International Audit & Feedback MetaLab Meeting

AUDIT & FEEDBACK IN LEARNING HEALTH SYSTEMS

October 26-27, 2023
Toronto, Ontario, Canada

More details

Program Schedule
October 26, 2023
Health Systems Orientation

9:00 - 9:15 am	Welcome	Laura Desveaux
Keynote Presentation		
9:15 - 10:15 am	Integrating analytics, epidemiology and operational insights for real-word hospital impact	Shalu Bains Laura Rosella
10:15 - 10:45 am	**BREAK**	
Real-world Implementation Insights		
10:45 am - 12:30 pm	Designing an LHS-Informed and Theory-Guided Audit and Feedback Intervention to Improve Surgical Incident Reporting: A Qualitative Case Study	Rama Mwenesi Musalia
	Applying User Centered Design to Prescriber Feedback in Acute Outpatient Care Settings in the Veterans Health Administration	Michael Ward
	Evaluating Audit and Feedback Strategies to Reduce Antibiotic Prescribing in Primary Care: A Randomized Controlled Trial	Kevin Schwartz
	Obstacles and facilitators for Audit & Feedback implementation in General Practice and Emergency care: an experience from Lazio Region, Italy within the EASY NET project	Carmen Angioletti
	How can the national stroke audit in England drive quality improvement in the evolving post-acute setting?	Lal Russell

Program Schedule

October 26, 2023

Health Systems Orientation

12:30 - 1:30 pm	**LUNCH BREAK**	
Audit & Feedback in Learning Health Systems		
1:30 - 3:00 pm	The evolution, impacts and challenges of a primary care implementation laboratory	Robbie Foy
	ANDA-Evaluating Facilitated Feedback Enhancement - a Cluster randomised Trial (ANDA-EFFECT)	Matthew Quigley
	How do teams tailor improvements in diabetes care: Preliminary findings from a Process Evaluation study	Elaine O'Halloran
	Audits and feedback across sectors: transferring experience from Health to education in Middle Africa	Rigobert Pambe
3:00 - 3:30 pm	**BREAK**	
3:30 - 4:30 pm	Building implementation labs into healthcare systems – what has to be true for this to work.	Jane London

Program Schedule

October 27, 2023

Science Orientation

Keynote Presentations		
9:00 - 10:30 am	Precision feedback in learning health systems	Zach Landis-Lewis
	GEMINI: Harnessing hospital data to improve care	Fahad Razak Surain Roberts
10:30 - 11:00 am	**BREAK**	

Insights for Audit & Feedback Design		
11:00 - 12:30 pm	Comparing paper Letters in addition to Emailed Audit and feedback in Refining Asthma treatment to Improve clinical and environmental Results in primary care: The CLEAR AIR study	Sarah Alderson
	How to design effective audit and feedback interventions with nurses? A set of hypotheses based on qualitative and quantitative evidence	Emilie Dufour
	Repurposing the Ordering of Routine Laboratory Tests in Hospitalised Medical Patients (RePORT): results of a cluster randomised stepped-wedge quality improvement study	Douglas Woodhouse Anshula Ambasta
	Exploring the components of feedback facilitation co-interventions: A systematic review	Michael Sykes

Program Schedule
October 27, 2023
Science Orientation

12:30 - 1:30 pm	**LUNCH BREAK**	
Advancing the Science		
1:30 - 3:00 pm	Claims-based Audit & Feedback, development of indicators & acceptance by physicians	Vera de Weerdt
	Fielding feedback: Getting feedback to intended recipients	Anne Sales
	Examining how Audit & Feedback trials describe sustainability, spread, and scale: a theory informed, qualitative, secondary analysis of a systematic review	Celia Laur
	Evaluating the effectiveness of a multifaceted intervention to reduce low-value care in adults hospitalised following trauma	Lynne Moore
3:00 - 3:30 pm	**BREAK**	
Panel Presentation		
3:30 - 4:30 pm	A Learning Health System Agenda: International Health System Challenges Aligned with Audit and Feedback	Sylvia Hysong Jane London Sacha Bhatia Robbie Foy

Speakers

Sarah Alderson

Dr Sarah Alderson is an Associate professor in primary care at the University of Leeds and general practitioner. She leads UK regional primary care A&F interventions on topics of high clinical priority and the development of a regional learning health system to improve the effectiveness of feedback. Her research interests include harnessing routine primary care data in interventions to change professional behaviour (typically feedback) and optimising intervention designs and evaluations, particularly the development of sequential multiple assignment randomised trials to develop adaptive implementation interventions

Anshula Ambasta

Dr. Anshula Ambasta is a clinician-scientist who works as an Assistant Professor at the University of British Columbia and Therapeutics Initiative. Her clinical work in general internal medicine includes acute inpatient care on clinical teaching units. Her ongoing research projects include implementation of a multi-modal intervention bundle to reduce low-value laboratory testing across hospitals in Alberta and British Columbia, collaboration with a patient and family advisory council to engage patients with reduction of low-value use of health care resources and description of linkages between low value use of diagnostic testing and therapeutic use in healthcare systems. Her research work in low-value laboratory testing has been funded by Choosing Wisely Alberta, Canadian Society of Internal Medicine, Alberta Health Services, and Canadian Institutes of Health Research.

Carmen Angioletti

Carmen Angioletti, degree in Health Economics, PhD candidate in Health Science, Technology and Management at Scuola Superiore Sant'Anna, Italy. Since January 2023 consultant in Implementation Science and Healthcare at IQVIA. During the previous five years she held the position of senior process analyst at the Department of Clinical Pathways and Outcomes Assessment at Policlinico Gemelli and lecturer in " Healthcare Organisation and Planning" at the Faculty of Economics of the Università Cattolica del Sacro Cuore, Rome branch. From January 2019 to July 2023, she was part of the research staff of the EASY-NET (Effectiveness of Audit & Feedback strategies to improve healthcare practice and equity in various clinical and organisational settings) network programme funded by the Italian Ministry of Health (NET-2016-02364191)

Speakers

Shalu Bains

Shalu is the Chief Information and Analytics Officer at Trillium Health Partners and in this role is accountable for advancing THP's plan for digital and technology transformation to support patient care delivery, partnerships and to shape the future of care in the Mississauga and West Toronto community. Shalu is responsible for the Information Services and Performance and Business Intelligence Divisions.

Shalu joined THP in 2010 prior to the merger of Credit Valley Hospital and Trillium Health Centre, and has held a variety of progressive leadership roles across the organization. She has a wealth of experience both in hospital and provincial health system performance and advanced analytics. Shalu has a track record of leading technical teams to provide strategic insights focused on improving access, quality and sustainability of health care services for patients, population health and for the diverse community she serves and lives in.

Shalu holds a Master Certificate in Analytics for Leaders, a Master in Health Administration and is a Certified Health Executive with the Canadian College of Health Leaders.

Sacha Bhatia

Before joining Ontario Health, Sacha was Chief Medical Innovation Officer and Interim Executive Lead of Academics at Women's College Hospital (WCH), as well as the F. M. Hill Chair in Health Systems Solutions and the Division Head of Cardiology. He is also a staff cardiologist at University Health Network, a scientist at the Institute for Clinical Evaluative Sciences, and an Associate Professor at the University of Toronto. In 2013, Sacha co-founded the WCH Institute for Health System Solutions and Virtual Care, where he served as Director until 2019. He has published more than 140 peer-reviewed papers in prestigious international journals, including the New England Journal of Medicine, the Journal of the American Medical Association, and the British Medical Journal.

Emilie Dufour

Emilie is a registered nurse from Quebec and is currently completing a postdoctoral fellowship in the Department of Family Medicine at Dalhousie University. As part of her doctoral research at Université de Montréal, Emilie worked on the design and implementation of team-based audit and feedback interventions with primary care nurses.

Speakers

Robbie Foy

Robbie Foy is Professor of Primary Care at the Leeds Institute of Health Sciences and a family physician in Leeds, UK. He has led and collaborated in a number of major national and regional studies evaluating ways of improving the impact of clinical audit and feedback, working across both primary and specialist care. He is also the world's slowest runner, an unimaginative chess player, and owner of a neurotic pooch.

Jeremy Grimshaw

Dr Jeremy Grimshaw received a MBChB from the University of Edinburgh and trained as a general practitioner prior to undertaking a PhD in health services research at the University of Aberdeen. His research focuses on the evaluation of interventions to disseminate and implement evidence-based practice. Dr. Grimshaw is a Senior Scientist, Clinical Epidemiology Program, Ottawa Hospital Research Institute, and a Full Professor in the Department of Medicine, University of Ottawa.

Zach Landis-Lewis

Zach Landis-Lewis, PhD, MLIS, is an Assistant Professor in the Department of Learning Health Sciences in the University of Michigan Medical School. He leads the DISPLAY Lab, which studies feedback interventions for learning and improvement in health systems. With expertise in health informatics, implementation science, and human-computer interaction, his research focuses on precision feedback as the prioritization of motivating performance information using the preferences of a feedback recipient. His work as Principal Investigator has been funded by the National Institutes of Health, National Library of Medicine. Zach teaches a course on knowledge representation and management to graduate students. His research incorporates a global health focus, addressing representation of computer-interpretable clinical practice guidelines in low-income countries for the purpose of quality improvement and implementation of evidence-based practice. He received a PhD in Biomedical Informatics and Master of Library and Information Science from the University of Pittsburgh.

Speakers

Celia Laur

Celia Laur, PhD, works at the intersection of research and practice. She is Scientific Lead of the Office of Spread and Scale at Women's College Hospital Institute for Health System Solutions and Virtual Care (WIHV), and Assistant Professor (Status) at the University of Toronto, Institute of Health Policy, Management and Evaluation. In these roles she works to advance and apply implementation science, focusing on how to sustain, spread and scale effective interventions.

Jane London

Jane London is not a researcher, but she is incredibly interested in what makes things work. Jane has over 20 years' experience in guideline development and delivering complex multi-faceted behaviour change programs in healthcare. She is experienced in designing and delivering focused change programs to both clinicians and healthcare consumers in over 17 therapeutic areas. Having previously held senior positions at the Royal Australian College of GPs, Royal Australian and New Zealand College of Psychiatrists and NPS MedicineWise, Jane understands the real world barriers faced by different players in the health system when trying to create sustained change.

Lynne Moore

Lynne Moore is full professor of epidemiology and biostatistics at the department of social and preventative medicine, Laval University in Québec City. She is recipient of a FRQ distinguished research Scholar award, holds or shares over 10.1$m in research grants, and has published 150 peer-reviewed papers over her research career. Her research program targets improvements in the quality of acute injury care. She currently leads the Canadian Program for Monitoring Overuse in Injury Care aiming to develop and evaluate the effectiveness of an audit & feedback module targeting the de-adoption of low-value clinical practices in injury care.

Speakers

Rama Mwensi Musalia

Dr. Rama Mwenesi Musalia is a health systems engineer and implementation scientist at Michigan Medicine, and an Assistant Professor of Learning Health Sciences at the University of Michigan Medical School. Prior to academia, Dr. Musalia was responsible for leading the development and management of Michigan Medicine's Perioperative Services Learning Health Systems infrastructure designed to continuously improve perioperative care delivery quality and patient-safety.
His current research is focused on designing and testing implementation science strategies such as audit & feedback to improve clinician engagement in patient safety, and more specifically in 'never-event' incident reporting.
Dr. Musalia is a core investigator for the Michigan Implementation Science Network, and member of the UM Institute for Healthcare Policy & Innovation.

Elaine O'Halloran

Elaine works within the Dept. of Nursing, Midwifery & Health at Northumbria University as a Senior Research Assistant on the EQUIPD study. This study will evaluate quality improvement collaboratives aligned to a national audit of diabetes care, to improve the uptake of insulin pumps for people with diabetes in England and Wales.
Elaine qualified with a BA (Hons) in Applied Psychology from University College Cork (UCC), Ireland in 2005. She then completed an MA in Forensic Psychology at UCC in 2008 and subsequently graduated with an MSc in Health Psychology from the University of Galway, Ireland in 2021.
Prior to joining Northumbria University, Elaine worked in a variety of roles within the health and social care sector, including in disability, autism, and mental health services as well as in teaching and training. Elaine has a keen interest in health psychology and research on health behaviour change and implementation.

Speakers

Rigobert Pambe

Rigobert Pambe is a researcher and a TVET teacher with a decade experience in evidence generation, implementation, translation and dissemination in the field of education in sub-Saharan Africa. Strong advocate or evidence informed decision making, he believes in a future where African leaders make decisions based on evidence produced by researchers who understand our environmental settings. Maiden global fellow for Africa, some of his work include developing a toolkit for teaching and learning which is an up to date overview of thousands of educational research synthesized into 27 easy to read summaries with specific recommendations for teachers (https://ebaselearning.org/teaching-learning-toolkit). A social entrepreneur with experience in working with youths in low- and middle-income countries and providing advisory services to decision makers and school boards, his current role as a program manager at eBASE Africa consist of mobilizing educational evidence using audits and feedback in 4 countries of the lac Chad basin which are Cameroon, Niger, Nigeria and Chad. This involves interaction with a wide range of stakeholders including decision makers, teachers, parents and students.

Matthew Quigley

Dr Matthew Quigley trained in clinical Prosthetics and Orthotics before working in research related to functional and quality of life outcomes for people living with limb loss, many of whom also live with diabetes. He recently completed a PhD with the Australian National Diabetes Audit (ANDA), focused on making changes to feedback provided to Australian diabetes centres.
Matt lives in Melbourne, Australia, where he works with the Australian Living Evidence Consortium on projects including the Living Guidelines for Diabetes and the Living Evidence for Australian Pregnancy and Postnatal care (LEAPP) Guidelines.

Speakers

Fahad Razak

Dr Fahad Razak is an internist at St Michael's Hospital (Unity Health Toronto), Senior Fellow at Massey College, and Associate Professor and Canada Research Chair in Healthcare Data and Analytics at the University of Toronto. His research focuses on improving the care of hospitalized patients through application of advanced analytic methods to hospital big data. He co-founded GEMINI, the largest hospital research network in Canada, and one of few such examples globally. He has published over 100 peer reviewed articles (h index 34) and received > $65 million in competitive grant funding as a Principal Investigator.
Dr Razak completed a degree in Engineering Science and Medical Doctorate at the University of Toronto. He was the first physician to be appointed the David E. Bell Fellow at Harvard University and was the prior Scientific Director of the Ontario COVID-19 Science Advisory Table

Surain Roberts

Surain Roberts is a health outcomes researcher and applied biostatistician focused on methodological rigor in clinical and health services research. He is the Scientific Lead of GEMINI, where his research is focused on using electronic clinical data to improve hospital care. He is the methods lead for GeMQIN, an Ontario Health program using GEMINI data to design and disseminate clinical practice reports to ~600 physicians and 25 hospitals in Ontario.
Surain completed his PhD at the University of Toronto, where he co-led the creation of a pan-Canadian registry for patients with rare autoimmune liver disease (CaNAL). His research with CaNAL focuses on prognostication, ethnicity, and evaluation of new therapies in patients with autoimmune liver disease.

Speakers

Laura Rosella

Laura Rosella, PhD a Professor in the Dalla Lana School of Public Health at the University of Toronto, where she holds the Canada Research Chair in Population Health Analytics and the Stephen Family Research Chair in Community Health at the Institute for Better Health, Trillium Health Partners. She is a member of the Royal Society of Canada's (RSC) College of New Scholars, the Education Lead for the Temerty Centre for Artificial Intelligence Research and Education in Medicine (T-CAIREM), and the Associate Director of Education and Training at the University of Toronto's Data Science Initiative (DSI). Her additional scientific appointments include being a Faculty Affiliate at the Vector Institute and the Schwartz Reisman Institute and Site Director for ICES UofT. Her research covers population health and health equity, data science, predictive models to support public health planning, knowledge translation and evaluation, and population health management. She has authored over 250 peer-reviewed publications in epidemiology, population health and health services research. Notably, Dr. Rosella was awarded the Brian MacMahon Early Career Epidemiology Award by the Society for Epidemiologic Research and was named one of Canada's Top 40 Under 40.

Lal Russell

Lal is a stroke Physiotherapist and final year THIS Institute PhD Fellow at University of Nottingham, England (https://bit.ly/THISLalRussell). She continues to work clinically in stroke rehabilitation at Nottingham University Hospital's NHS Trust. Her area of clinical interest is the rehabilitation of complex disability as result of neurological impairment. She has used clinical audit to develop services for stroke survivors with severe disability in the post-acute setting. Lal is joint PI on the National Institute for Health and Care Research (NIHR) funded Home-based Rehabilitation for survivors of Stroke with Severe disability (HoRSSe) study, exploring the rehabilitation of stroke survivors with severe disability after they leave hospital (https://bit.ly/StrokeHoRSSe). Lal has contributed to the recent revision of National Clinical Guideline for Stroke (UK and Ireland). Her PhD explores the role of the Sentinel Stroke National Audit Programme (SSNAP) in driving quality improvement in the rehabilitation of stroke survivors in the post-acute setting (https://www.strokeaudit.org/).

Speakers

Anne Sales

Anne Sales is a nurse and Professor in the Sinclair School of Nursing and the Department of Family and Community Medicine in the School of Medicine at the University of Missouri (Columbia), and she is the Associate Dean for Implementation Research and Health Delivery Effectiveness in the School of Medicine. She is also a Research Scientist at the Center for Clinical Management Research at the VA Ann Arbor Healthcare System.

Her training is in nursing, sociology, health economics, econometrics, and general health services research. Her work involves theory-based design of implementation interventions, including understanding how feedback reports affect provider behavior and through behavior change have an impact on patient outcomes; the role of social networks in implementation interventions; and effective implementation methods using electronic health records and digital interventions. She has completed over 40 funded research projects, many focused on implementation research. She is a founding co-Editor-in-Chief of Implementation Science Communications.

Kevin Schwartz

Dr. Kevin Schwartz, MD MSc FRCPC, is the division head for infectious diseases at St. Joseph's Health Centre in Toronto and co-medical director for antimicrobial stewardship at Unity Health Toronto. He is an academic infection control and antimicrobial stewardship physician at Public Health Ontario, an assistant professor at the Dalla Lana School of Public Health at the University of Toronto, and an adjunct scientist at ICES. His clinical area of interest is adult and pediatric infectious diseases and tropical medicine. His research interests include vaccine preventable diseases and antimicrobial stewardship with a particular focus on improving community antibiotic use to slow the emergence of drug resistant infections.

Speakers

Michael Sykes

Michael is a nurse with experience of leading improvements across health sectors in NHS England and Scotland. He is currently the Quality Improvement Lead for the English and Welsh National Audit of Diabetes. His NIHR Doctoral Research Fellowship used co-design and multi-methods qualitative work to describe and enhance audit and feedback in hospital dementia care. Subsequent work explored the feasibility of the co-designed intervention, a Quality Improvement Collaborative. He undertook a multi-site study to translate, and test the feasibility of, the intervention to the Irish National Audit of Dementia. He is Chief Investigator on a qualitative, co-design study to describe and enhance the use of a performance dashboard for hip and knee surgery. He also co-leads the NIHR-funded EQUIPD trial, process and economic evaluation, investigating the effectiveness of a Quality Improvement Collaborative aligned to the National Diabetes Audit.

Michael Ward

Michael Ward, MD, PhD, MBA (he/him/his) is Associate Professor of Emergency Medicine and Biomedical Informatics at Vanderbilt University Medical Center and a staff emergency physician at the VA Tennessee Valley Healthcare System, Nashville. He is the Research Director, Division of Emergency Medicine Research and the Co-Site Director of the VA Chief Resident in Quality and Safety program and is the Chair of the Emergency Medicine Foundation Scientific Review Committee. He completed his residency emergency medicine and an operations research fellowship along with a PhD in operations management at the University of Cincinnati. He is a prior NIH/NHLBI K12 scholar and career development award recipient. His research is funded by the NIH and the Department of Veterans Affairs and is focused on healthcare delivery science. His mixed methods research program involves the development, implementation, and evaluation of systems-oriented interventions in acute, unscheduled care settings such as the emergency department, urgent care, and unscheduled primary care settings and draws on operations research, implementation science, qualitative methods, and informatics.

Speakers

Vera de Weerdt

Vera de Weerdt is a PhD candidate in Health Economics at the Amsterdam Medical Centre & Vrije Universiteit Amsterdam in the Netherlands. She is an MD by background and has a MSc in Business Administration. Her research focusses on how policy interventions, such as Audit & Feedback, can de designed to stimulate Appropriate Care.

Douglas Woodhouse

Douglas Woodhouse is a physician-engineer who has worked with healthcare teams across Europe and North America to improve their clinical processes. He has an interest in applying tools and techniques from industry to improve safety and efficiency in healthcare.
Douglas has a degree in Mechanical Engineering and experience as a process engineer in electronics manufacturing. Douglas obtained his medical degree at Queen's University and completed his training as a Family Physician at the University of Alberta. He has worked as a hospitalist, emergency physician and in primary care.
Douglas is a Clinical Assistant Professor at the University of Calgary and is the Managing Medical Director of the Alberta Physician Learning Program at the University of Calgary, supporting clinicians with data-driven process improvement projects that improve outcomes for their patients.

Abstracts

October 26, 2023

Health Systems Orientation

Keynote Presentation

Integrating analytics, epidemiology and operational insights for real-word hospital impact
Presenters: Dr. Laura Rosella and Shalu Bains

There is a clear need for epidemiological and analytics expertise to solve operational problems in the hospital. This was brought to the forefront during COVID-19, when there was the wide availability of public health data and several models created; however, these data and analytic outputs did not provide the insights needed to inform action in the hospital for critical operational decisions in real-time. Furthermore, in many hospital settings, there is a disconnect between complex analytics and models that were academically interesting yet disconnected from operational reality, which limited the ability for real-world impact. We present a use case where we overcame this disconnect in Canada's largest volume hospital. This presentation brings unique perspectives from both the research and operational side to describe the necessary building blocks to integrate diverse data sources, epidemiology, data and operational domains to solve pressing hospital issues. We will reflect on our COVID-19 experience as a case study where learnings can be adapted for other pressing health systems and population health issues. The session will include an interactive discussion and a scalable approach that addresses the structures and processes needed to enable population health analytics to achieve maximal impact for health systems.

Real-world Implementation Insights

Designing an LHS-Informed and Theory-Guided Audit and Feedback Intervention to Improve Surgical Incident Reporting: A Qualitative Case Study

Presenter: Rama Mwenesi Musalia

Background: Patient safety errors are often underreported, with national rates as high as 86-95%. To address this issue, audit and feedback (A&F) is recommended as a key strategy to reduce underreporting and promote clinician engagement. However, existing A&F interventions lack theoretical guidance and evidence on how they improve reporting, particularly in surgical learning health systems (LHS). This study aimed to design an LHS-informed and theory-guided A&F intervention with specific mechanisms of action to enhance incident reporting practices among surgical staff. The focus was on surgical count-related errors, (defined as unintentionally retained surgical items and their near-misses) as they represent the top patient safety concern for perioperative nurses at U.S. academic medical centers.

Methods: This qualitative case study took place at a single U.S. academic medical center and was guided by the Clinical Performance Feedback Intervention Theory (CP-FIT) which suggests that the effectiveness of A&F is influenced by recipient characteristics, contextual factors, and the feedback process itself. We used data from a previous assessment of implementation determinants and explored the LHS infrastructure for surgical incident reporting to identify recipient and context-related factors. Semi-structured interviews were conducted with 20 purposively sampled perioperative nurses (RNs) responsible for reporting surgical count-related errors. These interviews identified the remaining feedback process variables. Two focus group discussions were held to refine the A&F strategy and describe its mechanisms of action. All interviews and discussions were transcribed verbatim, and thematic analysis was conducted until saturation was achieved. Findings were validated through member checking with a representative stakeholder reference group.

Results: We designed an LHS-informed and theory-guided A&F strategy with specific mechanisms of action to improve incident reporting among perioperative nurses. The strategy's context and feedback variables were perceived to have the greatest influence on successful feedback cycles among RNs, while recipient characteristics had a lesser impact. Key mechanisms of action for the proposed strategy included "compatibility" with organizational beliefs, systems, and processes; leveraging "social influence" among providers to induce behavioral change; "resource matching" to the organization and providers' capacity to engage with feedback; and "actionability" through direct facilitation of problem-solving behaviors.

Conclusion: By applying LHS approaches and the CP-FIT, we developed an implementable feedback intervention that may enhance surgical count error reporting among perioperative nurses. Future research will focus on prototyping, implementing, and evaluating the effectiveness of this strategy in improving reporting behavior and advancing surgical patient safety.

Applying User Centered Design to Prescriber Feedback in Acute Outpatient Care Settings in the Veterans Health Administration

Presenter: Michael Ward

Introduction: Harm from prescriptions written for patients with contraindications to their use is common and preventable; nearly one-third of all antibiotic and nonsteroidal anti-inflammatory drug (NSAID) prescriptions in outpatient care settings are potentially inappropriate and contribute to adverse drug events. Audit and feedback is a promising and effective intervention to change clinician behavior. However, adoption can be challenging to scale and failure to place the user (i.e., clinician) at the center of the design contributes to underuse, workarounds, and unintended consequences. We focused on user needs to determine workflow integration and visualization needs to develop a tool for clinicians to quickly and easily view and better understand their prescribing practice to improve adherence to guideline concordant care.

Methods: In this study, we employed a user-centered design framework, a four-phase, iterative approach to prototype development that starts with understanding user needs (Phase 1) and requirements (Phase 2), which then progresses to formative (Phase 3) and summative (Phase 4) evaluation through an iterative process of increasingly higher fidelity prototypes. We developed and refined a clinician prescribing feedback system, entitled "CRAFT" (Care Review, Assessment, and Feedback Tool), for acute outpatient clinicians in the Veteran's Health Administration in the Tennessee Valley Healthcare System in Middle Tennessee.

   We developed a low-fidelity prototype (PowerPoint slide) using input from the research team and ED clinical champions. This initial prototype used hypothetical data that aggregated overall clinician performance such as appropriateness of prescribing and "notable events" including return visits and adverse drug events. In addition to aggregated data, we provided patient-level detail for each prescription.

   To better understand the user needs and requirements for CRAFT, we conducted 25 interviews with physicians, advanced practice providers, and pharmacists, and asked about their prescribing practices and response to the low-fidelity prototype. From these data, we further iterated the prototype, addressing usability, data visualization, and information prioritization concerns. We then conducted four 60-minute design sessions with clinicians, developers, and biostatisticians to create an interactive prototype that contained derived but realistic data verified by clinicians. Prototypes were updated between sessions. Once the prototype was deemed complete by the study team and ready to be evaluated by potential users, we progressed to individual usability evaluation sessions.

   Six ED physicians completed individual 60-minute virtual usability evaluation sessions where the clinicians interacted with the prototype using one of two counterbalanced scenarios based on performance by drug class: Scenario One showed the clinician good antibiotic and poor NSAID performance and Scenario Two showed poor antibiotic and good NSAID performance. During the sessions, clinicians were asked to "talk aloud" about what they were seeing and expected to see. At the conclusion of these sessions, key issues were brought back to the team along with recommendations for changes. The team then iterated design recommendations and a refined prototype was created. This prototype was then evaluated by five physicians using the same procedure as discussed above.

Continued - Applying User Centered Design to Prescriber Feedback in Acute Outpatient Care Settings in the Veterans Health Administration

Presenter: Michael Ward

Results: Overall, there were six themes represented from the interviews including: usability, clarity and unintended consequences of language, actionability, comparators, and features. Participants expressed that they were busy and inundated with information, and there was a need for communicating key information efficiently. Respondent input identified that overall organization seemed to be disconnected and that there was too much information to digest on the welcome page.
 This initial round of usability testing also saw participants have issues and recommendations around wording and labeling, peer comparison, and navigation. Participants questioned the use of the labels "notable events" and "eligible prescriptions" as they seemed vague even after reading the detail available in the information icon. They also expressed concern over the negative connotation of the word "inappropriate," and the need to clearly define the guidelines and appropriateness assessments. Physicians questioned the use of peer comparison and how it might influence behavior, especially if it was below the clinician reported performance. There were usability issues associated with simplifying ways to navigate from the aggregated clinician data to detailed patient information in the most efficient way possible.
 With these results, we refined the prototype, also added a visualization of all eligible prescriptions that was used in a second round of usability testing. Continued usability testing identified that respondents did not understand why some prescriptions were inconsistent with recommendations and how to act accordingly. They also noted that rather than a peer or historical comparison with their own performance, they preferred an alternative form of comparison. Further, the visualization of "nonevent prescriptions" did not contribute much and their primary interest involved the prescriptions with either an unexpected return visit or an adverse event. This resulted in the final prototype that was used to build the user interface in a pilot implementation of CRAFT.

Discussion and Conclusions: Overall, participants saw value in the tool's concept and indicated that they would likely use it, but had important optimizations, clarifications, and changes they noted during the user-centered design process that underscored the importance of this type of visualization and workflow integration evaluation.
Importantly, the usability evaluation results revealed that substantial changes were needed to address navigation issues, to clarify language and connection to guidelines, and finally to provide a simplified message that clinicians could easily understand and act upon. We hypothesize that this will improve usability and acceptance by clinicians, and ongoing usability testing in the summative evaluation (Phase 4) that will be conducted following the pilot implementation of CRAFT and prior to a randomized trial in the VA health system.

Evaluating Audit and Feedback Strategies to Reduce Antibiotic Prescribing in Primary Care: A Randomized Controlled Trial

Presenter: Kevin Schwartz

Background: An estimated 25-50% of antibiotic prescriptions in primary care are unnecessary.

Aims: Primary: To evaluate if providing family physicians with audit and feedback (A&F) on antibiotic prescribing compared to their peers reduces antibiotic use.
Secondary: To evaluate if adjusting for case-mix in feedback reports is superior to providing unadjusted data, and whether emphasizing antibiotic-associated harms improves impact.

Methods: We performed a pragmatic physician randomized controlled trial (4:1 allocation) of an A&F mailed letter to family physicians compared to no letter in Ontario, Canada. We embedded within the intervention arm a 2x2 factorial trial evaluating i) case-mix adjusted comparators versus unadjusted, and ii) emphasis, or not, on harms of antibiotics. Eligible physicians who did not opt out received a mailed letter in January 2022 with peer comparison antibiotic A&F of patients aged ≥65 years. The primary outcome was antibiotic prescribing rate (APR) per 1,000 patient visits at 6 months using Poisson regression models.

Results: 5,097 physicians were included and 4,076 received a letter. At 6 months, APR was 59.95 in the control arm and 56.43 in the intervention arm (relative rate 0.95 (95%CI,0.94-0.96). The intervention was most impactful on younger physicians and those with baseline high prescribing. No significant incremental reduction was seen for adjusted case-mix data or harms messaging.

Discussion: Peer comparison A&F letters significantly reduced overall antibiotic prescribing with no additional benefit through case-mix adjustment or harms messaging. A&F is an effective intervention for antimicrobial stewardship in primary care with further studies needed to optimize its impact.

Obstacles and facilitators for Audit & Feedback implementation in General Practice and Emergency care: an experience from Lazio Region, Italy within the EASY NET project

Presenter: Carmen Angioletti

*To accommodate the schedule, this presentation is a combination of the two following abstracts

Planning Audit and Feedback interventions in health care organizations. An account from an Italian national program for Audit and Feedback implementation

Background & Objective: Audit & Feedback (A&F) consist of multidimensional quality improvement activities. The optimal design is still unknown. In 2019 the Italian Ministry of Health launched a research program EASY-NET, aimed at exploring the worth of A&F interventions, with participating seven regions conducting projects applying A&F initiatives in different settings. Aim of this work is to outline how interventions were designed at an early stage, to explore the extent to which current recommendations on desirable characteristics of an "ideal" A&F procedure are adopted.

Methods: Information on the A&F interventions design were collected through a form and administered to project leaders. It consisted of six sections dealing with the following items: description of the working group; targeted clinical behaviors; selected indicators and sources; feedback procedures to be adopted; actions expected from the target health workers.
Information gathered through the template was then classified into four main topics (nature of the desired action, type of data available for feedback, feedback display and feedback delivery), in line with the categorisation used by Brehaut et al. 2016.

Results:
Nature of the desired action
A&F procedure were often aimed at changing a narrow focused, identifiable clinical behavior. Moreover, the type of actions that intervention designers expected seems to be generic. All the projects identified clinicians as the recipients of the information. Managers and other professionals with organizational responsibilities were explicitly considered in 8 projects.
Nature of the data available for feedback
An average of 27 indicators were planned to be developed from administrative databases, sometimes integrated by ad hoc data collection. Outcome measures were included in 5 projects. Comparators were identified as reference standards drawn from the scientific literature or from different territorial realities. The provision of feedback was scheduled semi-annually, annually, every 3 months, on demand.
Feedback display and delivery
 All the feedback allow access to aggregated data that can be displayed through graphs and tables. Sending options were: web platforms, e-mails, workshops and individual meetings. The use of economic incentives to encourage clinicians' participation was mentioned.

Conclusion: At least at an early stage, the projects were mostly intended as "wide focused" to generally improve the quality of care. However, changes in the design and delivery of A&F were introduced during the implementation of the projects, which are still ongoing, to consider suggestions from experts. Results will offer interesting insights on effectiveness of A&F strategies in Italy and their adherence to current best practice.

Real-world Implementation Insights

Obstacles and facilitators for Audit & Feedback implementation in General Practice and Emergency care: an experience from Lazio Region, Italy within the EASY NET project

Presenter: Carmen Angioletti

*To accommodate the schedule, this presentation is a combination of the two following abstracts

Obstacles and facilitators for Audit&Feedback strategies in General Practice: an experience from Rome, Italy

Introduction: We know that Audit & Feedback is an effective and widely used strategies for healthcare quality improvement, but its effectiveness is heterogeneous suggesting the need of performing studies aimed at understanding the ways to increase A&F effectiveness. Within an Italian research program called EASY-NET (project-code NET-2016-02364191), researchers from the Lazio Region (Work Package 1) is experimenting an A&F intervention involving mainly General Practitioners for improving healthcare quality for patients affected by COPD and diabetes mellitus type II.
The intervention was delivered during the year 2022 within an education & training course involving GP as "trainees", a selected group of these GPs as "tutors", and health management physicians of the Local Health District (LHD) as "representatives". The intervention was articulated in frontal lectures, and practical work in small groups. Regarding the feedback, each GP collected data about his/her own practice through the professional practice management software, then the representative and tutor figures calculated selected indicators and fed-back results to GPs during in-person meeting.

Objective: The aim of the present qualitative study was to explore facilitating factors and obstacles encountered during the implementation of the described A&F strategy.

Methods: We organized a series of focus groups (FG) including all the professionals participating to the intervention. Separate FG were planned for each type of professionals with the same role, for a total of four FGs. Eight to twelve participants were expected for each FG. We prepared the protocol according to a phenomenological framework and drafted the questions to guide the discussion. FGs were audio recorded. The consent to be audio-recorded and to personnel data treatment were collected before the start of each FG along with anonymous information about demographic and professional characteristics of the participants. FGs were then transcribed, and encoded by two researchers, independently. We firstly identified single comments and then grouped them in categories and major teams.

Preliminary results: At this time, we conducted the first FG involving seven out of 10 invited facilitators. The FG lasted 90 minutes. Preliminary results suggested that giving to GPs knowledge pills about Audit & feedback characteristics (instead of lectures), reducing the number of meetings, reducing the amount of time to spend, having the opportunity to discuss results also with other professionals (i.e. specialists, feedback providers, health managers) emerged as example of facilitating factors.
Here we described some preliminary results that could be consolidated and expanded during the further FG that will involve participating GPs.

How can the national stroke audit in England drive quality improvement in the evolving post-acute setting?

Presenter: Lal Russell

Background: The Sentinel Stroke National Audit Programme (SSNAP) began in 2013 and collects a clinical dataset for stroke patients in England, Wales and Northern Ireland (85,000 patients annually). SSNAP has historically focused on hospital-based care and evidence suggests the audit has been successful in driving improvements.

The audit has more recently expanded to include post-acute (community) services and the impact in this setting has yet to be established. Challenges exist in collecting national data beyond the hospital setting as community services are diverse and evolving with variations in models of commissioning and service delivery. Key questions have been raised as to how best capture multidisciplinary activity and how this relates to patient outcomes.

This study explores how the audit is perceived by post-acute stakeholders and what factors influence its success in driving quality improvement in this evolving context.

Methods: This study comprises two sequential phases. Phase one was an online mixed-methods survey. Findings from phase one shaped the exploration of the in-depth interviews in the second phase. Participants were employees who worked in, commissioned or managed community stroke rehabilitation in England.

Results: Phase one achieved a national sample of stakeholders, with representation from administration, clinical, leadership and commissioning (n=206). Participants described using SSNAP to support a range of improvement activities, including funding additional staff, resources and service reorganisation. However, several challenges were identified that were explored in-depth in phase two.

Phase two interview participants included administrators, clinicians, service leaders and commissioners (n=20). Interviews highlighted several contextual features that influence the ability of the audit to drive quality improvement in this setting. These include the organisational culture, the format of the report, communication across the pathway and stakeholder perceptions of the data they submit.

Conclusion: Stakeholders are actively engaged with the post-acute audit and describe committing significant efforts to support participation. Despite the challenges highlighted, SSNAP feedback is used to inform quality improvements and service developments in this evolving healthcare landscape. Key messages from this study include the importance of organisational support for teams to engage with the audit cycle beyond data collection alone. Efforts are required from rehabilitation teams, healthcare organisations and SSNAP in order to realise the potential of national clinical audit as a tool for quality improvement in the post-acute setting.

Audit & Feedback in Learning Health Systems

The evolution, impacts and challenges of a primary care implementation laboratory

Presenter: Robbie Foy

Background: Primary care is responsible for most prescribing in the UK National Health Service (NHS), with well-recognised inappropriate variations in prescribing. Our partnership of researchers and primary care commissioners has responded to this problem with a rolling programme of research and quality improvement for over a decade. We first demonstrated the effectiveness of audit and feedback in reducing high-risk and opioid prescribing respectively in rigorous trial and quasi-experimental evaluations involving over 300 West Yorkshire general practices. We then scaled up and diversified our feedback campaigns, mainly drawing upon NHS funding matched by the National Institute for Health and Care Research (NIHR) Yorkshire and Humber Applied Research Collaboration.
We describe the further development of our 'implementation laboratory,' impacts and challenges.

Methods: We designed our feedback campaigns using current best evidence and relevant theory. These have variously targeted gabapentinoid, antibiotic and (most recently) asthma inhaler prescribing. The reports use routinely collected data and content is produced by academic general practitioners, pharmacists and NHS managers. For each campaign, general practices typically receive two-monthly comparative feedback reports electronically.

Results: Since 2019, our feedback campaigns have been taken up across the region over varying durations, reaching over 900 general practices. However, although our feedback reports have generally been well-received, our ability to discern impact of the longest running campaign, on antibiotic prescribing trends, has been hindered by the impact of Covid-19 and variable regional adoption over time. Crude comparisons with national data suggest little overall impact on antibiotic prescribing but there may be specific impacts on appropriate prescribing.

Discussion: We have established much of the infrastructure and experience for a nascent learning health system. We now face some challenges and decisions, e.g.

- How to decide which campaigns to start, stop or modify.
- What level of rigour is needed to monitor and evaluate each iteration of feedback or any new campaigns.
- Given a wide range of known and unknown confounders from national and local events and initiatives, whether randomisation will always be necessary in evaluating incremental effects.
- How to secure sustained external research funding for embedded rigorous evaluations.
- Whether and when we can apply our approach to other quality improvement interventions, such as computerised decision support systems, and to other clinical targets, such as test ordering.

Audit & Feedback in Learning Health Systems

ANDA-Evaluating Facilitated Feedback Enhancement - a Cluster randomised Trial (ANDA-EFFECT)

Presenter: Matthew Quigley

Background: Despite clinician participation in annual audit and feedback (A&F) and advances in diabetes technology and medications, glycaemic control remains suboptimal for many Australians living with diabetes. Previous qualitative work investigated the barriers and enablers to use of A&F in Australian diabetes centres, which informed redesign of the feedback and development of cointerventions to assist in use of feedback for quality improvement (QI) activities.

Objectives: This cluster randomised trial (CRT) tested the effect of redesigned audit feedback and educational and community of practice cointerventions on:
1. HbA1c at the patient level (6 months after delivery of the interventions); and
2. Acceptability and utility of the interventions at the practitioner level (~3 months after delivery of the interventions).

Methods: Australian diabetes centres (clusters) participating in this two-armed CRT nested within an existing diabetes A&F activity were randomised to the feedback plus cointerventions (intervention) or feedback (control) group, stratified by type of diabetes centre and location. Both groups received redesigned feedback; the intervention group also received educational and support resources to inform local QI activities. A mixed linear effects model was used to examine between-group differences at 6-month follow-up.

Results: Participating centres were allocated to the intervention group (n=23) and the control group (n=19). Follow-up clinical data were available for 20 intervention and 14 control centres.
At 6-month follow-up, no statistically significant between-group differences were found for mean HbA1c, or for secondary clinical outcomes including mean systolic blood pressure and lipid measures. Small changes in medication use in both groups resulted in statistically significant between-group differences for use of antihypertensive therapy (p = 0.030) and use of select medications including thiazides, ARBs and statins (p = 0.012, 0.002, 0.009, respectively).
Acceptability and utility survey data were available for 17 intervention and 12 control centres. All survey respondents reported using the redesigned feedback report. Of the intervention group, 59% (n = 10) reported use of any cointervention, but only 24% (n = 4) reported use of all cointerventions.

Conclusions: The interventions delivered in this trial were not effective in reducing HbA1c at 6-month follow-up. The potential effects of non-paired data and challenges of implementation during the COVID-19 pandemic, including low engagement with the cointerventions, warrant further understanding and may assist other diabetes and implementation researchers.

Trial registration: Prospectively registered on June 21, 2021 with the Australian and New Zealand Clinical Trials Registry ACTRN12621000765820.

Audit & Feedback in Learning Health Systems

How do teams tailor improvements in diabetes care: Preliminary findings from a Process Evaluation study

Presenter: Elaine O'Halloran

Background: Feedback interventions may be more effective when they target health professionals with greater quality improvement capability (Brown et al., 2019). Assessing influences and aligning improvement actions to these influences – also known as tailoring (Powell et al., 2017) – is a common component of implementation strategies. To enhance effectiveness, audit and feedback should consider and address recipient and contextual variables (Desveaux et al., 2023).

Since 2008, NICE guidelines have recommended insulin pump therapy for patients with Type 1 Diabetes and an HbA1c over 69mmol/mol. However, in England and Wales there are about 90,000 patients who meet these criteria but who do not use a pump (National Diabetes Audit, unpublished), and significant variation by deprivation, ethnicity, sex, and location (National Diabetes Audit, 2021). Much of this variation is likely to be attributable to staff and local organisational factors (Llewellyn et al., 2014).

All diabetes services across England and Wales were invited to participate in a trial evaluating the effectiveness of a Quality Improvement Collaborative (QIC) aligned to the National Diabetes Audit to increase the use of insulin pumps. The QIC supports diabetes specialist teams to select, and generate commitment for, improvement actions aligned to their local influences and contexts. Within the QIC, the Theoretical Domains Framework (Atkins et al., 2017) is used by clinical teams to identify influences upon care. Teams then undertake a virtual logic model exercise to align improvement strategies to these influences. We aim to describe how teams enact tailoring as part of their work to respond to national audit to inform future support for quality improvement capabilities.

Methods: We use observations, documentary analysis and semi-structured interviews to explore how teams undertake tailoring work during the initial workshops and throughout the 15-month QIC. We categorise the selected and enacted improvement actions using the Expert Recommendations for Implementing Change (ERIC) (Powell et al., 2015).

Results: Preliminary findings from the QIC workshops describing the links between the diabetes care pathway, identified influences and proposed improvement strategies will be presented. Influences relate to patient (e.g., skills, emotion), staff (e.g., motivation, beliefs about capacity) and contextual factors (e.g., environmental context, social influences).

Conclusions: Exploring how teams identify the factors that influence their practice, and how and why these influences link to the strategies selected by teams to improve quality in their local contexts will inform our understanding of the effectiveness of the QIC and the support for quality improvement capabilities of A&F recipients.

Audit & Feedback in Learning Health Systems

Audits and feedback across sectors: transferring experience from Health to education in Middle Africa

Presenter: Rigobert Pambe

There is a huge gap between evidence and practice in countries of the lake basin. Despite a growing body of knowledge emanating from sub–Saharan Africa, they are hardly embedded within policies and practices in countries of this region. This "evidence hesitancy" is due to a variety of reasons ranging from the complexity of the available evidence disseminated to simple resistance to change. eBASE Africa within the years has successfully bridge the evidence gap in health, using audits and feedback to improve clinicians' compliance to malaria treatment and COVID19 recommendations. Giving precarity in delivery of basic services in middle Africa it will be interesting to explore transferability of experiences in health to other priority areas, notably education.

Educational attainment in countries of the Lake Chad Basin is amongst the lowest in the globe with teachers in middle Africa continuing to prioritize rote learning hardly implementing innovative evidence-based approaches for teaching and learning. Practical Teachers Professional Development (TPD) programs that supports specific well-evidenced changes in pedagogy can be highly effective in improving pupil learning and are essential in curbing these challenges. The Pedagogic Audits and Feedback (PAF) is in line with this logic, as it is a blend of TPD, implementation sciences and behavioral sciences.

This evidence implementation project was conducted in 48 schools in Cameroon, Niger, Nigeria and Chad. We engaged 96 teachers (58 females, 38 males, 11 indigenous teachers) from primary and secondary schools reaching over 5000 pupils in both rural and urban areas. Our approach is adapted from experiences and lessons from Audits and Feedback developed by the Joanna Briggs Institute. Audit criteria were developed from the eBASE Teaching and Learning Toolkit which uses a database of synthesized best available evidence for feedback in Middle Africa. We identified 10 evidence-based categories broken down into 49 evidence criteria which we used to assess teaching and learning practice.

We compared compliance with best practice recommendations at baseline against a follow-up compliance at three months. Compliance rates improved overall from 35% (R: 22–51) to 71 (R: 61-86) for all criteria and sites, with differences noticed between sites. Twelve barriers were identified, classified into infrastructure, material, and processes with respective coping mechanisms and strategies to ensure behavior change and systematization.

Despite barriers, PAF is effective in getting research into practice and does improve quality of teaching and learning.

Keynote Presentation

Building implementation labs into healthcare systems – what has to be true for this to work.

Presenter: **Jane London**

In this session, Jane will outline the real world considerations from a service provider and funder perspective when considering how to engage with implementation labs. Developing enduring learning systems that can be utilised for both research and service provider objectives requires a reframing of both research and service delivery. To get the best out of health services for consumers, we need to approach everything with a 'we don't know whether this will work' mindset and create pragmatic 'real world' trial designs. She will explore the building blocks to this approach from a service provider angle, highlighting where the research can be utilised and the practical considerations for embedding this approach in the healthcare space.

Abstracts

October 27, 2023

Science Orientation

Insights for Audit & Feedback Design

Comparing paper Letters in addition to Emailed Audit and feedback in Refining Asthma treatment to Improve clinical and environmental Results in primary care: The CLEAR AIR study

Presenter: Sarah Alderson

Background: The UK National Health Service (NHS) produces around 4% of all UK greenhouse gas emissions, on a par with the airline industry. Delivering a 'Net Zero NHS', including setting clear targets for decarbonisation, is a high priority. Respiratory inhalers, used to treat asthma, produce a disproportionate amount (3%) of the total NHS greenhouse gas production. Pressurised Metered Dose Inhalers (pMDI) contain hydrofluorocarbons, with an eighteen times higher carbon footprint than Dry Powdered Inhalers (DPI). England has a disproportionately high usage of pMDIs (71.6% of all prescribed inhalers) compared to its European neighbours (<50%), leading to calls to switch inhaler prescriptions in England.

Our UK regional audit and feedback campaigns have delivered improvements for high priority prescribing issues (previously addictive painkillers and antibiotics). This researcher and primary care commissioning partnership has now evolved over seven years into a Learning Health System (LHS), aiming to answer questions relating to improving effectiveness of our campaigns and thereby improving care. One such question is the impact on effectiveness of delivering paper copies of feedback alongside electronic (email) copies in primary care.

Method: A cluster randomised controlled trial (RCT) of paper reports in addition to emailed reports. Bimonthly theoretically and evidence-informed feedback will be delivered to practices (n=277) across the NHS West Yorkshire Integrated Care Board for 1 year from May 2023. Reports will highlight the number of patients with poor asthma control, the percentage of DPI prescribing in relation to pMDIs, and compare to other practices within the region. We will randomise groups of practices (primary care networks, n=52) to the addition of posted paper reports (intervention) to emailed reports alone (control). Primary outcome will be the number of DPI inhalers prescribed as a percentage of the total prescribed inhalers for asthma at the practice level.

Results: We will describe the trial protocol in detail, including the challenges of obtaining ethical and governance approvals for randomisation of practices without consent, the changing structure of primary care in England and the impact of the formation of primary care networks, sample size considerations and conducting an RCT as an LHS without additional external funding.

Discussion: Our established regional audit and feedback quality improvement programme has overcome multiple obstacles to become a LHS with the CLEAR-AIR trial. We propose this proof-of-concept trial will enable the LHS approach to be scaled up and diversified to answer further questions of effectiveness and priorities in improving patient care.

How to design effective audit and feedback interventions with nurses? A set of hypotheses based on qualitative and quantitative evidence

Presenter: Emilie Dufour

Background: When used properly, audit and feedback has been shown to be an effective, versatile and low-cost intervention for improving quality of care. Audit and feedback has been mainly studied with physicians. Yet, nurses' response to this type of intervention may differ because of their roles, power, and the configuration of nursing activities. This project aims to develop practical hypotheses about features of audit and feedback that support its effectiveness with nurses.

Methods: The Clinical Performance Feedback Intervention Theory (CP-FIT) was recently developed to explain the mechanisms involved in the success of audit and feedback interventions with health care professionals through a set of hypotheses based on qualitative data. A comparative analysis of the CP-FIT hypotheses on audit and feedback response was conducted using nursing-specific empirical data from (1) a mixed-methods systematic review of quantitative and qualitative studies of the measured and perceived effects of audit and feedback among nurses and (2) a pilot study of an audit and feedback intervention that we designed and tested with a team of primary care nurses.

Results: Thirty-one studies published between 1995 and 2021 were included in the review. As for the pilot, seven nurse-sensitive indicators were measured using clinical and administrative data and reported in two feedback sessions. Indicator scores were compared based on a sample of 1605 patient care episodes. Analysis from these findings generated three hypotheses. First, feedback that emphasizes how it relates to the relational aspect of nursing is more likely to be in line with their priorities. Second, indicators measured with the proximal team rather than on an individual basis would be more representative of their ability to act on the feedback. Finally, feedback provided in a way that highlights the benefits to nurses' practice, such as the potential to reduce workload, increases their commitment to action.

Conclusion: This research is based on a thorough synthesis of empirical work on audit and feedback interventions involving nurses. The hypotheses build on recent developments in quality improvement by providing concrete, actionable guidance for testing audit and feedback interventions to support their effectiveness as a health care improvement strategy.

Insights for Audit & Feedback Design

Repurposing the Ordering of Routine Laboratory Tests in Hospitalised Medical Patients (RePORT): results of a cluster randomised stepped-wedge quality improvement study

Presenter: Douglas Woodhouse & Anshula Ambasta

A multifaceted intervention bundle using education and facilitated multilevel social comparison was associated with a safe and effective reduction in use of routine daily laboratory testing in hospitals.

We evaluated an intervention bundle to reduce repetitive use of routine laboratory testing in hospitalised patients. We used a stepped-wedge design to implement an intervention bundle across eight medical units. Our intervention included educational tools and social comparison reports followed by peer-facilitated report discussion sessions. Our study included a total of 125 854 patient-days.

There was a 14% overall reduction in ordering of routine tests, a 15% reduction in ordering of all common tests, a 20% increase in routine test-free patient-days and a 14% reduction in costs of routine testing. No worsening was noted in patient safety endpoints.

Exploring the components of feedback facilitation co-interventions: A systematic review

Presenter: Michael Sykes

Background: Health systems are investing in quality improvement support for feedback recipients (e.g. HSE Ireland, 2019; HQIP, 2021) because increasing the knowledge and skills to respond to feedback may increase the effectiveness of audit and feedback (A&F) interventions (Brown et al, 2019). Quality improvement support is a form of 'feedback facilitation'. The effectiveness of A&F with or without a feedback facilitation co-intervention is being investigated through the Cochrane review of randomised controlled trials. Our study aimed to describe the content (e.g. structured analysis of determinants) and delivery (e.g. educational meeting) of feedback facilitation co-interventions used in trials of A&F within healthcare.

Method: Papers were identified from the latest Cochrane review of audit and feedback. Within the Cochrane review, feedback facilitation "could be training about how to use feedback, or to do quality improvement in the practice, or set goals and plans, etc."
We extracted data from papers describing the trial of audit plus feedback facilitation, and from companion papers. A total of 8 reviewers extracted data from the included studies using a specifically designed and piloted proforma. The proforma reflected an adapted TIDieR framework (Hoffmann et al 2014). Data was recorded in Excel. Each paper was reviewed independently by two reviewers and any disagreements were resolved through discussion.
At the time of submission, two members of the team are analysing the data graphically and narratively. We will present the analysis to the research team for challenge and synthesis. If possible, we will describe the effectiveness of subgroupings of feedback facilitation interventions.

Results: 105 trials were included. We are currently undertaking analysis, and present tentative early findings here: Feedback facilitation includes 20 different implementation strategies (Powell et al, 2015). There is little use of theory and few studies describe the programme theory of how the intervention has its effect. There is variation in whether and how interventions identify priorities, explore influences upon performance and select actions. There is variation in mode of delivery, deliverer and recipient, frequency, duration and timing.

Conclusion: Feedback facilitation is a heterogenous grouping of interventions. The ability to replicate a study underpins both implementation science and impact; Few studies provide sufficient detail to enable replication. We will present, and seek to draw lessons from, the different designs of feedback facilitation so as to inform researchers and health systems delivering quality improvement support to audit and feedback recipients.

Claims-based Audit & Feedback, development ofindicators & acceptance by physicians

Presenter: Vera de Weerdt

Introduction: Comparative effectiveness research (CER) is conducted to improve quality of care, but often fails to create impact since results are not implemented into clinical practice. Audit & Feedback (A&F) could be used to stimulate implementation of CER. Claims-data provides a costeffective data source for A&F on CER implementation but may not be accepted by professionals as a valid data source in this context. No existing methods are available to develop indicators specifically for CER studies. We examined whether we could develop claims-based A&F, which is accepted by professionals in the context of CER implementation.

Methods: We conducted two studies: First, we conducted a co-creation study to develop A&F for six CER studies. Second, we conducted five focus groups to examine whether medical specialists accepted the claims-based A&F for CER studies.

Results: During the co-creation method we developed claims-based A&F for six CER studies, which was accepted by the involved medical experts in four out of six cases. The experts only accepted claims-based A&F indicators in which they deemed the level of over- or underestimation of the target population marginal.

In focus groups, we presented the claims-based A&F for five CER studies, of which two were accepted by medical specialists. Arguments mentioned in favor of claims-based A&F were: (1) A&F stimulates reflective learning and improvement (2) claims-based A&F is perceived as more reliable than other A&F (3) claims-based A&F prevents administrative burden. Arguments in opposition were that (1) A&F is insufficient to create behavioral change (2) A&F lacks clinically meaningful interpretation, (3) claims-based A&F is unreliable, and (4) claims data is invalid for feedback on QI. Furthermore, participants describe several conditions for implementation of A&F which shape their acceptance.

Discussion: Using claims-based A&F for QI is, for some clinical topics and under certain conditions, accepted by professionals. Training physicians in how to interpret and act upon A&F may further increase acceptance of claims-based A&F. Currently, claims data is the most resource efficient data source for A&F interventions. Thus, when designing A&F it should weighed whether claims data can be used or whether it is necessary to collect more specific data for A&F aiming to improve quality.

Fielding feedback: Getting feedback to intended recipients

Presenter: Anne Sales

Background: Feedback interventions are demonstrated to be moderately effective. Recommendations for optimizing feedback interventions gained through systematic review provide important principles for feedback design include considerations of design, cognitive burden, salience and validity of the information provided. There is discussion in the literature about presentation mode (oral, written, graphic), but very little about how feedback gets to the intended recipient(s). Method of distribution, or fielding, of a feedback intervention is as important as fielding a survey instrument but is rarely discussed. When it is discussed, reports about how successful the fielding was in actually ensuring that intended recipients receive the feedback are rare. In this presentation, we will provide a brief overview of what we know from the literature and case studies from our own work about methods of fielding feedback reports, reports of success rates in fielding feedback reports, and possible next steps for the future

Findings: We report on two different studies as case examples of different methods of fielding feedback interventions. In one study, conducted in Edmonton, Alberta, Canada, we distributed written feedback reports by hand directly to intended recipients (all personnel working on the study units in four continuing care facilities) every month, and observed what recipients did with the paper report when they received it. These observations were reported in the process evaluation published for this study; briefly, over the 13 months of the intervention, distribution shifted from reports being handed to an individual 68% of the time in the first month to 12% being directly handed to an individual at study end. Leaving the report somewhere instead of handing to an individual increased from 15% to 87% of the time. In the second study conducted in 19 U.S. Veterans Health Administration nursing homes, we delivered monthly feedback reports by email to champions who took responsibility for report distribution. In a follow-up survey, we found that almost none of the champions passed on the feedback reports to the intended recipients, who were frontline clinicians responsible for taking required actions (manuscript in process).

Implications: Theory underlying effective feedback interventions assumes that intended recipients have received the feedback as intended, but there is little in the published literature to support that assumption. We recommend development of reporting guidelines specific to feedback interventions which would encompass best practices in many domains of feedback intervention, including providing information about fielding methods and success rates in reaching intended recipients.

Examining how Audit & Feedback trials describe sustainability, spread, and scale: a theory informed, qualitative, secondary analysis of a systematic review

Presenter: Celia Laur

Background: Little is known about if or how Audit and Feedback (A&F) interventions are sustained, or if trials plan for the intervention to be applied elsewhere (spread/scale). This study examines how A&F trials describe sustainability, spread, and scale.

Methods: A secondary analysis of an update of the Cochrane systematic review of A&F trials. All trials from the larger review published in 2011 and later were included. Keyword searches for terms related to sustainability, spread and scale were conducted; trials with at least one relevant keyword were extracted. Data were qualitatively analyzed using the Integrated Sustainability Framework (ISF), and the Framework for Going to Full Scale (FGFS), with additional codes and themes identified inductively. A forward citation search was conducted to identify relevant additional follow-up studies.

Results: From the larger review, 162 trials met eligibility criteria. 78% (n=127) of trials included at least one keyword on sustainability, 49% (n=62; 38% overall) were grouped as frequently mentioning sustainability (keyword found in 3+ sections, [abstract, introduction etc.]). For spread/scale, 62% (n=100) of trials included at least one keyword related to spread/scale, with 51% (n=51; 31% overall) of those trials grouped for frequently mentioning spread/scale (keywords in 2+ sections). Within the keyword search, "sustain*" was mentioned most frequently (n=142); "scal*" (n=85) was mentioned more than "spread" (n=12). Although trials mentioned the need to consider sustainability, detail was lacking regarding if or how this was planned or implemented. Results mapped to the broader Domains of ISF, but not all Factors. The most frequent sustainability period duration was 12 months (range 2-24 months). For spread/scale, strong alignment was found with the FGFS for Phases of Scale-up, and Support Systems (Infrastructure), but not for Adoption Mechanisms. Three new themes were identified: aligning affordability and scalability; balancing fidelity and scalability; and balancing effect size and scalability. Within the FGFS, some trials mentioned Learning Systems, mainly focusing on the benefits of implementation laboratories, clinical networks, or taking a Learning Health Systems approach.

Conclusion: A&F trials should plan for sustainability and scalability so if the trial is effective, benefits can continue. A deeper understanding of the factors impacting sustainability is needed. Scalability planning should go beyond cost and infrastructure to consider other adoption mechanisms. Future research should explore if the effect of an A&F trial is continued, for how long, and whether this is with or without continuation of the A&F intervention.

Trial Registration: Registered with Prospero in May 2022. CRD42022332606

Evaluating the effectiveness of a multifaceted intervention to reduce low-value care in adults hospitalised following trauma: a protocol for a pragmatic cluster randomized controlled trial

Presenter: Lynne Moore

Background: While simple Audit & Feedback (A&F) has shown modest effectiveness for reducing low-value care, there is a knowledge gap on the effectiveness of multifaceted interventions to support de-implementation efforts. Given the need to make rapid decisions in a context of multiple diagnostic and therapeutic options, trauma is a high-risk setting for low-value care. Furthermore, trauma systems are a favorable setting for de-implementation interventions as they have quality improvement teams with medical leadership, routinely collected clinical data, and performance linked to accreditation. We aim to evaluate the effectiveness of a multifaceted intervention for reducing low-value clinical practices in acute adult trauma care.

Methods: We will conduct a pragmatic cluster randomized controlled trial (cRCT) embedded in a Canadian provincial quality assurance program. Level I-III trauma centers (n=30) will be randomized (1:1) to receive simple A&F (control) or a multifaceted intervention (intervention). The intervention, developed using extensive background work and UK Medical Research Council guidelines, includes an A&F report, educational meetings, and facilitation visits. The primary outcome will be the use of low-value initial diagnostic imaging, assessed at the patient level using routinely collected trauma registry data. Secondary outcomes will be low-value specialist consultation, low-value repeat imaging after patient transfer, unintended consequences, determinants for successful implementation, and Incremental Cost-Effectiveness Ratios.

Discussion: The proposed intervention targets a problem identified by stakeholders, is based on extensive background work, was developed using a partnership approach, is low-cost, and is linked to accreditation. There will be no attrition, identification, or recruitment bias as the intervention is mandatory in line with trauma center designation requirements and all outcomes will be assessed with routinely collected data. However, investigators cannot be blinded to group allocation and there is a possibility of contamination bias that will be minimized by conducting intervention refinement only with participants in the intervention arm.

Trial registration: This protocol has been registered on ClinicalTrials.gov (February 24th 2023, #NCT05744154, https://clinicaltrials.gov/ct2/show/NCT05744154)