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Uncertain Times, Imperfect Evidence, and the Imperative to Act

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Supplement

CADTH

About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

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Questions or requests for information about this report can be directed to **requests@cadth.ca.**

CADTH

Table of Contents

Introduction

The COVID-19 pandemic is a watershed moment for Canadian and global health systems and the people who work in them, support them, and rely on them. Thanks to a virus that spread more quickly and caused more damage than anyone thought possible at the outset, we have shifted to a state where uncertainty is the new normal and is likely to remain so even after the pandemic subsides.

We've seen a stark contrast between decision-making before the pandemic and during the pandemic as it became clear that decisions must be made even when the data are imperfect or incomplete. Overlooked issues surfaced as the impact on vulnerable and underserved populations was magnified by the pandemic. Further, we saw that rapid innovation and systemic change are possible, as demonstrated by the short timelines for vaccine development, the introduction of rapid point-of-care testing, and the swift transition to virtual care.

The 2021 CADTH Symposium considered these changes and explored their implications for health technology assessment and health research bodies, decision-makers, innovators, and patients. Through a series of virtual plenary and concurrent sessions, Canadian and international health care leaders shared perspectives on how to build on system changes and lessons learned to better support decision-makers and patients in uncertain times.

Breakfast Session Abstracts

BS1. Accessing Care During a Pandemic

Presenting Authors: Kelly Gorman, Arthritis Society; Laurie Proulx, Canadian Arthritis Patients Alliance; Shawn Brady, Arthritis Society; Dr. Jane Purvis, Ontario Rheumatology Association

Abstract

The pandemic caused many rapid changes across the health care system, affecting patients, caregivers, providers, administrators, and policy-makers. Given the changing and uncertain path of the pandemic, decisions had to be made without strong evidence or knowing the implications or outcomes. For the inflammatory arthritis community, where access to a specialist and allied health professionals is a key component of managing their chronic condition, the pandemic had a significant impact to accessing care. The switch to virtual care presented both opportunities and challenges, forcing both patients and providers to adjust and adapt very quickly.

At the same time, there were concerns this community had a greater health risk should they develop COVID-19, causing anxiety and worry. In addition to managing their condition virtually, they also had to navigate the uncertainty of COVID's possible impact on their health without their normal care routine. Online resources and webinars were developed to help guide the arthritis community through these unprecedented times. As the pandemic progressed, several necessary medications used in arthritis care became a potential treatment for COVID, leading to limited drug supply and the possibility of shortages for these critical drugs.

The community faced challenges and uncertainty around supply and came together to find solutions.

In this moderated session, the panellists will provide their experience with access to care during the pandemic from the perspective of a patient, clinician, and specialist. The discussion will focus on the lessons learned, opportunities and challenges, and provide insight and recommendations for future policy directions.

BS2. What HTA "Memes" to Me: A Rapid Mentorship Session on How to Succeed in HTA

Presenting Authors: Jesse Elliott, CADTH; Dr. Nicole Mittmann, CADTH; Nancy Sikich, Health Quality Ontario; Ken Bond, Institute of Health Economics; Sylvie Bouchard, INESSS

Abstract

An all-star panel of mentors with a wealth of experience in health technology assessment will share their candid insights and frank advice with junior researchers, graduate and undergraduate students, and anyone interested in pursuing a career in HTA. Using a meme as the starting point, each speaker will talk about how they got started in HTA and the keys to success they've learned along the way. The session will include a special presentation on what employers look for in a resume. The session will wrap up with a free-wheeling question-and-answer session. If you're interested in working in HTA, this is a session you shouldn't miss.

BS3. How to Find the Evidence During a Public Health Emergency: An Expert-Developed Best Practices Statement on Finding the Most Relevant Evidence During a Public Health Emergency

Presenting Authors: Mark Mueller, Saskatchewan Health Authority; Stacy Brody, George Washington University; Nicole Askin, University of Manitoba

Abstract

Informationists conducting searches to support medical, public health, and policy communities during the COVID-19 pandemic were challenged to find the most relevant evidence in a rapidly evolving information landscape. In this context, informationists must determine where to find and how to identify evidence on novel topics. In response to these and other dilemmas, the Librarian Reserve Corps, a voluntary pandemic response organization, set up an expert working group to draw upon their experiences in searching for the evidence during the COVID-19 pandemic response. This international expert panel — consisting of medical, health, public health, and information professionals — completed an online survey and met via Webex to discuss: (1) core information resources; (2) search approaches; (3) publication types; (4) transparency and reproducibility; (5) collaboration; and (6) conducting research.

A group of informationists from diverse library backgrounds synthesized survey responses and discussion group minutes, as well as literature on these 6 topics, to formulate a best practices statement. The best practices statement will be reviewed by a separate group of experts before being posted to a preprint server and submitted for formal peer review and publication. The final outcome will be a best practices statement providing guidance on how to find and identify evidence during future public health emergencies.

BS4. Patient and Community Advisors Co-Produce Program to Instill Person-Centred Principles Across CADTH

Presenting Authors: Tamara Rader, CADTH; Andrea Smith, CADTH; Marilyn Barrett, Patient and Community Advisory Committee, CADTH; Megan Ashlee Bowes, CADTH; Marlee McGuire, Patient and Community Advisory Committee, CADTH

Co-Authors: Kathleen Burns, CADTH; Jonah Dupuis, Patient and Community Advisory Committee, CADTH; Lilian Hulme-Smith, Patient and Community Advisory Committee, CADTH; Beth Kidd, Patient and Community Advisory Committee, CADTH; David McMullen, Patient and Community Advisory Committee, CADTH; Devan Nambiar, Global Health Integrative Science; Paula Orecklin, Patient and Community Advisory Committee, CADTH; Marney Paradis, Patient and Community Advisory Committee, CADTH; Zal Press, Patient and Community Advisory Committee, CADTH; Mary Reeves, Patient and Community Advisory Committee, CADTH; Sarah Sandusky, Patient and Community Advisory Committee, CADTH

Abstract

Background: Listening to and understanding patient perspectives is an integral part of the work to support CADTH's current strategic plan. More broadly, CADTH also needs to consider the perspectives of various communities such as Canada's youth, seniors, Inuit, First Nations or Métis communities, racialized communities, or people living with disabilities. On the advice of CADTH's Patient and Community Advisory Committee, we co-created a series of sessions for committee members to share their lived experiences and knowledge with CADTH staff.

Objective: to share an approach designed to encourage health technology assessment staff to consider patients' lived experiences as they do their work, no matter what their roles are. We will show how the series of sessions influenced CADTH staff and its overall culture to think of patients and community members as potential contributors who can support and enhance the relevance of our work.

The panel members will discuss their experiences participating in the learning series and comment on success factors and impacts for both committee members and CADTH staff. The panel will include a discussion about the importance of co-designing the sessions and efforts to build in support and reciprocity so that committee members sharing their stories felt that the activity was worthwhile and impactful. The panel will comment on the practicalities of hosting the learning series, the importance of facilitation, compensation for speakers, and the resources needed to ensure a satisfying experience for all.

The stories shared in the learning series sessions are relevant to CADTH staff and there is a mutual desire to continue the relationship between CADTH staff and Patient and Community Advisory Committee members to build understanding and engagement.

BS5. Emerging Guidance for Canadian Private Payer Health Technology Assessment

Presenting Authors: Suzanne Lepage, Suzanne Lepage Consulting Inc.; Lindy Forte, Patient Access Solutions

Abstract

As private benefit plan costs continue to rise, plan sponsors want to manage costs and ensure their plans remain sustainable. Private payers are scrutinizing new drugs before listing and as a result there has been an evolution of health economics and formulary decision-making in Canadian private drug plans. Private drug plan management is handled by a broad range of commercial organizations competing for plan sponsors' business. This leads to a non-transparent, heterogenous approach to drug reviews because they each want to distinguish themselves from their competitors and protect from competitive intelligence. In addition, some private payers are turning to public drug reviews to inform their processes, despite their different perspective.

This session will examine the current private landscape and review some of the current submission and review practices. It will also highlight the challenges with private payers' growing use of health technology assessment and identify opportunities for improvement and increased collaboration between the pharmaceutical and group benefits industry.

Panel Abstracts

A1. Imperative to Act: Addressing Canada's Data Gaps Through a Long-Term pan-Canadian Health Data Strategy

Panel Moderator: Dr. Ewan Affleck, College of Physicians & Surgeons of Alberta

Panellists: Dr. Michael Wolfson, pan-Canadian Health Data Strategy; Dr. Bartha Knoppers, pan-Canadian Health Data Strategy Expert Advisory Group; Dr. Jennifer Zelmer, Healthcare Excellence Canada; Dr. Caroline Colijn, Simon Fraser University

Abstract

The pandemic has put into stark relief many serious failings in the ability of policy analysts and decision-makers to access critical data even when, in many cases, the data already exist. These failings range from an inability at the beginning of the pandemic to keep track of where the COVID-19 cases were emerging to most recently how rapidly and where the delta variant has been spreading.

Major problems with Canada's health data have been recognized for decades, including the 1991 Wilk Task Force on Health Information, and the Naylor report following severe acute respiratory syndrome coronavirus 2 (SARS). These serious data problems have greatly impaired the ability of jurisdictions to respond over the past 15 months to the pandemic. More generally, they seriously limit the capacity for health technology assessment across a much wider range of interventions, from new drugs to new kinds of personalized medicine based on genetic profiling to longstanding concerns about unexplained small area variations in any number of diagnostic and surgical interventions (so called "postal code medicine").

This panel brings together individuals with varied pan-Canadian health data experience who have been facing these major data problems, including breaking down data silos and moderating the "privacy chills" that so often inhibit needed data sharing. The tragedies and missteps in pandemic decision-making under uncertainty, resulting in large measure from the longstanding absence of a coherent pan-Canadian health data ecosystem, signal an unprecedented opportunity for fundamental improvements.

A2. The Science of Advancing Evidence by Reducing Uncertainty: A Multi-Faceted Approach to Real-World Evidence Generation

Panel Moderator: Dr. Winson Cheung, Oncology Outcomes

Panellists: Dr. Darren Brenner, Oncology Outcomes; Dr. Devon Boyne, Oncology Outcomes; Dr. Colleen Cuthbert, Oncology Outcomes; Christie Farrer, Oncology Outcomes

Abstract

Real-world evidence (RWE) describes a broad spectrum of studies, from small chart reviews to large database analyses. There is growing concern about the rigour and reproducibility of these studies, which has contributed to significant uncertainty about the value of RWE in informing health care policies and reimbursement. The Oncology Outcomes (O2) program has implemented a deliberate, multi-faceted approach to RWE generation by leveraging structured and unstructured data, incorporating advanced data analytics, and integrating patient engagement.

Dr. Cheung has convened and will moderate an esteemed panel of speakers. Dr. Brenner will discuss the use of genomics and biomarker data in real-world studies to guide clinical decision-making. Common pitfalls around the use of biomarkers and molecular diagnostics will be highlighted. Examples of applications of machine learning techniques for the development of clinical decision support systems and learning health systems will be discussed. Dr. Boyne will introduce the use of observational data to support single-arm payer submissions and post-market decisions, with a specific focus on synthetic control arm analyses, and target trial emulations. Recent developments in modern causal inference methods that can help to reduce uncertainty and bias will be highlighted. Dr. Cuthbert will describe the importance of patient engagement in RWE generation. Specifically, the discussion will focus on the use of real-world patient-reported experience and outcome measures that integrate patient input to ensure that RWE findings are meaningful and reflect the priorities and values of patients. Ms. Farrer will offer insights into the logistics and administrative aspects of research agreements, research ethics approval, and data acquisition to ensure that RWE generation is timely and relevant for current-day use.

A3. Less is More: How Post-Pandemic Health Care Provides an Opportunity for Reducing Low-Value Care in Canada

Panel Moderators: Dr. Karen Born, Choosing Wisely Canada; Sinwan Basharat, CADTH

Panellists: Cindy Dumba, Choosing Wisely Saskatchewan; Kandace Ryckman, Health Commons Solutions Lab; Dr. Ken Milne, South Huron Hospital Association

Abstract

Low-value tests, treatments, and procedures are an important health care quality problem because they provide little clinical benefit, may be harmful for patients, and waste limited resources. Due to the COVID-19 pandemic, health care systems faced increased challenges of limited resources, reduced capacity, and a growing backlog of surgeries and other procedures. As health systems rebuild from the pandemic, CADTH and Choosing Wisely Canada convened a 10-member multidisciplinary panel of clinicians, patient representatives, and health policy experts to review areas of low-value care that can be reduced. The panel reviewed, deliberated, and prioritized 19 recommendations of the more than 400 Choosing Wisely Canada recommendations, the implementation of which can help ensure high-value care after the pandemic.

The panel and process brought together diverse expertise and perspectives, and there was consensus that reducing low-value care may help improve aspects of health equity, enhance patient-focused care, and could address certain challenges affecting long-term care. The live discussion at the symposium aims to review the findings of the report and examine how the recommendations can be implemented and evaluated. From the varied lenses of health systems health policy, clinical practice, and patients, the live session will consider the barriers to changing practice and discuss how the pandemic and post-pandemic era may have created an impetus for change. It will provide a forum to frame the challenges of low-value care and the possible solutions for creating change across Canadian health systems that could be relevant for health care stakeholders.

A4. Rapid Living Reviews During COVID: Challenges and Opportunities

Panel Moderator: Dr. Andrea Tricco, St. Michael's Hospital, Unity Health Toronto

Panellists: Shannon Kelly, University of Ottawa Heart Institute; Linda Wilhelm, Canadian Arthritis Patient Alliance; Matthew Tunis, Public Health Agency of Canada

Co-Author: Dr. Sharon Straus, St. Michael's Hospital, Unity Health Toronto

Abstract

During the COVID pandemic, rapid living reviews emerged as a new way to conduct knowledge synthesis for decision-making. Rapid living reviews are systematic reviews that have shortcuts in their conduct and are continuously updated on a short frequency of time, usually in days or weeks. In this oral presentation, we will provide a definition for rapid living reviews and describe how they differ from other types of knowledge synthesis. We will also present case studies of rapid living reviews that have been conducted for decision-making, with a specific focus on the COVID pandemic. Through this exercise, the utility of rapid living reviews will be highlighted. We will also provide limitations to rapid living reviews, as well as

the barriers involved with the conducting of rapid living reviews. The presenters will describe their experience with rapid living reviews through the Canadian Institutes of Health Research (CIHR) Drug Safety and Effectiveness Network (DSEN) Methods and Applications Group in Indirect Comparisons (MAGIC) team.

C1. Creating a Made-in-Canada Approach to Indication-Based Pricing/Multi-Indication Payment Models

Panel Moderator: Dr. Judith Glennie, J.L. Glennie Consulting Inc.

Panellists: Adrian Towse, Office of Health Economics, UK; Dr. Michael Mayne, Health Consulting Canada Inc.; Imran Ali, Green Shield Canada

Abstract

There are international efforts underway to develop methodologies and frameworks for indication-based pricing (IBP). IBP acknowledges that the different indications for a given molecule deliver different levels of value based on the size of the population and the data that can be generated. Using an IBP approach helps to ensure that every patient can benefit from an innovation regardless of the variability in cost-effectiveness across indications.

The pan-Canadian Pharmaceutical Alliance (pCPA) has indicated that some listing agreements exist wherein pricing for the product differs based the indication. However, there is no transparency as to when this approach is acceptable from a policy perspective and no clarity on the framework and/or methodology for setting up and executing such agreements. The absence of a clear and standardized framework introduces inherent unfairness to the negotiation process, as only those companies who have engaged in IBP have the insights needed to leverage such a pricing approach. The OHE Office of Health Economics in the UK has written extensively on the potential benefits, potential drawbacks, and various considerations for implementation of IBP. Canada is poised to learn from this research to determine how best to create a framework that clearly spells out conditions and mechanisms for IBP.

This session will provide insights into international policy and methodology efforts related to indication-based pricing and multi-indication payment models, and other potential methods. Panel members will discuss how the pCPA could work with stakeholders to create a structure that would support this approach to pricing within the Canadian environment.

C2. The Imperative of Ethics in Health Technology Assessment: Exploring Practice, Methodology, and Uncertainty

Panel Moderator: Dr. Renata Axler, CADTH

Panellists: Prof. Lars Sandman, Linköping University; Dr. Isabelle Ganache, Institut nationale d'excellence en santé et en services sociaux (INESSS); Duncan Steele, Alberta Health Services

Co-Author: Dr. Deirdre DeJean, CADTH

Abstract

Despite calls for the inclusion of the ethical considerations in health technology assessment (HTA), and indeed the centrality of ethics in its definition, uncertainties remain about best practices, methodologies, and the scope of ethics in HTA. The need for these considerations has come to the forefront in the COVID-19 pandemic, which has highlighted health and social

disparities, and the imperative for fair, rapid, and thoughtful ethical analyses and responses. This panel will bring together Canadian and international experts in the field of ethics in HTA to discuss their experiences in implementing, conducting, and appraising ethics analyses, and their reflections on the future of ethics in HTA and health evidence synthesis. The moderator will prompt guiding questions to examine experiences in implementing ethics programs within HTA agencies, processes for conducting ethics analyses in HTA, and new directions and opportunities for the practice and scope of ethics in HTA. Panellists will deliberate on issues such as an expansion of ethics in HTA toward considerations of how health technologies are produced; what evidence constitutes the value or acceptability of health innovations; and how we can understand the implications of health technologies in social, political, and environmental contexts.

C3. Building Infrastructure to Support Outcomes-Based Agreements in Canada: Can an Outcomes-Based Agreement in Oncology be Operationalized Using Administrative Health Data?

Panel Moderator: Allison Wills, 20Sense

Panellists: Dr. Winson Cheung, Alberta Health Services; Dr. Chris Cameron, EVERSANA; Eva Villalba, Quebec Cancer Coalition; Alex Chambers, Novartis Oncology

Abstract

With the increasing number of promising therapies with imperfect data, particularly in rare disease and precision oncology, coupled with long reimbursement timelines, timely access for patients to novel therapies has become increasingly challenging. Outcomes-based agreements (OBAs) are a potential solution to providing early access for patients to therapies with associated uncertainties, while mitigating the risk for payers of non-performance in the real world.

OBAs have yet to fully gain traction in Canada. Concerns of appropriate real-world data (RWD) availability, an increase in administrative burden, and a lack of resources, infrastructure, and know-how to operationalize such agreements, have been highlighted as barriers. In parallel, Canada's RWD infrastructure has been advancing, with Alberta emerging as a health data leader with advanced infrastructure, broad data capture, and resources to support oncology analytics (the O2 Group). Using the O2 infrastructure, a review of 5 key oncology outcomes was performed to determine suitability to support the administration of an OBA in Canada. Overall survival and time-to-next-treatment were determined as suitable; progression-free survival, patient-reported outcomes, and return to work were deemed inadequate because of data limitations. Additionally, the OBA operational process and steps to collect and analyze RWD were identified, resulting in an operational time frame of 2 to 3 years for cancers with short trajectories.

The panel includes a clinician, a health economics and outcomes research real-world evidence expert, and health technology assessment, patient, and industry perspectives. They discuss key factors to be considered when operationalizing outcomes-based agreements using the health outcomes and processes identified from the research, in the Canadian context.

C4. Using Real-World Evidence to Inform Decision-Making: Imperfect Measures for Uncertain Times

Panel Moderator: Calum Neish, IQVIA Canada

Panellists: Bradley Millson, IQVIA Canada; Durhane Wong-Rieger, CORD Canadian Organization for Rare Disorders; Charles Victor, ICES; Laurie Lambert, CADTH; Nigel Hughes, Janssen Inc.

Co-Author: Maureen Hazel, Janssen Inc.

Abstract

As new drug development continues to focus on more challenging, and targeted, unmet needs, the uncertainty of clinical evidence in niche populations grows. However, making decisions using imperfect information is not new and there are many solutions. This panel will focus on how well-planned evidence generation strategies, with a focus on leading indicators of performance, can support ongoing decision-making and tackle the uncertainty inherent in clinical trials. We will hear from a spectrum of stakeholders about lessons learned, the imperative of making quick decisions, insights on how to design the right real-world evidence, and focus on the future of collecting evidence to address uncertainty.

E1. Real-World Evidence and Health Technology Assessment: Past, Present, and Future

Panel Moderator: Dr. Nicole Mittmann, CADTH

Panellists: Dr. Amy Sood, CADTH; Amanda Allard, CADTH; Peter Dyrda, CADTH; Amanda Manoharan, CADTH; Laurie Lambert, CADTH

This session will examine the real-world evidence work happening at CADTH and future plans related to real-world evidence work. Topics related to background, projects, programs, workshops, and new initiatives will be discussed. Implications for our health systems and evidence considerations will also be discussed.

E2. Is Canada Ready to Embrace the Opportunities Presented by Emerging Technologies in the Field of Alzheimer Disease and Related Dementias?

Panel Moderator: Dr. Sharon Cohen, Toronto Memory Program

Panellists: Dr. Jennifer Ingram, Seniors Care Network, Peterborough Regional Health Centre; Dr. Sina Sajed, Courtice Health Centre; Dr. Louis Verret, Interdisciplinary Memory Clinic (CIME; CHU de Québec); Craig Burns, Patient Partner

Abstract

More than half a million Canadians are living with Alzheimer disease or another form of dementia, with 25,000 new cases every year. By 2031, this number is expected to double. Care for this population is fragmented, resulting in suboptimal patient outcomes, capacity issues at community and primary care, and inefficient utilization of specialty care.

The field is rapidly evolving. Health care needs to be reorganized to keep step and leverage technological advancements. An advisory committee on building capacity for value-based dementia care in Canada — comprised of 21 experts representing clinicians, researchers,

policy organizations, patients, and caregivers from across Canada — was convened by the Conference Board of Canada to deliberate on this issue during 6 working sessions between April and July, 2021. An overarching recommendation is for a clear, patient-centred, multidisciplinary care pathway to support clinical care, and diagnostic, referral, and treatment decisions. A pathway would help patients and caregivers navigate the system and facilitate timely access to effective treatment options at the right point in the disease trajectory - alleviating the burden of disease on patients, caregivers, society, health systems, and the economy, and reduce inequalities in care. Implementation of a pathway requires policy directives to support collaboration across departments and levels of health care in the service of care continuity and alignment with patient needs along the continuum of Alzheimer disease. System reorganization and continuous improvement could be guided using a value-based framework. Representatives of the advisory committee will explore the specific opportunities for optimizing Alzheimer disease care to achieve better value for all.

E3. Funding and Implementation Decision-Making for Genomic Medicine Technologies

Panel Moderator: Nancy Sikich, Ontario Health

Panellists: Dr. Wendy Ungar, SickKids (Hospital for Sick Children) Research Institute; Dr. Robin Hayeems, SickKids; Dr. Pranesh Chakraborty, CHEO (Children's Hospital of Eastern Ontario)

Abstract

Potentially costly genomic and genetic medicine (GM) technologies are at the cusp of translation across Canada for multiple patient populations. Our moderator Nancy Sikich will present an overview of Ontario Health's health technology assessment (HTA) program for GM evidence reviews. Used as the basis of funding recommendations, HTA enables the consideration of safety and effectiveness, cost-effectiveness, budget impact, patients' values and preferences, and ethical, legal, and social issues. Wendy Ungar will describe the work of the Ontario Genetics Advisory Committee (OGAC) — a sub-committee of the Ontario Health Technology Assessment Committee (OHTAC) — to synthesize and review evidence. After solicitation of GM topics, OGAC prioritizes technologies for HTA based on a value framework. Findings are presented to OGAC for deliberation and a draft funding recommendation is made. Upon review and approval by OHTAC, draft funding recommendations are posted for public feedback. C. Ho will speak to processes and oversight subsequent to evidence review, including funding and implementation decision-making specifically to guide GM adoption. Pranesh Chakraborty will describe how GM technologies moving forward are examined by the Provincial Genetics Advisory Committee (PGAC) to provide system-level clinical, scientific, and service delivery advice on the development and implementation of clinical and laboratory GM services. Robin Hayeems will consider how these committees, working together, are an ideal model for producing and reviewing HTA evidence, making funding recommendations and planning province-wide implementation of GM technologies to serve Ontario. She will also comment on how these processes may operate as a valuable template for other jurisdictions grappling with funding and implementing GM technologies.

E4. Glimpses Through the Fog: Exploring Approaches to Prepare for Uncertain Futures

Panel Moderator: Sven Shirmer, Health Canada

Panellists: Corélia Kostovic, INESSS; Kristen Moulton, CADTH; Robyn Lim, Health Canada

Abstract

The COVID-19 pandemic has revealed that institutions responsible for health product regulation and health technology assessment must come to terms with unprecedented and stubborn uncertainty, now and into the future. Approaches and tools such as strategic foresight and horizon scanning can support decision-making for institutional preparedness, resilience, and responsiveness to the needs of people in Canada. CADTH, INESSS and HPFB have begun to explore the potential for these approaches to signal future high-impact challenges and opportunities in our ecosystem. In this interactive panel, our organizations will share their early thoughts on this exploratory work and facilitate an interactive discussion with participants on grappling with change and our possible futures.

G1. When Patients and Clinicians Talk, Are We Listening? How Patient and Clinician Experience Shape HTA Recommendations

Panel Moderator: Alex Chambers, Novartis Oncology

Panellists: Christina Sit, Lung Cancer Canada; Dr. Paul Wheatley-Price, Ottawa Hospital Cancer Centre; Sarah Berglas, CADTH

Abstract

As novel therapies are developed, health technology assessment (HTA) agencies are evolving to keep up with the pace of innovation. A key tenet of HTA is the engagement of clinicians and patients to provide context and experience with the disease and therapy under review. HTAs are designed to inform decision-making through a multi-stakeholder approach considering many perspectives. CADTH is a leader in patient and clinician engagement in HTA, where there is a call for input from these stakeholders for every review. Today's treatment paradigms have been transformed by innovation and novel clinical trial designs, putting pressure on the HTAs to further advance to adapt to these changes. Insights and values that patients and clinicians share can be further enhanced to support HTAs.

For this session, a diverse group of panellists will examine the strengths and opportunities that exist to meaningfully integrate the definition of value that patients and clinicians can share in the continuous evaluation and evolution of HTA processes. The panel will include perspectives from clinicians, HTA, industry, and patient groups. The session will be a moderated discussion among the panellists and will include an opportunity for the audience to participate through questions and discussion.

G2. Improving the Appropriate Use of Medications Across Canada: Building on Current Canadian Policies, Applying Lessons Learned from International Evidence

Panel Moderators: Dr. James Silvius, University of Calgary; Dr. Cara Tannenbaum, Université de Montréal

Panellists: Dr. Mathieu Charbonneau, Canadian Deprescribing Network, CRIUGM, Université de Montréal; Prof. Cheryl Sadowski, University of Alberta; Dr. Justin Turner, Université de Montréal

Abstract

The COVID-19 pandemic placed extreme pressure on Canadian health care systems, leading to patients falling through the cracks along the continuum of care and exacerbating the inappropriate use of medications. Preliminary data shows psychotropic medication use increased between 2019 to 2020 in Canada's 4 largest provinces. However, Canadian provinces have dedicated limited policy-making and resources to improve inappropriate medication use.

Appropriate use of medications needs to be a central component of pharmaceutical policies to protect Canadians, and especially older adults, from harmful effects resulting from inappropriate medication use. Public health policies that promote appropriate medication use are successfully implemented in high-income countries such as Australia, England, and Sweden. Such policies have reduced costs and improved health and system outcomes. Facing uncontrolled costs and the growing use of potentially inappropriate medications, Canada must learn from international evidence to design new, innovative pharmaceutical policy.

The Canadian Deprescribing Network believes a coordinated national approach to appropriate medication use policies would support current jurisdictional initiatives and lead to the adaptation and implementation of evidence-based interventions. The creation of policies to support a national learning system will allow collective knowledge and experiences from across Canada to be shared, improving appropriate medication use for all Canadians.

G3. Models of Care for Chronic Pain: From Options to Implementation

Panel Moderator: Christa Bergquist, CADTH

Panellists: Fiona Campbell, University of Toronto; Virginia McIntyre, People in Pain Network; Tracy Wasylak, Alberta Health Services; Colleen Donder, CADTH

Abstract

Across Canada, there are efforts underway to identify and implement effective approaches for providing care for patients with chronic pain. CADTH conducted an Environmental Scan to explore what models of care are being used, what key issues and challenges have been faced when implementing various models, and what lessons have been learned. CADTH's work aligns with the work and past reports of Health Canada's Canadian Pain Task Force's, including their final report on recommendations for priority actions on pain released in May 2021. The Task Force specifies a need to discuss the development and implementation of innovative person-centred care pathways, such as stepped care and hub-and-spoke models.

The proposed panel discussion will convene leaders in chronic pain and have them share their experiences with implementing different models of care. A CADTH representative will be on the panel to share findings from the Environmental Scan. There will be 50 minutes allotted for the moderator and panel to engage in discussion, followed by 25 minutes for the audience to ask questions. The 50 minutes will include a brief overview of the CADTH report, followed by the panellists sharing their experiences, and ending with a question-and-answer discussion. We hope to include an individual living with chronic pain on the panel to share their experiences with accessing a model of care. This is a valuable opportunity for participants to network, develop a better understanding of various models of care, and learn how others have implemented these models for chronic pain.

G4. Integrating Environmental Impacts Into HTA

Panel Moderator: Lisa Dolovich, University of Toronto

Panellists: Samantha Green, University of Toronto; St. Michael's Hospital; Steven Young, University of Waterloo; Manik Saini, Ministry of Health, British Columbia; Jean Wilson, University of Toronto; Brenda Chang, St Michael's Academic Family Health Team

Abstract

Drugs and devices are a significant contributor to health care's negative environmental and health impacts, including through climate change, pollution and resource depletion. Drugs and devices are estimated to comprise 35% of the English National Health Service's greenhouse gas (GHG) emissions, with anaesthetic gases and propellant inhalers alone contributing to 5% of this total. As well, pharmaceuticals are a major source of toxic pollution (via manufacturing and excretion) and medical devices are an important source of both GHG emissions and plastics waste.

Within Canada and internationally, there is growing interest in the role of Health Technology Assessment (HTA) in mitigating these harms, by mobilizing evidence about environmentally preferable technology options alongside clinical, cost-effectiveness and other evidence to inform the decisions of payers, health care workers and patients. However, "environmental HTA" faces several challenges, including limited awareness of the environmental harms of health care, the undeveloped state of research into the health implications of environmental damage, methodological challenges in valuing health outcomes and assessing trade-offs between efficiency and environmental impact, and policy and practice impediments facing the adoption and implementation of novel approaches to HTA.

The panel will provide insights from HTA practice, environmental impact assessment methodology, and clinical policy and practice regarding the environmental impacts of health technologies and the potential role of HTA in supporting the adoption and use of environmentally preferable health technologies. We will consider achievements in the field, advancements required to realize opportunities, and the potential benefits of success.

Oral Presentation Abstracts

B11. COVID-19 Critical Medication Modelling in Alberta

Presenting Authors: Darren Pasay, Alberta Health Services; Tony Nickonchuk, Alberta Health Services

Abstract

The early days of the COVID-19 pandemic were fraught with unknowns, particularly how much health system resources would be required for COVID-19 patients admitted to intensive care units (ICUs). Alberta Health Services' Pharmacy Services is responsible for procuring medications for all acute care services, including ICUs, across the province. Initial COVID-19 related patient admission projections were beyond anything ever seen before and Pharmacy Services needed modelling to project the amount of medications required for critically ill patients. We will demonstrate how pre-pandemic patient-level data, historic medication utilization, and clinician input shaped the initial critical medication projection modelling in Alberta. As the pandemic progressed, the available data and knowledge of the performance of previous projections evolved. This, combined with changes in health care service delivery, patient flow, medication shortages, COVID-19 therapies, and projection validation were used to improve modelling and will be presented as part of the journey toward the current system. An overview of the predictive performance of the model over time will also be presented. Discussion on the perils and successes of medication utilization modelling in uncertain times, with imperfect and ever-changing data and competing organizational needs, will conclude our presentation.

B12. Understanding the COVID Impact on CADTH Submissions, pCPA Negotiations, and Time-to-Listing Processes in Canada

Presenting Author: Bradley Millson, IQVIA Canada

Co-Authors: Scott Shi, IQVIA Canada; Huijuan Yang, IQVIA Canada; Juejing Ling, IQVIA Canada

Abstract

In response to the coronavirus outbreak, the Canadian health care system rapidly redeployed resources to focus on virus containment potentially requiring non-essential services such as the market access review process to de-prioritize their activities.

Objectives: This study used a data-driven approach to assess whether CADTH submissions, pan-Canadian Pharmaceutical Alliance (pCPA) negotiations, and time-to-listing of CADTH-reviewed files have changed during the post-pandemic era.

Methods: This study also used the IQVIA Pricing and Market Access metrics database. CADTH reviews with Notice of Compliance (NOC) dates were included. Pre-COVID was defined as 2015 to 2019 and post-COVID as 2020. pCPA backlog was calculated at calendar year-end.

Results: The average number of CADTH submissions per year decreased from 62 pre-COVID to 53 post-COVID. The number of pCPA negotiations decreased (46 to 32, pre- to post-COVID) and time from pCPA first appearance to negotiation outcome increased from 173 to 213 days. pCPA backlog increased from 11 files pre-COVID to 26 files post-COVID. The number of CADTH-reviewed drugs achieving provincial listing in at least 1 province per year

decreased from 35 pre-COVID to 25 post-COVID. For these drugs, the time from NOC to first province listing increased from 514 days to 664 days. In 2020, there was a decrease in the number of CADTH submissions, pCPA reviews, and provincial drug listings. pCPA files under consideration, negotiation time, and time-to-listing increased.

Conclusion: The pandemic challenged existing capabilities of drug review processes to balance the urgency of addressing the acute health crisis with the importance of maintaining a steady drug review process, potentially creating longer-term challenges.

B13. Treatments for COVID-19: The Pipeline and Beyond

Presenting Author: Allison Carey, Patented Medicine Prices Review Board

Co-Authors: Caroline Peterson, Patented Medicine Prices Review Board; Nevzeta Bosnic, Patented Medicine Prices Review Board; Blake Wladyka, Patented Medicine Prices Review Board

Abstract

The development of medicines in response to the COVID-19 pandemic has occurred at an unprecedented scale and rate, resulting in a dynamic pipeline marked by significant challenges and successes. This analysis provides an overview of select vaccines and other medicines undergoing clinical evaluation or with recent approval for the treatment and prevention of the novel coronavirus in Canadian and global markets.

Data sources include GlobalData, as well as Health Canada, the US FDA, and the European Medicines Agency online databases. Medicines are defined in 3 main categories: vaccines, which are used to prevent infection of the novel coronavirus; new COVID-19 treatments, which are new medicines used for the prevention or reduction of complications; and repurposed medicines that were originally approved for different indications and are now used to treat COVID-19 or its symptoms. Preventive and repurposed medicines studied include therapeutic classes such as antivirals, interferons, antimalarials, antiparasitics, monoclonal antibodies, cellular therapies, convalescent plasma, and cytokine adsorbers.

As of June 2021, there were 622 vaccines and therapies reported as undergoing phase I, II, and III clinical trials or preregistration for the prevention and treatment of COVID-19 globally. In Canada, 8 medicines, including 5 vaccines, had been approved for COVID-19. The number of global approvals was greater, with approximately 15 such medicines on the market in the US and Europe (excluding Russia). A clearer picture of the characteristics and evolution of the market for new and emerging COVID-19 medicines will enable policy-makers and other stakeholders to better understand and anticipate the unique pressures posed by the COVID-19 pandemic.

B21. Patient Engagement in Canadian Rapid Recommendations on COVID-19 Vaccine Use for People Who Live With Autoimmune Inflammatory Arthritis

Presenting Authors: Dr. Dawn Richards, Canadian Arthritis Patient Alliance; Dr. Glen Hazlewood, University of Calgary; Laurie Proulx, Canadian Arthritis Patient Alliance

Abstract

The COVID-19 pandemic brought about unprecedented challenges to everyone; however, even with the development of vaccines, people who live with autoimmune rheumatic diseases (ARDs) faced even greater barriers. People living with ARDs were formally excluded from participating in COVID-19 vaccine clinical trials. Without evidence related to the efficacy of these vaccines in this group of people, they, their health care providers, and policy-makers were effectively in a vacuum of uncertainty about the potential benefits and risks of these new vaccines.

This presentation will share how the Canadian rheumatology community collaborated to evaluate relevant evidence about COVID-19 vaccines to develop a rapid and living recommendation, as well as a decision aid for people living with ARDs. Presenters will include a person who lives with rheumatoid and osteo-arthritis and the rheumatologist researcher who convened an expert panel (including people living with ARDs, health care providers, and scientists) in January to February 2021, using a Grading of Recommendations Assessment, Development and Evaluation (or GRADE) approach that resulted in rapid recommendations about COVID-19 vaccine use in people with ARDs. Accompanying the rapid recommendations' development was the co-creation and co-development of a decision aid to help people who live with ARDs make a decision about COVID-19 vaccination. The group's work to communicate with policy-makers (including the National Advisory Committee on Immunization), health care providers, and people living with ARDs about these resources will be discussed. The intent is to share how, within a very short time frame, this group that included patients used scientific methods and existing evidence to develop recommendations for the Canadian rheumatology community.

B22. Creating Impact Through Citizen-Led Research: Engaging the Ontario Drug Policy Research Network Citizens' Panel in Characterizing Prescription Benzodiazepine Use in Ontario

Presenting Authors: Tonya Campbell, Unity Health Toronto; Matt Joosse, Ontario Drug Policy Research Network Citizens' Panel

Co-Authors: Siyu Men, ICES; Samantha Singh, Unity Health Toronto; Dr. Mina Tadrous, Women's College Research Institute; Dr. Tony Antoniou, Unity Health Toronto; Terry Ebejer, Ontario Drug Policy Research Network Citizens' Panel; Jane Sanders, Ontario Drug Policy Research Network Citizens' Panel; Josephine Quercia, Ontario Drug Policy Research Network Citizens' Panel; Dr. Tara Gomes, Unity Health Toronto

Abstract

Background: The importance of meaningful, active engagement with citizens in health-related research is increasingly being recognized for helping to ensure that the perspectives of people represented in data are heard, increasing the relevance and value of research, and supporting

effective dissemination of findings. We describe citizen engagement in a drug policy–related research project and review facilitators and challenges.

Approach: The Ontario Drug Policy Research Network (ODPRN) Citizens' Panel (CP) is a group of 22 volunteer citizens recruited from across Ontario who support ODPRN by identifying priority research areas, participating on research teams, and ensuring that citizen perspectives are incorporated throughout the research process. In 2019, the CP proposed a project on the use of prescription benzodiazepines as a topic that would be of interest to policy-makers, researchers, and the public. Through a collaborative process, the CP selected the objectives and measures, provided feedback on the visualization of results, interpreted findings, and reviewed the report.

Results: Facilitators to the engagement of the CP included regular meetings and opportunities to provide feedback and the clear communication of analyses and findings. One challenge was the human- and time-related resources required to support the process. The report on the use of prescription benzodiazepines in Ontario was released publicly on April 28, 2021, garnering the attention of print and social media.

Implications: Engaging citizens with diverse perspectives and lived experiences throughout the research process is a feasible and effective tool to help produce valuable, impactful research with clear implications for policy, the public, and future research.

B23. Accessing Precision Therapies for Children and Youth in Canada: Using Deliberative Public Engagement to Examine Citizens' Values and Preferences for Public Funding Decisions

Presenting Authors: Lisa Wight, SickKids (The Hospital for Sick Children); Mathushan Subasri, SickKids (The Hospital for Sick Children)

Co-Authors: Dr. Cindy Gauvreau, The Hospital for Sick Children; Dr. Yvonne Bombard, Li Ka Shing Knowledge Institute, St. Michael's Hospital; Dr. Alysha Croker, Health Canada; Dr. Robin Hayeems, The Hospital for Sick Children; Antonia Palmer, Kindred Foundation, Ac2orn; Dr. Michael Wilson, McMaster Health Forum; Department of Health Evidence and Impact, McMaster University; Dr. Avram (Avi) Denburg, Hospital for Sick Children

Abstract

Precision therapies hold promise for rare diseases but pose challenges for health care budgets and equitable access to treatment due to frequently high costs and limited evidence on which to premise public funding decisions. Challenges in health technology assessment (HTA) of precision therapies are amplified in pediatric populations. The voices of Canadian citizens are a vital yet overlooked component in value assessments of novel drugs and technologies. We sought to understand what values and principles the public prioritizes for public funding decisions on precision therapies for children and youth in Canada. Four citizen panels were virtually conducted April to June 2021. A representative sample of Canadians, recruited from a national market research panel, comprised 3 panels and a purposive sample of caregivers comprised the fourth. Panel transcripts underwent inductive coding and thematic analysis. Participants (n = 45) were from diverse age cohorts and provinces. Twelve overarching values emerged: costs, disease severity, effectiveness, equity, fair innings, future potential, family impacts, public input, rarity, safety, unmet need, and vulnerability. Participants emphasized effectiveness, safety, and disease severity as critical values. Tensions

characterized each value, reflecting humanitarian versus utilitarian perspectives. The role of general public input was questioned; many participants believed that consultation with citizens with lived experience, rather than those without, should predominate. Hope emerged as a major theme. The Canadian public may hold distinct values and preferences regarding funding novel therapies for children. An enhanced set of criteria incorporating public values could enrich HTA processes when evaluating precision therapies.

B31. A Transparent, Adaptive, Team-Based Approach to Support Evidence-Informed Policy: The Evolution of the Alberta Health Services Scientific Advisory Group

Presenting Authors: Rachael Erdmann, Alberta Health Services; Dr. Lynora Saxinger, University of Alberta

Co-Authors: Dr. Stephanie Hastings, Alberta Health Services; Dr. Braden Manns, University of Calgary

Abstract

The COVID-19 pandemic forced health systems to rapidly adapt care models and policies to ever-changing information. Care innovations are obvious (e.g., virtual care expansion); however, a crucial innovation foundational to the health system pandemic response was the development of timely evidence synthesis processes to support decision-making. In March 2020, Alberta Health Services (AHS) launched the Scientific Advisory Group (SAG) as a transdisciplinary advisory committee to rapidly assess COVID-19 evidence and provide policy recommendations. From April to June, SAG produced 56 evidence syntheses in response to critical questions raised by decision-makers in both AHS and government. Methods and processes have evolved, but SAG reviews are widely recognized as rigorous, transparent, credible, timely, and useful evidence syntheses. SAG demonstrates that evidence can be efficiently integrated into practice by bringing the right information to the right decision-makers at the right time.

The goal of SAG is to, above all, produce reports that are useful to knowledge users. To achieve this, SAG applies a collaborative lens to respond to difficult questions; engages individuals from all affected stakeholder groups from question development to draft review; uses transparency to mitigate situations where the highest degree of rigour is not feasible; produces sound, reasonable recommendations via an interdisciplinary review process; and broadly disseminate final reports to share knowledge.

Health system leaders, employees, and the public value an independent body that can produce accessible evidence syntheses to inform decisions. The SAG represents an innovative model for moving evidence into practice that should persist after the COVID-19 pandemic's end.

B32. Responding to the Needs of Decision-Makers: An Example of Collaboration With Knowledge Users to Facilitate the Use of an Online Platform With HTA Evidence on Tuberculosis

Presenting Author: Eftyhia Helis, CADTH

Co-Authors: Barbara Greenwood Dufour, CADTH; Dr. Gino De Angelis, CADTH; Michelle Clark, CADTH; Dr. Kendra Brett, CADTH; Dr. Laura Weeks, CADTH

Abstract

While an HTA aims to inform decisions on the appropriate use of a specific health technology, decision-makers often express the need to have a more comprehensive picture of the evidence. To respond to this need, CADTH developed a new HTA product — a "condition-level review" (CLR).

After consulting with jurisdictions, tuberculosis (TB) was identified as the topic for CADTH's first CLR. TB is a condition for which evidence is needed — not only on existing but also newer health technologies — to support the elimination of this infectious disease in Canada. The CLR development process provided CADTH with an opportunity for meaningful collaboration with Canadian stakeholders to understand the broader context of evidence needs for TB care. Guided by stakeholder input, the CLR currently includes more than 40 reports that assess the evidence on various health technologies, including drugs and devices. To facilitate uptake of this evidence, CADTH used an online platform to house the information in a user-friendly way. The platform aims to be the main tool for disseminating the evidence and knowledge mobilization tools to support the implementation of the evidence. As the platform was developed, CADTH continued engaging with decision-makers to gather feedback that would help improve the usability of this decision-maker–focused tool.

This presentation will describe CADTH's approach for collaborating with decision-makers across Canada to develop evidence products and an online platform that addresses their needs. It will also discuss the benefits, considerations, and lessons learned for effective stakeholder engagement that supports knowledge uptake and enhances evidence implementation.

B33. Adjusting the Drug Review Process During a Pandemic

Presenting Author: Jeremy Slobodan, Alberta Health Services

Abstract

During the COVID-19 pandemic, several new and re-repurposed drug therapies were identified for the treatment of COVID-19 patients. These drugs required consideration for formulary status; however, they did not have the ability to wait for regular formulary processes. This presentation will outline how Alberta Health Services adapted its processes to ensure the right clinician groups were consulted with and a connection to the drug approval remained intact, while ensuring timely and evidence-informed decisions were made to best support patient care in a rapidly changing environment.

B41. Client-Centred Virtual Approach to Community-Based Services in Western Newfoundland and Labrador

Presenting Author: Kelly Rubia, Western Health, Newfoundland and Labrador

Co-Author: Karen Tulk, Western Health, Newfoundland and Labrador

Abstract

Using secure video connectivity and a client-centred approach, community-based programs were able to provide services to clients in rural and remote areas of Western Newfoundland and Labrador throughout the pandemic. The goals were to maintain or increase access to client services and to also reduce risk, minimize wait times, and increase consistent peer support and consultative processes.

Benefits were demonstrated for clients of Community Behavioural Support, Direct Home Services, Physiotherapy, Community Health, and Mental Health & Addictions program areas. Clients were seen more frequently and on a more regular basis (not impacted by weather, COVID outbreaks, or travel times) and seen in their natural environment in real-time, and providers and clients were able to adhere to the public health restrictions imposed by the pandemic (without additional providers physically in the home).

Secure video enabled peers to meet virtually to discuss complex cases and new approaches. Providers were able to host time-sensitive training to several different sites at the same time, adhering to public health guidelines.

Based on feedback and economic analysis, virtual care has increased connectivity for remote/rural areas, increased access to services, reduced wait times (e.g., 2 years to 2 months), expanded the geographical area of providers, expanded services to residents and staff of community-based Personal Care Homes, enabled the creation of program-related resources with a virtual lens, increased provider efficiencies via reduced travel (and associated risks, personal inconveniences, and stressors) of providers, expanded access to mentorship of clinical leads resulting in positive impact on provider learning and competencies, and overall increased efficiencies to the health system.

B42. Exploring Virtual Health Care Through the HQCA's COVID Surveys

Presenting Author: Roland Simon, Health Quality Council of Alberta

Co-Authors: Dr. Markus Lahtinen, Health Quality Council of Alberta; Jiabi Wen, Alberta PROMs and EQ-5D Research and Support Unit (APERSU); Dr. Fatima Al Sayah, APERSU; Prof. Jeff Johnson, APERSU; Prof. Arto Ohinmaa; APERSU

Abstract

The COVID-19 pandemic has changed how people engage with the health care system. A significant proportion of primary health care encounters have been moved to virtual care in the form of telephone, video call, or email visits. The movement toward virtual health care during the pandemic brings a number of important implications. As part of its broader COVID-19 Experiences and Impact Survey, the Health Quality Council of Alberta asked Albertans about their experiences with virtual health care visits during the pandemic; 11,196 and 11,789 respondents answered the wave 1 and wave 2 surveys, respectively. Nearly half of respondents had a virtual visit during the pandemic (41%) and 63% of them had a virtual visit for the first time. Openness to future virtual health care was generally positive,

with almost two-thirds open to future virtual visits (60%). However, a number of factors may affect a respondent's openness to virtual visits. Socioeconomic factors play a role, in addition to health-related quality of life measures. Furthermore, challenges to the provision of virtual health care for clinicians are exacerbated by health challenges faced by respondents. Respondents who avoided seeking in-person health care were more likely to report worse mental and physical health than those who had not delayed health care. This reinforces the need for appropriate expansion of virtual health care options. This research demonstrates the importance of virtual health care visits in both pandemic and non-pandemic settings.

B43. SYNchronizing Exercises, Remedies in Gait, and Cognition at Home: Feasibility of a Home-Based, Double-Blind, Randomized Controlled Trial to Improve Gait and Cognition in Individuals at Risk for Dementia

Presenting Author: Karla Faig, Horizon Health Network, New Brunswick

Co-Authors: Dr. Chris McGibbon; University of New Brunswick; Dr. Pamela Jarrett, Horizon Health Network; Dr. Grant Handrigan, Université de Moncton; Dr. Carole Tranchant, Université de Moncton; Dr. Danielle Bouchard, University of New Brunswick; Andrew Sexton, University of New Brunswick; Dr. Linda Yetman, Horizon Health Network; Stéphanie Crapoulet, Vitalité Health Network; Nellie Kamkar, Gain and Brain Laboratory, Lawson Research Institute

Abstract

Background: Prevention of Alzheimer Disease and Related Dementias (ADRD) may be possible for those with subjective cognitive impairment (SCI) or mild cognitive impairment (MCI), or normal cognition and risk factors. Physical exercise and cognitive training have been shown to enhance cognitive function and mobility in MCI when delivered in a research facility. The feasibility of delivering interventions in the home of older adults at risk for ADRD has not been established. Participants' preference for these interventions are also unknown. The primary goals of this study are: 1) assess the feasibility of a home-based delivery of exercise and cognitive interventions; 2) evaluate the relationship between participants' intervention preferences and adherence. Secondary objectives focus on cognition, frailty, mobility, sleep, diet, and mental health.

Methods/Analysis: SYNERGIC@Home is a randomized control trial with a 16-week home-based intervention program of physical exercises with cognitive training. Sixty-four participants will be randomized in blocks of 4: 1) combined exercise (aerobic and resistance) plus cognitive training (Neuropeak); 2) combined exercise plus control cognitive training (web searching); 3) control exercise (balance and toning) plus cognitive training; 4) control exercise plus control cognitive training. It will be implemented virtually through video conferencing. Baseline, 4-, and 6-month post-intervention will include measures of cognition, frailty, mobility, sleep, diet, and mental health. Feasibility outcomes include recruitment and retention of study participants. The relationship between preference and trial adherence will be explored. Secondary outcomes will evaluate the effect of the interventions on cognition, mobility, and general well-being.

D11. Sharing Our Story: Overcoming Barriers to Harnessing the Power of Data to Support Innovation in Mental Health Services

Presenting Author: Dr. Leslie Anne Campbell, Dalhousie University

Co-Authors: Jennifer McCarron, IWK Health; Onur Pakkanlilar, IWK Health

Abstract

Learning health systems offer the opportunity to transform health care with the prospect of nimble, responsive health services. The successful integration of continuous improvement and opportunities for innovation requires timely, accurate data to inform rapid, evidence-based decision-making and support curiosity. Important barriers to the successful implementation of learning health systems lie in the lack of robust data capture at the point of care and the need for an alignment of processes to identify and integrate opportunities for innovation. A disconnect between system-level planning and day-to-day clinical practice may contribute to this gap.

We used routinely collected quality improvement data from a tertiary child and adolescent community mental health and addictions service to share the story of the shift to virtual care during the COVID-19 pandemic with clinicians, staff, leadership, and researchers. The story demonstrated the need for, and the successful impact of, an innovative solution to an unexpected drop in demand for services and subsequent excess system capacity at the beginning of the pandemic. The data informing the story reflected key continuous improvement pillars of morale, productivity, quality, and access. Clinicians, staff, leadership, and researchers together reviewed the story underpinned by the data to bridge the gap between perspectives by offering the opportunity to review and contextualize the interpretation of the data and identify important gaps in the story. The process served as an important knowledge translation tool for demonstrating the value of routinely collected, robust data for identifying opportunities to provide responsive mental health services and embed innovation in clinical care.

D12. Why Would Canada Have the Longest Wait Times for Alzheimer Treatment Among the G7 Countries?

Presenting Author: Dr. Soeren Mattke, University of Southern California

Co-Author: Mo Wang, Benefit Research

Abstract

Background: The emerging disease-modifying Alzheimer treatments present a health system challenge because of the combination of a large prevalent patient pool and a complex diagnostic process. Analyses of system preparedness have projected Canada to have the longest and most protracted wait times for access among G7 countries.

Methods: Policy analysis study was undertaken using comparative health system data and 17 semi-structured interviews with experts in Canada.

Results: Compared to other G7 countries, Canada has a high number of family physicians but low numbers of dementia specialists and imaging equipment per capita, leading to wait times even today. The capacity constraints result from limited investment in infrastructure and deliberate use of supply side restrictions for cost containment. Several options exist to alleviate those constraints in the short run, such as building on existing primary-led memory

care models, more flexible use of existing imaging devices, and utilization of novel diagnostic technology like digital and blood-based biomarker tests.

Conclusions: Canada faces a unique challenge to make a disease-modifying Alzheimer treatments accessible because of limited capacity for memory care. While opportunities exist to improve access, they are not likely to be realized fast enough in the absence of a deliberate planning effort.

D13. Responding to the Changing Demand for Child and Adolescent Mental Health Services: Supporting Evidence-Informed Planning

Presenting Author: Mark Bennett, Dalhousie University

Co-Authors: Leslie Anne Campbell, Dalhousie University; Sharon Clark, IWK Health Centre

Abstract

A transformative model of child and adolescent mental health service delivery, the Choice and Partnership Approach (CAPA) was implemented across pediatric tertiary community mental health clinics in Halifax, Nova Scotia in 2012 to invest in a family-centred model of care and to think differently about ways to manage the increasing demand for services and escalating wait times. While CAPA is more adaptable to changing demands than traditional service models, anticipating demand for services remains challenging. Particularly in light of the uncertainty introduced by the COVID-19 pandemic, the relative impacts of planning decisions on wait times are often unclear and counterintuitive. We aimed to support a nimble, responsive mental health care system by developing a planning tool to promote evidence-informed and flexible decision-making.

System planners, clinicians, staff, and health services researchers co-created a discrete event simulation model employing data routinely captured by the outpatient clinics to demonstrate the relative impacts of key service planning and delivery decisions on wait times while accounting for system uncertainty. The modelling tool was designed to be accessible to all stakeholders to foster transparency, ensure accurate capture of clinical processes, and enhance uptake by supporting integrated knowledge translation. The modelling results demonstrated the importance of typically overlooked marginal gains in system performance and measures impact in the form of full-time equivalent clinicians. The tool bridges commonly perceived differences in priorities between system planning and clinical care and has great potential as a hands-on knowledge translation booster.

D21. The Evolution of Non-Drug Health Technology Assessment in British Columbia

Presenting Author: Selva Bayat, British Columbia Ministry of Health

Co-Author: Manik Saini, BC Ministry of Health

Abstract

Health technology assessment (HTA) projects have changed considerably in the last decade. While fundamental components such as review of the clinical evidence, cost-effectiveness and budget impact analysis, and stakeholder engagement have remained pivotal components of an HTA, the importance of incorporating socioeconomic factors within the analysis has been highlighted as an emerging need by patients, clinicians, and policy-makers.

Specifically, in the last 5 years, additional societal considerations have been emphasized such as: 1) jurisdictional scan assessment (identifying the policy decision-making process in other jurisdictions), 2) patient engagement via review of the published literature, direct patient engagement, or collaborations with patient organizations and/or patient partners; 3) ethical analysis including the impact of the technology under assessment on vulnerable populations; 4) incorporation of Indigenous ways of knowing; and 5) assessment of the environmental impact of a proposed health technology.

The incorporation of a more societal lens in HTAs has allowed for a decrease in uncertainty of contributing factors impacting the development of health policy options and subsequent health care delivery; and thus, is in reflection of the changing needs of policy-makers to address health policy initiatives. Moving forward, BC's Health Technology Assessment Office is working to create a standardized approach to consistently incorporate the societal and population health perspectives aforementioned; and furthermore, expand to create more robust methodological processes, both quantitatively within the economic analysis, and qualitatively within the larger HTA process.

D22. Use of Real-World Evidence for Managing Health Technologies Throughout the Life Cycle of Implantable Left-Ventricular Assist Devices

Presenting Author: Lucy Boothroyd, INESSS

Co-Authors: Leila Azzi, INESSS; Laurie Lambert, INESSS; Maria Vutcovici-Nicolae, INESSS; Elisabeth Pagé, INESSS; Marie-France Duranceau, INESSS; Catherine Truchon, INESSS

Abstract

Background: A Cardiology Evaluation Unit was established in 2004 within the Institut d'excellence en santé et en services sociaux (INESSS) with a novel mandate to collect real-world evidence (RWE) to complement traditional literature-based health technology assessment. In 2011, the Ministry of Health and Social Services (MSSS) mandated INESSS to assess the value of implantable left-ventricular assist devices (LVAD) for end-stage heart failure. Herein we show how RWE was used to inform decisions and to evaluate health system performance throughout the device's life cycle.

Methods: Various products were diffused: a guidance (2012), field evaluation reports before (2015) and after (2021), MSSS decisions concerning use, and provincial standards (2016).

Results: Based on the guidance's review of trial data and published RWE, LVADs were recognized as complementary to heart transplantation and the emerging practice of LVADs as "destination therapy" (DT) for transplant-ineligible patients was supported under conditions of continued evidence generation to address uncertainty. INESSS coordinated RWE collection from implanting centres over an 8-year period; 2010 to 2012 data showed similar patient selection and outcomes as in an international registry (Intermacs). Quebec became an early Canadian adopter of DT in 2015. INESSS produced standards to guide practice in 2016. The evaluation of structures, processes, and outcomes by INESSS continued until 2018, showing good patient outcomes, including for DT, and careful patient selection via a multidisciplinary process. Quebec patients are generally less sick than those in Intermacs and more likely to benefit. RWE provided essential input to inform clinical guidance and decision-making by policy-makers, clinicians, and patients.

D23. Continuous Glucose Monitors in British Columbia: From Assessment to Funding Announcement

Presenting Authors: Manik Saini, British Columbia Ministry of Health; Dr. Clifford Lo, British Columbia Ministry of Health

Abstract

Health-promoting watches, wristbands, and patches have become ubiquitous in recent years. Some of these devices provide an option to self-manage conditions that could previously only be managed by trained health care providers. In June of 2021, British Columbia announced its decision to fund one such device for people with diabetes.

Join 2 members of British Columbia's Ministry of Health as they describe how the decision to fund continuous glucose monitors came to be made from 2 distinct yet complementary perspectives. Manik will begin by describing how the health technology assessment (HTA) was conducted, starting with a partnership with Alberta to build on their existing work, conducting additional qualitative data collection including clinician and patient engagement, and culminating with an economic analysis to determine cost-effectiveness within British Columbia's context and a budget impact analysis to quantify the degree to which distinct health system budgets would be impacted. Clifford will then describe the handover between the HTA process and the decision-making process for Pharmacare, including additional stakeholder consultations and economic analysis.

D31. PRecision Oncology Evidence Development in Cancer Treatment PREDiCT: From Theory to Clinical Practice

Presenting Author: Dr. Cheryl Ho, BC Cancer

Co-Authors: Dr. Samantha Pollard, BC Cancer; Deirdre Weymann, BC Cancer; Dr. Howard Lim, BC Cancer; Dr. Stephen Yip, BC Cancer; Dr. Deepu Alex, BC Cancer; Dr. Dean Regier, BC Cancer

Abstract

Enhanced biological understanding of individual cancers has resulted in identifying rare subtypes of cancers. As a result, randomized controlled trials (RCTs) are infeasible, in turn challenging our ability to establish causal inference for clinical and economic evaluation. Precision oncology requires the design and implementation of learning health care systems (LHS) that integrate genomic data with other health information to support real-time clinical decision-making, evidence generation, and intervention evaluation. At BC Cancer, the PREDiCT program launched in 2021 using a case study of entrectinib to target metastatic cancer patients who harbour *NTRK* fusions. PREDiCT will develop and pilot necessary processes and infrastructure for early-stage, life cycle health technology assessment (LC-HTA) of targeted treatments for rare biomarkers.

PREDiCT's 4 linked initiatives include the implementation of testing strategies to identify *NTRK*+ fusions, evaluation of the therapeutic efficacy of selected targeted molecules, integration of prospective collection of patient-reported outcomes into clinical care and evaluation of an LC-HTA framework to build evidence and allow conditional access to entrectinib to examine health benefit and sustainability. This presentation will highlight the steps and challenges in implementing a learning health care system.

D32. The Importance of the Disease-Free Survival End Point to Survivors of Lung Cancer

Presenting Authors: Shelagh Szabo, Broadstreet HEOR; Jackie Manthorne, Canadian Cancer Survivor Network

Co-Authors: Andrea Bever, Broadstreet HEOR; Jackie Manthorne, Canadian Cancer Survivor Network; Tissa Rahim, Broadstreet HEOR; Layla Moumin, Canadian Cancer Survivor Network; Dr. Karissa Johnston, Broadstreet HEOR

Abstract

Background: Lung cancer is the most frequent cancer diagnosis and leading cause of cancer death in Canada. In lung cancer clinical trials, overall survival (OS) is a widely used end point; however, disease-free survival (DFS) — the time to cancer recurrence or death from any cause — may be a better indicator of transformative patient outcomes. While the use of DFS is growing, patient perceptions of its validity have not been established.

Objective: To understand the importance of DFS from the perspective of Canadian lung cancer survivors.

Methods: This qualitative study included survivors of stage Ib to IIIa lung cancer who participated in semi-structured interviews in early 2021. Participants described their experience of cancer diagnosis and treatment, and provided their perspectives on DFS and OS, including how well each end point aligned with their treatment priorities. Thematic analysis was used to explore patterns in responses.

Results: Of 18 participants, the mean age was 64 years, 17% were male, 89% had had surgery, and 56% had received chemotherapy. Most participants viewed DFS as intrinsically relevant to their treatment priorities. One individual's interest in DFS was limited to its potential surrogacy with OS. All participants emphasized that new treatments should be approved based on DFS when OS data are not yet available; an issue that was often viewed in the context of promoting patient agency in treatment decision-making.

Conclusions: These findings validate DFS as a meaningful end point from the perspective of lung cancer survivors and highlight patients' desires for rapid approval of treatments that have been demonstrated to improve DFS.

D33. Utilization of COVID-19–Related Funding Modifications for Systemic Cancer Therapies in Ontario, Canada

Presenting Author: Jaclyn Beca, Ontario Health (Cancer Care Ontario)

Co-Authors: Dr. Rebecca Mercer, Ontario Health; Xiaochen Tai, Ontario Health (Cancer Care Ontario); Dr. Steven Habbous, Ontario Health (Cancer Care Ontario); Lyndee Yeung, Ontario Health (Cancer Care Ontario); Ron Fung, Ontario Health (Cancer Care Ontario); Rohini Naipaul, Ontario Health (Cancer Care Ontario); Dr. Kelvin Chan, Sunnybrook Health Sciences Centre; Scott Gavura; Ontario Health (Cancer Care Ontario)

Abstract

Background: Ontario Health (Cancer Care Ontario)'s New Drug Funding Program (NDFP) is the primary funding program covering injectable cancer therapies administered in outpatient hospital clinics. To qualify for funding under NDFP, patients must satisfy explicit clinical

criteria. A series of interim funding modifications were introduced beginning March 2020 due to COVID-19 to allow clinicians to adapt specific treatment plans in light of capacity constraints and infection risks. Using NDFP data, we assessed the utilization of COVID-19 related funding modifications between March 2020 and March 2021.

Methods: For most types of NDFP funding modifications, hospitals were required to submit a patient-specific "prior approval" request via the Program's online adjudication system. Prior Approvals referencing "COVID" or "pandemic" were identified in NDFP data and categorized by type of modification. The Prior Approval request submission date was used to identify new patients and capture subsequent treatment claims by drug and indication.

Results: During the study window, COVID-19 related modifications were requested for 1,116 patients receiving 63 unique drug-indications funded through NDFP. The number of treatment claims following COVID-19 related modifications was less than 3% of all treatment claims in the NDFP per month. The most common funding modification was to extend dosing intervals for immunotherapies to reduce clinic visits.

Conclusions: The interim funding modifications for NDFP implemented during the pandemic helped support the continued delivery of cancer care within Ontario across a range of treatment settings and cancer types. Future evaluations leveraging these data are planned for assessing clinical outcomes and informing future practice.

D41. The Value of Genomic Sequencing: Real-World Experiences With Clinical Utility

Presenting Author: Salma Shickh, University of Toronto

Co-Authors: Chloe Mighton, St. Michael's Hospital, Unity Health Toronto and University of Toronto; Dr. Jordan Lerner-Ellis, Mount Sinai Hospital; Dr. Nancy N. Baxter, University of Melbourne; Dr. Andreas Laupacis, St. Michael's Hospital; Dr. Yvonne Bombard, Li Ka Shing Knowledge Institute, St. Michael's Hospital

Abstract

Background: Health technology assessment (HTA) frameworks for genomic sequencing (GS) prioritize diagnostic yield and clinical management in evaluating clinical utility. However, GS can provide other forms of utility (e.g., familial benefits) that are not currently incorporated into frameworks. There is limited real-world evidence of clinicians' experiences with GS utility and whether these align with HTA frameworks.

Aim: Explore clinicians' experiences with the utility of GS.

Methods: A qualitative interpretive description study was conducted using semi-structured interviews with Canadian clinicians using clinical GS. Thematic analysis employing constant comparison was used.

Results: Clinicians (n = 25) considered GS to provide benefits beyond diagnosis and management (e.g., familial benefits, ending diagnostic odyssey, reducing further diagnostic tests). However, the prioritization of benefits varied based on patient population (grouped into cancer or non-cancer) and whether the benefits were considered attainable. Cancer clinicians prioritized diagnosis and management when deciding to order GS, given its importance in treatment selection. Conversely, non-cancer clinicians, who typically care for patients on long diagnostic odysseys, acknowledged prioritizing benefits not currently included in frameworks

(such as ending the diagnostic journey and improving access to community supports, for example). These clinicians argued that access is currently too limited because of the disconnect between practice and frameworks determining funding.

Conclusion: Our findings provide evidence for expanding frameworks for GS to incorporate additional benefits already being used in practice. This is critical, as current frameworks undervalue GS benefits, which has limited its funding and access. Future research is needed to quantify the additional benefits and standardize metrics for measuring them.

D42. A Model for the Disclosure of Incidental Genomic Sequencing Results in a Clinical Space

Presenting Authors: Emma Reble, St. Michael's Hospital; Rita Kodida, St. Michael's Hospital

Co-Authors: Marc Clausen, Unity Health Toronto; Salma Shickh, University of Toronto; Chloe Mighton, St. Michael's Hospital, Unity Health Toronto and University of Toronto; Dr. Christine Elser, University Health Network; Dr. Andrea Eisen, Sunnybrook Health Sciences Centre; Seema Panchal, Mount Sinai Hospital; Dr. Andrea Eisen, Sunnybrook Health Sciences Centre; Melyssa Aronson, Fred A. Litwin Family Centre in Genetic Medicine; Tracy Graham, Sunnybrook Health Sciences Centre; Susan Armel, University Health Network; Dr. Kasmintan Schrader, BC Cancer Research Centre; Dr. June Carroll, Mount Sinai Hospital; Iris Cohn, The Hospital for Sick Children; Dr. Jordan Lerner-Ellis, Mount Sinai Hospital; Dr. Yvonne Bombard, Li Ka Shing Knowledge Institute, St. Michael's Hospital; Dr. Raymond Kim, University Health Network; Emily Glogowski, GeneDx; Chantal Morel, Mount Sinai Hospital; Nicole Forster, Mount Sinai Hospital

Abstract

Background: Genomic sequencing is increasingly used as a diagnostic tool for hereditary diseases; however, this allows for the potential to identify genetic results unrelated to the reason for testing — i.e., incidental results (IRs). IRs can allow for early detection and prevention in asymptomatic individuals. However, many IRs are currently not analyzed as part of standard clinical care. The amount and type of IRs that can be identified in an individual is vast and complex, making it unclear how to report IRs and manage patients accordingly. These issues need to be addressed to allow for the integration of disclosing IRs in clinical practice.

Aim: To develop a model for the analysis, disclosure, and management of IRs and .

Methods: We consulted with genetic counsellors, molecular and clinical geneticists, pharmacogenomics experts, and other genetics decision-makers to determine a feasible workflow for the integration of managing IRs in clinical care. Key decisions included determining which IRs to include on a report and communicating the appropriate clinical recommendations to clinicians.

Results: A model was developed that incorporates the genetic counselling of IRs, the analysis of patient preferences of IRs, reporting based on IR classifications, and a referral structure dependent on the type of IR identified. We based our model on current genetic testing practices and incorporated genetic counsellors, molecular and clinical geneticists, and general practitioners in the IR disclosure process.

Conclusions: Our model represents a practical process for the disclosure of IRs in order to improve the uptake of a promising new technology that requires complex implementation.

D43. Intended Health Services Use for Certain and Uncertain Genomic Sequencing Results Among Members of the Canadian Public: A Cross-Sectional Survey

Presenting Author: Chloe Mighton, Unity Health Toronto

Co-Authors: Marc Clausen, Unity Health Toronto; Agnes Sebastian, University of Toronto; Sarah Muir, St. Michael's Hospital, Unity Health Toronto; Salma Shickh, University of Toronto; Dr. Nancy N. Baxter, University of Melbourne; Dr. Adena Scheer, St. Michael's Hospital, Unity Health Toronto; Emily Glogowski, Sanofi Genzyme; Dr. Kasmintan Schrader, BC Cancer Research Centre; Dr. Jordan Lerner-Ellis, Mount Sinai Hospital, Sinai Health; Dr. Raymond Kim, University Health Network; Dr. Theresa Kim, Statistics Canada; Dr. Dean Regier, BC Cancer; Prof. Kevin Thorpe, Dalla Lana School of Public Health, University of Toronto; Dr. Ahmed Bayoumi, University of Toronto, Unity Health Toronto; Dr. Yvonne Bombard, Li Ka Shing Knowledge Institute, St. Michael's Hospital

Abstract

Genomic sequencing (GS) generates complex results, including variants of uncertain significance (VUS). It is recommended that VUS not be acted on. The public's intended use of VUS is unknown. We aimed to compare intended health service use for certain (pathogenic) and uncertain (VUS) GS results and explore participants' characteristics associated with the intent to use more health services for uncertain results.

A survey was administered online to a Canadian sample. Participants were randomized to certain or uncertain result and asked which health services they would hypothetically use if given a colon cancer risk result. The survey assessed sociodemographics, medical history and attitudes toward genetics, technology, and health care. Chi-squared tests compared proportions of participants who would use each health service for certain and uncertain results. In the uncertain results group, a Poisson regression model tested associations between participant characteristics and the number of health services they would use; adjusted results are reported. Participants (n = 1,003, 60% completion rate) were, on average, aged 58.1 (standard deviation 16.3) years and 50.4% were female. Chi-squared tests indicated more participants would consult a health care provider (72.0% versus 63.3%, P = 0.003) or request surgery (6.8% versus 2.7%, P = 0.002) for certain results than uncertain results; similar proportions would request monitoring (82.1% versus 77.4%, P = 0.07). From the Poisson regression, positive attitudes toward genetics (beta = 0.12, standard error = 0.02, P = 0.000008) and perceived importance of advanced medical care (beta = 0.4, standard error = 0.07, P = 0.000001) were statistically significantly associated with intent to use more health services for uncertain results. Individuals may want to act on VUS; genetic counselling may promote appropriate management.

F11. Off-Label Prescribing in Canada is Prevalent and Often Lacks Effectiveness: Why Aren't We Addressing It?

Presenting Author: Dr. Janet Currie, Independent Voices for Safe and Effective Drugs

Abstract

Off-label prescribing in Canada is prevalent and often lacks effectiveness. Why aren't we addressing it? Off-label prescribing occurs when a drug approved by Health Canada is prescribed for another indication, patient group, dose level, or method of administration for which it hasn't been approved. Fundamentally, there is no assurance that a drug prescribed off-label meets Health Canada's standards for safety and efficacy required for approved drugs. Off-label prescribing is legal because it falls within the provincially regulated practice of medicine. The promotion of off-label uses by pharmaceutical companies is not allowed but appears to be common.

On average, about 11% of all drugs prescribed in Canada are for off-label uses but prevalence rates are higher for drugs treating central nervous system problems (26%) and infections (17%). More than 65% of the drugs used to treat conditions such as fibromyalgia, neurogenic pain, and anxiety are prescribed off-label. Many off-label uses are beneficial, especially where few other treatment options exist. However, research indicates that 80% of drugs prescribed off-label lack evidence of their effectiveness and some common off-label uses are associated with significant safety problems. This presentation will discuss the results of research that examined the policy, clinician, patient, and sociocultural drivers associated with the rising off-label use of domperidone to treat insufficient breast milk in British Columbia. The goal of this research was to identify approaches to improve the transparency, safety, and effectiveness of off-label prescribing in general. Policy-related, clinical practice, ethical, and informed consent strategies will be discussed.

F12. Expensive Drugs for Rare Diseases: Insights Into a Vital and Rapidly Growing Market Segment

Presenting Author: Brian O'Shea, Patented Medicine Prices Review Board

Abstract

Many countries have established orphan drug frameworks to spur the development of treatments for rare indications, offering financial or regulatory incentives to make new drug development in these areas viable. Canada does not currently have an official orphan drug framework, although certain jurisdictions have special reimbursement processes for rare disease drugs and the federal government has announced plans to implement a strategy for high-cost drugs for rare diseases in 2022.

A group of expensive drugs for rare diseases (EDRDs) was identified for this analysis by compiling medicines with orphan designations in the US or EU that have launched in Canada and applying treatment cost thresholds. The number of EDRDs in Canada has greatly increased over the past decade, with a quickening pace of approvals since 2015. An analysis of sales shows that this rapidly expanding market, driven by growth in oncology treatments as well as other therapeutic areas, will continue to increase pressure on public and private drug plan budgets as more rare disease indications are treated.

IQVIA MIDAS data were used to analyze EDRD utilization and pricing in Canada, comparator countries, and the wider OECD. Public plan data are sourced from the National Prescription

Drug Utilization Information System Database at the Canadian Institute for Health Information (CIHI) and private plans data from the IQVIA Private Pay Direct Drug Plan Database.

This presentation will provide context for discussions around funding for rare diseases in Canada by providing policy-makers and public and private stakeholders with a clear assessment of EDRD trends in the Canadian pharmaceutical market.

F13. Biosimilars in Canada: Building Momentum in the Wake of Recent Switching Policies

Presenting Author: Yvonne Zhang, PMPRB

Co-Author: Caroline Peterson, PMPRB

Abstract

Sales of biologics in Canada reached $8.7 billion in 2019, or nearly one-third of pharmaceutical spending. Given the strength of this market, biosimilars offer a significant opportunity for cost savings for Canadian payers. Recent policy changes announced and implemented by several public drug plans aimed at promoting switching to available biosimilars, as well as initiatives introduced by some private payers, are expected to result in significant cost reductions, helping to offset the pressure from higher-cost medicines in coming years.

Capturing data from the NPDUIS Database at the Canadian Institute for Health Information (CIHI), along with IQVIA's MIDAS, Canadian Drugstore and Hospital Purchases Audit (CDH) and private drug plan databases, this presentation compares the emerging Canadian market for biosimilars with our international counterparts. The analysis delves more deeply into the market dynamics of biosimilars in Canada and assesses the impact of recent and upcoming switching initiatives, highlighting the potential for cost savings. Despite biosimilar approvals, sizable price discounts, and increasing uptake, the market in Canada continues to lag behind international comparators. The results of this ongoing study show that provincial non-medical biosimilar switching policies have prompted wider uptake of biosimilar use in their jurisdictions and play an increasing role in offering significant savings, though impacts are varied across the country.

This analysis will inform decision-makers and other stakeholders on the continuing effort to promote the use of biosimilars to achieve unrealized savings nationwide and will illuminate discussions on collaboration in Canada's health care sector.

F21. A Dedicated, Non-Specialist Team to Scale Up Machine Learning in Evidence Synthesis

Presenting Author: Dr. Ley (Ashley) Muller, Norwegian Institute of Public Health

Co-Authors: Dr. Heather Malanie Ames, Norwegian Institute of Public Health; Patricia Jardim, Norwegian Institute of Public Health; Dr. Jan Himmels, Norwegian Institute of Public Health; Lien Nguyen, Norwegian Institute of Public Health; Dr. Chris Rose, Norwegian Institute of Public Health; Dr. Stijn van de Velde, Magic Evidence

Abstract

The Norwegian Institute of Public Health's division for health and social policy evaluation produces 30 to 50 health technology assessments and systematic reviews per year, with

a staff of 50 researchers, information specialists, statisticians, and health economists. Most commissioners are national directorates creating or revising health or welfare policy guidelines; a portion of evidence syntheses are also conducted as part of European and international collaborations. Until March 2020, utilization of machine learning and automation in these evidence syntheses was minimal. As of March 2021, half of our reviews have used at least 1 machine learning function because of the creation of a dedicated machine learning implementation team of 7 researchers — none of whom had machine learning expertise within evidence synthesis. This team has implemented 9 applications of 6 different machine learning functions across 19 reviews, trained 23 systematic reviewers or librarians, and anchored machine learning in our institution's updated 5-year strategic priorities.

We will discuss this development over the past 12 months, with a focus on scaling up activities and challenges: the role of pilot projects, seeking buy-in from the bottom up versus top-down, skepticism from different internal stakeholders, responses from government commissioners, and software and technical assistance needs.

F22. A User-Centred Study of Automating the Risk of Bias in Real-Life Systematic Reviews

Presenting Author: Patricia Jardim, Norwegian Institute of Public Health

Co-Authors: Dr. Chris Rose, Norwegian Institute of Public Health; Dr. Heather Malanie Ames, Norwegian Institute of Public Health; Dr. Stijn van de Velde, Magic Evidence; Dr. Jan Himmels, Norwegian Institute of Public Health; Lien Nguyen, Norwegian Institute of Public Health; Dr. Ley (Ashley) Muller, Norwegian Institute of Public Health

Abstract

Background: Risk of bias (RoB) assessment is a resource-intensive process for systematic reviews of randomized controlled trails (RCTs). RobotReviewer was developed to automate as much of this process as possible, including the extraction of data used to support assessments and describe the RCT.

Method: We conducted a pragmatic, user-led study in 2 real-life systematic reviews involving 6 reviewers: 1 on the effect of employment interventions for the long-term unemployed and another on treatment for violent perpetrators. The study compared 2 arms: semi-automated, human-in-the-loop RoB assessment with RobotReviewer built in to EPPI-Reviewer versus RobotReviewer's own pilot web solution. We collected the following data for the first 4 domains of each study: RobotReviewer's automated assessment, reviewer 1's assessment, reviewer 2's assessment, and the final assessment. We collected time spent by each reviewer, the process of coming to an agreement, administration, training, and data analysis. Then, we compared accuracy and time across the 2 arms, and reviewer characteristics. After this, we explored users' acceptability of Robot Reviewer.

Results: Researchers accepted 83% of RobotReviewer"s assessments and 81% of each other's assessments. RobotReviewer performed as accurately as any 1 researcher compared to the final consensus. There was no difference in the amount of RobotReviewer corrections made according to researcher experience level, researcher skepticism to machine learning, or order as first or second researcher. Our acceptability data showed that newer researchers found RobotReviewer more helpful than more experienced researchers. Overall, the participants were positive to using RobotReviewer with a human-in-the-loop approach.

F23. Screening Using Active Machine Learning: Reviewer-Relevant Outcomes

Presenting Author: Dr. Candyce Hamel, The Canadian Association of Radiologists

Co-Authors: Shannon E Kelly, University of Ottawa Heart Institute; Dr. Kednapa Thavorn, Ottawa Hospital Research Institute; Danielle B Rice, Ottawa Hospital Research Institute; Dr. George A. Wells, Ottawa Hospital Research Institute; Dr. Brian Hutton, Ottawa Hospital Research Institute

Abstract

Systematic reviews are the cornerstone of evidence-based medicine. However, systematic reviews, and other knowledge synthesis products (e.g., scoping reviews, rapid reviews), often require substantial human and financial resources. While screening of titles and abstracts represents only 1 step in the series of tasks involved in the conducting of reviews, the resources for this step can be a large portion of the total time spent on the review because of the high screening burden.

Although artificial intelligence may not be ready to fully replace human reviewers, empirical evidence has shown that active machine learning (AML) can accelerate and reduce this screening burden. A case study of the simulation tool, using AML, in DistillerSR will be presented. Using a true recall at 95%, response sets from 10 completed systematic reviews were used to evaluate the reduction of screening burden, the hours saved when a modified screening approach was implemented, and the accuracy of the prioritization algorithm. Over the 100 simulations (10 simulations per review), there was a median reduction in screening burden of 47.1% (interquartile range: 37.5 to 58.0%). The median title/abstract screening hours saved using a modified screening approach at a true recall at 95% was 29.8 hours (interquartile range: 28.1 hours to 74.7 hours), with additional time saved when considering a further review of irrelevant studies. Last, among all simulations, no studies included in the final reviews were missed (i.e., 100% accuracy). To meet the needs for rapid evidence generation, it appears that teams producing review products may use AML to gain efficiencies in their work.

F31. Lessons Learned From CADTH's First Condition-Level Review

Presenting Author: Dr. Kendra Brett, CADTH

Co-Authors: Dr. Gino De Angelis, CADTH; Eftyhia Helis, CADTH

Abstract

In 2019, CADTH initiated its first condition-level review (CLR) on tuberculosis. CLRs aim to inform decision-making about the management of a health condition. The objectives of a CLR are to identify, synthesize, and organize evidence relevant to the appropriate use of health technologies across a pathway of prevention, diagnosis, and care for a specific condition in a format that is accessible and informative to decision-makers. A CLR is designed to meet the changing needs of clinicians and health care policy-makers by comprehensively synthesizing evidence on customer-driven topics that address emerging jurisdictional issues.

The development of this CLR involved identifying and selecting the tuberculosis topic based on the scoping of jurisdictional needs, synthesizing and appraising the evidence, extracting key messages from the evidence reviews, and integrating this information into an online platform specific for this CLR.

This presentation will provide an overview of our key takeaways from this first CLR, based on an internal review of the process and from feedback received by Canadian tuberculosis stakeholders. We will describe what worked well with this new product and discuss key learnings. Some of the key lessons learned include the need to revise the process for selecting a CLR topic and identifying relevant evidence needs, strengthen the engagement of clinical experts throughout the CLR process, and enhance the presentation of the findings. CADTH's 2021–2022 business plan includes an initiative for additional CLRs and these key learnings will be instrumental for improving future CLRs and ensuring they meet the needs of clinicians and policy-makers.

F32. Prevalence of Inconsistency and its Association With Network Structural Characteristics in 201 Published Networks of Interventions

Presenting Author: Dr. Areti-Angeliki Veroniki, St. Michael's Hospital, Unity Health Toronto

Co-Authors: Sofia Tsokani, University of Ioannina; Dr. Ian White, MRC Clinical Trials Unit; Dr. Guido Schwarzer, Institute of Medical Biometry and Statistics; Dr. Gerta Rücker, Institute of Medical Biometry and Statistics; Dr. Dimitris Mavridis, University of Ioannina; Dr. Julian Higgins, Population Health Sciences Department; Dr. Georgia Salanti, Institute of Social and Preventive Medicine

Abstract

Network meta-analysis (NMA) has attracted a growing interest in evidence-based medicine. Consistency between different sources of evidence is fundamental to the reliability of the NMA results.

Objective: To estimate the prevalence of inconsistency and describe its association with different NMA characteristics.

Methods: We included NMAs published up to July 2018. Networks eligible were those with randomized controlled trials, at least 4 treatments, at least 1 closed loop, a dichotomous primary outcome, and accessible arm-level data. We used the design-by-treatment interaction (DBT) model and estimated the prevalence of inconsistency. We assessed the association between inconsistency and various network characteristics, such as the number of studies, treatments, intervention comparisons, and evidence loops. Heterogeneity in NMA and DBT models was explored.

Results: In the included 201 published NMAs, we found that the P value of the DBT model was less than 0.05 in 14% of the networks and less than 0.10 in 20% of the networks. Networks comparing few interventions in many studies were more likely to have small DBT P values (less than 0.10). This was probably due to the increase of estimate precision, and hence, the power to detect differences between designs. In the presence of inconsistency (DBT P value of less than 0.10), the consistency model displayed higher heterogeneity than the DBT model.

Conclusions: Inconsistency was more frequent than what would be expected by chance, suggesting that researchers should devote more resources to exploring how to mitigate inconsistency. Strategies are deemed necessary to detect inconsistency (because of the relatively high prevalence of inconsistency in published NMAs), particularly in cases where the existing tests have low power.

F33. A Methodological Review to Develop a List of Bias Items for Potential Inclusion in a New Risk of Bias Tool for Network Meta-Analysis

Presenting Author: Dr. Carole Lunny, St. Michael's Hospital

Co-Authors: Dr. Areti-Angeliki Veroniki, St. Michael's Hospital, Unity Health Toronto; Dr. Andrea Tricco, Unity Health Toronto; Dr. Sofia Dias, Centre for Reviews and Dissemination; Dr. Brian Hutton, Ottawa Hospital Research Institute; Dr. Ian White, MRC Clinical Trials Unit; Penny Whiting, Population Health Sciences; Dr. Julian Higgins, Population Health Sciences Department; Dr. James M. Wright, Cochrane Hypertension Group

Abstract

Objectives: This methodological review aimed to develop a list of items relating to biases in reviews with network meta-analysis (NMA). Such a list will inform a new tool to assess the risk of bias in NMAs and potentially other reporting or quality checklists for NMAs that are being updated.

Background: Being able to critically appraise the findings of studies is central to informed decision-making in patient care. Patients, health care providers, and policy-makers need the highest quality studies to make decisions about which treatments should be used in practice. Reviews with NMA can rank and order medicines used for the same medical condition by their safety and effectiveness. Many tools are used to assess the potential biases in these different reviews. For example, the AMSTAR checklist assesses whether a review with pairwise meta-analysis has been well-conducted. The ROBIS tool assesses whether a systematic review is at risk of containing dangerous biases that may distort the findings. However, no tool currently exists specifically to assess the risk of bias (RoB) in a review with NMA. Our proposed RoB NMA tool will address the degree to which the methods lead to risk of bias in the review conclusions.

Methods: Based on a systematic search of MEDLINE, the Cochrane database, and difficult to locate or unpublished literature, we included articles that present items related to bias, reporting, or methodological quality; articles assessing the methodological quality of reviews with NMA; or papers presenting methods for NMAs.

Results: We combined conceptually similar items and came up with a list of 21 items, which will be put into a Delphi process.

Conclusions: Advancing the practice of how to appraise biases in NMAs will have significant impact worldwide.

F41. The Value of a Theoretical Basis for Economic Evaluations: Updating the Canadian Guidelines for Economic Evaluation

Presenting Author: Dr. Doug Coyle, University of Ottawa

Co-Authors: Karen Lee, CADTH; Dr. Lauren Cipriano, Western University; Dr. Mike Paulden, University of Alberta; Dr. Petros Pechlivanoglou, Hospital for Sick Children

Abstract

Introduction: The 2017 CADTH *Guidelines for the Economic Evaluation of Health Technologies* were founded on the social decision-making paradigm, assuming that a decision-maker aims to maximize population health within an exogenous budget constraint. The adherence to this foundation has continued to facilitate further developments to the guidelines.

Methods: CADTH recognized the need for continued vigilant and dynamic methodological advice to decision-makers in the presence of uncertainty propagated by the use of emerging methodological techniques. Thus, subsequent to the guideline development, CADTH's Health Economic Advisory Committee (HEAC) was constituted to identify emerging issues in the conducting of economic evaluations that require additional guidance. The focus on this theoretical paradigm has provided a coherent basis to revisions within the guidelines.

Results: The paradigm puts the primary focus on providing less biased estimates of long-term costs and outcomes within economic evaluation. Driven by this focus, CADTH and HEAC have subsequently identified several methodological and contextual issues for which further guidance may be required. These include companion diagnostics, tumour agnostic therapies, potentially curative therapies, methods for indirect comparison, and extrapolation beyond study time horizon.

Discussion: The revised Canadian guidelines were a necessary step to ensure that economic evaluations remained relevant to the context of decision-making relating to reimbursement. The focus on sound economic theory as the basis for determining appropriate methodology has greatly facilitated the guideline updating process and a consistent approach to further guidance on emerging issues, providing a dynamic approach to guidance development.

F42. The Risk-Based Price: Incorporating Uncertainty and Risk Attitudes in Health Technology Pricing

Presenting Author: Erin Kirwin, Institute of Health Economics

Co-Authors: Dr. Rachel Meacock, University of Manchester; Prof. Matt Sutton, University of Manchester; Dr. Mike Paulden, University of Alberta; Dr. Jeff Round, Institute of Health Economics; Prof. Christopher McCabe, Institute of Health Economics

Abstract

Interpretation of cost-effectiveness analysis often relies on value-based decision rules, where results are compared to a threshold value to determine if technologies are a good value for money and should therefore be adopted. This decision rule assumes that decision-makers are indifferent between interventions with the same expected value and different underlying uncertainty. Such indifference is unlikely to hold in practice.

We propose a risk-based price and accompanying decision rules to address this limitation. Risk is characterized as the independent per-patient expected value of perfect information (iEVPI), a modification of standard EVPI. The iEVPI estimates the expected value of net benefit losses caused by uncertainty related to a technology independent of the uncertainty related to alternative treatments. 'Payer risk tolerance' is the maximum per-patient risk of making wrong decisions that payers are willing to accept in monetary terms. The risk-based price is the price at which the iEVPI is equal to the payer risk tolerance. The risk-based decision rules are as follows: (i) a technology is acceptable for adoption if the incremental net benefit of the technology is greater than or equal to zero, and if the iEVPI is less than or equal to the payer risk tolerance, and (ii) the optimal technology has the greatest expected net benefit at the lower of the sponsor submitted or risk-based price at a given cost-effectiveness threshold value.

We demonstrate both risk-adverse and risk-neutral payers prefer risk-based pricing outcomes. Risk-based pricing improves incentives for evidence development and implementation would increase health system net benefits.

F43. A Theoretical Framework for the Inclusion of Family Spillover Effects in Pediatric Economic Evaluation

Presenting Author: Ramesh Lamsal, SickKids

Co-Authors: Laila Rahman, Dalla Lana School of Public Health, University of Toronto; Dr. E. Ann Yeh, The Hospital for Sick Children; Dr. Eleanor Pullenayegum, The Hospital for Sick Children; Dr. Wendy Ungar, The Hospital for Sick Children Research Institute

Abstract

Background: A child's health conditions can significantly affect family members' health, well-being, and economic well-being (family spillover effects). However, these spillover effects are ignored in conventional patient-based economic evaluations, resulting in an incomplete understanding of the cost and consequences of child health interventions and less than optimally informed resource allocation decisions. The objective was to: 1) review theories, conceptual frameworks, and models that support consideration of these effects; and 2) present a theoretical framework for their inclusion in the pediatric economic evaluation.

Methods: A systematic search of 7 databases was conducted to identify theories, conceptual frameworks, and models that support the inclusion of family spillover effects or emphasize using a family approach to providing care and understanding child health and development. Critical interpretive synthesis principles were used to integrate evidence from diverse disciplines into a comprehensive theoretical framework to include family spillover effects.

Results: Sixteen theories, conceptual frameworks or models were identified. Five theoretical constructs around the core concept "conducting economic evaluation from a family perspective" were identified. In our proposed "family perspective," the family is the unit of analysis to evaluate the family's health and well-being, where family costs and consequences related to a child's illness or disabilities are derived from all family members and incorporated in the analysis.

Conclusion: The proposed theoretical framework, which incorporates family spillover effects, can improve available evidence for the funding or implementation of services that optimize the health and well-being of children and their families.

Poster Abstracts

P1. Multi-Risk Intervention on Cardiovascular Risk Factors in People With Schizophrenia

Presenting Author: Nuria Riera-Molist, Vic University Hospital

Co-Authors: Montse Assens-Tauste, Vic University Hospital; Neus Frau-Rosselló, Primary Care Center; Estefania Gallego-Peña, Vic University Hospital; Marta Guimerà-Gallent, Vic University Hospital; Pere Roura-Poch, Vic University Hospital; Quintí Foguet-Boreu, Vic University Hospital

Abstract

A high prevalence of unhealthy lifestyles and behaviours, dyslipidemia, hypertension, or diabetes are some cardiovascular risk factors (CVRFs) that explain the high prevalence of cardiovascular disease and lower life expectancy in people with schizophrenia. A randomized clinical trial was conducted from January 2020 to April 2021 in a mental health centre. Eligible subjects had at least 1 of the following uncontrolled CVRFs: hypertension, diabetes, hypercholesterolemia, and tobacco smoking. After screening, they were randomized and assigned to an intervention or control group. The intervention group received up to 4 types of an individualized therapeutic plan designed by a multidisciplinary team: a) healthy lifestyle; b) CVRF management; c) optimization of psychotropic drugs; and d) motivational intervention. The control group was given primary care treatment, as usual. The primary outcome was improvement, after 6 months, of the cardiovascular risk score (Framingham-based REGICOR coronary risk). Forty-six subjects were included (56.5% men, mean age 52.6 years [11.1]) and randomized to intervention (n = 23) and the control group (n = 23). The CVRFs at baseline were hypercholesterolemia (84.8%), tobacco smoking (39.1%), hypertension (21.7%), and diabetes (10.9%). The mean REGICOR score in the intervention and control groups were 4.4% (3.6) versus 4.9% (2.8). Forty-five subjects completed follow-up (n = 22 intervention group). A reduction in the intervention group was observed with the REGICOR score (0.9% [1.5], P = 0.011) and LDL cholesterol (27.1 mg/dL [43.2], P = 0.008), with no differences in the control group. A multi-risk, multidisciplinary, and individualized intervention improved overall cardiovascular disease risk in people with schizophrenia (ClinicalTrials.gov identifier: NCT04276012).

P2. Characteristics and Treatment Patterns of Patients With Diabetic Macular Edema Non-responsive to Anti-Vascular Endothelial Growth Factor (Anti-VEGF Treatment) in Ontario, Canada

Presenting Author: Dr. Sohel Somani, Uptown Eye Specialists

Co-Authors: Dr. Keyvan Koushan, Toronto Retina Institute; Dr. Netan Choudhry, Vitreous Retina Macula Specialists of Toronto; Dr. Joanna Campbell, AbbVie Inc.; Dr. Bijal Shah-Manek, Noesis Healthcare Technologies; Thula Kanagenthiran, AbbVie Inc.

Abstract

Objective: To understand the demographics, clinical characteristics, treatment patterns, and visual outcomes of patients with diabetic macular edema (DME) treated with anti-vascular endothelial growth factor (anti-VEGF).

Methods: A retrospective cohort study conducted in 86 consecutive anti-VEGF–naive DME patients at 4 clinical sites in Ontario, Canada. Patients receiving anti-VEGF injections in the study eye to treat DME were followed up for at least 18 months. After the first 3 monthly injections, patients were assessed and classified as a "Responder" (≥ 20% reduction in central macular thickness [CMT] from index date) or "nonresponder" (< 20% reduction in CMT) to anti-VEGF treatment.

Results: At 18 months, the Responder group (n = 30) change from baseline (CFB) in best-corrected visual acuity (BCVA) was mean (SD) 10.68 (11.31) letters, while the nonresponder group (n = 56) CFB was 3.23 (12.37) letters. Analyses stratified by initial BCVA are supportive of this finding. Likewise, the change in CMT (mcg), mean (SD) was −146.3 (115.1) in the Responder group and −49.8 (106.8) in the nonresponder group at 18 months. While the anti-VEGF switch rate was lower in the responder group compared with the nonresponder group (10.4% versus 30.4%), mean numbers of injections were similar (11.4 versus 10.4) at 18 months, respectively.

Conclusions: Despite receiving a substantial number of injections, patients in the nonresponder group showed limited change in BCVA and CMT. Non-Responders could be identified after 3 anti-VEGF injections. There remains an unmet need for additional options among DME patients that show a non-response after 3 months of anti-VEGF injections.

P3. Patient Perspectives of Care Received for Sickle Cell Disease in Ontario Hospitals

Presenting Author: Dr. Suzan Williams, Hospital for Sick Children (SickKids)

Co-Authors: Lanre Tunji-Ajayi, Sickle Cell Awareness Group of Ontario; Dr. Melanie Kirby, Hospital for Sick Children; Madeline Verhovsek, St. Joseph's Healthcare Hamilton; Maame Darkwa, Sickle Cell Awareness Group of Ontario; Dr. Soji Jemitola, Sickle Cell Awareness Group of Ontario

Abstract

Hospital visits, including emergency room visits, are a common component of health care for sickle cell disease. This study sought to gather information on patient perspectives of care received to identify areas that could be targeted for improvement. An online survey was created via SurveyMonkey and disseminated; 2,500 patients and caregivers across Ontario were informed via the SCAGO—Sickle Cell Awareness Group of Ontario via newsletter mailings, postings of the study on the SCAGO WhatsApp forum, postings at community health centres with sickle cell programs, and notification via other sickle cell associations in Ontario. From July 2019 to February 2020, participants were able to submit health care experiences via the online survey. There were 66 responses. Participants reported on experiences at 14 hospitals in Ontario. Respondents were 18 to 64 years of age: 80% (16/20) participants reported on experiences in the emergency room; 65% (13/20) of the reports were regarding care for pain management. Regarding wait times of more than an hour, 31% reported waiting greater than 1 hour for nurse contact, 56% for physician contact, and 50% for medication administration — 60% reported the first person encountered at triage was respectful, empathic, and caring; 35% felt stigmatization and fear of dying; 40% felt loneliness or helplessness during the hospital visit; 30% reported that the health care provider was extremely or very responsive to their concerns; 50% reported that the health care provider was somewhat responsive to their concerns; 20% reported that the care provider was not responsive to their concerns; 30% reported that the health care providers were very knowledgeable; 50% reported the health care

providers were somewhat knowledgeable; and 10% reported that the health care provider was not at all knowledgeable. A survey on care received in Ontario hospitals identified potential areas for improvement, as defined by patients, in optimizing sickle cell disease care in Ontario.

P4. Addressing Barriers to Clozapine Use Through Point-of-Care Monitoring

Presenting Author: Dr. Pierre Chue, University of Alberta

Co-Authors: Dr. Elena Bucuci, University of Alberta; Dr. Vincent Agyapong, University of Alberta; Dr. Adam Abba-Aji, University of Alberta; Dr. Ade Sapara, University of Alberta

Abstract

Background: Despite the effectiveness of clozapine, there is a reluctance to use it because of patient concerns (e.g., frequent blood tests), physician concerns (e.g., risk of agranulocytosis,) system issues (e.g., registration and monitoring requirements). This has been further impacted by the COVID-19 pandemic, with patients either not being initiated, or switched because of concerns about difficulties in blood monitoring.

Methods: A point-of-care (POCM) device (PRONTO) was approved in Canada in November 2019, which allows for real-time evaluation of white blood cell and neutrophil counts from a capillary sample. Patients registered to the Clozaril Support and Assistance Network (CSAN) were switched from regular laboratory service to POCM, conducted by onsite nursing staff in a group home setting. In a quality improvement project, patients and staff were asked to evaluate their experiences.

Results: 173 POCM tests were conducted in 26 patients on clozapine. The overall adherence to CSAN monitoring was improved and there was a high degree of patient acceptance and preference for POCM. The nursing staff reported high satisfaction and convenience, with time saving.

Conclusions: POCM potentially removes barriers given the simplicity, flexibility, rapidity, and convenience, as well as ease of use and decreased invasiveness. It is cost-effective and contributes to the safer monitoring of clozapine patients in the current COVID environment.

P5. CADTH's First Condition-Level Review: Process and Findings

Presenting Author: Diksha Kumar, CADTH

Co-Authors: Dr. Kendra Brett, CADTH; Michelle Clark, CADTH; Eftyhia Helis, CADTH; Dr. Gino De Angelis, CADTH

Abstract

Current HTA often focuses on individual technologies, with drugs and medical devices assessed in isolation, at a specific point in the patient care pathway. To adapt to the changing needs of patients, clinicians, and policy-makers, CADTH's business plan has included an initiative to introduce a new product called condition-level reviews (CLRs). Incorporating drugs, devices, and clinical interventions where appropriate, CLRs assess a range of technologies across the entire pathway of care for a condition, from prevention to treatment to recovery and rehabilitation. CADTH CLRs aim to organize all evidence relevant to technologies used across a pathway of care for a specific condition in a format that is accessible and informative to decision-makers. CLRs facilitate decision-making by

gathering evidence from multiple sources, including assessments produced by CADTH and resources from other organizations. Knowledge mobilization tools are included to support uptake of the evidence. For CADTH's first CLR, customer-driven, high-priority topics, with emerging jurisdictional issues across screening, diagnosis, and treatment were considered, including: tuberculosis, concussion, Lyme disease, and *Clostridioides difficile*. Tuberculosis was prioritized among these topics. Collaborative planning with jurisdictions, including focus groups to meaningfully engage with customers, was organized to ensure the CLR addresses relevant decision problems in the jurisdictions. A series of clinical, qualitative, and policy evidence reviews were produced by CADTH and summarized through key messages on a novel online platform. This poster presentation will provide a summary of the methodology and results, including reports, key messages, and knowledge mobilization tools, from CADTH's first CLR on tuberculosis.

P6. Segmenting the Patient Population in Family Medicine Groups to Inform Continuous Quality Improvement Efforts in Primary Care

Presenting Author: Jolyane Blouin Bougie, Institute national d'excellence en santé et en services sociaux (INESSS)

Co-Author: Melanie Martin, INESSS

Abstract

Background: In Quebec, few Family Medicine Groups (FMG) have the means to implement continuous quality improvement (CQI) activities with respect to their clinical and organizational practices. Having access to regional and provincial health administrative data, the Institut national d'excellence en santé et en services sociaux (INESSS) is in a unique position to support CQI initiatives by FMGs.

Objective: To support CQI, INESSS's Repères GMF project aims to: 1) develop a set of quality indicators for FMG clientele, and 2) propose a population segmentation based on health care needs for the organization and evaluation of primary care (PC).

Methods: Indicators were identified through a review of 9 existing PC feedback systems and input from stakeholders. The segmentation proposition was based on the PC literature and developed with the Canadian Institute for Health Information's (CIHI) Grouper tool.

Results: Of the 176 indicators identified, 33 quality indicators and 8 descriptive indicators were retained. Segmentation of the FMG clientele into 4 groups is proposed.

Conclusion: Timely access and equity are among the dimensions of quality of care least covered by quality indicators produced from administrative databases. However, some of the retained indicators will lend themselves well to analysis based on different equity variables. It will be possible to organize quality of care feedback according to the 4 clientele segments in order to foster reflective practice according to health care needs. As for the descriptive indicators, these will allow care teams to reflect on the characteristics of their clientele according to specific proposed quality indicators.

P7. Are Cost Estimations Based on Clinical Trial Results Overestimated in Reimbursement Applications? Preliminary Results of a Real-World Validation Study of Oral Cancer Drugs

Presenting Author: Andréanne Racine, Institut national d'excellence en santé et en services sociaux (INESSS)

Co-Authors: Thomas Mortier, INESSS; Patrick Dufort, INESSS; Jason Robert Guertin, INESSS

Abstract

Objective: To compare the estimated cost by the Institut national d'excellence en santé et en services sociaux (INESSS) of oral drugs for metastatic non‐small cell lung cancer (mNSCLC) derived from clinical trials data to their real-world (RW) cost. To explore challenges in applying the current approach to other cancer drugs.

Methodology: Seven tyrosine kinase inhibitors (TKI) used to treat mNSCLC were selected. Data from proxies used to estimate mean costs of TKI, such as time-to-event end points, was retrieved from previous reviews. RW data were calculated based on extracted claims from a medico-administrative provincial database (RAMQ). The estimated overall costs (drug cost acquisition, wholesale fees, pharmacy dispensing fees) was compared to the real costs for the public insurance plan.

Results: RW costs appear to be underestimated (by 2.1% to 24.1%) for some TKI (erlotinib, gefitinib, and afatinib), while overestimated for crizotinib (by 28.5%). For osimertinib and alectinib, both listed in 2019, it was not possible to obtain an accurate RW estimate because of the recency of their listing generating little to no events. Heavy right censoring and the inability to identify the exact indication for which the study drugs were reimbursed were key limitations of this project.

Conclusions: Various hypotheses could explain the cost underestimation, such as dose adjustment, the moment of treatment duration, or the drug renewal condition. On the other hand, limited external validity of the trials data and an older treated population may explain overestimation. This analysis will be reproduced for other TKI.

P8. A Review of Recent Justifications for Conducting Cost-Consequence Analysis in Drug Listing Recommendations by INESSS‐Institut national d'excellence en santé et en services sociaux

Presenting Author: François-Xavier Houde, INESSS

Abstract

Rarely preferred over cost-utility analysis (CUA), cost-consequences analysis (CCA) sometimes supports the economic evaluation of drugs for reimbursement purposes. The objective of this presentation is to describe the reasons for which INESSS conducted CCA in recent publications. We retrospectively identified all economic evaluations self-described as CCA and published between January 2015 and April 2021. We documented various information, such as the apparent justifications for conducting CCA rather than cost-minimization analysis (CMA) or CUA. We identified 51 CCA from January 2015 to April 2021. Up until 2017, CCA were most frequently conducted for cases where some residual differences between drugs, such as toxicity and administration technicalities, were deemed

relevant, despite similar efficacy. In such cases, CCA were favoured over CMA. While almost no CCA were carried out in 2018, since 2019, most CCA appear to be justified by the lack of valid comparative evidence, precluding a CUA. These results and the growing use of CCA as a design could reflect a lack in the quality of comparative evidence submitted to INESSS. It could also reflect a move away from CUA in cases where such results were judged to be too uncertain to be truly informative. It remains unclear if the CCA approach allows better deliberation or fairer drug pricing compared to a CUA that is based on unsupported hypotheses, or when compared to no statement on the relationship between differential costs and effects.

P9. A Comprehensive Value Appraisal Framework for Interventions in Health Care and Social Services: INESSS Statement of Principles and Ethical Foundations

Presenting Author: Dr. Mireille Goetghebeur, INESSS

Co-Authors: Dr. Monika Wagner, INESSS; Dr. Isabelle Ganache, INESSS; Dr. Olivier Demers-Payette, INESSS; Dr. Michèle de Guise, INESSS; Dr. Luc Boileau, INESSS; Dr. Denis Roy, INESSS

Abstract

Introduction: The mission of INESSS is to promote clinical excellence and the efficient use of resources across Quebec's health and social services system. It develops knowledge products and recommendations regarding the introduction, coverage, optimal use, or withdrawal of interventions in physical and mental health and social services to support fair and reasonable decisions.

Objective: Develop a statement of principles and ethical foundations for a common appraisal framework across divers interventions and technologies, geared toward value creation for users, patients, and the population.

Methods: To develop this statement, INESSS reviewed its practices across different units, surveyed the literature on innovative practices and the evolution of health technology assessment, and undertook an extensive internal and external consultative process.

Results: The adopted approach to value appraisal considers the contributions of interventions to the Triple Aim of health and social services systems, as well as their organizational and sociocultural feasibility and impacts (clinical, populational, economic, organizational, sociocultural dimensions). This approach is articulated around 5 principles: 1) Evaluating the most relevant objects and using adapted evaluation modalities; 2) Mobilizing and integrating diverse types of knowledge to inform the deliberation; 3) Supporting multidimensional deliberation including diverse perspectives; 4) Developing fair and reasonable recommendations; 5) Promoting value creation by supporting the implementation of recommendations and re-evaluation.

Conclusions: Moving forward, INESSS's strategic intention is to mobilize its staff and collaborators around the rigorous, agile, and consistent application of these principles for value appraisal throughout the organization.

P10. The New CADTH Oncology Drug Implementation Advice Process: Balancing Uncertainty With Decision Needs

Presenting Author: Dr. Louis de Léséleuc, CADTH

Co-Authors: Dr. Marianne Taylor, BC Cancer

Abstract

Oncology can be a complex field, with multiple therapeutic options available either as alternatives or sequentially, and an important goal of the drug payers is to provide state-of-the-art therapies in a sustainable fashion. Drug payers need to clearly establish the position of new drugs in the treatment paradigm, as well as define the impact of these drugs on other interventions. Therefore, clear implementation advice covering the entire therapeutic area is often needed. In June 2020, CADTH began supporting implementation following drug reimbursement recommendations with the development of advice and funding algorithms. CADTH designed a process that relies on panels of clinicians and decision-makers to provide advice on targeted issues and translate these statements into implementation advice and algorithms in a transparent fashion. To prevent further delay to drug access, the process was given aggressive timelines, with an approximate turnaround of 3 months. Key steps include the scoping and refinement of implementation topics, stakeholder engagement, panel deliberations, and the drafting of report and algorithms. Ongoing challenges with the process include uncertainty regarding sequencing evidence due to its scarcity, as well as time constraints precluding the conduct of systematic literature reviews, reliance on panellist opinion and experience, and incorporation of affordability and sustainability as decisive factors in advice and algorithm development. Continuous improvements to the process are being considered based on performance metrics as well as internal and external feedback. The CADTH implementation advice process is evolving to provide significant value to oncology drug funders across Canada.

P11. Playing Catch-Up: Where Canada Stands Three Years Into the pan-Canadian Pharmaceutical Alliance – Canadian Generic Pharmaceutical Association Generics Pricing Initiative

Presenting Authors: Brian O'Shea, Patented Medicine Prices Review Board (PMPRB); Nevzeta Bosnic, PMPRB

Abstract

As generic medicines do not face the same level of price regulation as patented medicines in Canada, their prices have historically been much higher here than in international markets. Generic pricing policies, initially led by individual provinces and later negotiated collectively through the pan-Canadian Pharmaceutical Alliance (pCPA), have gradually reduced the prices of generic medicines in Canada since 2010, resulting in substantial cost savings for all Canadians. In 2018, a joint initiative between the pCPA and the Canadian Generic Pharmaceutical Association (CGPA) was launched, bringing the prices of 67 of the most commonly used generic medicines to 10% to 18% of the price of their brand-name originators. Early analyses have indicated that this initiative succeeded in bring generic prices closely in line with international levels. This presentation assesses its impact to the end of 2020 in terms of both domestic public and private drug plan spending and conducts a comparative international price analysis with foreign markets. Public plan data are taken from the National Prescription Drug Utilization Information System (NPDUIS) database at the Canadian Institute for Health Information (CIHI) and private plan data from the IQVIA Private Pay Direct Drug Plan Database. IQVIA MIDAS data are used to analyze Canadian generic drug utilization and

pricing in comparison to the PMPRB's new basket of 11 comparator countries, as well as the broader OECD. This presentation is intended to foster discussions on government-industry cooperation in Canada's health care sector by providing policy-makers and other stakeholders with quantifiable assessments of the progress made in aligning Canadian generic prices with other countries.

P12. Pharmaceutical Research and Development Investment and Number of Clinical Trials in Canada: A Cross-Sectional Analysis

Presenting Author: Naghmeh Foroutan, Patented Medicine Prices Review Board (PMPRB)

Co-Authors: Lokanadha Cheruvu, PMPRB; Elena Lungu, PMPRB

Despite strong patent protection and relatively high drug prices in Canada, the level of research and development (R&D) expenditures relative to patented medicine revenues has been declining over the last 2 decades, prompting the need for a closer examination of the determinants of pharmaceutical R&D investment and clinical trial location. This analysis will provide insight into the level of pharmaceutical R&D expenditure and the intensity of clinical trials by phase, status, and sponsor in Canada and OECD benchmark countries over the last 5 years. Clinical trials for rare disease treatments will also be flagged. Primary data used for the study was sourced from Statistics Canada and GlobalData and a systematic literature review was conducted to determine factors that affect R&D activities and the placement of clinical trials in different jurisdictions. Trends in the number of clinical trial levels in Canada and internationally will be analyzed to determine if there is any evidence of a relationship between drug prices in a given market and its R&D spending and clinical trial intensity. Furthermore, the study will report the number of new clinical trials by source of funds, phase of clinical evaluation, and therapeutic area. Results for Canada will be compared with those in foreign markets and an analysis of single country versus multinational trials will also be conducted. This analysis is designed to expand the understanding of the determinants of R&D investment and clinical trials and to provide information on the recent trends in Canada and internationally.

P13. Sounding Out the "Early" Applicability of Health Economics and Health Technology Assessment Considerations in the Drug Development Process

Presenting Author: Alexia Di Quinzio, AmorChem

Co-Authors: Dr. Elizabeth Douville, AmorChem; Prof. Michelle Savoie, Université de Montréal

Abstract

Although central to the development of national and international pharmaceutical formularies, health economics (HE) and HTA-related considerations often come later in the drug development process. The body of literature making the case for "early" integration of HE — also known in the literature as translational HE — and HTA remains relatively theoretical, with little to no concrete evidence of its use in practice. This research project aims to examine this early applicability by probing the related considerations that could be implemented in the R&D, preclinical, and early clinical phases where early-stage players must invest and create value. Field work involved a set of semi-constructed interviews with experts wherein a corpus of qualitative data were gathered. The participants fell into 1 of 3 stakeholder types:

(1) academia, reimbursement, government; (2) venture capital and accelerator/incubator; (3) biotech and pharma. Although not all experts use HE or HTA considerations to the same degree in their day-to-day, most noted how these concepts are increasingly being integrated upstream due to industry pressure of value-based pricing and other eventual barriers to access. Interestingly, this early integration is being done predominantly through primary and secondary research as opposed to through fundamental modelling and costly studies — and that, across all stakeholder types. Although most acknowledge the added value, several experts — mainly venture capital investors — struggle to prioritize these considerations given limited or absent efficacy data, as well as time and capital constraints. In the face of an ever-changing industry, there is a need for further pedagogy, pragmatic tools, and standardized methods to ensure comprehensive stakeholder engagement across all types.

P14. Cost-Effectiveness of a Quality Improvement Initiative for the Clinical Management of Children With Newly Diagnosed Typical Immune Thrombocytopenia

Presenting Author: Alexandra Moskalewicz, The University of Toronto and The Hospital for Sick Children (SickKids)

Co-Authors: Dr. Carolyn E. Beck, The Hospital for Sick Children (SickKids) and the University of Toronto; Dr. Patricia Parkin, The Hospital for Sick Children (SickKids) and the University of Toronto; Dr. Michaela Cada, The Hospital for Sick Children (SickKids) and the University of Toronto; Dr. Myla Moretti, The Hospital for Sick Children (SickKids) and the University of Toronto

Abstract

Immune thrombocytopenia (ITP) in children is a hematologic condition that frequently resolves within 1 year. An audit at our institution (2007 to 2009) revealed that the majority of newly diagnosed cases were treated with costly intravenous immunoglobulin, which did not align with international management guidelines. A quality improvement (QI) initiative was implemented in 2013 to promote the uptake of an institutional clinical management protocol that favoured more conservative management. Our objective was to assess the incremental cost-effectiveness of the QI initiative's protocol from an institutional perspective by assessing incremental per patient costs after implementation and the incremental proportion of resolved ITP cases at 1 year. Patient-level data were retrospectively ascertained for those diagnosed in pre-QI and post-QI periods. A decision tree was constructed with a 1-year time horizon. Acute care and inpatient costs were obtained from the institution and provincial sources. Intervention costs included QI initiative preparation and staff physician training. Effectiveness (ITP resolution) was defined as achieving a sustained platelet count of > 100 x 10^9/L by 12 months. Probabilistic analysis was used to calculate incremental costs, incremental effects, and confidence intervals. Forty-eight patients were followed for 1 year in the pre-QI period and 84 in the post-QI period. A shift toward more conservative clinical management was observed after protocol implementation, resulting in an average cost savings per child of $2000.39 (95% CI –$1,059.54 to $5,427.75) and a higher proportion of resolved ITP cases. This QI initiative resulted in significant cost savings per child managed and demonstrated a possible positive effect on clinical outcomes.

P15. Universal Screening of Newborns for Biliary Atresia: A Cost-Effectiveness Comparison of Alternative Strategies

Presenting Author: Lisa Masucci, St Michael's Hospital, University of Toronto

Abstract

Background: Biliary atresia (BA), a rare newborn liver disease, is the most common cause of liver-related death in children and the main indication for pediatric liver transplantation. Early disease detection and surgical intervention offers the best chance for long-term patient survival. The objective of this study was to conduct a cost-effectiveness analysis comparing no universal screening to screening for BA using either a home-based infant stool colour card (ISCC) with a passive card distribution strategy or screening using conjugated bilirubin testing.

Methods: A Markov model was developed to simulate a cohort of newborns over a 10-year time horizon. The model structure, costs, and probabilities were informed by the literature and clinical expert opinion. Health benefits were expressed as life-years gained. This analysis was conducted from the perspective of the Canadian publicly funded health care system. A probabilistic analysis was conducted to assess the uncertainty of all parameters. A deterministic 1-way sensitivity analysis was conducted on key model parameters such as sensitivity and specificity, and administration costs.

Results: Screening using an ISCC with a passive card distribution was found to be a cost-effective option. For a population of 392,902 annual births in Canada, this strategy cost approximately $192,000 more but led to 8 life-years gained (incremental cost-effectiveness ratio [ICER] = $24,065 per life-year gained). Screening using conjugated bilirubin testing was found to not be cost-effective (ICER = $197,000). Results were sensitive to the ISCC specificity.

Conclusions: A home-based BA screening program using an ISCC with a passive distribution strategy could be highly cost-effective when administered at a low unit cost and with a reasonable screening performance.

P16. Impact of Limited Sample Size and Follow-Up on Single Event Survival Extrapolation for Health Technology Assessment: A Simulation Study

Presenting Author: Jaclyn Beca, Ontario Health (Cancer Care Ontario)

Co-Authors: Dr. Kelvin Chan, Sunnybrook Health Sciences Centre; Dr. David Naimark, Sunnybrook Health Sciences Centre; Dr. Petros Pechlivanoglou, Hospital for Sick Children

Abstract

Introduction: The objective of this study was to assess the performance of standard parametric survival analysis techniques for extrapolation of time-to-event data for a single event from clinical trials with limited data because of small samples or short follow-up.

Methods: Simulated populations with 50,000 individuals were generated using a 3-state multistate model with an exponential hazard rate. A scenario consisted of 5,000 repetitions with 6 sample size groups (30 to 500 patients) artificially censored after every 10% of events observed. Goodness-of-fit statistics (AIC, BIC) were used to determine the best-fitting among

standard parametric survival distributions (e.g., Weibull). Median survival, 1-year survival probability, time horizon (1% survival probability time), and restricted mean survival time (RMST) were compared to population values to assess coverage and error.

Results: The true distribution was correctly identified using goodness-of-fit according to BIC (up to 98%) more frequently compared to AIC (80%). Under-coverage and large error was observed for all outcomes when distributions were specified by AIC and for time horizon and RMST with BIC. Error in point estimates were found to be strongly associated with sample size and completeness of follow-up. Correctly specifying the event distribution reduced the magnitude of error in larger samples but not in smaller samples.

Conclusions: Limited clinical data from small samples or short follow-up of large samples produce large error, regardless of whether distribution is correctly specified. The associated uncertainty in estimated parameters may not capture the true population values. These findings have important implications for health decision modelling for novel therapies with limited evidence.

P17. Cost-Utility Analysis of Hepatitis B Vaccination in Adolescents Versus Newborns in Ontario, Canada

Presenting Author: Dr. John Kim, University of Waterloo

Co-Author: Dr. William Wong, University of Waterloo

Abstract

Purpose: The WHO recommends universal hepatitis B vaccination within the first 24 hours of birth. However, hepatitis B vaccines are given at age 12 years in Ontario, Canada. The objective of this study was to assess the cost-effectiveness of changing the hepatitis B vaccination timing from adolescence (current strategy) to birth in Ontario.

Methods: A state-transition model of 18 health states representing the natural history of acute and chronic hepatitis B was developed to conduct a cost-utility analysis. Most input parameters were obtained from Canadian literature or publicly available provincial data. The model followed a lifetime time horizon, with health outcomes and costs being discounted at 1.5% annually. Deterministic and probabilistic sensitivity analyses were performed to test the robustness of the model. Analyses were conducted from a public payer perspective with all costs adjusted to 2019 Canadian dollars.

Results: Hepatitis B vaccination in newborns dominated the current strategy of adolescent vaccination. The probabilistic sensitivity analysis showed that the newborn strategy was cost-effective in 100% of the iterations at a willingness-to-pay threshold of $50,000/quality-adjusted life-years and cost-saving in 90.6% of the iterations. A microsimulation projected that newborn vaccination may lead to reductions in cases by 43.9% in chronic hepatitis B, 49.4% in hepatocellular carcinoma, and 58.4% in liver-related death.

Conclusions: In Ontario, changing the age of hepatitis B vaccination recommendation from adolescent to newborn may be a cost-saving strategy. Newborn vaccination may lead to cost and health benefits while aligning with best available evidence and guidance from the WHO.

P18. Developing the Breast Utility Instrument From the EORTC QLQ-C30 and BR45 Using Rasch Analysis for Item Selection

Presenting Author: Teresa Tsui, Toronto Health Economics and Technology Assessment (THETA) Collaborative

Co-Authors: Dr. Aileen Davis, Institute of Health Policy, Management and Evaluation, University of Toronto; Dr. Maureen Trudeau, Sunnybrook Research Institute; Dr. Nicholas Mitsakakis, Dalla Lana School of Public Health, University of Toronto; Dr. Murray Krahn; Toronto Health Economics and Technology Assessment (THETA) Collaborative

Abstract

Introduction: Breast cancer health-related quality of life is currently inadequately measured using generic preference-based instruments and mapping. Our overall purpose is to develop the Breast Utility Instrument (BUI) — a breast cancer‐specific, preference-based instrument. In this study, we select the core items of the BUI.

Methods: We analyzed 408 patient responses to the EORTC QLQ-C30 and BR45 (breast module) from a range of breast cancer health states. We evaluated the global Rasch model fit and item fit using accepted methods. We iteratively removed misfitted items and global model fit was reassessed. For items that fit the Rasch model, we selected 1 item per dimension based on patient-rated item importance (n = 81), range of item thresholds, and clinician-evaluated content validity.

Results: Global model fit was acceptable in all dimensions and reliability was acceptable in half the dimensions. We selected 1 item for each of 10 dimensions. The item topics (dimensions) are: 1) PF2 — Trouble taking a long walk (physical and role functioning); 2) EF22 — Worry (emotional functioning); 3) SF27 — Interfering with social activities (social functioning); 4) — PA9 Having pain (pain); 5) FA18 — Tired (fatigue); 6) BI42 — Dissatisfied with your body (body image); 7) SYS34 — Hair loss (systemic therapy side effects); 8) — SX44 Interest in sex (sexual functioning); 9) BR52 — Oversensitive breast (breast symptoms); 10) ET63 — Problems with your joints (endocrine therapy symptoms).

Conclusions: We propose 10 items for the BUI. Next steps include assessing the measurement properties and eliciting preference weights. The future BUI will contribute to improving clinical and policy decisions.

P19. A Systematic Review of the Accessibility, Acceptability, Safety, Efficiency, Clinical Effectiveness, and Cost-Effectiveness of Private Providers of Elective Surgical Services Compared With Public Providers

Presenting Author: Dr. Ilke Akpinar, Institute of Health Economics

Co-Authors: Erin Kirwin, Institute of Health Economics; Dr. Jeff Round, Institute of Health Economics; Lisa Tjosvold, Institute of Health Economics; Dagmara Chojecki, Institute of Health Economics

Abstract

Many publicly funded health systems, including in Canada, use a mix of privately and publicly operated providers of care to deliver elective surgical services. We reviewed the role of private elective surgical provision within publicly funded health systems in high-income countries.

Outcomes evaluated include accessibility, acceptability, safety, clinical effectiveness, efficiency, and cost and cost-effectiveness. Twenty-seven articles met the review inclusion criteria, only 1 of which was conducted in Canada. We found mixed results across each of our reported outcomes. Wait times were shorter for patients treated in private facilities in most studies and inequalities by age and socioeconomic deprivation were found to increase with private provision in some studies. Acceptability results were mixed, with most studies finding no differences between public and private provision and others finding higher satisfaction at public facilities. The results for safety outcomes were divided. Most studies found improved safety outcomes in private facilities, although private patients had a lower preoperative risk of complications because of patient selection. Clinical effectiveness was similar in most studies, with differences in outcomes mainly attributed to patient selection or prosthesis choice. Few studies reported cost and cost-effectiveness outcomes, and just 2 of the included studies concluded that private facilities are economically viable within publicly funded health systems.

P20. Treatment Patterns and Outcomes Among HER2+ Metastatic Breast Cancer Patients

Presenting Author: Kendra DeBusk, Seagen Inc.

Co-Authors: Naomi Schwartz, Seagen Inc.; Dr. Winson Cheung, Oncology Outcomes (O2); Dr. Devon Boyne, Oncology Outcomes (O2); Dhivo Krishnathasan, Seagen Canada Inc., Dr. Ling-I Hsu, Seagen Inc.

Abstract

The treatment landscape for human epidermal growth factor receptor 2-positive (HER2+) metastatic breast cancer (MBC) is changing rapidly, but research on real-world treatment utilization among Canadian HER2+ MBC patients receiving second-line (2L) therapy and beyond is limited. We conducted a retrospective cohort study to describe treatment patterns and survival outcomes among women with HER2+ MBC using Alberta Cancer Registry data and provincial administrative health records. We included adult women diagnosed with HER2+ MBC in Alberta, Canada, from 2004 to 2018, who initiated at least 2L therapy. Primary outcomes included treatment utilization by therapy line and overall survival (OS); outcomes for 2L and third-line treatment were limited to January 2014 onward, following the CADTH recommendation for T-DM1 in 2013. A total of 1,010 HER2+ MBC patients were included, 67% (n = 677) with recurrent disease and 33% (n=333) with *de novo* MBC. Median age was 55.9 years. Most common 1L regimens (n = 786) were trastuzumab-based (30%) or trastuzumab+pertuzumab□based (31%). Among patients who initiated 2L regimens after January 2014 (n = 220), 46% received T-DM1 monotherapy and 26% received trastuzumab+pertuzumab□based regimens. Of patients who initiated 3L regimens (n = 125), lapatinib-based regimens (33%) and T-DM1 monotherapy (27%) were most common. OS was longer among patients treated with ≥ 2 compared to ≤ 1 trastuzumab-containing line (27.32 versus 17.49 months). This study provides important insight into the most common therapies for HER2+ MBC in real-world practice in Canada. Results suggest that re-treatment with trastuzumab-containing lines may provide survival benefits. Future research should assess real-world treatment patterns and outcomes in this population as new therapies enter the market.

P21. Understanding the COVID Impact on the Health Care System in Canada

Presenting Author: Bradley Millson, IQVIA Canada

Co-Authors: Scott Shi, IQVIA Canada; Huijuan Yang, IQVIA Canada; Juejing Ling, IQVIA Canada

Abstract

Background: In response to the COVID-19 outbreak, the Canadian healthcare system rapidly prioritized resources to virus containment, deprioritized non-essential services, adopted remote medicine, and fundamentally changed the delivery of medicine.

Objectives: To understand how the COVID response impacted non-COVID patient care from the beginning of the pandemic to today's "new normal".

Methods: This study used longitudinal prescription data and electronic medical records (EMR) to evaluate overall patient care during the COVID pandemic.

Preliminary results: In the 10 months following the initial COVID-19 lockdown in March 2020, the number of visits for annual health examinations dropped by 56% and the number of laboratory tests dropped by 29% compared to the same period in the previous year. However, visits for mental health and hyperactivity in children rose by 20% and 50% respectively. The number of virtual visits doubled while the in-person visits dropped by 45%. Prescriptions for new drug therapies dropped below historical averages across nearly all major therapeutic areas. As of March 2021, the number of patients new to therapy dropped 23% year-over-year overall, with the largest drop of 43% in respiratory medications.

Conclusion: The focused pandemic response resulted in an overall reduction in access to care across a broad spectrum of patients. While there is no argument the response to COVID-19 was both urgent, and necessary, the impact on the overall care is evident. Future work should focus on understanding the longer-term health impacts of the 2020/21 lockdown and identify lessons to improve access to care through the next pandemic.

P22. Assessing the Usage and Uptake of Biomarker Tests for Cancer Drugs Evaluated Under the CADTH pan-Canadian Oncology Drug Review

Presenting Author: Dr. Shivani Kamdar, PIVINA Consulting Inc.

Co-Authors: Natasha Jakac-Sinclair, PIVINA Consulting Inc.; Colin Vicente, PIVINA Consulting Inc.

Abstract

Objectives: With the advent of personalized medicine, the utilization of companion diagnostics (CDs) to guide treatment decisions in cancer is expected to increase. We aim to identify the primary barriers to implementation associated with CDs and evaluate their impact in CADTH pan-Canadian Oncology Drug Review (pCODR) submissions.

Methods: All publicly available pCODR recommendations from January 2016 to May 2021 identified as requiring CDs or results from a previous biomarker test were reviewed. The impact of clinician, patient, and provincial advisory group input on implementation

recommendations was qualitatively assessed. Where available, the impact of biomarker testing on budget impact or incremental cost-effectiveness ratios (ICERs) was also tabulated.

Results: From a total of 128 submissions, 53 submissions (41.4%) encompassing 51 indications were identified, of which 15 (29.4%) required additional CD testing, and 18 (35.3%) economic evaluations explicitly mentioned test costs. Clinician inputs were the primary drivers identifying whether biomarker tests were already implemented as standard of care. Barriers to implementation associated with testing included high turnaround time (n = 11), increased costs (n = 10), and increased health care resource utilization (n = 5). The cost of testing was noted as a potential barrier by 86.7% of products requiring additional CDs; depending on testing costs, the increase in ICER from test implementation was estimated to range from 1.55% to greater than 50%. The presence of additional CDs did not significantly influence the final recommendation (x2 P = 0.1571).

Conclusion: Although the usage of additional CDs may not influence the final pCODR recommendation, increased turnaround time and health care resource utilization associated with CDs may pose significant barriers to implementation.

P23. A Retrospective Chart Review Describing the Real-World Treatment Patterns and Clinical Effectiveness of Patients Taking Anti-Vascular Endothelial Growth Factor Therapies in Canada

Presenting Authors: Shade Olatunde, Hoffmann-La Roche Ltd.; Kripa Raman, Hoffmann-La Roche Ltd.

Co-Authors: Dr. Raman Tuli, Retina Centre of Ottawa; Amanda Downey, Hoffmann-La Roche Ltd.; Callahan LaForty, IQVIA; Kripa Raman, Roche Canada; Daniela Belovich, Hoffmann-La Roche Ltd.; Calum S. Neish, IQVIA; Scott Shi, IQVIA Canada

Abstract

Background: The efficacy of anti-vascular endothelial growth factor (aVEGF) treatments have been proven in several trials for neovascular age-related macular degeneration (nAMD) and diabetic macular edema (DME) and are thus considered first-line therapy. However, real-world usage often differs from clinical trials and there is limited Canadian real-world data.

Objectives: To describe the demographics, treatment patterns, clinical effectiveness, health care resource utilization, and safety of patients treated with aVEGF therapies.

Methods: A retrospective chart review of nAMD and DME patients treated at 9 ophthalmology clinics across Canada was conducted. Patients were included if they initiated aVEGF between September 1, 2018 and August 31, 2019, and had at least 4 doses during a 12-month follow-up period.

Results: 53 patients with nAMD (female, 65%; age older than 65 years, 96%) and 48 patients with DME (female, 35%; age older than 65 years, 65%) were evaluated. aVEGF usage differed by geographic region. On average, patients with nAMD had 9.09 injections; 89% had ≤ 2-month dosing interval based on their last dose. Patients with DME had an average of 8.50 injections, but 50% had a 1-month and 77% had ≤ 2-month dosing interval based on their last dose. The number of injections received during the study was similar to the number of clinic visits and spectral domain optical coherence tomography (SD-OCT) performed. Effectiveness and safety were similar to clinical trial observations.

Conclusion: Despite treat-and-extend regimens being common, most patients had a ≤ 2-month interval between injections at the end of the 12-month follow-up period. Generally, monitoring (SD-OCT) coincided with treatment visits. Patients, caregivers, and clinicians may benefit from therapies that quickly allow for longer intervals between visits without compromising visual and anatomical outcomes.

P24. Time to Public Reimbursement: 2019 and 2020 in an Historical Context

Presenting Author: Alexandru Dobrescu, Innovative Medicines Canada

Abstract

Background: Canada generally has sequential drug approval, health technology assessment (HTA), and reimbursement processes for new innovative medicines. Following Health Canada approval, new medicines are subject to HTA, price negotiations through the pan-Canadian Pharmaceutical Alliance (pCPA), and then are reviewed and potentially listed on provincial drug formularies.

Objective: This study aims to provide an updated analysis of time to public reimbursement in the 2019 and 2020 period.

Methods: This analysis used data on drug approvals from Health Canada, CADTH Reimbursement Reviews, pCPA timelines, and provincial drug plan listing dates to estimate public drug reimbursement timelines in Canada by stages.

Results: Medicines first listed on provincial formularies in 2021 were approved by Health Canada almost 21 months before their listing date, ranking Canada among the bottom of OECD20 countries in public drug reimbursement timelines. Timelines for oncology drugs were approximately 3 months quicker than the national average in 2020 but still over 6 months slower when compared to oncology listing timelines from 2015. Average total reimbursement timelines increased by about 1 month from 2019 to 2020, although the effects of the reallocation of resources due to the COVID-19 pandemic must continue to be monitored for medicines listed in 2021 and beyond.

Conclusion: The current Canadian public reimbursement process highlights the need for more effective collaboration between the HTA agencies, the pCPA, and provincial listing bodies in order to streamline the currently segmented and sequential reimbursement process.

P25. Utilization of Immune Checkpoint Inhibitors in Canada During the COVID-19 Pandemic: Experience From a Large Canadian Private Payer

Presenting Author: Julie Blouin, Sun Life

Co-Authors: Dolly Han, Sun Life; Nianda Penner, Sun Life

Abstract

Background: Many patients with cancer had their cancer treatments postponed due to COVID19. In response, provincial guidelines were developed to assist with treatment prioritization. Some jurisdictions recommended changes to chemotherapy scheduling such as dosing and frequency or preference for neoadjuvant strategies. In the interim, surgeries were delayed or postponed at the discretion of treating physicians. Prioritization of cancer

drugs that can be administered at home versus intravenous (IV) at hospital and infusion centres was also considered.

Objective: To determine if there was a decrease in the volume of claims for IV immune checkpoint inhibitors (ICI) administered in outpatient infusion clinics during the COVID19 pandemic.

Methods: Using Sun Life's drug claims database, all unique claimants of IV ICI (PD-1 inhibitors: pembrolizumab, nivolumab, cemiplimab; PD-L1 inhibitors: atezolizumab, avelumab, durvalumab; CTLA-4 inhibitor: ipilimumab) were extracted, from January 2020 until April 2021. The claims from January 2019 until March 2020 served as an historical baseline.

Results: From April 2020 to March 2021, the average quarterly total claimants for ICI was 174. Compared to January 2019 to March 2020, this represented a 67% decrease in the number of claimants, a 55% decrease in the volume of claims, and a 66% reduction in total paid amount for claims.

Conclusion: There was a substantial reduction in individuals claiming ICI during the COVID19 pandemic, resulting in decreased volume and total paid for claims. This could be a result of delayed cancer treatment or adjustment to treatment strategies such as a shift to oral drugs.

P26. Trends in Economic Evaluations by the CADTH pan-Canadian Oncology Drug Review Between 2019 and 2021

Presenting Authors: Dr. Daniel Moldaver, AstraZeneca Canada; Callum Shephard, AstraZeneca Canada

Co-Authors: Jacqueline Diaz, AstraZeneca Canada; Andrea Stojanovski, AstraZeneca Canada; Donald Husereau, University of Ottawa, School of Epidemiology and Public Health

Abstract

Background: The CADTH pan-Canadian Oncology Drug Review (pCODR) updated several key methodological requirements for health economic submissions in the fall of 2019.

Objective: This study sought to identify trends in pCODR economic evaluations stemming from the 2019 guidance updates. Trends in reporting of sequential incremental cost-effectiveness ratios (ICERs), survival extrapolations, and use of indirect treatment comparisons (ITCs) were examined.

Methods: All publicly available final pCODR recommendations and economic guidance reports between September 2019 and April 2021 were identified and reviewed.

Results: Forty-four recommendations were identified; 33 received a positive recommendation (conditional or unconditional) and 11 received a negative. Health economic evaluations featured multiple comparators in 18 (41%) recommendations; the CADTH base case rarely focused on sequential ICERs (n = 4). Factors that influenced pCODR to focus on pairwise versus sequential ICERs were infrequently reported. The sponsor's survival extrapolation methodology was not reported in 20 files. One file reported the use of an advanced survival extrapolation technique (spline-based). In 32 submissions, an ITC was used, with network meta-analysis the most common approach (n = 12), followed by matching-adjusted indirect comparison (n = 9), propensity score matching (n = 4) and simulated treatment comparison

(n = 3). The most common ITC criticism was heterogeneity between trials. The most common critique of economic models was an inappropriate time horizon (n = 18), which lead to an extension of the time horizon in 7 files and shortening in 11.

Conclusion: Despite mandating sequential ICERs, economic evaluations with multiple comparators have commonly focused on pairwise comparisons. Use of advanced survival extrapolation is rare but advanced ITC methods are relatively more common.

P27. Cost-Effectiveness of Brentuximab Vedotin for the Treatment of Cutaneous T-Cell Lymphomas in Canada

Presenting Author: Kristina Yu, Seagen Inc.

Co-Authors: Caitlin Eichten, PAI; Keenan Fenton, Seagen Inc.; Dr. Eric Song, Seagen Inc.; Dr. Julie Lisano, Seagen Inc.; Thomas Delea, PAI

Abstract

Background: Cutaneous T cell lymphomas, a peripheral T cell lymphoma subtype, include mycosis fungoides (MF) and primary cutaneous anaplastic large cell lymphoma (pcALCL). Brentuximab vedotin (BV) is a CD30-directed antibody-drug conjugate approved by Health Canada for pcALCL or CD30-expressing MF following prior systemic therapy. BV versus physicians' choice (PC) of methotrexate or bexarotene delayed progression and time to subsequent treatment with no effect on survival in the ALCANZA trial.

Objective: We assessed the cost-effectiveness of BV versus PC of methotrexate or bexarotene from a Canadian health care payer perspective in the indicated population.

Methods: A 5-state partitioned survival model that included stem cell transplantation (SCT) and SCT relapse, a weekly cycle length, and a 45-year lifetime horizon was developed. Health-state occupancies, utility estimates, and duration of treatment were informed by ALCANZA data. Other inputs and costs were informed by literature or experts. Scenario analyses varied key parameters and assumptions.

Results: BV versus PC was cost-effective; the incremental cost-effectiveness ratio was $43,790/quality-adjusted life-year (QALY) gained. BV was more effective (incremental life-years: 0.15; QALYs: 0.25) and total treatment costs were slightly higher (incremental costs: $11,105) than PC of methotrexate or bexarotene. Key model drivers included duration of end-stage care and proportion eligible for SCT and BV re-treatment rates.

Conclusion: Our results show that BV, the first CADTH-approved treatment for CD30-expressing MF and pcALCL, is cost-effective in the indicated population. Although BV drug costs were higher than PC of methotrexate or bexarotene, these costs were offset through decreased post-progression and end-stage management costs.

P28. Finding Emerging Evidence Rapidly for COVID-19 Topics

Presenting Authors: Danielle Rabb, CADTH; Amanda Hodgson, CADTH; Caitlyn Ford, CADTH

Abstract

Background: As international health technology assessment agencies shifted course to highlight their COVID-19 evidence resources, the Research Information Services team at CADTH adapted its processes to enhance and execute its searches on these topics.

Methods: Search protocols were adjusted by consensus. Specialized grey literature sources were compiled, and processes adjusted to retrieve evidence as efficiently and thoroughly as possible. Database search strings for COVID-19 and related evidence topics were shared via librarian listservs. In addition, guidance was created to assist information specialists in navigating the searching of preprints.

Results/discussion: Advancing updated search protocols required the rapid investigation and testing of the new PubMed database search interface, in-depth exploration of preprint sources, and expert compilation of grey literature sources. COVID-19 grey literature sources were organized and presented according to product line (horizon scans, rapid reviews, etc.). These websites and search strings for common and related topics have been posted and shared within the information specialist and librarian communities internationally via the CADTH COVID-19 evidence portal (https://covid.cadth.ca/literature-searching-tools/).

Conclusion: There has been a high uptake of literature searching tools shared on the CADTH COVID-19 evidence portal. Resources compiled and presented on the CADTH COVID-19 evidence portal highlight the mass efforts worldwide in making COVID-19 evidence available and searchable. These continue to be updated as part of our efforts throughout the pandemic.

P29. Length of Stay and Home Discharge for Patients With Inpatient Stroke Rehabilitation

Presenting Author: Dr. Dat Tran., Institute of Health Economics

Co-Authors: Dr. Charles Yan, Institute of Health Economics; Dr. Sean Dukelow, University of Calgary; Dr. Jeff Round, Institute of Health Economics

Abstract

Objective: To examine temporal trends, geographic variations, and predict inpatient rehabilitation length of stay (LOS) and home discharge for stroke patients.

Methods: Patients aged 18 years or older who were admitted to an inpatient rehabilitation facility in Alberta, Canada, between April 2014 and March 2018 (years 2014 to 2017) were included. Predictors of LOS and home discharge were examined using 2014 to 2016 data and validated using 2017 data. Multivariable linear regression (MLR), and multivariable negative binomial (MNB) and multivariable quantile (MQR) regression, were used to examine LOS, and logistic regression was used for home discharge.

Results: We included 2,686 rehabilitation admissions between 2014 and 2017. The mean LOS decreased (2014: 71 days; 2017: 62.1 days; $P = 0.003$) during the study period and was shortest in Edmonton (59.1 days) compared to Calgary (66 days) or other localities (70.8 days; $P < 0.001$). Three-quarters of patients were discharged home and this proportion

remained unchanged between 2014 and 2017. Calgary patients were more likely to be discharged home than those in Edmonton (odds ratio [OR] =0.62; P = 0.019) or other localities (OR = 0.39; P = 0.011). The MLR and MNB models provided accurate prediction for the mean LOS (predicted = 59.9 and 60.8 days, respectively, versus actual = 62.1 days; both P > 0.5), while the MQR model did so for the median LOS (predicted = 44.3 days versus actual = 44 days; P = 0.09). The logistic regression resulted in 82.4% of correct prediction, a sensitivity of 91.6%, and a specificity of 50.7% for home discharge.

Conclusions: Rehabilitation LOS decreased, while the proportion of home discharge remained unchanged during the study period. Both varied across health zones. Identifiable statistical models provided accurate prediction with a separate patient cohort.

P30. Economic Impact and Health-Related Quality of Life of Patients and Caregivers Affected by Neuromuscular Disease

Presenting Author: Dr. Homira Osman, Muscular Dystrophy Canada

Co-Author: Stacey Lintern, Muscular Dystrophy Canada

Abstract

The COVID-19 pandemic disproportionally impacted Canadians affected by neuromuscular diseases (NMD) due to theoretical risk for poor outcomes from the virus itself, reduced access to health care and rehabilitation, and adverse social impacts of efforts to mitigate the pandemic. The pandemic also heightened existing challenges: reliance on family members for informal supports, and limited access to affordable, high-quality, coordinated care, therapies, assistive devices, and health information. NMDs are a broad group of disorders, many of which are rare and characterized by profound muscle weakness, sensory-loss, and multisystem involvement. There are no cures, but disease-modifying therapies are emerging from clinical trials and persons with NMDs are receiving more complex care at home. We sought to characterize the direct and indirect costs associated with 6 NMDs: Duchenne, facioscapulohumeral, and myotonic muscular dystrophies; myasthenia gravis; spinal muscular atrophy; and Charcot-Marie-Tooth disease. Using web-based surveys, data were collected from patients and family members (n = 1,500, with confirmed NMD diagnoses), with validated measures on demographics, health-related quality of life, direct health care resource utilization costs (e.g., inpatient care, physician services), disease and treatment impacts, and productivity losses. The results showed that NMDs impose a substantial economic burden on the person and family, as well as society as a whole: the total economic cost of all 6 NMDs in Canada over one year is estimated to be $4,693,264,115. Inpatient stays and loss of productivity were identified as the highest cost categories. To help inform future cost-effectiveness analyses for novel therapies, implementation of newborn screening programs, and the planning of health services and community supports, drug regulators and health technology assessment agencies, insurance providers, and society should have a better understanding of the costs associated with NMDs and the caregiving-related burden.

P31. Neonatal Screening for Spinal Muscular Atrophy: Technology Assessment in the Context of Uncertainty and Novelty

Presenting Authors: Isabelle Létourneau, Institut national d'excellence en santé et en services sociaux (INESSS); Mélanie Lalancette-Hébert, INESSS

Co-Authors: Julie Lessard, INESSS; Ann Lévesque, INESSS; Catherine Truchon, INESSS

Abstract

Spinal muscular atrophy (SMA) is the leading genetic cause of mortality in infancy and early childhood. It is characterized by a permanent loss of motoneurons, leading to muscular atrophy and respiratory difficulties. Newly available SMA treatments need to be given in a timely manner, before irreversible damage, and optimal care of the patient needs to be established to maximize their efficiency. In this context, the Institut national d'excellence en santé et en services sociaux was mandated to assess the relevance of implementing newborn screening (NBS) for SMA. The scientific literature was searched regarding clinical relevance, test performance, and efficiency of NBS for SMA. Contact was also made with the Ontario screening program, as SMA screening was implemented in that province in 2020. Studies of NBS programs have been carried out following introduction of the first available treatment option. Because of the novelty of NBS for SMA, no studies on screening efficiency have been published. The best available data come from clinical studies in which a limited number of pre-symptomatic or early symptomatic patients were treated, as these trials were initiated before the implementation of NBS. In this context, indirect data on SMA natural history and on the effect of early treatment on disease progression have been used to assess the efficiency of NBS. In the absence of robust evidence, it is feasible to assess a technology in the context of limited data, while considering potential optimization of existing treatments and future technologies. Planned reassessments can help attenuate uncertainties over time.

P32. Underlying Ethical Considerations in the Evaluation of Promising Interventions That Can Help Tackle Uncertainty in a Pandemic Context

Presenting Author: Catherine Olivier, Institut national d'excellence en santé et en services sociaux (INESSS)

Co-Author: Dr. Isabelle Ganache, INESSS; Michèle de Guise, INESSS

Abstract

The international response to the COVID-19 pandemic hosted enormous research efforts toward the development of interventions aiming to improve patient care. While some of these interventions have been considered promising, results about their efficacy or safety often show uncertainty, making it challenging to decide whether they should be made available to the global population. To tackle this context of uncertainty, l'Institut national d'excellence en santé et en services sociaux (INESSS) conducted a reflection about the underlying ethical considerations that can influence the risk-benefit evaluation of promising interventions. This reflection is based on a rapid literature review conducted in February 2021 that helped draw the main challenges encountered in the evaluation and decision-making processes relating to promising interventions during the pandemic. It was reinforced by a consultation that brought 13 ethicists, clinicians, and researchers involved in clinical or public health practices together with patients and citizens in a strong and respectful discussion. This consultation allowed creating a space for better understanding of the various participants perspectives

and concluded with an opening toward considering these perspectives within the risk-benefit evaluation process of promising interventions. The consultation of a second group of 13 patient partners further allowed consolidating and refining our understanding of the perspectives expressed by the patients and the citizens. The ethical considerations revealed through the integration of the various perspectives suggest a risk-based approach can be applied to deepen our understanding of the populational, sociocultural, clinical, organizational, and economical issues pertinent to the risk-benefit evaluation of the promising interventions.

P33. Cost-Effectiveness Analysis Evaluating Adjuvant Temozolomide for Anaplastic and Low-Grade Glioma

Presenting Authors: Shan Ashton Garib, Ontario Health (Cancer Care Ontario)

Co-Aurhors: Jaclyn Beca, Ontario Health (Cancer Care Ontario); Elena Mow, Ontario Health (Cancer Care Ontario); Dr. Sunit Das, Department of Surgery at the University of Toronto; Dr. Garth Nicholas, University of Ottawa Division of Medical Oncology

Abstract

Background: Recent results from the CATNON trial demonstrated benefits of adjuvant (Adj) temozolomide (TMZ) and the relevance of isocitrate dehydrogenase (IDH) mutations in patients with anaplastic glioma following radio therapy (RT) alone.

Objective: Assess the cost-effectiveness (CE) among TMZ, PCV (procarbazine, lomustine — CCNU; vincristine) and RT for patients with anaplastic IDH-mutant gliomas and explore CE in low-grade gliomas.

Methods: A partitioned survival model (PSM) was developed from a public health perspective, based on a 20-year time horizon discounted at 1.5% and using 3 health states (progression-free, post-progression, and death). Treatment efficacy was estimated for individual patient data (IPD) from digitized Kaplan-Meier (KM) progression-free survival (PFS) and overall survival (OS) curves obtained from RTOG 9402 and CATNON. Temozolomide and PCV were indirectly compared through their relative effectiveness of RT alone. Safety and quality of life data were obtained from RTOG 9402, CATNON, and supplemented from the literature.

Results: Temozolomide demonstrated survival benefit of 0.32 life-years and 0.36 quality-adjusted life-years compared to PCV, yielding incremental cost-effectiveness ratios of $31,527 and $27,860, respectively. Approximately 60% of simulations favoured TMZ as the optimal strategy at a willingness-to-pay threshold of $50,000 and 40% favoured PCV. The model was sensitive to the relative effectiveness of TMZ for OS, baseline utility for first-line therapy, and post-progression medical costs.

Conclusion: There is considerable uncertainty in the clinical data; however, TMZ appears to represent a clinically relevant option in the management of anaplastic and low-grade IDH-mutant gliomas at an acceptable cost.

P34. Understanding and Managing Pain After Surgery: Pilot Testing the Manage My Pain App With Patients Attending a Transitional Pain Service and Patients Having Surgery in Calgary, Alberta

Presenting Authors: Dr. Sara Mallinson, Alberta Health Services; Carla Vetland, Alberta Health Services

Co-Authors: Dr. Sanjay Beesoon, Alberta Health Services; Kathryn Ambler, Alberta Health Services; Dr. Jarad Stephan, Alberta Health Services

Abstract

Pain is a natural outcome of surgery and usually subsides within a few weeks post-surgery. However, some patients have pain that persists for 3 months or more and becomes chronic post-surgical pain (CPSP). CPSP is not yet well-understood but has a significant impact on patients, causing disruption to daily activities, impacting mental health, sometimes leading to reliance on high-dose painkillers (including opioids), and an increase health care utilization. Early identification of patients at risk of CPSP can improve patient outcomes. Based on a model implemented at Toronto General Hospital, South Health Campus in Calgary has developed a Transitional Pain Service (TPS) to manage post-surgical pain. To enhance identification, referral, monitoring of patients, and improve conversations about pain between providers and patients, the TPS and linked surgical units at South Health Campus are testing a patient-centred health app: Manage My Pain (MMP). This CAN Health Network (West) funded study explores the feasibility, acceptability, and impact of using MMP in 2 contexts: first, with TPS patients and clinicians as a supplement to existing clinic intake and monitoring processes; second, as a remote patient self-monitoring tool for a cohort of patients undergoing elective surgery to identify those most at risk of CPSP. This e-poster will outline objectives, design and methods, and a descriptive analysis of early implementation findings.

P35. Discontinuation Rate of Tofacitinib is Similar When Compared to TNF Inhibitors in Rheumatoid Arthritis Patients: Pooled Data From Two Rheumatoid Arthritis Registries in Canada

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Abstract

Background: Tofacitinib (TOFA) is an oral, small molecule drug used for rheumatoid arthritis (RA) as the first or an alternative option to biologic agents. We evaluated the discontinuation of tumour necrosis factor inhibitors (TNFi) compared to TOFA, using pooled data from the Ontario Best Practices Research Initiative (OBRI) and the Quebec Rhumadata registries.

Methods: Patients initiating their TOFA or TNFi between June 1, 2014 and December 31, 2019 were included. Time to discontinuation was assessed using Kaplan-Meier survival and Cox regression models. To deal with confounding by indication, we adjusted for propensity scores estimated for covariates with lack of balance between 2 treatments. Multiple imputation was carried for missing data.

Results: A total of 1,318 patients initiated TNFi (n = 825) or TOFA (n = 493), with mean disease duration of 8.9 and 13.0 years, respectively. In the TNFi group, 78.8% were female and mean age was 57.6 years. In the TOFA group, 84.6% were female and mean age was 59.5 years. The TNFi group was less likely to have prior biologic use (33.9% versus 66.9%). The mean CDAI was significantly lower in the TNFi group (20.0 versus 22.1). Over the mean of 23.2 months, discontinuation was reported in 309 (37.5%) and 182 (36.9%) of TNFi and TOFA patients, respectively. After adjusting for propensity scores, there was no significant difference between treatment groups (adjHRs: 0.96; 95% CI, 0.78 to 1.18; P = 0.69).

Conclusion: In this pooled real-world data study, TNFi and TOFA discontinuation was similar in RA. We plan further analysis on for the specific reasons of discontinuation.

P36. Digital Tools for Delivering Genomic Services: A Systematic Review

Presenting Author: Daniel Abd Assamad, The Hospital for Sick Children (SickKids)

Co-Authors: Whiwon Lee, The Hospital for Sick Children; Salma Shickh, University of Toronto; Stephanie Luca, University of Toronto; Marc Clausen, Unity Health Toronto; Cherith Somerville, The Hospital for Sick Children; Abby Tafler, The Hospital for Sick Children; Angela Shaw, Li Ka Shing Knowledge Institute, St. Michael's Hospital; Dr. Robin Hayeems, The Hospital for Sick Children; Dr. Yvonne Bombard, Unity Health Toronto, University of Toronto

Abstract

Background: Patient-facing digital tools including chatbots are increasingly being used in practice to supplement genetic counselling. We conducted a systematic review to synthesize evidence to inform the development, evaluation, and scalability of effective tools.

Methods: A search of peer-reviewed empirical literature from 2010 to March 2021 yielded 5,072 citations. The primary outcomes were patient-reported usability (e.g., satisfaction) and outcomes of tool use (e.g., knowledge, psychosocial well-being). Secondary outcomes included system-related (e.g., service efficiencies), provider-reported (e.g., workflow integration), equity, diversity, and inclusion (EDI) dimensions.

Results: Of 3,368 abstracts screened, 87 papers met the inclusion criteria, and 71 distinct tools were identified. Their most common clinical settings were cancer (48%), adult non-cancer (17%), and prenatal (17%). Patient-reported usability was measured in 72% of studies, of which 69% reported their tool was acceptable, 53% as satisfactory, and 23% reported that users would recommend their tool. As a result of digital tool use, 84% of studies reported an improvement in at least 1 of the following patient outcomes: knowledge, psychosocial well-being, behavioural and management changes, family communication, decision-making, or engagement. Many studies reported on EDI outcomes including education level (85%), ethnicity (77%), and income (37%). EDI outcomes such as literacy levels (general, health, or digital) (18%), insurance coverage (11%), and marital status (10%) were less well-represented.

Conclusion: Digital tools are promising but gaps remain with respect to EDI considerations and the range of clinical settings they are designed to support. Findings identify priorities and strategies for developing evidence-based digital tools in genomic medicine.

P37. Toward a Framework to Guide the Prioritization, Evaluation, and Implementation of Precision Child Health Technologies: Results From a Scoping Review

Presenting Authors: Mathushan Subasri, The Hospital for Sick Children (SickKids); Danielle Arje, The University of Toronto

Co-Authors: Dr. Danielle Arje, The University of Toronto; Dr. Cindy Gauvreau, The Hospital for Sick Children; Lisa Wight, The Hospital for Sick Children; Dr. Avram Denburg, The Hospital for Sick Children; SickKids Research Institute; Dr. Robin Hayeems, The Hospital for Sick Children

Abstract

Precision technologies are only beginning to achieve their anticipated outcomes. To inform their adoption and use in children, existing value frameworks warrant modification. We aimed to synthesize relevant literature to inform the development of a guiding framework for prioritizing, evaluating, and implementing precision child health (PCH) technologies. A scoping review of literature from 2000 to 2021 was conducted. Key terms related to precision health, prioritization, evaluation, implementation, and pediatrics were searched in PubMed, Embase, Scopus, Web of Science, and PAIS Index (n = 9,235). After title screening (n = 2,763), abstracts were screened for full-text review (n = 50): priority setting (n = 0), evidence development (n =9), evidence appraisal (n = 7), and implementation (n = 34). Full-text bibliographies and grey literature were also searched. Findings were integrated through narrative synthesis using NVivo. Priority-setting literature was lacking. Evidence development challenges included assessing gene penetrance during childhood, small sample sizes, and clinical trial complexities. Mitigating approaches included innovative trial designs, international collaboration, and establishing study standards. Stakeholder perspectives on principles to guide the evaluation of PCH technologies were complementary to existing frameworks; however, some were amplified (e.g., familial psychosocial impact and ethics) and others were novel (e.g., hope and patient-provider dynamics). Known barriers related to implementing precision health or pediatric interventions were exacerbated for PCH technologies (e.g., consent/assent and returning secondary findings). Enablers of implementation included robust patient-provider discussions and standards for reporting. The literature suggests that the uniqueness of children further complicates prioritization, evaluation, and implementation of precision technologies. Attending to these considerations should catalyze the impact of PCH technologies.

P38. Finding the Sweet Spot: Exploring Patients' Perspectives on the Adoption of AI and Chatbots in Genetic Service Delivery

Presenting Author: Dr. Yvonne Bombard, Li Ka Shing Knowledge Institute, St. Michael's Hospital

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Abstract

Background: eHealth tools (e.g., digital platforms, artificial intelligence [AI], and chatbots) provide innovative solutions for increasing the capacity and efficiency of genetic service delivery. However, research exploring patients' preferences and attitudes toward using AI and chatbots in genetics is only emerging.

Methods: A qualitative study to explore patient perspectives on a proposed patient-facing genetics platform integrating AI and a chatbot.

Results: We interviewed 30 individuals who previously received genetic testing for themselves or their children. Participants perceived AI as an opportunity for "personalized" information. However, they expressed reservations about chatbots. Participants anticipated that chatbots would lack the capabilities to manage complex interactions but said they may be helpful in providing basic information. Participants expressed that the utility of a chatbot would be low if it were designed to assist with tasks that are either too simple or too complex. The highest level of acceptability was in the "sweet spot," where participants saw value in a chatbot assisting with moderately complex tasks. Irrespective of the chatbot's complexity, participants needed a "safety net" in the form of access to a care provider in case the chatbot was unable to address their needs. Knowing that a care provider would be available, as needed, increased participants' comfort with using chatbots or AI as part of the platform.

Conclusion: Results highlight patients' comforts with and limits on integrating AI and chatbots into genomics platforms, which can optimize the design and implementation of these tools in practice.

P39. Comparing Cortiment and Prednisone in Ulcerative Colitis: A Population-Based Study of Outcomes Using Real-World Data

Presenting Author: Dr. Stephanie Coward, University of Calgary

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Abstract

Introduction: In August 2016, Cortiment (Budesonide MMX) was approved for ulcerative colitis (UC) patients in Canada but not approved for reimbursement; CADTH cited no comparable benefit for its use over other approved UC medications. Real-world data comparing Cortiment to other UC medications is limited, but the use of steroids is counter-indicated for COVID-19–related outcomes.

Methods: Using population-based data from Alberta Canada, 2 cohorts were compared: 1) Patients dispensed Cortiment and an ICD diagnostic code for UC (9: 556.X; 10: K51.X), August 1, 2016 to October 31, 2019; and 2) Validated (algorithm) UC patients dispensed a > 30-day supply or > 500 mg in 24 hours of prednisone/prednisolone, April 1, 2016 to October 31, 2019. All hospitalizations, IBD-surgery, or infections (i.e., pneumonia, *C. difficile*, sepsis, tuberculosis) that occurred 6 or 12 months from initial medication dispensing were identified. Cox proportional hazard models, with hazard ratios (HR), assessed outcomes between the 2 groups. Poisson regression assessed average monthly percentage change (AMPC).

Results: We identified 917 Cortiment and 2,404 Prednisone patients. Over the study period, prednisone dispensing significantly decreased (AMPC: −2.53% [confidence interval (CI): −2.85, −2.21]), while Cortiment remained stable. Cortiment significantly decreased the hazard of hospitalization at 12 months (HR:0.64 [CI: 0.54, 0.77]) and significantly decreased the hazard of acquiring an infection at 6 (HR:0.43 [CI:0.28, 0.65]) and 12 months (HR:0.49 [CI:0.35, 0.69]).

Discussion: The use of Cortiment in a real-world setting is associated with fewer deleterious outcomes and its use during a pandemic should be preferred, especially when its counterpart can exacerbate negative COVID-19–related outcomes.

P40. A Comprehensive Genomic Test-Reporting Structure for Communicating Cancer and Incidental Findings

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Abstract

Background: Genomic sequencing (GS) is increasingly being used in clinical practice and allows for the identification of incidental findings (IFs) — findings unrelated to the reason for testing. Patient preferences indicate an interest in receiving a broad range of IFs, which creates challenges for the communication of results to patients and providers. We developed a genomic test report (GTR) to communicate GS results related to a primary cancer indication and patient selected IF categories.

Methods: Our report was developed as part of a randomized controlled trial returning IFs to individuals with a cancer history who received GS results. Genetic experts provided feedback on developing a suitable report for genetic and non-genetic audiences. Factors in GTR development included outlining key results and dividing sections for primary cancer findings (PCFs) and 6 IF categories.

Results: We developed a GTR featuring a summary of key results, a brief description and table of the main findings separated and colour-coded into primary cancer findings and IF categories, and in-depth details of each finding including variant interpretations, disease information, and familial risk. Variants of uncertain significance, likely pathogenic, and pathogenic findings were reported in association with the personal or family history of cancer, while only likely pathogenic and pathogenic IFs were reported. Appendices with supplementary information and patient and provider letters were also provided to support comprehension of the report.

Conclusion: Our report represents an organized approach to communicate PCFs and IFs to patients and providers to aid in the use of GS in clinical care.

P41. Using a Modified Delphi Process to Develop a Falls Prevention Intervention Economic Model

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Abstract

Any model-based economic evaluation requires a step to conceptualize a model structure. This work presents an interactive and transparent approach using an online modified Delphi process to develop a cost-effectiveness model of falls prevention interventions. A planning committee (N = 4) conducted 2 literature reviews, the first on economic evaluations of falls prevention interventions and the second on clinical practice guidelines for falls prevention in older adults (aged ≥ 65 years). We compiled the results into 2 consecutive surveys, which included questions on the important health states and events, and patient characteristics for falls. We administered the surveys via an online modified Delphi process to an expert panel comprising clinicians, health service researchers, health economists, a patient partner, and knowledge users (N = 11). The results of the surveys informed the model structure representative of a clinical pathway for falls prevention interventions. Fourteen health states and events and 26 patient attributes reached inclusion criteria from the expert panel. We drafted a model and used targeted questions to assess its face validity through panel discussions via teleconferences. The setting-based model structure incorporates clinical outcomes by tracking events for each patient (using microsimulation). In summary, this study demonstrated a transparent model conceptualization process. Expert panel discussions helped refine and simplify the results for representation as a simplified state-transition model. Future studies may consider a Delphi process in which the initial survey items are generated by the panel. Consideration of additional systematic consensus-building activities to reach agreement on items may strengthen the model conceptualization process.

P42. Information Communication Technology Used by Health Care Aides: Barriers and Benefits

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Abstract

Information communication technology (ICT) can help improve the workflow of health services, thereby enhancing client care. Health care aides (also known as personal support workers) comprise one of the largest workforces that provides care for older adults. However,

there is little evidence on how ICTs can assist health care aides in their daily practice. To address this knowledge gap, we conducted a scoping review using Daudt et al.'s (2013) adaptation of Arksey and O'Malley's framework to examine existing literature on how health care aides use ICTs to deliver care and manage their workflow. We reviewed studies from January 2010 to March 2020, using 3 databases: Embase, MEDLINE, and CINAHL. We identified 8,958 studies and extracted data from 40. Results indicated that health care aides use ICTs in the following 5 ways: 1) to access electronic health records for home care; 2) to facilitate client assessment and care planning; 3) to improve everyday work; 4) to enhance communication; and 5) to provide care remotely. We identified barriers and benefits faced by health care aides using ICT. Barriers were related to the level of usefulness, security concerns, budget limitations, connectivity, functionality, and documentation issues. Benefits were related to improvements in communication, support workflows and processes, and real-time access to client information. Our findings suggest that the benefits of integrating ICT into health care aides' practice outweigh the barriers and support quality care for clients.

P43. Describing Medication Patterns Among Adults Living With the Rare Disease of Dermatomyositis in Alberta, Canada: A Population-Based Study Using Real-World Data

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Abstract

Background: There are no Health Canada–approved medications and no evidence-based guidelines to direct the prescribing for dermatomyositis (DM), a rare idiopathic inflammatory myopathy that is commonly treated with immunosuppressive medications. Understanding medication treatment patterns may guide the rationalization of treatment approaches.

Methods: A retrospective observational study using administrative data from Alberta was performed. Newly diagnosed dermatomyositis (new-DM) and previously diagnosed dermatomyositis (previous-DM) adults with DM were included. The proportion who received ≥1 dispensation of a drug class was presented annually in new-DM and over a 1-year period in previous-DM. Descriptive analyses were applied.

Results: Within new-DM (n = 650), those that received any DM-related medication decreased from 73% in the first year to 46% in the eighth year after diagnosis; 64% of previous-DM (n = 881) received a DM-related medication. Glucocorticoids were the most commonly dispensed DM-related drug class. Among other immunotherapies and treatments for cutaneous symptoms, hydroxychloroquine, topical corticosteroids, methotrexate, mycophenolate mofetil, and immunoglobulin G were most commonly used. Medications that may be used for DM-related treatment side effects (proton-pump inhibitors, folic acid, antibiotics, osteoarthritis treatment), common comorbidities of DM (statins, calcium channel blockers, and short-acting bronchodilators), sleep disturbances (sleep aide medication), and pain (opioid- and non-opioid analgesics) were also dispensed.

Conclusions: This study demonstrates the feasibility of characterizing medication treatment patterns in DM. This facilitates future work that characterizes health outcomes and health care resource utilization to guide the optimal management of patients with this rare disorder.

P44. Bridging HTA and Learning Health Systems With Simulation Modelling: A Case of Pharmacogenomics for Major Depression

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Abstract

Learning health systems (LHS) are characterized by "learning cycles" of data production, knowledge translation, and implementation. Ultimately, the intent is to lead to value-based health care that provides the best care for patients and the best experience for providers at the lowest cost. The Pharmacogenomics for Depression Project (PGx4Dep) is examining the efficacy and value of pharmacogenomic testing as part of routine care for patients with depression compared to the current standard of care. The PGx4Dep team was designed and assembled to model an LHS within the project. It includes researchers, patient partners, policy-makers, funding organizations, clinicians, and health care providers. Part of our work, a microsimulation-Markov model created by the team, provides analytic infrastructure that contributes to each process of the learning cycle: 1) Data to knowledge: using existing information and incorporating new British Columbia–specific data to deliver predictions of the full stream of benefits and costs associated with pharmacogenomic testing. These predictions estimate the budget impact, resource utilization, and health gains from alternative strategies; 2) Knowledge to performance: The model, and its ability to assess different potential policy choices, helps policy-makers decide whether or how to implement policies related to pharmacogenomic testing; 3) Performance to data: A major advantage of computer modelling in an LHS context is that the analytic infrastructure is in place to support the "search for efficiency" through rapid analysis and interpretation of new data. This means that as policy is implemented, the resulting real-world experience produces new data that can refine predictions and address evolving needs and questions.

P45. Pharmacogenomic Testing in Depression: Basing Decisions on Incomplete Evidence — A Rapid Review and Meta-analysis

Presenting Authors: Mary Bunka, University of British Columbia, Centre for Clinical Epidemiology and Evaluation; Wan Ki Wong, University of British Columbia

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Abstract

Pharmacogenomic tests (PGx) are marketed to patients with depression as a way to increase probability of remission, medication tolerability, and other outcomes. With such promise, several PGx trials have been conducted ahead of widespread adoption in Canada. Therefore, we conducted a rapid review of clinical trials to examine outcomes in patients with depression who had undergone pharmacogenomic testing versus standard pharmacotherapy treatment. Database searches and hand-searches produced 2,289 citations. Two reviewers independently screened 160 full texts for inclusion, extracting data and conducting a critical analysis on 10 randomized controlled trials meeting the inclusion criteria. Meta-analysis of outcomes, such as response and remission, was conducted in R to produce risk ratios. The majority of studies included patients with moderate to severe depression. Patients were 1.49 times more likely to achieve remission with PGx-guided therapy than treatment as usual. Response was 1.24 times more likely in the PGx-guided arm than the control arm. No significant differences were found for medication tolerability, although many studies were missing data. Critical appraisal showed a high risk of bias overall. PGx-guided care is more likely to result in remission and response to treatment in patients with moderate to severe depression when compared to standard care. However, these results are predominantly based on white, female, adult populations. No trials assessed PGx in children. Several other treatment outcomes were not routinely collected. Further research is needed to determine the impact of PGx-guided care in mild depression, on diverse populations, and in other pharmacotherapeutic outcomes, such as adverse events.

P46. Challenges in the Implementation of Health Technology Assessment Recommendations: A Two-Decade Experience

Presenting Authors: Dr. Eva Suarthana, Health Technology Assessment Unit, McGill University Health Centre; Nisha Almeida, Health Technology Assessment Unit, McGill University Health Centre

Abstract

The Health Technology Assessment Unit of the McGill University Health Centre was established in 2001 to support evidence-based usage of health technologies (i.e., drugs, devices, or procedures) at our hospital. We conducted an evaluation of the policy and economic impact of health technology assessment (HTA) recommendations on hospital practice. We contacted 19 clinical heads to follow-up on recommendations issued for 61 technologies regarding: 1) the current status of the technology; 2) detailed description of patient selection criteria for each intervention; 3) average number of patients who received the intervention per year; and 4) reason for stopping or non-implementation (safety, effectiveness,

ethics, legal, and/or budget issue). Policy and budget impact will also be determined from hospital clinical-administrative data. In our first round of follow-up, 13 clinical leads responded to follow-up questions of 39 technologies. Of 14 technologies that received approval or recommendation for routine use, 9 (64%) are currently used. Of 16 technologies with conditional approval or restricted-use approval, 10 (63%) are currently used with indications. Surprisingly, 5 of 6 (83%) technologies that were not approved are currently used. The reasons for non-approval were lack of evidence or funding at the time of evaluation, which took place 3 to 10 years ago. Of 24 technologies that are currently used, data have been collected for 8 (33%) of them, while 8 (33%) are unknown. Budget impact analysis is ongoing. This exercise emphasizes the need for: 1) regular follow-up of HTA recommendations to ensure proper compliance with recommendations for evidence-based use; and 2) mandated collection of valid and reliable data.

P47. Early Economic Evaluation of a Novel Tool to Assist Extubation Decision-Making

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Abstract

Rationale: The Extubation Advisor (EA) tool is a novel extubation decision support tool to assist in the assessment of extubation decision-making, with the aim of reducing the failure rate. The tool has the potential to reduce adverse outcomes and costs by optimizing the timing and enabling both earlier and safer extubation. Our study estimates the minimum percent change in failed extubations necessary to make the EA tool economically attractive from a hospital perspective.

Methodology: Our study was based on data collected from intubated patients in intensive care units (ICU) at a large tertiary care hospital in Canada, from 2015 to 2019. We estimated the annual institutional return on investment (ROI) for the EA tool as a ratio of net attributable cost savings and the annual institutional cost to implement the tool. The institutional cost of EA included costs of personnel time and capital and licensing costs. We developed a patient simulation model to estimate the minimum percent change in failed extubations necessary to make the ROI greater than zero. Probabilistic sensitivity analyses were performed to assess the robustness of study findings.

Results: Our study showed that a 1% reduction in failed extubation rates could save $261 per intubated patient (95% CI:175, 416). A large centre that sees about 2,500 intubated ICU patients annually could save $652,022 per year, per percent reduction in failed extubations. Our model estimated that the EA tool must reduce failed extubations by at least 0.64% (95%CI: 0.36, 1.14) to make the tool cost-effective at our site.

Conclusion: Clinical decision support tools such as the EA may play an important role in reducing health care costs in the intensive care setting. It may reduce the cost and length of mechanical ventilation by reducing the rate of extubation failure, a costly event in the ICU.

P48. Genetics Advisor: The Development, Usability, and Acceptance Testing of a Patient-Centred Digital Health Application to Support Clinical Genomic Testing

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Abstract

Background: Increasing demand for genomic testing coupled with existing workforce shortages in clinical genetics has placed unsustainable pressure on standard models of care. Patient-facing digital health applications can empower patients and provide sustainable and scalable clinical solutions to address this gap.

Aim: Develop a patient-facing digital health application to support patients undergoing genomic testing.

Methods: We developed the digital application by consulting an advisory board of providers and patients, and through usability testing with patients and members of the general public.

Results: Prototype development: We created a digital application — the "Genetics Advisor," designed to adapt to the needs of various patients, test modalities, and genetic results. It consists of a pretest module that focuses on education, values, FAQs, patient stories, selection of results, and a check-in for patients waiting on genetic results. Additionally, clinicians can upload results for patient review, independent of clinical consults. Usability testing: We conducted 25 usability tests with patients, the general public, and genetics practitioners (15/25 female; mean age 41 years). Participants were enthusiastic about the application and found it easy to navigate and comprehend. Acceptance testing: The final application is currently undergoing qualitative and quantitative acceptability testing with patients and the general public (n = 20), as well as evaluation in a randomized controlled trial with patients receiving genomic testing (n = 130).

Conclusions: We created and tested an interactive, patient-centred application to optimize delivery, access, and quality of care for pre- and post-test genomic testing, counselling, and return of results adaptable to any testing platform and setting.

P49. Encouraging Early Discussions of End-of-Life Preferences in Lung Cancer Patients Using a Smartphone Application

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Abstract

An important reason for receiving non-beneficial treatment at end-of life is the lack of timely discussions on goals of care and end-of-life preferences. Our objective is to use a smartphone application to facilitate early goals of care discussions in lung cancer patients. To achieve this goal, we first conducted a feasibility study to understand stakeholder preferences. As part of a quality improvement initiative at our quaternary-care hospital, we conducted separate focus groups with patients; clinicians in oncology; and palliative care physicians to understand barriers to early conversations on end-of-life preferences, and to assess feasibility of using smartphone technology to facilitate these conversations. We demonstrated features of the app that would integrate a questionnaire to patients and send prompts to physicians on patient readiness and optimal timing of conversations. Clinical teams expressed enthusiasm about early conversations but mentioned the following barriers: system (lack of electronic documentation and access to data; multiple physicians), clinician (lack of time) and patient (stigma associated with dying). Clinicians agreed that an app could overcome some of these barriers by making patients the repository of their data and empowering them to initiate discussions. Patients appreciated app features that would facilitate early conversations, but raised concerns about universal accessibility of such technology, especially among the elderly, and the need to ensure proper patient comprehension of terminology such as palliative care. Physicians and patients at our hospital agreed that early end-of-life conversations have the potential to reduce non-beneficial treatment and that use of a smart phone app could facilitate such conversations.

P50. Baring it All: Final Report From a Survey on Sexual and Reproductive Health Needs of Women+ With Rheumatic, Inflammatory and Psoriatic Diseases

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Abstract

Inflammatory arthritis and psoriasis are each estimated to impact roughly one million people in Canada. The onset and diagnosis of these diseases commonly affects people in the prime of their lives and these individuals are often left with a variety of reproductive and sexual health-related concerns, such as contraception, menopause, family planning, and parenting.

To address this gap, the Canadian Arthritis Patient Alliance (CAPA), the Canadian Association of Psoriasis Patients (CAPP), the Canadian Psoriasis Network (CPN) and the Canadian Spondylitis Association (CSA) co-developed and launched the Women's Sexual and Reproductive Health Survey on International Women's Day 2021. People who identified as

female were asked for their experiences and insights about contraception, family planning considerations, menopause, sexual health, and parenting.

A total of 439 individuals living with these diseases participated in the survey and results were analyzed to provide a national picture, as well as more detailed data based on geography, age, and identification as a member of a racialized community or as LGBTQ2S+. Information was collected about counselling and medication safety related to pregnancy and breastfeeding, post-partum disease flares, pain, and perimenopause / menopause. As well, participants shared their experiences with accessing health benefits (including prescription drug, device and professional services), challenges with paying for medication and their monthly out-of-pocket costs for health products and services.

Recommendations were developed that include using a sex and gender lens in HTA and pharmaceutical policy, identifying medication implications of reproductive health, considering pregnancy and breastfeeding as part of HTA. Additional recommendations were developed including the need for patient information to support informed decision-making of women+ with rheumatic and psoriatic diseases and inflammatory arthritis across the life cycle.