); overuse of treatments ranged 0.06% (opioid use for dental pain) to 79.3% (asthma medication); and overuse of procedures ranged 10.8% (angiography) to 22% (caesarean delivery).

### Conclusions:

This study represents the first-ever overview of the magnitude and the nature of low-value care in Canada. Most of the studies come from acute and primary care. Our next steps include jurisdictional and territorial comparisons to determine how low-value practices may vary by geography.



## DEPRESCRIBING AND DECREASING INAPPROPRIATE POLYPHARMACY IN A PRIMARY HEALTH CARE TEAM IN NOVA SCOTIA

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Timothy Woodford, Nova Scotia Health Authority  
Andrew Blackadar, Nova Scotia Health Authority  
Natasha Paul, Nova Scotia Health Authority  
Margo Walsh Leaman, Nova Scotia Health Authority  
Beth McDougall, Nova Scotia Health Authority  
Erin Leith, Nova Scotia Health Authority

### Goal:

To safely reduce chronic benzodiazepine and opiate use among patients in a Collaborative Family Practice Team (CFPT) in Liverpool, Nova Scotia (1).

### Activities:

Patients with chronic benzodiazepine and/or opiate use are referred to an on-site pharmacist who develops a tailored tapering plan. Patients are followed up every 1-4 weeks to monitor and adjust use.

### Impact:

From October 2018 to December 2019, 61 patients from a panel of 1,000 have participated. Emerging results include:

- 54% have stopped either or both classes of drug and 44% are actively tapering (2)
- An annual drug cost-savings of approximately \$ 12,815.08 total (3)
- Patients are “surprised how smoothly the taper went,” while providers are “grateful that someone is able to spend the time required to follow-up with patients.” The team is continuing to collect data on patient experience.

### Challenges:

Barriers for this initiative to be spread across NS include the lack of on-site pharmacists in CFPT and the absence of reimbursement mechanisms for community pharmacist involvement.

### Lessons Learned:

Tailored de-prescribing initiatives can reduce inappropriate polypharmacy in CFPTs, resulting in drug cost-savings and improvements in patient experience and safety.

#### Footnotes:

- (1) Liverpool is located 148 km west of Halifax, with 10,351 residents who live in the community cluster (Maritime Health Atlas, 2016).
- (2) Tapering means patients have stopped or reduced their dose of at least one medication.
- (3) This is an estimate that includes markup and professional fee and is based solely on the reduction of drug use and costs calculated based on the NS Formulary; it does not include other indirect costs and savings (such as new medications, falls, admissions, and overdose).

## **REDUCING UNNECESSARY COMPUTED TOMOGRAPHY SCAN UTILIZATION FOR INPATIENTS POST-FALL: THE REDUCE INITIATIVE**

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Leanna Graham, University Health Network

### **Background:**

Over 90% of inpatient fall-related head injuries (FRHI) at our adult quaternary care institution do not result in clinically significant intracranial injuries. Significant variation exists in neuro-imaging utilization for these patients. This is related to the lack of evidence-based tools to assist in decision making for FRHIs. Consequently, our institution has seen over-utilization of Computed Tomography (CT) scans post-fall, resulting in increased resource utilization and unnecessary patient radiation exposure. Our goal was to develop a decision tool capturing patient variables (e.g. antiplatelets, anticoagulation and neurovitals) to standardize CT ordering and minimize unnecessary CTs for inpatient FRHIs.

Baseline CT rates were established through a 2-year retrospective cohort study. A total of 4328 falls occurred during the 2-year period with 740 (17%) FRHIs. 59.2% of FRHIs received a CT, and only 3 patients had a clinically significant head injury.

Stakeholder engagement and focus groups were used to develop our Ishikawa diagram and subsequent Plan-Do-Study-Act cycles, which include: 1) Improving provider knowledge regarding evidence on head injuries and CTs 2) Developing an evidence-based algorithm 3) Continuous feedback on CT rates for individual units. Our algorithm began pilot testing in 5 acute care inpatient units in November 2019 and data-collection is on-going to monitor implementation.

As our organization cares for diverse patient populations, developing a unified algorithm has been challenging. Engaging with program leaders and providers throughout the organization was key in the algorithm's development. This project has reinforced the critical importance of early engagement with stakeholders to develop valuable interventions and gain commitment.

## **A NOVEL DISINVESTMENT TRAIL DESIGN TO HELP REDUCE OR ELIMINATE LOW-VALUE CARE**

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Mari Botti, Deakin University  
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Lisa O'Brien, Monash University  
Bernice Redley, Deakin University  
Kelly-Ann Bowles, Monash University

### **Background:**

Disinvestment (or deadoption, deimplementation) refers to stopping or reducing some activities and can apply when an activity has been found to be harmful, ineffective, overused, misused or obsolete. Some routinely provided healthcare activities have little evidence of benefit, but insufficient to be completely confident that they have no benefit, or are harmful, and should be ceased. It is difficult to conduct conventional research of routinely provided health practices as patients have little incentive to receive a control condition when they could receive the intervention by not participating.

### **Goal:**

Our team has previously developed a disinvestment research trial design based on adapting the stepped-wedge cluster randomized trial for this situation that generates the missing evidence while simultaneously disinvesting from the intervention. In this paper, we describe an advance on this methodology to account for multiple intervention groups of interest.

### **Impact:**

The impact of using this approach will be illustrated in the context of a planned trial that will reduce or eliminate use of bed alarms for the prevention of falls in the hospital setting. Economic modelling has identified that conducting this trial will likely save \$8 for every \$1 spent conducting the research within the trial sites in the first 12 months alone.

### **Challenges and Lessons Learned:**

Staff resistance at pilot sites has been encountered for which a more comprehensive communication plan including all staff discipline groups will be needed.

## **TOO MUCH SUGAR IS BAD FOR YOU: COST SAVINGS AND IMPROVED WORKFLOW BY ELIMINATING UNNECESSARY GLUCOSE MONITORING**

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Nicole Melchior, Royal College of Surgeons in Ireland  
Patrick Darragh, Michael Garron Hospital  
Rebecca Fine, Michael Garron Hospital  
Raymond Fung, Michael Garron Hospital  
Andrew Liu, Michael Garron Hospital  
Lisa Sparrow, Michael Garron Hospital  
John Abrahamson, Michael Garron Hospital  
Zoe Lysy, Michael Garron Hospital

### **Background:**

Capillary blood glucose monitoring (CBGM) on hospitalized inpatients is performed more frequently than clinically necessary.

### **Goal:**

A retrospective chart review demonstrated that stable measurements in the first 48h of inpatient admission was associated with stability for the remainder of admission. Using data from this QI study and evidence-based guidelines on CBGM, our goal was to reduce unnecessary CBGM on admitted patients at Michael Garron Hospital (MGH) a full-service community teaching hospital.

### **Activities:**

All admitted patients were reviewed with regards to appropriate CBGM 48 hours after admission. Orders for SBGM were adjusted and recommendations were entered into our electronic health record (EHR). Nurses received patient care texts with justification for the reduction in their daily workload. For this project we leveraged our EHR, strong physician-allied health provider dyad and an institutional culture amenable to reviewing patient care practices.

### **Impact:**

MGH, a community teaching hospital in Toronto, spends approximately 65K/year on supplies for CBGM. Since inception of this initiative we are on target to reduce yearly utilization costs by 20K. More importantly approximately 200 hours of nursing time has been saved per month which can be directed towards more valued patient care needs.

### **Lessons Learned:**

By targeting unnecessary CBGM significant cost saving can be accrued and the patient experience improved. The resultant reduction in nursing tasks resulted in their early buy-in and greatly aided sustainability.

## **DEVELOPMENT OF NAAMS: NETWORK OF ATLANTIC ANTIMICROBIAL STEWARDS**

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Jennifer Boswell, Canadian Agency for Drugs and Technologies in Health (CADTH)  
Peter Daley, Memorial University  
Dan Landry, Vitalite Health Network  
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Paul Bonnar, Nova Scotia Health Authority  
Andrea Kent, Nova Scotia Health Authority  
Denise Gilby, Health Canada

### **Background:**

The Atlantic region has the highest rate of antimicrobial use in Canada. In part to reduce such inappropriate use, and to bolster the efforts of other Atlantic provinces, the Network of Atlantic Antimicrobial Stewards (NAAMS) was formed.

Beginning in June 2017, the Public Health Agency of Canada (PHAC) National and Atlantic regional offices, along with support from the National Collaborating Centre for Infectious Disease (NCCID), convened an expert group on antimicrobial stewardship (AMS), including governmental, clinical, and academic stakeholders from the four Atlantic Provinces, to discuss their approaches and potential collaboration on AMS. The immediate goal was to share information and assess the level of interest in forming an ongoing regional network. The longer-term goal was to build a sustainable, inter-professional collaboration on AMS in Atlantic Canada.

This presentation will focus on the evolution of NAAMS, highlighting the group's inception, lessons learned, challenges, and accomplishments to date such as how NAAMS leveraged relationships, seized opportunities to share resources, and used East Coast goodwill to build a sustainable network of Atlantic antimicrobial stewards. Last, it will highlight key stewardship efforts to date in Atlantic Canada.

## **REDUCING UNNECESSARY WBC DIFFERENTIALS AND SLIDE REVIEWS ON ICU BLOOD ORDERS**

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George Isac, Vancouver General Hospital  
Todd Markin, Vancouver General Hospital  
Fanny Lee, Vancouver General Hospital  
Krista Marcon, Vancouver General Hospital  
Monika Hudoba, Vancouver General Hospital

### **Goal:**

The Complete Blood Count with white blood cell differential (CBCD) is a high-volume blood test ordered in our Intensive Care Unit (ICU). Since the CBCD is ordered several times a day in the ICU, laboratory technologists were performing repeat differentials and slide reviews with no clinical benefit. Rather than trying to change ordering practice in the ICU, we sought to eliminate repeat CBCD tests at the laboratory level.

### **Activities:**

Medical laboratory staff collaborated with the ICU Department Head to propose limiting the WBC differential to once a day. Any CBCD ordered after the first of the day would not have a WBC differential performed. In addition, all ICU samples would only have one slide review per day. The new rule was implemented in September 2019.

### **Impact:**

An audit was performed three months post implementation. Over the one-month audit period, there were 429 CBCD samples on 63 patients. The new rule eliminated 61 slide reviews (a reduction of 24.2%) and eliminated 277 WBC differentials (a reduction of 64.6%), equating to approximately 7.1 hours of technologist time saved.

### **Challenges:**

The audit revealed a low rate of technologist non-compliance with the new rules, resulting in some unnecessary slide reviews and WBC differentials performed. This reflects difficulties inherent in changing habits of practice even within the laboratory.

### **Lessons Learned:**

Canceling unnecessary tests at the laboratory level can be an effective means to improve utilization. Laboratory technologists may benefit from ongoing education and support to change practice.

# **BARRIERS AND FACILITATORS INFLUENCING PRE-OPERATIVE TEST ORDERING IN LOW-RISK PROCEDURES IN ALBERTA**

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Andrea M. Patey, Ottawa Hospital Research Institute  
Kelly Mrklas, Alberta Health Services  
Shannon M. Ruzycki, Alberta Health Services  
Shawn Dowling, University of Calgary  
Submitted on behalf of the De-Implementing Wisely Research Group

## **Background:**

Despite Choosing Wisely Canada recommendations, low-value pre-operative tests such as chest x-ray, ECG, and lab tests are often ordered for healthy patients undergoing low-risk surgeries. The Theoretical Domains Framework (TDF) facilitates the exploration of determinants of behaviour and potential behaviour change interventions. Using the TDF, we aim to identify the barriers and enablers influencing current pre-operative test ordering practices.

## **Method:**

Semi-structured interviews were conducted using the TDF to understand clinicians' perspectives on pre-operative testing. Nineteen clinicians (seven anesthesiologists, four internists, four nurses, and four surgeons) throughout Alberta were interviewed. Two researchers independently coded interviews into the TDF domains, and key themes within the domains were identified.

## **Impact:**

The TDF based interviews identified factors influencing current pre-operative test ordering practices. This information will be used in the next phases of the study to inform the design, development, and evaluation of theory-informed interventions.

## **Challenges:**

Difficulty engaging clinicians from rural areas limits our understanding of their perspectives and factors influencing test-ordering in those contexts. We also identified vastly different pre-operative processes across Alberta.

## **Lessons Learned:**

Preliminary themes suggest clinician understanding that certain pre-operative tests are unnecessary for asymptomatic patients (Knowledge), yet some still order them to avoid responsibility for possible negative outcomes (Beliefs about consequences). Other key themes identified were disagreements over which specialty should be responsible for the test ordering (Social-professional role & Identity), difficulty cancelling tests ordered by other clinicians (Beliefs about capabilities and Social influences), and the problem with tests being ordered before physicians see the patient (Beliefs about capabilities and Environmental context and resources).

## **CLINICIAN REPORTS FOR OPIOID PRESCRIBING: A NOVEL APPROACH TO OPIOID STEWARDSHIP**

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Cameron Symon, Saskatchewan Health Authority  
Jen Harden, Saskatchewan Health Authority  
Shelley Quist, University of Regina  
Robert Parker, Saskatchewan Health Authority  
Michelle Degelman, Saskatchewan Health Authority

### **Background:**

Opioid use disorder (illicit and prescription) is prevalent in Saskatchewan and considered a healthcare crisis. Through a collaboration between the Stewardship and Clinical Appropriateness Department and Family Medicine Department of the Saskatchewan Health Authority—Regina Area, this quality improvement project was developed with the following goals: 1) To measure the opioid prescribing practices among hospitalists working on acute medical wards, and 2) to determine whether generation and distribution of an anonymized Opioid Clinician Report displaying prescription data for each hospitalist can assist in reducing inappropriate opioid prescribing. Pre-selected quality indicators will be collected from the electronic pharmacy system and medical charts and presented in an interactive dashboard (i.e., Clinician Report) using a business intelligence tool (i.e., MicroStrategy Desktop). This strategy represents a unique opportunity for the hospitalists to review their opioid prescribing patterns and reflect on their clinical practice for the purpose of improving patient care. Some limitations of the project include its small sample of paper-based medical charts, and significant amount of variation among patients which may account for differences in opioid prescribing practices. Furthermore, balancing opioid stewardship, nursing communication, and patient perceptions represents another challenge of quality improvement. These challenges underscore the importance of fully understanding the current state before designing an effective intervention. Overall, this project can potentially lead to a better understanding of opioid use on acute medical wards, a reduction in the number of patients unnecessarily exposed to the harmful effects of opioids, and an improvement in best practice standards related to appropriate opioid prescribing.



## REDUCING EMERGENCY DEPARTMENT BLOODWORK AND ELIMINATING WASTE

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Victoria Antoniu, Sinai Health System  
Christine Soong, Sinai Health System  
Stephanie Saraga, Sinai Health System  
Allyson Harvey, Sinai Health System  
Gillian Wilde-Friel, Sinai Health System  
David Dushenski, Sinai Health System

### Background:

Patients presenting to Sinai Health's Emergency Department (ED) undergo unnecessary bloodwork. This leads to excessive work for nurses, physicians and laboratory staff, contributing to increased ED length of stay, patient discomfort, and health care costs.

### Goal:

By January 1, 2020, we will reduce the number of targeted blood tests (AST, GGT, aPTT and CK) by 40% in the ED, as measured by the percent per 1000 ED visits of AST to ALT, GGT to ALT, aPTT to INR and CK to troponin.

### Activities:

Using the Model for Improvement, we engaged stakeholder from the ED, labs, and information services. Data was analyzed using run chart rules.

### Interventions:

- a) Removed/uncoupled tests on electronic order sets and Emergency Record
- b) Changed test-based medical directives to presentation-based
- c) Educated staff on testing

### Impact:

We achieved the goal of reducing targeted blood tests. There was an estimated relative reduction in proportion of the targeted tests by:

- 33% AST/ALT
- 52% GGT/ALT
- 18% aPTT/INR
- 50% CK/troponin

Total number of lab tests per 1000 ED visits decreased by 7.7% (5742 to 5331); total monthly blood tubes decreased by 2.8% (11620 to 11300); and the monthly average of blood drawn decreased by 1.4L (2%) (50.4L to 49.0L).

### Challenges and Lessons Learned:

With staff burnout in mind, interventions were staggered since the ED and Laboratory were undergoing workspace renovation. Electronic care sets are only effective if staff use them. When ED nurses use free-text search, they access unnecessary tests. A hospital-wide lab panel review is pending.

## **A STRATEGY TO REDUCE PRACTICE VARIATION IN THE MANAGEMENT OF DISCHARGED PATIENTS WITH POSITIVE BLOOD CULTURES AT THE EMERGENCY DEPARTMENT AT THE HOSPITAL FOR SICK CHILDREN**

Laura Galvis-Blanco, Fundación Valle del Lili  
Charlotte Grandjean-Blanchet, The Hospital for Sick Children  
Lauren Friedman, The Hospital for Sick Children  
Olivia Ostrow, The Hospital for Sick Children  
Tania Principi, The Hospital for Sick Children

### **Goal:**

To reduce practice variation in the management of positive blood cultures in discharged patients by 50% and reduce unnecessary admissions for contaminated blood cultures in low risk patients to zero.

### **Activities:**

Development and implementation of an algorithm based on best practice guidelines for managing positive blood cultures in patients discharged from the Emergency Department. With the support of key stakeholders, we stratified patients and gram stain results into risk categories and provided a management plan according to the risk. Through multiple PDSA cycles, the algorithm was developed and launched, and the blood culture reporting process was revised and streamlined.

### **Results:**

Practice variation was reduced from an average of 40% per month down to 7%, unnecessary admissions for contaminated blood cultures were reduced from 2 per month down to 0 and unnecessary antibiotic use was also reduced from an average of 3 cases per month to 0.6.

### **Impact:**

We contributed to improving the quality of care for discharged ED patients with positive blood cultures by standardizing their management and reducing potential harm from delays in administration of necessary antibiotics in patients at high risk for bacteremia or sepsis. Our initiative also led to a decrease in resource utilization and potential harm from unnecessary hospital admissions and unnecessary intravenous antibiotics in low risk patients.

### **Challenges:**

Continue to engage champions to sustain the positive results obtained to date. To align it with other quality improvement initiatives that are aiming to reduce unnecessary blood culture ordering and contamination of blood cultures.

## CLINICAL UTILIZATION AT NIAGARA HEALTH

Shlok Gupta, Niagara Health System

### Goal:

The Niagara Health Utilization Committee was established in 2018 to improve patient care and use resources more wisely.

### Activities:

Our committee has focused on implementing strategies to align patient care with evidence-based practices. Our activities have included reducing routine chest x-rays in the ICU, decreasing carotid imaging duplication in stroke, improving appropriate use of ESRs, eliminating stool cultures on inpatients, de-prescribing proton pump inhibitors (PPI), reducing duplication of lab tests, decreasing the use of echocardiograms in the assessment of stroke, and eliminating the use of FOBT in inpatients. Our initiatives have included changes to order sets as well as collaboration with front-line clinicians.

### Impact:

To date, we have seen a reduction in chest x-rays in the ICU of 0.1 per patient day, or approximately 5 CXRs daily across our ICUs. Carotid imaging duplication in stroke has dropped from 28% of cases to 8% of cases. The use of ESR has dropped by 75% and is only ordered in the context of temporal arteritis. Our projects on de-prescribing PPIs and reducing echocardiograms in stroke workup are ongoing, with final data pending.

### Challenges:

We have found that changing practice patterns has been more difficult than eliminating certain tests completely. We have also found that case-costing data, while accurate, can take months to compile, making quick adjustments to initiatives (PDSA cycles) difficult.

### Lessons Learned:

Focusing on “low-hanging fruit” has led to some quick wins. More ambitious projects require a front-line champion to implement.

## **INITIATIVES TO REDUCE LOW-VALUE LABORATORY TESTING ALIGNED WITH CHOOSING WISELY CANADA 'QUICK WINS': MULTI-HOSPITAL IMPLEMENTATION EVALUATION**

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### **Background:**

The Eastern Ontario Regional Laboratory Association (EORLA: <https://www.eorla.ca/>) encompasses 18 laboratories which collectively conduct 13 million tests annually for 1 million patients at 16 hospitals. EORLA is collaborating with member hospitals to implement Choosing Wisely Canada's 'quick wins'.

### **Goal:**

Catalogue implementation efforts and identify common experiences and challenges with the lab-related 'quick wins' across EORLA sites.

### **Methods:**

We are conducting surveys and focus groups with implementation teams at each of the 16 member hospitals (Jan-May 2020). Survey questions and focus group topics are informed by the Template for Intervention Description and Replication (TIDieR), and published recommendations for specifying implementation stages, strategies, and outcomes. The survey focuses on the activities used and details of any impact assessments. Survey data will be summarized by frequency (e.g. number of sites using a specific activity). Focus groups will explore the implementation process (who and what was involved), any challenges experienced, views on sustainability, and key lessons learned. Transcripts will be analysed following the framework analysis method (a form of thematic analysis).

### **Results:**

We will summarize the initiatives implemented, including the proportions involving different activities (e.g. education, audit and feedback, order form modification). Results of impact assessments (e.g. effects of initiatives on test ordering rates) and key themes from the focus group analyses will also be presented.

### **Lessons Learned:**

Results will inform EORLA's assessment of implementation effectiveness and provide recommendations for optimization and spread across sites. The results will also provide valuable insights which may support application and generalization to other contexts.

## REDUCING POST-SURGICAL OPIOID PRESCRIBING

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### Goal:

Between April 1, 2019, and March 31, 2020, 38 ON-SQIN hospitals participated in a collaborative goal to reduce the number of post-surgical opioid pills prescribed at discharge by 30%. The “Cut the Count” campaign focused on effective pain management after surgery, including appropriate use of opioids.

### Activities:

Participating teams implemented one or more of the following changes:

- A common prescribing protocol
- Multi-modal pharmacological and non-pharmacological pain management strategies
- Patient education on safe opioid use and expectations for pain and recovery

### Impact:

Within 6 months of the campaign, we observed:

- 9 fewer pills\* per person, on average, prescribed
- An overall 28% reduction in post-surgical opioids prescribed
- An estimated\*\* 7,000,000 pills not released into the public domain

### Challenges:

Teams had difficulty establishing a baseline for the number and type(s) of opioid pills prescribed at discharge. Teams would have achieved greater success sooner if they had a template to track prescribing patterns over time from the get-go, as well as a shared set of prescribing protocols

### Lessons Learned:

Post-surgical prescribing at discharge has contributed to opioid misuse. By focusing on the minimum number of pills prescribed for the shortest duration, other pain management strategies, and reasonable expectations of pain after surgery, and with the power of the collective, the potential to reduce the number of opioids in the public domain that may be used inappropriately cannot be understated.

\*Self-reported data.

\*\*Impact calculated by multiplying average number of pills reduced by average number of surgeries performed in participating hospitals over a 6-month period.

## **USING CLINICIAN REPORTS TO REDUCE UNNECESSARY LABORATORY TESTING IN THE EMERGENCY DEPARTMENT**

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### **Background:**

Working as an interdisciplinary team, the Stewardship and Clinical Appropriateness Department and Department of Emergency Medicine in the Saskatchewan Health Authority – Regina Area implemented a Clinician Report as an interactive dashboard and audit and feedback tool with the goal of reducing unnecessary laboratory testing based on Choosing Wisely Canada recommendations.

### **Methods:**

The Report was developed through consultation with emergency physicians and was delivered via MicroStrategy Desktop. Principles of behavioural science were also used in the design of the feedback intervention to help improve the likelihood of a successful outcome. Initially, we focused on the use of five laboratory tests: brain natriuretic peptide, C-reactive protein, D-dimer, erythrocyte sedimentation rate, and urine drug screens. Presenting the anonymized data to the group (with each physician knowing which data was their own) allowed for the discussion of appropriate clinical practice and for individuals to reflect on their own clinical decisions.

### **Results:**

Through the process of audit and feedback and promoting conversations around evidence-based best practice, physicians reduced their overall use of three of the five tests (brain natriuretic peptide, erythrocyte sedimentation rate, and urine drug screens).

### **Conclusions:**

One major challenge that arose during this quality improvement project was ensuring data were collected, analyzed, and presented in a timely manner and frequently enough to maintain momentum among the clinicians. Nevertheless, the Clinician Report has been successful in terms of promoting physician engagement and reducing unnecessary laboratory test use.

# **REDUCING DAY 3 BLOODWORK AND ULTRASOUND FOR PATIENTS UNDERGOING TIMED INTERCOURSE AND INTRAUTERINE INSEMINATION CYCLES**

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## **Background:**

Fertility clinics perform unnecessary cycle monitoring bloodwork and ultrasound.

## **Goal:**

To reduce unnecessary cycle day 3 (d3) bloodwork and ultrasound for patients undergoing cycle monitoring for timed intercourse (IC) and intrauterine insemination (IUI) treatment cycles at an academic fertility clinic.

## **Methods:**

A literature review was performed. Baseline data was collected for 8 weeks. We met with physicians and nurses to understand the factors contributing to routine d3 testing. Consensus was reached that it was unnecessary in patients taking oral/no medications. The primary intervention was to change the default setting on the electronic order set to exclude d3 testing for IC and IUI cycles with oral/no medications. Exceptions were allowed but required active selection of baseline testing by the physician. Treatment protocols and checklists were updated. Mitigating strategies were implemented to avoid undiagnosed pregnancy. Education sessions were held. Data was collected for 8 weeks after the intervention and compared to baseline data.

## **Impact:**

A significant reduction in the proportion of cycles receiving d3 TVUS (57.2% vs 20.8%,  $p < 0.001$ ) and bloodwork (58.6% vs 22.8%,  $p < 0.001$ ) was observed after the intervention using Chi squared test. There was no significant difference in the rate of cycle cancellation or pregnancy rates before and after intervention ( $p = 0.86$ ).

## **Challenges:**

Overcoming historical norms; Using testing as a touchpoint for patient communication.

## **Lessons Learned:**

Forcing functions were effective; Allowing exceptions increased acceptability; Requiring an active step for exceptions limited utilization; Mitigating strategies addressed staff concerns.

## EXPLORING THE PATIENT PERSPECTIVE OF IN-HOSPITAL BLOOD TESTING

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### Description:

Within the Edmonton zone in Alberta, Canada, blood test ordering has increased by 1.5 million tests in the last 5 years. In response to this steady growth, quality improvement studies were undertaken to identify salient intervention components from hospital admission to discharge to reduce lab test ordering overuse (LTOO). Understanding the patient perspective with in-hospital blood testing was undertaken.

### Goal:

Determine patient's perspectives of in-hospital blood testing to support the development of an intervention design that supports patient needs and consultation preferences while also reducing LTOO.

### Actions Taken:

A focus group session with Alberta Health Services Patient and Family Advisory Group employed a structured facilitation technique and a survey of general internal medicine inpatients were completed. Thematic analysis and descriptive statistics supported data analysis.

### Impact:

Three themes were identified from the PFG session and corroborated by the survey findings, resulting in a substantive theory which led to an intervention design recommendation of a daily, at bedside, physician led, structured conversation for diagnostic testing, using simple language, and where patients feel safe to ask questions; thus, encouraging informed shared decision making. Additionally, to increase blood testing awareness, a hospital wide educational campaign was suggested.

### Challenges:

Most patients are not aware of LTOO and indicated minimal blood testing knowledge in which to begin a conversation or question test order decisions.

### Lessons Learned:

It is difficult to develop a patient-initiated intervention and consultation approach; thus, a shared decision-making conversation about in-hospital blood testing is physician dependent.



# **DETERMINING KEY INTERVENTION COMPONENTS TO REDUCE LABORATORY TEST ORDERING OVERUSE IN GENERAL INTERNAL MEDICINE WARDS**

Narmin Kassam, University of Alberta

Pamela Mathura, University of Alberta and Alberta Health Services

## **Background:**

In the Edmonton zone (EZ) in Alberta, Canada laboratory testing has increased by 1.4 million tests in the last 4 years (2014-2018) which is the highest annual increase in the province. Approximately \$3.6 million was spent on urea testing in the EZ. In response to this steady growth, five separate quality improvement (QI) initiatives were undertaken to explore the phenomenon of in-patient laboratory test ordering overuse (LTOO).

## **Goal:**

Identify salient intervention components from hospital admission to discharge that reduce lab test order frequency and urea ordering.

## **Actions Taken:**

Employed the Model for Improvement and Donabedian conceptual framework. A literature review, QI tools, questionnaires and prospective chart audits determined and trialed intervention components along with local hospital adaptation. Results analyzed using descriptive statistics and an estimate cost calculation.

## **Impact:**

Identified 7 intervention components that reduce and sustain LTOO; heightening interdisciplinary ward awareness and participation. A cumulative reduction of approximately 45,000 fewer tests in 12 months and a cost avoidance of over \$200,000.00.

## **Challenges:**

Allocation concealment was not possible, as residents and physicians rotate between hospital GIM wards across all hospitals within the EZ.

## **Lessons Learned:**

LTOO must be an organizational priority with active involvement of physician leaders and executive directors to support frontline QI teams. Order sets revisions unbundle blood test panels, limit indefinite ordering, remove low value blood tests and ensure all staff are aware of order frequency led to a sustained reduction. Physician ordering practices are complex and change acceptance is possible.

## **ASSESSMENT OF EFFORTS TO REDUCE DAILY BLOODWORK FOR MEDICAL INPATIENTS**

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### **Background:**

We aimed to assess the effects altering the daily bloodwork checkbox of the preprinted admission order (PPO) form for internal medicine patients admitted to the QEII Hospital in Halifax, Nova Scotia. Our goal was to study the impact on both physician ordering habits and meaningful patient outcomes.

Data from chart review and the Laboratory Information System was compared pre- and post-PPO modification. Chart review was completed for patients admitted to the medical teaching unit (MTU) during January and June of 2017 and January and June of 2018. Laboratory information system data was obtained for patients admitted to MTU from January 2017 to June 2017 and January 2018 to June 2018.

Modifying the default options on the admission preprinted order set had a significant impact on physician ordering habits leading to reduction in daily admission bloodwork with no clinically significant change in adverse events. There was a reduction in ordering daily bloodwork for three days on initial admission after the change to the PPO: (78-92%) of orders being written as “repeat x 3” in 2017 to a majority (79-96%) of orders being written as “once” or less. There were no significant differences before and after the change in adverse events during admission including anemia, acute kidney injury, new hypernatremia, hyponatremia, hyperkalemia or hypokalemia. Data analysis is ongoing. Scope of project was limited by database access and infrastructure in Nova Scotia Health Authority.

## THE 'HIDDEN' PROFESSION AND CHOOSING WISELY CANADA

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Valentin Villatoro, University of Alberta  
Christine Nielsen, Canadian Society for Medical Laboratory Science

### Goal:

To develop and validate a set of recommendations of Choosing Wisely Canada for medical laboratory professionals

### Activities:

The clinical laboratory is implicated in almost one-third of all Choosing Wisely Canada recommendations, though almost exclusively from the perspective of the service-ordering professional. The work of the technical professionals within the laboratory is largely behind the scenes. The Canadian Society for Medical Laboratory Science and the University of Alberta partnered to develop recommendations geared towards these professionals. We solicited potential list items through a national survey and the work of an expert panel. Ranking was achieved with a modified Delphi process.

### Challenges and Lessons:

Over the past year, we worked with a broad collection of medical laboratory technologists and assistants from across Canada. Defining the scope of practice of medical laboratory professionals across diverse jurisdictions was a major challenge. After this activity, our group worked to reframe our preconceived notions about how our work can impact the overuse of laboratory tests, and deeply explore our role in reducing patient harm.

### Impact:

We are the first non-physician medical laboratory professional group to submit recommendations for Choosing Wisely Canada. As Choosing Wisely Canada continues to broaden its reach and fulfill increasing calls to engage the entire healthcare team in system improvement, our involvement sparks conversation about how less immediately obvious professionals can indeed play a role. Internally, the list development process revealed opportunities to create mechanisms to enhance a renewed sense of stewardship for healthcare resources within our membership.

## **ANTIMICROBIAL STEWARDSHIP IN NEONATAL SURGICAL PATIENTS FOR CLEAN AND CLEAN-CONTAMINATED PROCEDURES**

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### **Background:**

There is considerable variation in the duration of prophylactic antibiotics prescribed to neonates post-operatively for 'clean' and 'clean-contaminated' general surgical conditions. However, there is minimal benefit and significant risks of prolonged antibiotic use in this population. The aim of our project was to decrease the proportion of neonates receiving prophylactic antibiotics for 'clean' or 'clean-contaminated' general surgical procedures beyond 24 hours post-operatively by 25% over a 6-month period.

### **Methods:**

Plan-Do-Study-Act cycles were utilized. After engaging the key stakeholders, a clear consensus guideline for prophylactic antibiotics was developed; then education sessions, monthly reminders and weekly antimicrobial stewardship rounds were implemented. Outcome measures were the percentage of patients receiving antibiotics more than 24 hours and duration of antibiotics. Balancing measures included postoperative surgical site infections (SSIs). Statistical process control charts were utilized for analysis.

### **Results:**

A total of 51 neonates with 28 in the preintervention and 23 in the postintervention period who had 'clean' or 'clean-contaminated' procedures were evaluated over a 14 month period. The percentage of patients receiving antibiotics more than 24 hours decreased from 61% to 26% and the mean duration of antibiotics decreased from 42.4 to 22.9 hours. The main reason for non-compliance was "surgical team preference". No adverse events were noted, with only one case of SSI, which developed before discontinuation of antibiotics.

### **Conclusion:**

Reduction in prophylactic antibiotic use for neonatal surgical patients was achievable using quality improvement methods with no adverse effects.

## **CHOOSING WISELY AN IMPROVEMENT BUNDLE FOR TOTAL KNEE ARTHROPLASTY**

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### **Background:**

Mount Sinai Hospital performs approximately 350 total knee arthroplasties (TKA) annually. TKA is associated with significant postoperative pain and opioid consumption, often leading to opioid-associated side-effects, complications, and significant health care costs.

### **Goals:**

1. Enhance patient recovery analgesia after TKA using non-opioid approaches.
2. Decrease acute hospitalization length-of-stay (LOS) and unnecessary medical interventions.

### **Activities:**

A root cause analysis was performed by a multidisciplinary team. In addition to our pre-existing TKA pathway, four new interventions were chosen “wisely” as part of the Enhanced Recovery After Surgery (ERAS) bundle based on literature review and feasibility analysis:

1. Placement of adductor canal nerve blocks (in keeping with Choosing Wisely Canada recommendation to optimize the use of non-opioid approaches for pain management).
2. Prophylactic dexamethasone to postoperative nausea and vomiting.
3. No routine pre-operative urinary catheterization (in keeping with Choosing Wisely Canada recommendation to reduce inappropriate use of urinary catheters).
4. Pre-operative patient education regarding surgical recovery.

### **Impact:**

The pre- and post-intervention groups included 232 and 383 patients respectively. Mean 24-hour oral morphine consumption decreased by 37%. Percentage of patients experiencing moderate-severe pain decreased by 25%. 24-hour PONV rates decreased by 15%. Overall bladder catheterization rates decreased by 59%. 30-day ED visits following discharge decreased by 5%. Mean acute hospitalization LOS decreased from 2.82 to 2.13 days. Need for inpatient rehabilitation decreased by 10%.

### **Lessons Learned:**

Implementation of a patient-centered ERAS bundle utilizing Choosing Wisely Canada recommendations has the potential to enhance patient recovery and decrease costs of care.

## **A PRIORITIZATION FRAMEWORK FOR TEST-ORDERING INTERVENTIONS**

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Jamie Brehaut, Ottawa Hospital Research Institute  
Natasha Hudek, Ottawa Hospital Research Institute

### **Background:**

Lab testing is argued to be a precursor for 70% of all medical decisions.<sup>1</sup> Considering that 20-50% of tests may be inappropriately ordered,<sup>2</sup> reduction of inappropriate use is a clear target for improving efficiency and care. Our objective is to develop a prioritization framework that will assist feedback developers in determining which tests should be the targets of feedback intervention.

### **Methods:**

This work was a scoping review of the factors that guide previous test ordering prioritization decisions. The sources for our scoping review included documentation such as “Choosing Wisely” recommendations, NICE guidelines, medical librarian-supported searches of Medline, and reference lists of key articles. The search strategy was built using a lab-based testing term such as: chemistry test, cytological technique, combined with a term pertaining to clinical practice guidelines, such as: clinical pathway, recommendation.

### **Results:**

All stages included two independent authors performing screening and data abstraction. The search strategy applied in Medline yielded 8,758 abstracts. In the end, 80 studies were abstracted for descriptive details, relevant contextual factors, and the factors guiding prioritization decisions. The scoping review demonstrated that the most important factors in guiding prioritization decisions were: cost of test, feasibility of changing test-ordering behaviour, ease of implementing test-ordering reduction intervention and the extent to which the results of the test affect patient management.

### **Conclusion:**

This project will yield an evidence-based prioritization framework that will describe what factors to consider, how to prioritize among factors, and how to measure the factors in the local environment.

# **REDUCING UNNECESSARY COAGULATION TESTS IN HYPERTENSIVE PREGNANT WOMEN- A QUALITY IMPROVEMENT PROJECT PROPOSAL AND THE IMPACT OF STAGE ONE**

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## **Background:**

The coagulation parameters are not affected by preeclampsia, unless there are additional complications such as thrombocytopenia/suspected coagulopathy. Therefore, 'these tests are not recommended routinely (RCOG). The current practice by most clinicians however still involves ordering these tests in the diagnosis and surveillance of preeclampsia. Therefore, there is a need to address this unnecessary health cost for effective resource-utilization.

## **Aim:**

To reduce the number of unnecessary coagulation tests by at least 25 % through problem identification, audit, nurse-education and protocol changes.

## **Activities:**

Labor and delivery room practices were surveyed for ordering of coagulation tests for pregnant women with high blood pressures. We used the model for improvement and serial Plan-Do-Study-Act (PDSA) cycles to test changes that we predicted would reduce the unnecessary tests.

PDSA#1: Made changes to electronic-order sets, by removing the "check box" for repeat coagulation tests and measured the impact.

PDSA #2: Use of posters and other electronic materials for educational rounds and awareness.

PDSA #3: Using an Indication tab for ordering tests.

## **Measures:**

Absolute number and ratio of coagulation tests per 100 hospital days; projected annual cost-savings and monthly acute inpatient bed days.

## **Impact:**

Stage1 results showed an average of 3,459 coagulation tests ordered/ year, of which only 10% were indicated. This amounts to a burden of 88,277\$/year. Number of repeat tests ordered reduced from 49% to 23 % after PDSA#1. PDSA#2 is now in the process.

## **Lessons Learned:**

The burden of unnecessary coagulation tests is high. Initial stages of our project reduced the number of unnecessary repeat coagulation tests by 26%.

## **AN AUGMENTED QUALITY IMPROVEMENT PROPOSAL TO IMPROVE SASKATCHEWAN'S COLORECTAL SCREENING PROGRAM AND OPTIMIZE APPROPRIATE COLONOSCOPY**

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### **Background:**

The Screening Program for Colorectal Cancer in the Saskatchewan Cancer Agency (SCA) tracks the quality of FIT positive colonoscopy for the population it serves (age 50-74) with an annual quality report provided to each endoscopist. Despite an acceptable provincial adenoma detection rate of 51% the SCA has documented a large variation in ADR amongst endoscopists completing FIT positive follow up colonoscopies. To mitigate the variation in ADR the SCA implemented a quality report for each endoscopist, a Direct Observation of Procedural Skills program (DOPS) as well as encouraging endoscopists to participate in an advanced training program offered by the Canadian Association of Gastroenterologists. For screening to be effective the World Health Organization (WHO) recommends that there be a robust monitoring and evaluation framework to assure quality and that at least 70% of the target population be screened. Currently, the SCA Screening Program for Colorectal Cancer monitors the ADR, on all FIT positive clients age 50-74 (5,000 colonoscopies annually). The screening program only receives the procedure date for colonoscopies unrelated to FIT testing on clients age 50-74 to allow adjustment of the next FIT screening date (12,000 additional colonoscopies annually). Thus, the majority of colonoscopies in the province are currently unmonitored. The SCA has proposed to work closely with the SHA to understand the differences in ADR in populations outside of the FIT positive range of 50-74 and to monitor ADR for all colonoscopy procedures with the province thus fulfilling the WHO criteria for an effective screening program.



## **REDUCING UTILIZATION OF UNNECESSARY COAGULATION TESTS BY EMERGENCY PROVIDERS**

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### **Background:**

Curbing unnecessary laboratory testing represents a significant opportunity for cost reduction in the Canadian health care system. A Choosing Wisely report cited a 31% decline in the number of tests ordered in a Canadian emergency department (ED) after implementation of recommendations. The international normalized ratio (INR) remains frequently ordered in emergency departments without an appropriate indication.

### **Goal:**

We aimed to reduce the number of INR tests completed in the St. Joseph's Healthcare Hamilton Emergency Department by 50% by April 30, 2019.

### **Methods, Activities:**

We conducted the study in an urban, academic ED. We tailored interventions according to the Hierarchy of Effectiveness to address root causes revealed by analysis of our baseline ordering behaviour. Interventions included provider education around evidence-based ordering indications and removal of the INR from our "chest pain" bloodwork panel. Our outcome measure was the weekly number of INR tests completed per ED visit.

### **Impact, Discussion:**

We electronically collected outcome, process, and balancing measures and analyzed this data using statistical process control charts. Over the nine-month study period, we decreased weekly INR tests from 248.4 to 115.0, a reduction of 56% which met criteria for special cause variation. This amounts to a cost savings of \$43,008 per year. Our interventions could likely be spread to other settings where an INR is included as part of a "chest pain" panel. This may represent a substantial cost reduction opportunity on a national scale. Employing high effectiveness mechanisms such as automation of optimal behaviour supported the change management process.

## **REDUCING UNNECESSARY INPATIENT BLOODWORK BY LIMITING DAILY REPEATS**

Janet Simons, Providence Health Care

### **Goal:**

To reduce low value bloodwork collected from inpatients which was potentially causing harm. This bloodwork was being drawn due to 'standing' orders without defined end dates.

### **Activities:**

Education was provided to multiple groups in the hospital through presentations at medical and surgical grand rounds, CTU morning report, nursing and professional practice meetings, and memos distributed through email. Several months after the education efforts, a hospital wide policy was implemented to limit 'daily' bloodwork orders to a hard stop of 3 days.

### **Impact:**

The average number of inpatient blood collections on morning rounds, normalized to inpatient census, fell from 167 to 150/day, a 10% reduction. A similar reduction was seen when evaluating collections at all times of day – reduction from 272 to 250/day, or 8%. Approximately 2/3rds of the reduction was attributable to the hard stop, and 1/3rd to educational efforts. Reception from physicians and staff was mostly positive as assessed by post-implementation surveys. No negative effects to patient care were reported.

### **Challenges:**

The largest challenge was determining the history and origins of the 'current state.' It became clear that the system allowing for 'standing' order of indeterminate length had arisen unintentionally. Most stakeholders agreed to the proposed change but were wary of change. Only after significant engagement of multiple groups was the policy able to be implemented.

### **Lessons Learned:**

Engage with multiple groups throughout the organization. Educational activities can help develop buy in for hard stops. A focus on patient care and outcomes is always the strongest argument.

## **SUCCESSFUL REDUCTION OF UNNECESSARY GROUP & SCREEN TESTING IN A COMMUNITY HOSPITAL**

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Patrick Wong, Richmond Hospital

### **Goal:**

To reduce unnecessary orders for pre-transfusion Group and Screen (G&S) in a busy community hospital.

### **Activities:**

The Medical Director and Transfusion medicine team met with two clinical areas in the hospital: the Emergency Department (ED) and Labour & Delivery (L&D). The ED sepsis protocol included a G&S test, even though blood transfusion is infrequently ordered in acute sepsis. After discussion with the ED team, they agreed to remove routine G&S from their protocol.

In L&D, the vast majority of maternity patients had a G&S on admission, even for low risk births. The Medical Director met with Obstetrics and Anesthesia, obtaining consensus that a G&S would be ordered primarily for higher-risk deliveries.

### **Impact:**

After the ED intervention, the average monthly orders for G&S in the ED decreased from ~270 to ~180. This was sustained two years post implementation. The reagent cost savings was ~\$10,000 annually.

After the L&D intervention, the annual number of G&S in L&D decreased from 1614 (in 2016) to 613 (in 2018). The number of crossmatched red cell units decreased annually from 315 to 154. The total reagent cost savings was ~\$9000 annually.

### **Challenges:**

Challenges included finding locally established guidelines to stratify patients into low, moderate, and high risk pregnancies for G&S, and convincing the clinical teams to agree and use these locally established guidelines.

### **Lessons Learned:**

Communication and collaboration between the lab and clinical areas can be highly successful in the reduction of unnecessary tests, with sustained benefits on cost avoidance.

## REDUCING UNNECESSARY THYROID FUNCTION TESTING: A QUALITY IMPROVEMENT INITIATIVE

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### Background:

The American Thyroid Association and Choosing Wisely Canada recommend measuring exclusively thyroid stimulating hormone (TSH) to screen for and monitor treatment of primary hypothyroidism. Health care providers frequently order free thyroxine (fT4) and triiodothyroxine (T3) measurements when not clinically indicated. These unnecessary tests can lead to excessive use of health-care resources and compromise quality of care, by increasing parental and patient anxiety, misinterpretation of results and unnecessary referrals and interventions. This quality improvement initiative aimed to promote resource stewardship and decrease unnecessary thyroid hormone (fT4, T3) testing at our institution.

### Methods:

Quality improvement strategies were used to generate three change ideas that were implemented simultaneously: (1) the introduction of a laboratory “reflex fT4” system (whereby fT4 is automatically measured and reported if the TSH is outside the reference range), (2) a “forced function” for thyroid hormone orders within the hospital’s electronic medical record (EMR) (compelling the user to indicate rationale for ordering fT4/T3) and (3) built-in educational messaging provided at the time of ordering thyroid hormone tests, stating the recommendations regarding use of TSH. Laboratory data were audited to determine the mean number of TSH, fT4, and T3 tests performed per week as well as indications for testing. The main outcomes were change in number of tests performed per week during two 20-week periods, pre- and post-intervention, and the cost-savings associated with any reductions in testing.

### Results:

The mean number of fT4 and T3 tests processed per week decreased from  $153.7 \pm 20.9$  and  $12.5 \pm 7.2$ , respectively, in the pre-intervention period, to  $107.3 \pm 11.5$  (30% reduction) and  $5.1 \pm 3.7$  (60% reduction) post-intervention. These reductions were sustained for the full 20-week assessment period. Approximated cost savings were \$38,000 per year. There was no statistically significant difference in the mean number of TSH measurements in the pre vs. post intervention periods ( $217.2 \pm 28.1$  vs.  $203.6 \pm 9.0$  per week).

### Conclusions:

Introduction of a reflex fT4 and forced function for ordering thyroid hormone tests resulted in a significant decrease in fT4 and T3 testing. EMR-based interventions can create sustained improvements in health-care utilization, leading to significant cost-savings.

## **A Multi-Faceted Approach to Reduce Antibiotic Use in NL**

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Robert Wilson, Quality of Care NL/Choosing Wisely NL

### **Goal:**

To reduce the overuse of antibiotics in NL

### **Activities:**

Quality of Care NL/Choosing Wisely NL have used a multi-faceted approach to combat the high usage rate of antibiotics which included: an antibiotic awareness week and open forum to engage the public; academic detailing and personal reports for medical education; acquiring and analyzing community and inpatient data to measure and evaluate usage; participating in the provincial antimicrobial stewardship committee for quality improvement and implementing solutions such as the Spectrum App.

### **Impact:**

Public and clinicians have been engaged with QCNL/CWNL efforts. Community acquired data indicates prescribing rates are lower than reported by Health Canada and have decreased by 4.5% from 823/1000 to 786/1000 people when comparing 2017/18 to 2018/19. Inpatient usage in St. John's hospitals is trending down by showing a decrease of 12.6% in a 6-month period. QCNL/CWNL has proven to be a very important stakeholder in the provincial stewardship committee in providing reports.

### **Challenges:**

Regular and recurring data acquisition; clinical interpretation for all clinician types; penetrating target audiences (clinician, public, frontline); creating meaningful engagement opportunities.

### **Lessons Learned:**

Timing of interventions and delivery methods; importance of time for open discussion; engagement of different health care perspectives.

## **CREATION OF A LONG-TERM CARE FACILITY REPORT IN THE PROVINCE OF NEWFOUNDLAND AND LABRADOR**

Robert Wilson, Memorial University  
Michelle Ryan, Memorial University  
Susan Stuckless, Memorial University  
Pat Parfrey, Memorial University

### **Goal:**

To provide long-term care (LTC) facilities in the province with a compilation of information and data derived from Quality of Care NL/Choosing Wisely NL's ongoing research and evaluation projects.

### **Activities:**

A total of 35 facilities and four Regional Health Authority (RHA) reports were created and disseminated to the Regional Directors of LTC and the Department of Health and Community Services. Select data from the Resident Assessment Instrument – Minimum Data Set, as well as provincial Infection Prevention and Control programs, were analyzed by facility and compared to overall provincial data. Specifically, demographic and clinical characteristics of new admissions and prevalent patients, length of stay, fall rates and risk factors for falls, as well as appropriateness of antipsychotic and antibiotic use.

### **Impact:**

Feedback from RHA's and stakeholders have been positive. Reports have been utilized in decision-making for delivery of care.

### **Challenges:**

1) Bureaucratic barriers to acquiring the data; 2) available data was not up to date; 3) data received came from multiple sources, causing inconsistencies in time periods for the information presented.

### **Lessons Learned:**

Involving decision makers and appropriate stakeholders in the development stage of this report was important for uptake and utility of the information. Stakeholders in this province are invested in the improvement of LTC services and were very receptive to the reports.

# **GEOSPATIAL DISTRIBUTION OF ANTIBIOTIC DISPENSATION WITHIN NEWFOUNDLAND AND LABRADOR, CANADA**

Colin Ash, Memorial University  
Robert Wilson, Memorial University  
Krista Mahoney, Memorial University  
Oliver Hurley, Memorial University

## **Goal:**

This project will determine the geographic distribution of antibiotic dispensation within the province of Newfoundland and Labrador (NL).

## **Background:**

In 2018, NL clinicians prescribed 970 prescriptions of antibiotics per 1000 peoples, 24% more prescriptions than the second highest province. Newfoundland and Labrador also has a small population spread over a large geographic area, which makes equitable healthcare service delivery challenging, especially between urban and less accessible rural areas. Recent efforts by Choosing Wisely NL/Quality of Care NL to reduce antibiotic overuse within NL has been met with some success, but the geographic distribution of antibiotic dispensation within the province has not been studied and may provide some insight for future antibiotic stewardship campaigns.

## **Methodology:**

All antibiotic dispensations within NL from June 1 2017 to July 30 2019 was acquired through the NL Pharmacy Network. Rural and urban cohorts will be created from this Statistics Canada's 'Rural Small Town / Large Urban Centre' geographic definition, classifying rural areas by metropolitan influence. Basic geospatial regression, data analysis, and mapping will be performed using GIS software.

## **Challenges:**

The significant challenges of this project involve ethical considerations of handling personal health data, meeting health information privacy and security standards when accessing and presenting this data, and the complications posed by processing the data from its raw format.

## **Results:**

Data processing and interpretation in progress. Initial results expected by spring 2020.

## **PHYSICIAN REPORTS: PROVIDING FAMILY PHYSICIANS IN NEWFOUNDLAND AND LABRADOR WITH PERSONALIZED REPORTS ON THEIR PRACTICE**

Pat Parfrey, Memorial University  
Brendan Barrett, Memorial University  
Asghar Mohammadi, Memorial University  
Zac Giovanni-Green, Memorial University  
Tammy Benteau, Memorial University  
Robert Wilson, Memorial University

### **Goal:**

The goal of this project is to provide family physicians in Newfoundland and Labrador with clinic report based on their practice.

### **Activities:**

Family physicians were presented personalized electronic peer comparison reports on their practice covering;

- 1) ANA and anti-ds DNA tests ordered
- 2) TSH, T4, and T3 tests ordered
- 3) IgE tests ordered
- 4) Biochemical tests ordered
- 5) Antibiotics prescribed
- 6) CT scans, X-rays, and ultrasounds ordered

### **Impact:**

Through a multi-faceted of medical education that included face to face academic detailing and CME accredited online modules, there was a 38% decrease in overall IgE test ordering from 2015 to 2018; rate of antibiotic utilization decreased from 823 prescriptions/1,000 inhabitants in 2017/18 to 786 prescriptions/1,000 inhabitants in 2018/19. Reduction in biochemical tests were seen in LDH (71%), Blood Urea (62%), Creatine Kinase (31%), AST (41%), Uric Acid (26%), Ferritin (20%).

### **Challenges:**

1) Acquisition of data in a timely manner, 2) reaching and having successful engagement with physicians on reports.

### **Lessons Learned:**

Face-to-face academic detailing is most effective and preferred by physicians.



## **EVALUATING THE AWARENESS AND USE OF NURSING RECOMMENDATIONS**

Aden Hamza, Canadian Nurses Association  
Karey Shuhendler, Canadian Nurses Association

### **Background:**

Since 2016, the Canadian Nurses Association (CNA) has partnered with Choosing Wisely Canada and the Canadian Network of Nursing Specialties to develop recommendations that support nursing practice to reduce overuse of unnecessary tests, treatments, or interventions, that may lack benefit or cause harm. Following the successful creation of three nursing lists, CNA is seeking opportunities to support the development of knowledge translation resources to facilitate implementation of recommendations in nursing practice.

### **Goal:**

The survey focused on gauging nurses' awareness and use of the nursing lists, identifying the extent of implementation and evaluation of recommendations, and connecting with clinical leaders who may be able to champion recommendations. The goal is for the results to inform development of useful tools and resources for nursing practice.

### **Methods:**

In September 2019, CNA released an online survey with the intention of gauging nurses' awareness, use and evaluation of nursing list recommendations. Key informant interviews were also held with nurses who identified how they used the list and what would be most helpful moving forward.

### **Lessons Learned:**

The survey found 63% of nurses were unaware of the nursing specific lists, however approximately 75% of the nurses who were aware of the list used the recommendations in practice. Challenges in implementation included buy-in from staff and colleagues, lack of training and leadership support, which were overcome through education, discussion/working groups and awareness raising. This provides significant insight and direction for CNA in the development of resources to support nursing practice in overcoming potential barriers.

## **INTERPROFESSIONAL SHARED DECISION MAKING TO REDUCE OVERUSE IN MUSCULOSKELETAL CONDITIONS**

Simon Décary, Université Laval  
Isabelle Gaboury, Université de Sherbrooke  
Marie-Claude Beaulieu, Université de Sherbrooke  
Laurence Beaulieu-Boire, Université de Sherbrooke  
Marie-Hélène Milot, Université de Sherbrooke  
Yannick Tousignant-Laflamme, Université de Sherbrooke  
France Légaré, Université Laval

### **Goal:**

To develop a workshop that fosters interprofessional (IP) communication between residents in family medicine and professional masters-level students in physiotherapy and teach shared decision making (SDM) skills to discuss with patients the appropriate use of tests and treatments in musculoskeletal (MSK) conditions.

### **Activities:**

We designed a 3-hour workshop centered on two components: 1- four MSK clinical vignettes for which trainees needed to reach appropriate interprofessional consensus and complete a mock referral form using the SBAR tool (Situation, Background, Assessment, Recommendations). 2- a clinical vignette of uncomplicated low back pain for which the patient expected imaging and opioids. A trained facilitator role-played a patient while participants followed a 6-step SDM framework to navigate the discussion about overuse.

### **Impact:**

Of the 78 participants, 42 were trainees in physiotherapy and 36 in family medicine. Eleven facilitators guided groups of 6-8 participants. More than 80% of participants rated organization, animation and quality of the workshop as “good” or “excellent”. However, they expressed that the workshop should happen earlier in the curriculum to allow more time to experiment the concepts before entering practice.

### **Challenges:**

Residents were concerned that time to become efficient in SDM may disrupt their schedule. Physiotherapists highlighted that the current SDM framework may not be applicable to their practice (i.e. focused on goals rather than decisions).

### **Lessons Learned:**

We hosted a 3-hour IP and SDM workshop to help trainees discuss appropriate management of MSK conditions. Subsequent iterations will expand to other professions involved in MSK care and reinforce exchange and collaboration.

## CREATINE KINASE TESTING IN CARDIAC INJURY

Sheharyar Raza, Sunnybrook Health Sciences Centre  
Paul Yip, Sunnybrook Health Sciences Centre  
Jeannie Callum, Sunnybrook Health Sciences Centre

### Background:

Cardiac injury is a common and devastating cause of morbidity and mortality worldwide. Cardiac troponin (troponin) is a widely available and accurate biomarker which aids in rapid diagnosis and timely management of cardiac injury. Yet creatine kinase testing (CK) is routinely performed in the setting of cardiac injury with little added diagnostic information.

### Goal:

We sought to evaluate CK testing for cardiac injury at a large cardiovascular care center and implement a quality improvement initiative to reduce unnecessary testing.

### Activities and Methods:

We created guidelines for evidence-based indications of CK testing in cardiac injury, provided staff education at individual and department levels, and revised institutional order sets. CK and troponin orders were analyzed using control charts comparing frequency before and after intervention.

### Impact:

CK testing remained stable in the year prior to intervention. At six months from the start of intervention, we measured a reduction in CK orders from about 3500 per month to about 1600 per month. The ratio of CK to troponin orders decreased from 0.86 to 0.37. Troponin testing remained stable during this time period. The reduction in CK testing extended to all hospital departments and sustained at one-year follow-up after intervention.

### Challenges:

Our initiative was generally well-received. In some instances, implementation required review of current evidence with healthcare staff including nurses and physicians. In some cases, updating institutional order-sets required individualized discussions and tailored compromises.

### Lessons Learned:

A substantial decrease in CK testing for cardiac injury can be achieved with a low-cost, multi-modal approach.



**CHOISIR  
AVEC SOIN**

## DÉPRESCRIPTION DES BIPHOSPHONATES CHEZ LES PATIENTS ÂGÉS

Marianne Lamarre, Centre d'excellence sur le vieillissement de Québec

### Contexte :

Bien que les biphosphonates aient démontré leur efficacité pour prévenir la résorption osseuse et les fractures liées à l'ostéoporose, ces molécules sont associées à certains effets secondaires importants, comme les fractures fémorales atypiques, l'ostéonécrose de la mâchoire et les ulcères œsophagiens. De plus, l'administration des formes orales doit se faire à distance des autres médicaments et des repas, ce qui complexifie le schéma pharmacologique déjà lourd des patients gériatriques.

Les études récentes sur les biphosphonates portent sur le concept de congé thérapeutique, en tentant d'estimer la durée idéale de suspension du médicament après laquelle une reprise du traitement semble nécessaire. Toutefois, rares sont les études qui portent sur l'arrêt définitif des biphosphonates chez la clientèle gériatrique pour laquelle une reprise de la médication n'est pas désirée.

Cette revue systématique de la littérature étudie l'impact de la déprescription des biphosphonates sur la santé et la qualité de vie des patients âgés de plus de 65 ans.

## **TDAH ET MÉDICAMENTS ASSOCIÉS : SURREPRÉSENTATION DES PLUS JEUNES ÉLÈVES DE LA CLASSE À CHACUNE DES ÉTAPES DU PROCESSUS DE MÉDICALISATION**

Marie-Christine Brault, Université du Québec à Chicoutimi

### **Contexte :**

Le diagnostic de Trouble du déficit de l'attention avec ou sans hyperactivité (TDAH) et les médicaments utilisés pour le traiter sont davantage présents chez les plus jeunes élèves de la classe, ceux nés juste avant la date butoir d'entrée à l'école, comparativement à leurs pairs nés après cette date. Ce phénomène, qui semble soutenir l'idée d'un surdiagnostic et d'une surprescription associés au TDAH, est confirmé par plusieurs méta-analyses et revues systématiques, en plus d'être observé dans diverses régions du monde. L'objectif de la présentation est de discuter de ce phénomène à la lueur des résultats d'une étude québécoise obtenus auprès d'un échantillon de 1304 élèves du primaire. Grâce à des informations provenant des parents, des enseignants et des professionnels de la santé, l'étude a permis d'étudier l'effet de l'âge relatif à plusieurs étapes du processus de médicalisation. Les résultats démontrent que les plus jeunes de la classe sont plus à risque d'être identifiés comme manifestant des comportements associés au TDAH à une fréquence plus élevée que la moyenne, d'être suspectés TDAH, puis d'être diagnostiqués et traités à l'aide de médicaments. Toutefois, ce ne sont pas tous les adultes qui contribuent de manière équivalente au phénomène. Il est important de comprendre les mécanismes à la base du phénomène afin de le réduire. La présentation discutera des implications cliniques et de la nécessité de développer la collaboration entre la santé, l'école et la famille.

## **LAISSER VOUS UN INCONNU ENTRER CHEZ VOUS SANS RAISON VALABLE ? LE DÉSIR DE DIMINUER LES INFECTIONS ET AUGMENTER L'EFFICIENCE ONT DÉCLENCHÉ LA CAMPAGNE SONDER AVANT DE POSER, À MONTFORT**

Josée Shymanski, Hôpital Montfort  
Sara Leblond, Hôpital Montfort

### **Contexte :**

Des audits démontraient que la majorité des patients arrivaient à l'unité de soins avec une sonde et la documentation était manquante/incomplète, le séjour des patients était plus long que recommandé, le taux de bactériémie associée aux soins était à la hausse et 26 % des bactériémies étaient de source urinaire.

Adoptant l'approche du modèle Sources/Actions/Portés, développé à Montfort pour l'implantation de campagnes de dé-prescriptions, l'équipe a collaboré avec les médecins afin d'atteindre un consensus, qui a fait ensuite l'objet d'un nouveau protocole de soins. Ensuite, l'équipe a offert des sessions d'éducation « lunch and learn », ainsi que des messages clés lors des cercles de qualité. Suivant ces interventions une vidéo de sensibilisation et des présentations ont été développées pour les sessions de rehaussement des soins infirmiers, des orientations générales des infirmiers, résidents et étudiants de médecine. De plus, des affiches ont été disposées à des endroits clés à l'urgence. Grâce aux outils BI, nous avons identifié que le taux d'utilisation de sonde à l'urgence a diminué de 18 %, de 2018 à 2019.

### **Leçons apprises :**

L'importance d'avoir des indicateurs dès le début pour démontrer le progrès, penser à la pérennité du projet à tout moment, inclure l'initiative dans plusieurs directions/programmes pour rejoindre un plus grand auditoire, connaître les initiatives corporatives/locales pour trouver le moment opportun à implanter et surtout avoir des champions sur chaque unité pour porter le flambeau.

## **FORMATION ET ÉVALUATION DES CONNAISSANCES DES ÉTUDIANTS DE TROISIÈME ANNÉE DE MÉDECINE SUR LES « TESTS INUTILES »**

Lyne Pitre, Hôpital Montfort  
Chantal Daoust Bernard, Hôpital Montfort  
Anne-Marie Friesen, Hôpital Montfort  
David Adjo, Hôpital Montfort

### **Objectif :**

Dans les CanMEDs, la gestion des ressources est une compétence que devrait développer un médecin. Les étudiants en médecine doivent donc être sensibilisés à l'aspect financier des soins. Ce projet a été réalisé dans un contexte d'éducation médicale à l'Hôpital Montfort d'Ottawa. Il visait à concevoir une formation portant sur « les tests inutiles » et vérifier l'effet de cette formation sur l'acquisition de connaissances des étudiants. Activités : une recension des écrits a été faite puis un module d'autoapprentissage (MAA) sur « les tests inutiles » a été conçu puis révisé par des experts. La formation a été offerte aux étudiants de troisième année suivant un modèle de classe inversé. Les connaissances des étudiants ont été évaluées grâce à un questionnaire auto administré pré et post test. La comparaison des scores moyens obtenue avant et après la formation a été effectuée grâce au logiciel d'analyse de données quantitatives SPSS. Retombés : la formation sur les principes de choisir avec soins augmente l'adhérence des étudiants. 48 étudiants donc 73% de femmes ont participé au projet. 76% avaient un âge compris entre 22-25 ans. Le score moyen obtenu par les étudiants avant la formation était de 9,7 sur 20 contre 11,7 après la formation. Les différences entre ces scores étaient statistiquement significatives ( $t : -3,45$  et  $p : 0,0013$ ). Leçons apprises : un outil (MAA) est prometteur pour entraîner les futurs cliniciens à incorporer les principes de choisir avec soins lors de la prise en charge des patients.



# **LA PRISE DE DÉCISION PARTAGÉE EN PREMIÈRE LIGNE POUR DIMINUER LA SURUTILISATION DES TESTS DIAGNOSTIQUES ET DES TRAITEMENTS**

France Légaré, Université Laval  
Simon Décary, Université Laval

## **Contexte :**

La prise de décision partagée (PDP) est un processus lors duquel un(e) clinicien(ne) et son/sa patient(e) prennent des décisions basées sur les meilleures données scientifiques et les valeurs et préférences des patients. La PDP est actuellement proposée comme solution pour aider à diminuer la problématique de surutilisation des tests et traitements en première ligne.

## **Cible :**

Explorer la PDP pour guider les discussions cliniques entourant la surutilisation des tests et des traitements.

## **Objectifs d'apprentissage :**

1. Définir les éléments essentiels de la PDP et des outils d'aide à la décision.
2. Acquérir des habiletés pour intégrer la PDP dans les discussions avec les patients et patientes.
3. Discuter des barrières et des facteurs pouvant favoriser le recours à la PDP.

## **Clientèle visée :**

Professionnels de la santé, patient-partenaires, gestionnaires et décideurs.

## **Organisation de l'atelier (75 minutes) :**

1. Introduction aux concepts de la PDP, les outils d'aide à la décision et l'impact potentiel sur la surutilisation.
2. Activité interactive et jeux de rôle en sous-groupe : Décision+, un outil d'aide à la décision pour diminuer la surutilisation des antibiotiques.
3. Discussion en grand groupe.

## **Impact :**

Cet atelier permettra aux participants de développer leurs habiletés en décision partagée dans des contextes cliniques de surutilisation.

# IMPACT DU PROJET PEPS EN SOINS DE LONGUE DURÉE

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Carolina Tisnado Garland, Université Laval  
Line Guénette, Université Laval  
Edeltraut Kröger, Université Laval  
Caroline Sirois, Université Laval

## Introduction :

La polymédication et les médicaments potentiellement inappropriés (MPI) sont fréquents en centre d'hébergement de soins de longue durée (CHSLD). Le Projet d'Évaluation de la Personnalisation des Soins (PEPS) en soins de longue durée a été introduit dans cette optique.

## Objectif :

Déterminer son impact sur la proportion d'individus consommant 10 médicaments et plus (polymédication excessive) et la probabilité de recevoir au moins un MPI selon les critères de Beers 2015.

## Méthode :

Nous avons mené une étude quasi expérimentale auprès des individus de 65 ans et plus de deux CHSLD exposés (359 lits) à PEPS et deux témoins (241 lits). Les données ont été collectées dans les dossiers pharmacologiques et les dossiers médicaux papier. Nous avons analysé les prescriptions actives à 0, 3, 6, 9 et 12 mois.

## Résultats :

En 12 mois, la proportion d'aînés recevant :

- une polymédication excessive est passée de 42% à 21% (exposés) et de 48% à 40% (témoins) (différence des différences  $p < 0.0001$ ).
- au moins un MPI régulier est passée de 62% à 47% (exposés) et de 68% à 60% (témoins) (différence des différences  $p < 0.3712$ ) et le nombre moyen passe de : 0.79 à 0.56 (exposé) et de 1.08 à 0.90 (témoin) ( $p = 0.0022$ ).
- au moins un antipsychotique potentiellement inapproprié régulier passe de: 30% à 17% (exposé) et de 32% à 28% (témoin) ( $p = 0.0852$ ).

Le nombre moyen de médicaments réguliers par individu passe de: 8.96 à 6.88 (exposé) et de 9.85 à 8.87 (témoin) ( $p < 0.0001$ ).

## Conclusion :

Comparé aux soins usuels, l'intervention PEPS diminue la polymédication et le nombre de MPI.