George & Fay Yee Centre for Healthcare Innovation (CHI) provides patient engagement; knowledge synthesis; clinical, administrative, data science and health system/services research; evaluation; support for clinical trials; knowledge translation; training; and project management services.

CHI is funded by the Strategy for Patient-Oriented Research (SPOR), Government of Manitoba, Winnipeg Regional Health Authority (WRHA), and University of Manitoba.

Visit chimb.ca for more information

Check out our interactive annual report at chimb.ca/pages/14-about-the-centre
Over the past year, Manitoba’s health care landscape underwent its greatest change in a generation in an effort to deliver better care more effectively—for all of us and for future generations.

As a catalyst for change, George & Fay Yee Centre for Healthcare Innovation (CHI) plays a vital role in the transformation, continuous improvement and sustainability of Manitoba’s health care system. Together with its partner stakeholders that comprise Manitoba’s Learning Healthcare System, CHI provides evidence that is rigorous, credible, timely, and objective to support innovative health- and patient-care planning, problem-solving and decision-making within the province.

The 2017-18 fiscal year saw our team serve as a vital resource to our local stakeholders through the provision of evidence-based methods for implementation and evaluation. In these pages, you’ll hear from Real Cloutier, Interim President and CEO, Winnipeg Regional Health Authority (WRHA), about CHI’s influence in the project management, public engagement and evaluation stages of the Healing our Health System clinical consolidation plan. You’ll also read about how our team is informing local health system transformation planning in High Performing Healthcare Systems: Evidence for Decision Makers, and saving lives through the integration of a new clinical protocol in Massive Transfusion: Improving Processes of Care and Clinical Outcomes Through Clinical Change.

With a focus on sustainability, CHI is an incubator for the type of critical, visionary, and lateral thinking future leaders that are needed to guide Manitoba’s health system into the future. CHI’s Academic Health Sciences Leadership Program marked a major milestone this year, surpassing 100 total graduates who form a powerful network of current and emerging health leaders in our province. Regarding existing First Line Managers (FLMs), we assisted the WRHA in assessing ways to improve efficiency in resource management by launching a comprehensive survey to all FLMs. Finally on the subject of sustainability, recognizing that the power of data is underutilized and those capable of drawing relevant information from it are in high demand, we’re proud to be part of the launch of the Visual and Automated Disease Analytics (VADA) program. We welcomed the first students into this novel training partnership between the University of Manitoba and the University of Victoria in Fall 2017.

At its core, CHI is a methods development hub focussed on enhancing the research process and informing practice and future research. CHI continues to be a provincial champion spreading awareness and extolling the value of patient-oriented research (POR). Of particular note is the recent formation of CHI’s Patient/Public Advisory Group, comprised of a dozen Manitobans with lived experience. This diverse table of advisors have come together to co-develop authentic engagement strategies, policies, and resources to further advance POR in the province.

The 2017-18 year also saw the launch of the Funding Award for Patient and Public Engagement in Health Research in the Design and Grant Development Phase, co-sponsored by CHI and the Manitoba SPOR Network in Primary and Integrated Health Care Innovations. The award assists researchers to partner with members of the public at the onset of a project, even before submission for a major grant has begun, to facilitate meaningful engagement. The Patient Engagement Award Review Committee itself is largely comprised of patient/public partners.

In the realm of patient and public engagement theory and discourse, we are striving to better understand inclusive approaches to engagement and the impact of trauma and intersectionality as part of our Valuing All Voices framework. Through our Grand Rounds, we’ve started discussions amongst Manitoban researchers around the concept of Allyship and the nuances of patient-informed consent in clinical trials. Finally, through our Knowledge Translation and Patient and Public Engagement blog, we continue to build our repository of resources to expand our training efforts and build local research capacity.

We are ever proud of our team’s accomplishments as we continue our work of championing the transformation towards a more sustainable, integrated, patient-oriented, and data-driven learning health care system.

In this report, you’ll find stories about how we empower through training. How we strive to enhance the research process, and how we seek out new discoveries to inform practice and future research. You’ll read about how we continue to implement change, solutions, and knowledge products and how we evaluate to inform local stakeholders.
EMPOWER THROUGH TRAINING

At CHI, we are committed to leading training efforts to advance patient and public engagement, strengthen local research practice, and groom effective leaders to steward the future of health care in Manitoba.
PATIENT AND PUBLIC ENGAGEMENT IN HEALTH RESEARCH LUNCHEON LEARNING SERIES

Background
Through various workshops and stakeholder consultations, Manitobans and health researchers have voiced the need for training in involving patients and the public as partners in health research. Stakeholders agreed that capacity building needed to be locally responsive and embedded in both Manitoba research and community environments.

Strategy
CHI developed a monthly lunchtime learning series to build capacity through the sharing of knowledge, resources and tools about patient and public engagement in health research across a range of topics. The in-person and live-streamed sessions are accessible, hands-on, interactive, and open to all.

Results
The Lunchtime Learning Series has covered a wide range of topics, including: Understanding the Different Levels of Engagement in Health Research, Building an Appropriate Budget for Engagement, Evaluating your Patient Engagement Strategy, and the Importance of Safe Spaces. We are assembling a diverse planning committee to inform the ongoing development of the series and pursue accreditation.

Guest Speakers
An important component of the Lunchtime Learning Series is the knowledge shared by guest speakers. This creates an opportunity for audiences to learn about research projects and topics across diverse communities, research methodologies, and ways to engage patient/public as partners in the research process. We would particularly like to thank the guest speakers who presented over this past year:

- Serena Hickes—From Māori to Inuit: Teachings from the World Indigenous Peoples Conference on Education
- Dr. Derek Kornelsen—Decolonizing Community Engagement in the ‘Era of Reconciliation’: Why Researchers Need to Rethink How They Work with Indigenous Communities
- Dr Tuula Heinonen—Partnerships for Health and Well-being: Engaging Community Members in Inquiry
- Dr. Steven Feldgaier & Martin Itzkow—Whose Research is it Anyways? Engaging the Disengaged in Health Research

Series runs every 3rd Wednesday of the month
Check chimb.ca for details
CHI GRAND ROUNDS

CHI’s Grand Rounds feature presentations from leaders at CHI, as well as distinguished guest speakers. This past year, we held three Grand Rounds:

PATIENT INFORMED CONSENT IN CLINICAL TRIALS

October 31, 2017—In partnership with CancerCare Manitoba and University of Manitoba, Rady Faculty of Health Sciences, Department of Internal Medicine—CHI hosted a thought-provoking public lecture on Patient Informed Consent in Clinical Trials. Presenting to over 200 people (in-person and via webcast) were Dr. Raphael Saginur (at left), Chair at the Ottawa Health Sciences Research Ethics Board and Associate Professor of Medicine at the University of Ottawa; and Dr. Dean Fergusson (at right), Scientific Co-Lead, Ontario SPOR SUPPORT Unit and Senior Scientist & Director, Clinical Epidemiology Program at the Ottawa Hospital Research Institute.

Dr. Ryan Zarychanski, CHI Knowledge Synthesis Director moderated a Q&A following the presentation. Key topics from the presentation and discussion included ideal forms of participant consent and the rationale for pragmatic clinical trials.

WHAT EVERY HEALTH RESEARCHER NEEDS TO KNOW ABOUT HEALTH EQUITY: PRIVILEGE, OPPRESSION AND ALLYSHIP

November 29, 2017—CHI hosted Dr. Stephanie Nixon, researcher, clinician and activist from the University of Toronto, for a day of learning and reflection. Dr. Nixon presented a free public grand rounds and webinar that used humour and everyday examples to introduce the ideas of privilege and oppression and why they matter for everyone, especially people concerned about health.

Dr. Nixon also offered a three-hour interactive workshop for a smaller audience to further analyze the application of these concepts in one’s own life and to understand and apply principles of allyship in life, work and advocacy.

MASSIVE TRANSFUSION: IMPROVING PROCESSES OF CARE AND CLINICAL OUTCOMES THROUGH SYSTEMS CHANGE

January 31, 2018—CHI presented a public grand rounds and webinar that explained improving processes of care and clinical outcomes through systems change. Mortality associated with severe bleeding and the receipt of a massive blood transfusion is high. In response to clinical need, CHI partnered with the Health Sciences Centre to implement a comprehensive Massive Transfusion Protocol (MTP) and re-design how severely bleeding patients were cared for. This project engaged several platforms at CHI, and engages many individuals each time the protocol is activated.

To learn more about the MTP project, please read the story on page 23 of this report.

Photo above, from left:
Dr. Ryan Zarychanski: Assistant Professor, Department of Internal Medicine, University of Manitoba; Clinician Scientist, Department of Hematology and Medical Oncology, CancerCare Manitoba
Dr. Chantalle Menard: Hematology Resident, University of Manitoba and CancerCare Manitoba
Laurie Gosselin: Process Engineer, Project Management, CHI
Goal

The Strategy for Patient Oriented Research (SPOR) Capacity Development Framework acknowledges the need to "effectively support training and career development in patient-oriented research."

Building on that framework, one of the Knowledge Synthesis (KS) platform’s goals is to support students in not only learning the fundamentals of knowledge synthesis research, but actively engaging and leading their own research. As such, we have been offering regular training opportunities in the form of organized workshops and courses, as well as individualized supports for students and junior researchers.

Results

Since 2015, we have supported over 30 postgraduate students, postdoctoral fellows, residents and junior investigators in leading their own research topics in knowledge synthesis. To date, 25% have published their work, with another 43% actively completing their projects or currently undergoing peer-review. Furthermore, several of the students we have engaged have published the work they lead in prestigious journals, including the British Medical Journal, Vaccine, and BMJ Open.

Even after their training is complete, several students have continued to use the skills they have acquired and are developing successful track records in completing and publishing their work. For example, a former student and new investigator recently published a systematic review that was not only published in the Canadian Medical Association Journal, but was also the 33rd most cited, discussed, and shared work among over three million articles published in 2017 (https://cmaj.altmetric.com/details/21993583).

More and more students are turning to the KS platform for training, and are keen to develop their research agendas. But of course, the KS platform is not alone. The Data Science platform, for example, collaborates with world-class researchers in areas from epidemiologic studies of chronic diseases using linked administrative datasets to complex, multi-platform genomics studies peering into the cellular processes of metabolism. For our students, these projects present incredible opportunities to interact with passionate biomedical and epidemiologic researchers, and to have an impact on these important and exciting projects.

SUPPORTING STUDENTS & JUNIOR RESEARCHERS IN CONDUCTING AND PUBLISHING HIGH-QUALITY RESEARCH

An assembly of students who have recently worked at CHI. From left (front): Qian Liu, Zhongyuan Zhang, Allison Feely, Stephanie Monkman, Saeed Al-Azzi, Mohammed Rashidul Anwar, (middle) Oluwagbenga Fakanye, Shuo Jia, Rishabh Saraf, Olawale Ayilara, (back) Matthew Love
BUILDING CAPACITY & NETWORKS: Medium.com/KnowledgeNudge

Background
Bridging the know-do gap in healthcare and building relationships are key aspects of knowledge translation (KT) and patient engagement (PE). Most learning about these subjects is done ad hoc—perhaps because a seminar is being offered, or perhaps because a researcher is applying for a grant that requires a KT and/or PE component.

Goal
We endeavoured to build a continually updated repository of KT and PE resources to expand the reach of CHI’s KT and PE training efforts and build local research capacity in those topic areas.

Strategy
We launched an education blog, KnowledgeNudge, in mid-2016. This weekly blog features resources, opinion pieces, stories, guest blogs, listicles, and practical tools for patient engagement and knowledge translation in health research.

Results
Since April 2017, the blog has gained over 700 additional Twitter followers, reached an average of 37 visitors a day, and provided a platform from which we regularly interact with healthcare, KT, and engagement professionals across Canada. While most posts reach between 200-300 views, the most popular blog from the past year is a guest post by Dr. Derek Kornelsen entitled “Decolonizing Community Engagement” with over 1,200 visits.

You can read the blog at medium.com/knowledgenudge

INAUGURAL KT TRAINING CAMP

Background
In April 2017, 35 members of the research community converged on the CHI classroom for the inaugural KT Camp, hosted by CHI’s Knowledge Translation platform.

Goal
The camp’s curriculum was customized to meet the learning objectives and interests of attendees, who were surveyed in advance of the workshop.

Highlights
All participants were encouraged to attend an intro session that guided them through the process of integrated KT—from building the research question with input from stakeholders, to the iterative process of data collection, through to data analysis and dissemination.

Additionally, three elective workshops were offered:

- An introduction to Twitter and how to leverage the powerful social media platform to responsibly disseminate research, build a social network, and evaluate impact.
- An Op-Ed workshop that led researchers through the process of creating concise 650-word opinion pieces in plain language for publication in mainstream news media.
- An intensive hands-on KT tool development workshop that focused on applying a prototyping approach to gather and apply end-user feedback at each stage of the creation process.

Results
Anecdotally, the event (the first of its kind for the platform) was a success in introducing people to some of the core concepts and tools used in KT, promoting the breadth of services offered by the platform; and, building stronger relationships with members of the research community—several of whom later became clients. Perhaps most importantly, the event helped increase awareness of the importance of engaging the platform’s services at the onset by demonstrating the valuable tools that can be implemented when KT is considered throughout the research process (integrated KT), rather than only at the end of it.
THE SOCIETY OF CLINICAL RESEARCH ASSOCIATES (SOCRA) WINNIPEG CHAPTER

Background
New methods for trial design and conduct are constantly evolving. Clinical trial regulations change over time, particularly this year with the newest International Committee on Harmonization revision to Good Clinical Practice (ICH E6R2). Ensuring clinical trials are designed and conducted to the highest standard is not only a regulatory requirement, but an ethical obligation to patients, funders and society.

Opportunity
In order for Certified Clinical Research Professionals to renew their certification with the Society of Clinical Research Associates, professional development hours must be logged annually and submitted with a completed regulatory test every three years. Up until now, without a focused professional development group, clinical researchers have had to gather information on new methods or regulations independently to stay up to date.

Process/strategy
After several successful years, the CHI-led Clinical Research Information Networking Group (CRINGe) was dissolved. In its place, in December 2017 CHI launched the Society of Clinical Research Associates (SoCRA), Winnipeg chapter—now capable of supporting those looking to become designated (or to re-certify) as Certified Clinical Research Professionals.

Results
SoCRA Winnipeg makes ours just the third province to implement a continuing education support group around clinical trials education, challenges and regulatory proceedings through SoCRA. It brings together clinical researchers from all over Manitoba. Each month, guest speakers address topics ranging from contracts and logistics to innovative study designs. This group will be essential for disseminating and facilitating uptake as the regulatory environment evolves and new guidelines are issued (for example, Health Canada’s implementation of the updated ICH E6R2 Good Clinical Practice – live April 1, 2018).

The first SOCRA Manitoba topics and presenters included:

1) Innovative Methods for Multi-site Academic Clinical Trials: Dr. Lauren Kelly (CHI Clinical Trialist)

2) Understanding and Avoiding Predatory Publishing: Tania Gottschalk, Associate Librarian with the University of Manitoba Libraries, and Janet Rothney, Assistant Librarian with the University of Manitoba Libraries.

3) ICH E6 R2 update: Tarpan Mankad, CHI Clinical Trial Specialist.
Boasting over 100 graduates, the Academic Health Sciences Leadership Program grooms mid-career health care professionals to become future leaders in Manitoba’s health system. The 15-week program features an esteemed roster of guest speakers from academia, government and the health care system.

Participants build their critical, creative and lateral thinking skills while gaining a better understanding of the dynamics of the health care system and academic environment. An online community supplements in-class small group discussions.

The program culminates with the development of a capstone project wherein senior leaders mentor participants in an area of leadership relevant to the participant’s workplace or sphere of influence. Intake typically occurs in June, with courses offered over Fall and Winter.

“You’ll gain so much from the connections you make with your classmates [and] you will hear perspectives from senior level leaders that you will not be able to get from any other venue.”

- Paul Wiebe, 2017-18 AHSLP cohort

Paul Wiebe
Regional Director of Research Administration for the Health Sciences Centre

“The program has taught me about leadership—the various perspectives of senior leaders, what their leadership path has been, what sorts of things are required to be senior leaders in our health care system, and also, what the future requirements are for leaders in our health care system.”

Carly Leggett
Manager and Practice Lead of the Knowledge Translation platform at CHI

“As somebody who has just moved into a leadership role in my organization, what I was really hoping to get out of this program was some of the foundational topics that they cover—things like project management, evaluation, budgeting and accountability—the sorts of things that can really help me as I move into [my new] role.”

Essi Shams
Quality Improvement Manager at Cardiac Sciences Program, WRHA

“The connections and the relationships that are initiated as part of the course stay with you forever in health care and inform your decision making, your view of health care, and how you understand the various complexities of the health care system. Because essentially, you gain the ability to view one question from different perspectives.”
“How this program will help me with my career moving forward is really more about opportunities health care professionals have in leadership capacities beyond our role as clinicians, but really being able to support health system transformation, evidence-informed decision making, and evaluation of the healthcare system using some leadership techniques.”

“I think this course helped set the tone for my particular leadership role within the Cardiac Scientist program, and really helped me understand the value of active listening, communication, networking, and really trying to understand the needs from various stakeholders’ perspectives.”

“What I would say to my colleagues if they were considering the program is ‘how come you haven't taken it already?’ This is a way of making change. This is a way of understanding change that is happening around you. But more importantly, by being able to understand how you can contribute to the system, you can actually make the system better.”
ENHANCE THE RESEARCH PROCESS

At CHI, we are championing meaningful and representative patient engagement (PE) through education outreach, the creation of PE advisory groups, and early research grants supporting PE from the onset of a project.

We are also strengthening research networks, supporting multi-site clinical trials, and streamlining the research process in the province.
The George & Fay Yee Centre for Healthcare Innovation (CHI) firmly believes in the value and importance of meaningfully engaging all Manitobans in health research decision-making. In order to achieve the vision of patients, caregivers, families and communities as active partners in health research, it is imperative that diverse Manitoban perspectives are involved in key governance structures and decision-making processes in all of CHI’s core strategic elements.

In the Spring of 2017, CHI set out to recruit people with lived experience of health issues, the health care system and/or as caregivers from across the province to become involved in a number of CHI governing committees and groups including: the Executive Council; the Scientific Advisory Council; the Patient Engagement Award Review Committee; and the Patient and Public Engagement Lunchtime Learning Planning Committee.

What stands out the most was the formation of CHI’s larger Patient/Public Advisory Group, bringing together nearly a dozen inspiring, insightful and passionate people from across the province to begin to co-develop truly authentic engagement strategies, policies, resources, tools, services and programs. Coming together on a bi-monthly basis, advisers bring a wealth of experiential knowledge to the table, discussing priority areas in health research and health care systems that mean the most to them and their families. Of course, this often involves food, fun and laughter as well.

**Video 1: Asking The Right Questions In Health Research**

Featuring, by order of appearance: Dylan MacKay, Clinical Trialist, CHI; Mpho Begin, Patient Partner; Kate Sibley, Director, Patient Partnership; and Gayle Halas, Director, MPN.

**Video 2: Building Healthy and Productive Communities**

Featuring, by order of appearance: Jeanette Edwards, Strategic Lead, Community Health, Quality and Learning, Shared Health; Pusha Sadi, PE platform rep (Project Management), CHI; Dylan MacKay, Clinical Trialist, CHI; Mpho Begin, Patient Partner; and Carolyn Shimmin, Patient & Public Engagement Lead, CHI.

**Video 3: Fostering Meaningful Engagement**

Featuring, by order of appearance: Lorie Deda, Patient Partner; Thomas Beaudry, Patient Partner; Kate Sibley, Director, KT platform, CHI; Ashley Struthers, PE platform rep (Evaluation), CHI; Sarah Kirby, PE platform rep (Health System Performance), CHI; and Leanne Dunne, Knowledge Broker, DEVOTION.

**Video 4: Nurturing Authentic Relationships**

Featuring, by order of appearance: Thomas Beaudry, Patient Partner; Maya Jayaraman, PE platform rep (Knowledge Synthesis), CHI; Roberta Woodgate, Professor, College of Nursing, Rady Faculty of Health Sciences; Carolyn Shimmin, Patient & Public Engagement Lead, CHI; Patricia Halek, Patient Partner; Jeanette Edwards, Strategic Lead, Community Health, Quality and Learning, Shared Health.

Visit CHI’s Youtube channel to see the interviews: youtube.com/user/CHIMBca/videos
The Manitoba SPOR PIHCI Network (MPN) is part of the pan-Canadian CIHR (Canadian Institutes of Health Research) Primary and Integrated Health Care Innovations initiative, which was designed to support evidence-informed health system transformation. Based in Manitoba, we are working to connect policy-makers, researchers, clinicians and the public across jurisdictions. Through facilitating these connections, supporting funding calls, and providing learning opportunities in policy and patient engagement, we aim to contribute to the development and implementation of evidence to accelerate and sustain transformation in primary and integrated health care.

**MPN HELPS FOSTER MEANINGFUL RESEARCH CONNECTIONS**

“In 2017, our Network supported the development of multiple teams with representation from patients, policy/decision makers, practitioners and researchers. These teams often discovered new partnerships with one investigator noting that the intersection of patients, practitioners, policymakers, and researchers would be too overwhelming to manage without the help of MPN. We hope to continue nurturing connections in a way that brings about innovation, not only in Manitoba but across Canada.”

– Dr. Gayle Halas, MPN Director, Research Director of the Department of Family Medicine, Faculty of Health Sciences, University of Manitoba

**MPN PROMOTES PATIENT AND PUBLIC ENGAGEMENT**

In partnership with George & Fay Yee Centre for Healthcare Innovation, MPN provided funding towards the Funding Award for Patient and Public Engagement in Health Research in the Design and Grant Development Phase. This award helps facilitate and support Manitoban health researchers and students in engaging patients and the public in the early stages of their research work.

MPN regularly has patients and members of the public contribute to review committees. Rasit Eskicioglu, public representative, recently assisted MPN in reviewing grant applications.

“It is important to engage a public “eye” during a grant reviewing process, because sometimes researchers focus too much on the fine technical details of research and miss the bigger picture.”

– Dr. Malcolm Doupe, Associate Professor in the Department of Community Health Sciences, Faculty of Health Sciences, College of Medicine; Director of the Manitoba Training Program for Health Services Research, and Senior Research Scientist with the Manitoba Centre for Health Policy.

**MPN CREATES A SAFE ENVIRONMENT TO FREELY EXPRESS IDEAS**

“Effective and sustainable change requires a team. MPN has played a critical role in my research program by helping to develop and sustain meaningful partnerships both locally and nationally. Aside from the tangible support it provides—such as increasing awareness of grant funding opportunities and facilitating discussions to secure matched funding requirements—MPN has in many ways played the role of a facilitator by providing a safe virtual environment for partners to freely express ideas. Developing and maintaining these local and national partnerships takes time and energy. Rather than be viewed as something extra to do, MPN has helped me to understand that these partners sit at the core of health services reform.”

– Dr. Malcolm Doupe, Associate Professor in the Department of Community Health Sciences, Faculty of Health Sciences, College of Medicine; Director of the Manitoba Training Program for Health Services Research, and Senior Research Scientist with the Manitoba Centre for Health Policy.
INNOVATION IN PEDIATRIC CLINICAL TRIALS (IPCT)

Background
Evidence shows children respond differently to medicine than adults, yet many drugs have only been evaluated in adult populations. Therefore, to better support clinical decision-making, we need clinical trials to generate population-specific safety and effectiveness data for conditions commonly encountered in childhood.

Challenge
Traditional clinical trials are expensive and time consuming. Further complicating the matter, many conditions in childhood are rare. This necessitates multi-site collaboration to ensure trials are sufficiently powered to answer our research questions. Navigating the logistical and operational barriers across multiple sponsors and provinces for these types of clinical trials is a challenge.

Addressing the Issue
Led by Dr. Terry Klassen, the University of Manitoba—in partnership with several Canadian Child Health Centres—was awarded a $8.3 million CIHR Innovative Clinical Trials Multiyear Grant to evaluate novel methods to study medicines in children across Canada. “I’m thrilled that the investment from CIHR, Research Manitoba and Children’s Hospital Foundation of Manitoba will contribute to better and safer treatments for children in the areas of gastroenteritis, bronchiolitis and pain management at emergency departments nationwide,” said Dr. Klassen.

CHI’s role
CHI will support four clinical trials within the grant to establish evidence for best practice of common conditions encountered in the pediatric emergency department. Our team at CHI will support methods development for four trials, harmonized ethics review across six sites, training, monitoring and project management.

RITHIM
Research Improvement Through Harmonization In Manitoba

MOVING TOWARDS MORE EFFICIENT RESEARCH PROCESSES AND ADMINISTRATION IN MANITOBA

Background
A research protocol must be approved before any health research is conducted to ensure patient safety and data quality. In Manitoba, depending on the location(s) and type of research proposed, a protocol requires the approval from any combination of the over 20 committees who provide data access, ethics, institutional, legal, and privacy review in the province.

Challenge
Researchers have identified these various and duplicative review processes as a barrier to conducting clinical and health research in Manitoba in a timely fashion.

Process
Research Manitoba, in collaboration with CHI, has been working intensively with a group of stakeholders to streamline and harmonize research review and approval in Manitoba. Under the direction of Christina Weise, CEO of Research Manitoba, the Research Improvements through Harmonization in Manitoba (RITHIM) initiative has already mapped the existing state of research administrative and regulative processes for human clinical and data intensive research in the province.

Results
The map led to the creation of a single research review application that harmonizes all previous review applications in Manitoba. Implementation of the harmonized application is ongoing, as is the creation of the committee that will be responsible for the review of applications in the new system: the Committee for Harmonized Health Impact, Privacy and Ethics Review (CHIPER). A digital portal where applications can be submitted and committee reviews can be coordinated is in development.

The RITHIM initiative will harmonize processes, improve time-to-conduct, and increase capacity, making Manitoba a more attractive place to undertake research.
Building on the principles of the Valuing All Voices framework, CHI, in partnership with the Manitoba SPOR Network in Primary and Integrated Health Care Innovations (PIHCI), recently held its second round of callouts for the Funding Award for Patient and Public Engagement in Health Research in the Design and Grant Development Phase.

This Award helps facilitate and support Manitoban health researchers and students to engage patients and the public in the early stages of their research work. Award winners receive $2,000 to engage patient/public partners in the research priority-setting, design and grant development phase, as well as training and additional opportunities to learn more about patient/public engagement in health research. Award winners from the inaugural round have gone on to win larger grants.

“This award seeks to help researchers meaningfully engage people with lived experience of a health issue in research decision-making, including research priorities and questions, outcome measures, design, interpreting findings, and dissemination methods.”

- Carolyn Shimmin, CHI Patient & Public Engagement Lead
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<td>Dr. Alex Aregbesola</td>
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<td>Dr. Murdoch Leeies</td>
<td>Intravenous Immune Globulin in Septic Shock (InVIGIS) to Improve Outcomes in Patients with Life-Threatening Infection</td>
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At CHI, we are leveraging our knowledge synthesis, data science, knowledge translation and patient engagement expertise to advance our understanding of the world.

In doing so, we’ve identified unnecessary treatments and new models for predicting disease, added insight to pressing knowledge gaps, and developed a program to address a pressing health talent need.
STEM CELL THERAPY IN PATIENTS WITH MYOCARDIAL INFARCTION

Background
Sudden heart attacks are a major cause of death worldwide. The heart does not heal itself naturally, and many treatment methods, including bone marrow stem cell therapy, are being explored to minimize damage to the heart and to prevent deaths after a heart attack.

Goal
CHI’s Knowledge Synthesis platform set out to evaluate the impact of bone marrow stem cells treatment in patients with recent heart attack compared to standard treatment. Studies like these are important in reducing research waste by identifying which clinical trials have promise, and which present dead ends likely to result in wasted research investments.

Results
After reviewing and analyzing evidence on the association of stem cell therapy in patients with ST-elevation myocardial infarction (the most common heart attack), we concluded that there was no evidence to support the notion that current stem cell techniques have any long-term benefits on patients who have had a common procedure to open blocked coronary arteries. This information was disseminated to cardiologists at both an international conference (International Society for Heart Research), and through journal publications in the Journal of Molecular and Cellular Cardiology and the Canadian Journal of Cardiology.

Additionally, although bone marrow stem cells were still not part of the main treatment strategy for patients with heart attack, some studies based on preliminary findings were looking into integrating a stem cell centre next to cardiac surgery units to facilitate stem cell treatments right after heart attack. However, our study provided conclusive evidence that bone marrow stem cells are not beneficial in preventing death after heart attack compared to standard treatment.

There was no evidence to support the notion that current stem cell techniques have any long-term benefits on patients who have had a common procedure to open blocked coronary arteries.
THE VISUAL AND AUTOMATED DISEASE ANALYTICS (VADA) PROGRAM

Challenge
Large volumes of health data are accumulating in many healthcare organizations. These data possess immense potential to inform clinical and public health practice, guide patient treatment and management decisions, and influence policy. However, much of it is underutilized. Consequently, there is a high demand across Canada for individuals skilled in advanced analytics to help unlock the power of these data.

Innovation
The University of Manitoba and University of Victoria have jointly developed the Visual and Automated Disease Analytics (VADA) graduate training program to address the health data skill gap and acquire new knowledge by accessing existing data in novel ways.

Funded for the next six years by the Natural Sciences and Engineering Research Council of Canada, VADA emphasizes research and training in visualization and analytic techniques relevant to the study of complex health data associated with chronic and infectious diseases.

The VADA Program assists students entering Master’s and PhD programs at either university to develop technical skills to address the challenges of working with complex health data, as well as professional skills that focus on collaboration, project management, career development, ethics and privacy, and entrepreneurship. These skills are developed via participation in credit courses, a Summer School, internship, and development of an interdisciplinary thesis research project.

The Program is led by Dr. Pourang Irani of the Department of Computer Science at the University of Manitoba. CHI’s Data Science platform provides ongoing leadership in the development and delivery of the program, including a new University of Manitoba course, intensive summer school training, and internships that develop student skills in tackling real-world problems.

Results
Seven Master’s and PhD students with backgrounds in biostatistics, computer science, bioinformatics, and the social sciences were admitted as part of the program’s first intake in Fall 2017.
BUILDING THE THEORETICAL FOUNDATIONS FOR ADVANCING INCLUSIVE PATIENT AND PUBLIC INVOLVEMENT IN HEALTH RESEARCH

Background
CHI’s ongoing work with Manitoba patients, families, community members and researchers has emphasized the need for inclusive approaches to engagement of patients and the public in health research. The work also highlights the critical need to include voices traditionally less heard in health research. CHI is committed to advancing this essential component of patient and public involvement.

Process
CHI’s Valuing All Voices Framework draws on the theoretical frameworks of intersectional analysis, critical reflexivity, and trauma-informed approaches. The framework proposes trust, self-awareness, empathy, and relationship-building as four key components of inclusive engagement of patients as partners in health research. A peer-reviewed manuscript introducing the framework, led by CHI’s Carolyn Shimmin, was published in BMC Health Services Research in 2017.

Impact
Since August 2017, the article has made significant waves across the health research landscape. It has been accessed more than 1,300 times; disseminated by influential social media identities; and discussed by the national CIHR SPOR patient engagement working group.

“Valuing All Voices isn’t a typical research project. These are people I’ve come to trust and believe in. They’re talking to people and communities and really hearing them and actually altering the way they do research. I’d like to see something like this grow even more across Canada.”

- Serena Hickes, Patient Co-Researcher

EXPLORING KNOWLEDGE TRANSLATION PRACTICE AMONG MANITOBA HEALTH RESEARCHERS: A FOUNDATIONAL STUDY

Background
Health researchers are critical stakeholders in the process of moving evidence into action, but little is known about how they conceptualize and practice knowledge translation (KT).

Goal
Our objectives were to understand the experiences of Manitoba health researchers in conducting KT in their work, and identify their KT support needs. These foundational steps are critical to informing CHI’s support strategy and advancing the quality of KT practice in Manitoba.

Results
Dr. Kathryn Sibley received research funding from the University of Manitoba University Research Grants Program to interview biomedical, clinical, health systems and social, cultural and populations researchers from across Manitoba. The study noted varied descriptions and understandings of KT across researchers. Participants identified multiple individual, logistical, and systemic or organizational barriers to practicing KT. Biomedical researchers were recognized as a unique subset of stakeholders possessing their own distinct conceptualizations and experiences of KT and barriers to practicing it.

Impact
Since August 2017, the article has made significant waves across the health research landscape. It has been accessed more than 800 times since August 2017.

The KT platform has used the results to develop its support strategies and activities. Plans are underway to expand the study across Canada.
IMPLEMENT CHANGE • SOLUTIONS • KNOWLEDGE PRODUCTS

At CHI, we are playing a vital role in ensuring the continuous improvement and sustainability of our health care system.

From optimizing care protocols that save lives, to stewarding the greatest change in our healthcare system in a generation, to promoting resource stewardship to the next generation, CHI is at the forefront of health innovation in Manitoba.
MASSIVE TRANSFUSION: IMPROVING PROCESSES OF CARE & CLINICAL OUTCOMES THROUGH SYSTEMS CHANGE

Background
The care of severely bleeding patients requires considerable medical expertise and coordination of health resources. A retrospective review (2004-2010) of the processes of care and clinical outcomes associated with a massive transfusion (patients who received ≥10 units of red blood cells in 24 hours) at Winnipeg’s Health Sciences Centre (HSC) identified significant delays in the delivery of blood products, infrequent laboratory monitoring, and a high mortality rate.

Goals
The project aimed to design and implement a comprehensive Massive Transfusion Protocol (MTP) at HSC, a level one trauma facility and tertiary referral hospital. The project also involved a pre-post intervention study to characterize the impact of the hospital-wide MTP on clinical, transfusion, and laboratory outcomes after 28 months of implementation (2014-2016).

Challenges
Exceptionally broad stakeholder engagement was required to create and implement a comprehensive MTP, given the complexity of care required to manage severely bleeding patients. Processes that required change were culturally entrenched and it was largely unknown how each process interacted with others.

Process
The project team started with a systematic review of the survival of trauma patients after massive red blood cell transfusion. Next, they conducted a retrospective cohort study of the processes of care inherent to a massive transfusion in the WRHA. Working alongside an expert group, Dr. Zarychanski developed the MTP care protocol and reached out to CHI Project Management to engage process engineering and project management support for implementation. Using Lean Six Sigma process engineering methods, with the committed engagement of many individual and stakeholder groups, systems of care were created so that the MTP would achieve benchmarks of care established in a recent Canadian Consensus Conference.

Results
Institution of an MTP was associated with reduced mortality (52.4% vs. 26.2%, p<0.01) and fewer deaths due to uncontrolled hemorrhage (24.3% vs. 11.1%, p=0.01).

The MTP reduced the median time from first red blood cell (RBC) transfusion to fresh plasma or platelet transfusion by 62 minutes (p<0.01) and 216 minutes (p<0.01).

Laboratory monitoring occurred more frequently in MTP patients; 98% of patients had a hemoglobin measured within two hours of bleeding onset, compared to only 64.1% of pre-MTP patients.

Consistent with Canadian Consensus guideline recommendations for care of the massively bleeding patient, patients in the MTP cohort had higher mean hemoglobin (94 g/L vs. 54 g/L, p<0.01) and platelet (108 x109 vs. 36 x109, p<0.01) nadirs, and lower maximum INRs (1.6 vs. 1.9, p<0.01).

Conclusion
Implementation of an institutional wide MTP was associated with reduced mortality and fewer deaths due to uncontrolled hemorrhage. Activation of the MTP was further associated with improved blood product delivery and laboratory monitoring, with minimal waste.
Background
In April 2017, the Winnipeg Regional Health Authority (WRHA) launched the Healing Our Health System clinical consolidation initiative in an effort to deliver better patient care more effectively. The WRHA sought to consolidate services and concentrate resources at specific sites while laying the groundwork for sustainability through more effective resource management.

Goal of Engaging CHI
The WRHA engaged CHI’s Project Management platform (and its project management, change management and process engineer resources) to assist with the planning and implementation of the clinical consolidation plan. “The discipline of managing the process was essential for this large of a change,” says Real Cloutier, Interim President and CEO of the WRHA.

Process
In addition to expert project management (PM) resources, the project team featured an Organizational Change Management (OCM) Specialist to support stakeholder engagement and communications. “The purpose of the OCM is to help bring people along, helping them to understand what we’re doing, why we’re doing it, and how this is going to improve patient care in the end,” says Heather Tabin, Director, Project Management, CHI.

Stakeholders included all levels of regional and site leadership, frontline clinical service, and non-clinical support services. Our team also sought to gather public and patient perspectives regarding changes to their health system.

Project managers were assigned to individual programs and sites. A strong governance structure ensured the lines of accountability were clear and strategic objectives were being met.

CHI established a cross-functional team—comprised of Communications, eHealth, Human Resources, Patient Transport, Clinical Engineering, Capital Planning, and health information—to form a cohesive planning picture.

The OCM team was encouraged and supported by WRHA executive sponsors to foster an environment of change by building relationships and encouraging all stakeholders to participate in the services that were being offered. “Reporting on progress, and then celebrating successes is very much a part of a change management strategy. But you have to do it as part of a team, and it is important to encourage staff to recognize they’ve been an instrumental part of the change,” says Real Cloutier.

Patient and public stakeholder groups were engaged early in the implementation of several clinical consolidation changes and also following the completion of the Phase 1 implementation. Engagement with patient and public groups was accomplished via onsite face-to-face interviews, bedside and follow-up surveys, and by group discussion with existing WRHA community and public engagement groups.

Results
The Healing our Health System (Clinical Consolidation) Phase 1 initiative is proving successful. The structure and methods that were applied worked well to keep the project on track. CHI will apply the same structure and will incorporate lessons learned and recommendations from the Evaluation Study to the next phase.

To learn more about the evaluation of Clinical Consolidation Phase 1, please read the story on page 27 of this report.

“We need to ensure that we’re using our resources in the most effective way possible... CHI has a role in helping us get there.”

- Real Cloutier, VP, COO, WRHA
ANALYSIS OF THE INCORPORATION OF RESOURCE STEWARDSHIP INTO THE UNIVERSITY OF MANITOBA UNDERGRADUATE MEDICAL EDUCATION PROGRAM

Challenge
There is a prevailing more is better mindset among physicians that often leads to unnecessary care. Signs of this culture are often already present in early medical training.

Opportunity
Embedding a resource stewardship mindset in an undergraduate medical curriculum could help change physician knowledge, awareness and attitudes.

Process
Our Health Systems Performance platform, as part of Choosing Wisely Manitoba (CWMB) and in partnership with the Rady College of Medicine’s Undergraduate Medical Education (UGME) program, provided leadership and support to a project that involved embedding resource stewardship and Choosing Wisely recommendations into the Rady College of Medicine’s UGME pre-clerkship program. The work was carried out by two undergraduate medical students who first reviewed the curriculum and then developed a variety of learning materials focused on resource stewardship and Choosing Wisely recommendations including: readings, interactive lectures, team based learning sessions, and online modules.

Results
The strategic integration of Choosing Wisely concepts and recommendations into an existing undergraduate curriculum resulted in significant changes in knowledge and attitudes about resource stewardship. Survey results indicate students’ attitudes about the value and importance of the Choosing Wisely campaign increased post-implementation. Overall knowledge scores also improved post implementation for both first and second year students.

While there are several limitations to this student-led project, it represents the first project of its kind in a Canadian medical school.

TRANSLATING EMERGENCY KNOWLEDGE FOR KIDS (TREKK)

Background
Most acutely ill and injured children in Canada are assessed and treated in general emergency departments that are not part of a children’s hospital. Translating Emergency Knowledge for Kids (TREKK) is a Networks of Centres of Excellence (NCE) knowledge mobilization initiative driven by the vision that every child should receive the highest standard of care, regardless of where they seek treatment.

Process
The Knowledge Broker for TREKK is embedded within the KT platform. The knowledge broker develops and maintains meaningful collaborations with clinicians, researchers, national organizations, and healthcare consumers to produce and provide the latest evidence, best practices, user-friendly resources, and discussions in pediatric emergency medicine.

Impact
Over the past year, the Knowledge Broker has contributed to the development and delivery of a mobile TREKK app, new and updated pediatric emergency resources for various conditions (including severe head injury, trauma, asthma, and fractures), and three pediatric emergency medicine educational workshops in Northwest Territories and Manitoba.
At CHI, we are a valuable asset and trusted resource for healthcare decision-makers in Manitoba.

We fuel a Learning Healthcare System by providing evidence that is rigorous, credible, timely, data-driven, objective and actionable.
EVALUATION OF WRHA’S CLINICAL CONSOLIDATION PHASE 1 (HEALING OUR HEALTH SYSTEM) TRANSFORMATION

Background
In April 2017, the WRHA announced major changes to the organization and delivery of clinical health services in Winnipeg, as part of a provincial health system sustainability transformation. Changes include consolidation of emergency/critical care at three of the six Winnipeg hospitals and the creation of distinct care pathways for patients with acute, sub-acute and transitional care needs.

Following months of clinical service and logistical planning, along with extensive stakeholder consultation across the region, Phase 1 of the transformation was formally implemented in October 2017.

To learn more about the Phase 1 of the Clinical Consolidation plan, please read the story on page 24 of this report.

Goal
CHI’s Evaluation platform was engaged as a partner in the provision of ongoing decision-support to the WRHA Senior Planning and Implementation Team.

Evaluations such as these require continuous, ongoing interaction with intended users and an in-depth understanding of the context within which the evaluation is situated. By adhering to principles of utilization-focused evaluation, our objective was to help the WRHA move from data to interpretation to action.

Process
We examined the impact of Phase 1 system changes on indicators of patient flow, patient safety, patient experience, and workforce impacts. We applied analysis of quantitative and qualitative health system data and user/stakeholder engagement to produce an evaluation that was timely and focused on those who use the system which included 19 actionable recommendations.

Results
Uptake of all 19 recommendations is underway and is informing planning for Phase 2 of WRHA’s Clinical Consolidation transformation. This evaluation provided direct support for evidence-based decision-making and planning.

“This evaluation reinforces that wait times in emergency and urgent care departments continue to show improvements across WRHA facilities, in spite of the impact of an early and challenging flu season.”

- Hon. Kelvin Goertzen, Minister of Health, Seniors and Active Living
Background

Manitoba has embarked on a large transformation of the healthcare system that includes the consolidation of programs and services and redefinition of health organization roles, including sites and regions. The purpose of this literature and environmental scan was to identify and examine high performing health systems that have successfully engaged in system redesign and culture change to better understand the context of the changes, including: the impetus and/or motivations for change, the steps taken, and facilitators and barriers to achieve the system transformation. Learnings would be used to identify and inform the process of becoming a high performing health system.

Challenge

Health systems are complex and contextually unique organizations, and there is no ‘one-size-fits-all’ approach to making system improvements. It can be challenging for decision makers to know where to begin, or how to go about making improvements to the system.

Process

Commissioned by the Winnipeg Regional Health Authority and developed collaboratively with decision makers, the CHI Evaluation Platform implemented a phased approach to researching what is known about health system transformation and high performing health systems (e.g., theories and concepts) and how organizations become high performing health systems. The customized process was informed by the Evaluation Platform’s comprehensive understanding of WRHA’s complex structure and context and included consultation, discussion, and strategic knowledge translation approaches for regional and provincial leadership to facilitate comprehensive understanding of the information.

The first phase involved the identification of key authors in the area of improvement and high performing health systems or organizations. Through consultations with decision makers, we identified six thought leaders and reviewed their work to identify key attributes and examples of high performing health systems. During the second phase we worked with decision makers to narrow the list of case examples and selected eight health organizations to study in more detail to understand how they became high performing health systems.

Results

The first deliverable identified 14 key attributes of high performing health systems. For the second deliverable, we developed case studies detailing how those attributes were represented within the high performing health systems in various stages of transformation. The attributes and the case studies have been shared with senior decision makers throughout Manitoba. We are collaborating with decision makers to incorporate the findings into local health system transformation planning.
WRHA FIRST LINE MANAGER INFORMATION, EDUCATION NEEDS ASSESSMENT AND PERSPECTIVES ON RESOURCE MANAGEMENT

Background
In fiscal 2017/18, the WRHA was facing a significant budget deficit. To help balance the budget, they needed to reduce costs while accommodating increased service volumes, more complex and acute patients presenting for care, and supply cost increases.

As part of a regional finance and administration transformation program, the WRHA sought the support and expertise of the CHI’s Evaluation platform. They wanted to capture the perspectives of First Line Managers (FLMs) on resource management and better understand existing information and education needs for improved resource management.

Challenge
The WRHA is a complex organization with a matrix-based organizational structure comprised of regional programs that operate across a number of acute care facilities (tertiary and community hospitals), clinics, and long-term care facilities. Effectively reaching and capturing perspectives from all sites and programs is typically a challenge in matrix organizations. We navigated this challenge by providing strong project leadership, effective engagement tools, building trusting relationships with WRHA healthcare partners, and relying on learned experiences of successful engagement.

Process
The project team initiated a developmental phase to clarify and refine the question from the perspective of various senior leaders across the health region. Once refined, the second phase included working closely with leadership within each facility to develop a plan for engaging all FLMs.

Results
Results of the initial phase revealed that a culture shift had occurred over the past several years, resulting in increased accountability requirements being placed on FLMs. This shift required adaptation of research in order for us to better understand the day-to-day function of FLMs within the organization.

Functional reporting tools are required to provide FLMs with the most important and relevant information to support decision making. However, additional tools without holistic improvement on the work environment will result in less than optimal use of these tools. Recommendations for organizational consideration were developed and presented to all levels of leadership. A prioritization exercise and several feedback sessions were completed to initiate an operational plan for implementing the project recommendations.

EVALUATION OF A PILOT CATARACT SURGICAL PROGRAM

Background
Recent surgical efficiencies and innovations may make it possible for a subset of patients (those who don’t require a history and physical) to safely undergo cataract surgery without sedation using standardized surgical supplies.

Goal
The Department of Anesthesia, the Department of Surgery, and CHI’s Project Management platform—the collaborative team supporting innovation within the Misericordia Health Centre (MHC) Ophthalmology Program—sought to simplify the process for non-complex cataract surgery. The primary objective was to improve the patient experience while maintaining safe quality surgical outcomes. A secondary objective involved demonstrating savings that will allow for additional cataract surgeries within the current budget.

Process
CHI’s Evaluation platform helped identify metrics to measure desired outcomes of the project, including impact on surgical flow and staff satisfaction. CHI worked with an internal MHC evaluator to design a database for tracking specific metrics throughout the trial phase of the program, and to identify a control group (i.e. patients who did not need a history and physical but were still receiving sedation for the procedure). Once the trial phase was complete, the Evaluation platform worked with project stakeholders to design a survey to gather insights from surgeons, nurses, and health care aides involved in the program.

Results
Evaluation data showed that the trial program was meeting its goals around patient flow, patient satisfaction, quality surgical outcomes, and financial savings. The survey highlighted several differences between surgeons and nurses/healthcare aides on how the program was functioning, allowing the MHC Ophthalmology team to further refine the trial program as it transitions to becoming standard procedure. Overall, this program is estimated to generate $1.4 million in savings in unnecessary preoperative history/physical exams, lab testing, and streamlined surgical intake processes.
THE PAX PROGRAM IN MANITOBA

Background
The PAX Good Behaviour Game, developed by the Arizona-based PAXIS Institute, is an evidence-based childhood mental health promotion strategy. It teaches students the skills they need to self-regulate and collaborate with others. Educators also believe the program helps prevent harmful mental health outcomes, including bullying, substance abuse and even suicide.

The PAX program was first introduced in Manitoba in 2011 through a pilot project sponsored by Healthy Child Manitoba in the Seine River School Division. Since then, the program has been implemented at more than 250 elementary schools across the province.

Opportunity
Building on early positive results from other studies evaluating the program, CHI led a team in following a cohort of 5,000 children who have participated in PAX. The team set out to evaluate the program using multilevel, longitudinal, multivariable outcomes to better understand the impact of the program for individual children.

Approach
Analyses with the variable-oriented approach revealed overall PAX program effects, while the person-oriented approach allowed the team to explore the transition of multiple outcomes across time, and in particular, how PAX affects students with different risk profiles across time.

Results
The study concluded that children who are structurally disadvantaged, especially those from low socio-economic status neighbourhoods, can benefit from additional supports built around the PAX program. Targeting individuals who are most likely to benefit from the program, and developing a continuum of interventions—from universal to selective to indicated prevention strategies—can help better address the needs of all students.

For more information, read The Facts About Pax, courtesy of WAVE Magazine contributor, Bob Armstrong:

chimb.ca/events/The-facts-about-PAX-

“What you see in the classroom is that the kids have better control of their emotions and behaviours.”

-Teacher, Andrew Young

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OUR PLATFORMS

CLINICAL TRIALS
The Clinical Trials platform supports the design and implementation of clinical trials in Manitoba, helping researchers engage in high-quality, practice changing, patient-oriented research. Services include support for industry-sponsored clinical trials, investigator-initiated trials, and epidemiological studies led by Manitoba researchers. The platform also promotes a streamlined research process to increase the number of clinical trials in Manitoba, which will translate to evidence-informed improvements in our health care system.

KNOWLEDGE SYNTHESIS
The Knowledge Synthesis (KS) platform is focused on increasing Manitoba’s capacity to synthesize knowledge to inform public policy, improve service delivery, and optimize Manitobans’ health. Services range from complete management of KS projects for academic publication to consultation on particular aspects of the KS pathway. Other services include KS-related training, informing funding applications, and guiding health policy decision making.

KNOWLEDGE TRANSLATION
The Knowledge Translation (KT) platform helps to close the know-do gap in health research through the synthesis, exchange, application and dissemination of knowledge. The platform provides consultation services for integrated and end-of-grant KT research, collaborates on KT-related research projects, develops KT tools, and provides on-demand KT training. The platform also houses CHI’s Patient Engagement specialists.

EVALUATION
The Evaluation platform helps to improve health services for Manitobans by offering health care leaders the evidence and solutions they need to move forward. The platform can support the development of new programs or process changes, determine the impact of existing programs, and identify opportunities for improvement. The Evaluation platform can also help clients understand the population a program serves, uncover disparities in health outcomes, and integrate existing research evidence into program design.

DATA SCIENCE
Working closely with the Manitoba Centre for Health Policy (MCHP); Regional Health Authorities; Manitoba Health, Seniors and Active Living; Statistics Canada and other stakeholders, the Data Science platform facilitates the development, management, analysis, and linkage of clinical, administrative, genomic and other data resources for patient-oriented research.

HEALTH SYSTEM PERFORMANCE
CHI’s Health System Performance (HSP) platform is committed to developing and implementing solutions that promote access to appropriate, effective and safe health care for all Manitobans. HSP leads mixed-methods research to gain a deep understanding of the health care system’s most pressing challenges, and uses clinical indicators, as well as process and quality improvement methods to redesign and strengthen the system.

PROJECT MANAGEMENT
Within the project lifecycle of initiation, planning, execution, monitoring, and closing, the focus of the Project Management (PM) platform is to improve quality and produce efficiency in the delivery of health care and patient-oriented research. PM effectively transfers and integrates evidence to clinical practice and care models to improve patient outcomes, experiences and access to care.