



2020 Annual Report

● RETHINKING HEALTH DATA

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WHO WE ARE

Our Vision

Better Bones, Better Joints, Better Being

Our Mission

Be a source of truth for improving bone and joint health of Albertans through collaboration with patients, clinical professionals, researchers, healthcare professionals and government

Our Guiding Principles

Ethics, Integrity, Collaboration, Evidence, Respect, Accountability



Message from the EXECUTIVE DIRECTOR



Dr. Martin Ferguson-Pell

On behalf of the whole ABJHI team we are delighted to share this year's Annual Report with you and to highlight the progress we have made to promote bone and joint health in Alberta. Despite the many challenges that the COVID-19 pandemic has presented, the ABJHI team has been able to stay focused and made significant progress in moving forward the strategic priorities that our Board has guided us to undertake.

Working closely with the Bone and Joint Health Strategic Clinical Network (BJH SCN), we have continued to provide regular continuous quality improvement (QI) reports for the care services Alberta Health Services (AHS) provides for patients who experience a hip fracture or require a hip or knee replacement surgery. The level of detail in these reports is unparalleled elsewhere in Canada. QI reports can alert AHS to local areas experiencing challenges in providing the best possible care, and to learn from clinical programs that excel. Coupled with this work the BJH SCN and ABJHI have focused on early intervention and conservative management to reduce the risk of signature fractures, and to address the need for hip and knee replacements. This year we produced a comprehensive report on the Fracture Liaison Service. This service was introduced in 2015 to start patients on osteoporosis medications who have experienced a primary (relatively minor) fracture. We have shown that this intervention reduces the risk of a subsequent hip fracture significantly. We have provided extensive project management support for the development of comprehensive conservative management care pathways for patients with bone and joint conditions.

In 2019, the Board of ABJHI approved an initiative we have called MAP to MOTION. We describe this in more detail later in this report. Suffice to say that

it is an ambitious and ground-breaking initiative to support shared decision-making between patients and their care providers throughout their journey with a bone or joint health condition. Most of the data collected by healthcare systems throughout the world focuses on either administrative information, or the encounter when in hospital. MAP to MOTION recognizes this data is only telling part of the story. Other care providers, either in primary care or through rehabilitation services play an important role in maintaining the patient's quality of life and highest possible level of functioning. Yet data describing these contributions is scattered or non-existent. MAP to MOTION is being developed to fill this gap.

We will understand more fully what works well in these settings, and can follow up patients long after they have received surgery or other treatments. Funded exclusively through generous donations, we are creating the first module of MAP to MOTION focusing on shoulder pain and instability. Only 25% or so of patients who are evaluated by an orthopaedic surgeon are candidates for shoulder surgery. However, over 8% of Canadians each year experience shoulder pain or instability, most requiring conservative management. MAP to MOTION will gather information to ensure that those patients who would not best be treated surgically are able, working with their clinician, to share in planning the best course of treatment.

These highlights are only the tip of an iceberg of accomplishments this year. I hope you agree that ABJHI is fulfilling the vision laid out by Bud McCaig and Cy Frank, who in 2005 set ABJHI in motion. Their passion for improving the bone and joint health of all Albertans continues to be the guiding light for ABJHI. As great progress is being made to achieve this goal, working in partnership with all our stakeholders, we also realize that this was a big, ambitious long-term vision. Little would they have realized that with the advent of machine learning technologies, the data they started to collect back then would be so important in the development of predictive tools to tailor clinical decision-making to each patient's circumstances. At ABJHI we are just beginning to show the potential of these new technologies and how they will empower patients and clinicians in the future. There is much to be done!

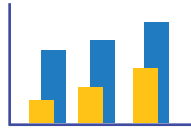
2018-2023

OUR STRATEGIC PLAN



PARTNERSHIPS

Expand and build strategic partnerships that provide the platform to promote access to comprehensive, high-quality disease-specific and population health data, including clinical data and knowledge that will improve care for bone and joint patients in Alberta.



DATA & ANALYTICS INNOVATION

Develop first-in-class data repository, and associated advanced analytics platforms that provide healthcare professionals, policymakers, researchers, and patients with the information needed to support evidence-based decisions.



INTEGRATED CONTINUOUS QUALITY IMPROVEMENT

Expand Quality Improvement and evidence to support initiatives that advance prevention and care for a diversity of bone and joint conditions with the Bone and Joint Health Strategic Clinical Network together working towards a comprehensive and holistic musculoskeletal approach that is available to all Albertans.

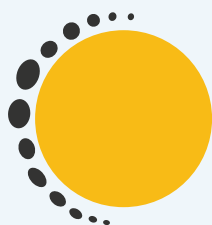
OUR PARTNERS



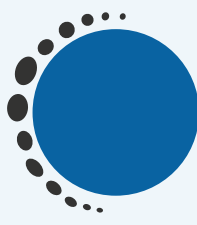
ABJHI works closely with partners in the healthcare system, researchers, and independent organizations to identify service delivery improvements that provide better patient care for Albertans with bone and joint health issues. We share a special partnership with Alberta Health Services' Bone and Joint Health Strategic Clinical Network, the McCaig Institute for Bone and Joint Health, and the University of Alberta.

— SUPPORTING HEALTH DECISIONS

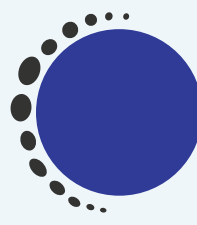
Evidence is the foundation upon which to improve health outcomes and it's an important element of our quality management framework. Change in health care can be a challenge – evidence is constantly growing and evolving, and care teams face the constant demand of care responsibilities. ABJHI uses quality management tools and methods to open the flood gates on turning evidence into clinical practice. We're partnering with our main sponsor, the Bone and Joint Health Strategic Clinical Network, in promoting several evidence-based tools and analyses targeted at supporting patient-centred decision-making in Alberta.



Supporting
Patients



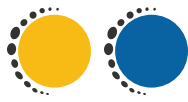
Supporting
Clinicians



Supporting
Administrators



Evidence-driven Tools:



Approach Health Decisions Together

Understanding the risks and benefits of available treatment options is an important part of developing a comprehensive care plan for care teams and their patients. Shared decision making is an approach in healthcare whereby patients are encouraged to think about the available screening, treatment, or management options and the likely benefits and harms of each so that they can communicate their personal preferences and help select the best course of action for themselves.

Approximately 10,000 patients undergo hip and knee replacements in Alberta each year, and nearly the same number of people referred to specialist clinics do not proceed with surgery. Shared decision-making is being championed in the Bone and Joint Health Strategic Clinical Network's long-running hip and

knee arthroplasty quality program, and in 2020 an orthopedic toolkit was developed consisting of:

- an information packet and video for clinicians on SDM evidence and tips for using SDM in everyday practice.
- fact sheets for patients that presents success rates of available OA treatment options.
- posters to encourage patients to engage in a shared discussion with their care team to understand the treatment options suitable for them.

The campaigning of shared decision-making in the hip and knee arthroplasty central intake clinics in Alberta aims to enhance the discussions that take place with people regarding surgical decisions for management of their osteoarthritis.



Living Your Best Life with Osteoarthritis

Educational programs, tools, and resources for the conservative (non-surgical) management and prevention of osteoarthritis are being championed. Like the scope of our MAP to MOTION initiative, much of this care takes place by integrated and multidisciplinary services outside hospital settings. Our project management team supported implementation of an osteoarthritis self-management toolkit in 2020, as part of a greater strategy by the Bone and Joint Health Strategic Clinical Network to support health outcomes and the patient experience for osteoarthritis care.

The toolkit includes an education booklet and self-management tools. It provides information on osteoarthritis, approaches to support management of the chronic condition, and improved wayfinding to local services. The focus is on how individuals with osteoarthritis can take an active part in treatment by focusing on activity, exercise, healthy eating, managing pain, mental and emotional well-being, and general wellness. The education booklet is now available on MyHealth Alberta. The self-management tools are a regionalized package due to local community resource listings.

Evidence-driven Analytics:

Taming the Queue with Resource Planning

At the start of the COVID-19 pandemic, health resource planners in Alberta needed to free up hospital beds in advance of expected surges in patients with COVID-19, resulting in many non-emergent surgeries temporarily put on hold until case numbers declined. We provided resource planners and health administrators with simulated wait times for non-emergent surgical procedures detailing different scenarios for improving access to care over a 2-year timeframe.

The numbers illustrate that there is urgent attention needed. Behind the numbers people are experiencing pain, loss of function, and lost quality of life. Access to these procedures was already a systemic issue across Canada but has been compounded by pandemic

response restrictions. Alberta has previous success in improving access for hip and knee arthroplasty services through a collaborative province-wide approach employing central intake models of care and interdisciplinary care planning. The second wave of the pandemic has hit each health zone in Alberta differently, adding further complexities to resource planning.

As the impact of the pandemic continues, we remain committed to providing high-quality data and insights as health administrators and policymakers develop necessary strategies for addressing long wait times that patients and their care providers are facing for non-emergent surgeries.

Managing Treatment Expectations

As an organization working as change agents behind the scenes of the health care system, we don't often interact with patients directly. On our website lies one of our main communication methods with patients: wait time reporting for hip and knee replacements in Alberta. Our reporting of this indicator is unique because it captures the wait for consult in addition to the wait from consult to surgery. With surgical delays resulting from the pandemic and COVID-19 waves continuing, the wait time numbers in

2020 don't reflect typical trends but they do provide a gauge to help set patient expectations - a vital part of shared decision making. The reporting is made possible due to Alberta Health Services and the orthopedic surgeons and specialist clinics across Alberta who engage with us on measuring quality and health outcomes for Albertans.

Healthy Bones and Fracture Prevention

Fracture Liaison Services (FLS) are a model of care where clinical teams identify fracture patients and facilitate bone health management and treatment for osteoporosis. Through the sponsorship of the Bone and Joint Health Strategic

Clinical Network, there are now FLS in all 5 health zones in Alberta. In 2020, we provided an evaluation of the efficacy of the program to support long-term resource planning by the network and their partners.

Improving Medication Practices

Bisphosphonates are a family of drugs used to treat osteoporosis. There are a few different methods for administering the drugs. Timing, frequency and method of administration are all important for the medications to be effective. To better understand how individuals in Alberta are

taking their osteoporosis medication, we reviewed bisphosphonates dispensing records in the Pharmaceutical Information Network data. The analysis will help inform clinical practices for bone health management and advocacy for enhanced drug coverage.



● ADOPTING QUALITY IMPROVEMENT

Since 2012, the Alberta Health Services' Bone and Joint Health Strategic Clinical Network has engaged with a provincial network of impassioned hip and knee arthroplasty care teams, hip fracture care teams and ABJHI's analytic and project management specialists. Clinicians and front-line staff continue to participate in the network's provincial quality programs. Each year, health quality and patient outcomes are assessed using our well-established quality reports for hip and knee replacement and hip fracture care.



Quality Improvement Reporting for Physicians and Care Teams (Oct 1, 2019 - Sep 30, 2020):



8,276

**Elective Hip & Knee
Replacements**
in Alberta

- Cases per day
- Costing
- Electronic Medical Record processing
- Emergency room visits within 30 days
- Discharge location
- In-hospital complications
- Infection rates
- Length of stay in-hospital
- Mobilization
- Non-elective readmission within 30 days
- OR Case time
- OR Turnover time
- Patient outcome (EQ5D-5L and WOMAC)
- Patient experience (Overall satisfaction, pain control, post-operative nausea and vomiting)
- Revision within 12 months
- Wait times



3,236

**Fragility Hip Fractures
Treated**
in Alberta

- | | |
|--|---|
| <ul style="list-style-type: none"> • Hospitalized refracture within 12 months after surgery • Length of stay in-hospital • Mobilization • Mortality within 1 year • Non-elective readmission within 30 days • Return to previous living environment • Surgery within 24/36 hours of first presentation • Transferred patients who reach final discharge destination within 28 days | <p>Fracture Liaison Service</p> <ul style="list-style-type: none"> • Adherence to medication • Enrollment within 3 days of surgery • Follow-up calls within 2 weeks of due date • Hospitalized refracture within 24 months after surgery • Mortality within 1 year • Osteoporosis medication at time of fracture • Osteoporosis medication at 6/12 months • Program Enrollment |
|--|---|

A new refracture algorithm was developed that will better classify subsequent fracture.

ADOPTING QUALITY IMPROVEMENT

●— SUSTAINING QUALITY IMPROVEMENT

Continuous improvement is a culture of quality management where teams make a conscious decision to never stop striving to improve processes and outcomes. Sustaining improvements and the systematic approach of continuous improvement in the long-term can be challenging in today's health care system because the world is rapidly evolving around us and health care teams face ever-mounting pressures.



Provincial Quality Management: Hip & Knee Replacement Care

Online Toolkit

LEARN

CONNECT

In 2020, we started developing a digital home for hip and knee arthroplasty care teams, a dedicated space for the Bone and Joint Health Strategic Clinical Network's quality program. The new online toolkit houses quality management tools and resources for hip and knee replacement care. It is also a means for providers to collaborate and share learnings provincially as they encourage continuous improvement in their everyday healthcare practices.

Along with the recently redesigned quality measurement reports that the hospitals, clinics, and surgeons continue to receive, the website will provide guidance on the quality program and support for conducting local quality projects.

It will also act as a centralized location for the provincial hip and knee replacement care path, order sets, discharge instructions and patient education booklets – all of which continue through review cycles to ensure best evidence and quality outcomes are endorsed provincially in the long-term.



Continuous Quality
Improvement

“You can’t improve what you don’t
measure and don’t understand.”

SUSTAINING QUALITY IMPROVEMENT

●— ENHANCING QUALITY OF CARE —

It was a year of change for all and the pandemic brought new challenges in supporting our partners with their swift response to the pandemic. With added pressures and unknowns, we turned to our skills as change management specialists to keep our partner's quality projects running successfully and to continue finding solutions for improving the health outcomes of individuals with bone and joint conditions.



Designing Patient-Centered Care

For much of 2020, we worked with the Bone and Joint Health Strategic Clinical Network and clinical partners in Alberta to review best evidence and build clinical consensus to collate standardized approaches for the non-surgical management of osteoarthritis, shoulder conditions, soft tissue knee injuries, and low back pain and spine health. The landscape of our work often involves partnering with clinicians and care providers on employing management tools to reduce uncertainty and variation in practices. The projects aim to provide more patient-centered care and to help alleviate unnecessary queues and inconsistent assessment processes that patients face.

We began a preliminary assessment of shoulder data from an Edmonton clinic, with an eye towards referral and assessment volumes, wait lists, timeliness of care, and diagnostic imaging practices. Our collection of patient outcome and experience data expanded to other speciality clinics across the province. We partnered with knee injury clinics in Lethbridge and Edmonton to launch a survey that will examine the patient experience with wayfinding and the overall impact of care plans following visits to the clinics.

We continued the evaluation of a specialized navigational support service for osteoarthritis patients at a bone and joint clinic in Lethbridge. The service has been provided for over a year at the clinic to determine the impacts of non-surgical osteoarthritis interventions on patients. Nearly half of patients referred to orthopedic specialists don't proceed to hip or knee surgery, either because: their osteoarthritis disease progression isn't severe enough, they don't fit the criteria for the elective surgery, or by patient choice.

The aim of the service is to provide additional support to non-surgical patients as they figure out how to best manage their chronic condition. The navigation support is also designed to guide wayfinding to local services to improve the patient experience with navigating the complex healthcare system. The new OA self-management toolkit was provided to both surgical and non-surgical patients. Patient outcome and satisfaction data collected over the evaluation period will help determine efficacy of the service.

●— MAP TO MOTION —

There is a significant gap in the information available about bone and joint health in Alberta and we're aiming to provide a targeted solution that will benefit patients, clinicians, researchers, and government. MAP to MOTION is set to be an integrated bone and joint information hub that will link information from acute care interventions, community-based care, and newly acquired long-term patient outcomes.



Building Blocks to Better Health Decisions

We're managing health quality with our partners to fine-tune existing processes and expand innovative services and tools that see success, but there are significant barriers faced. Even prior to the pandemic, acute care hospitals faced pressure with the ever-growing demand for health services with finite human and capital resources on hand.

Out in the community, care is a varied and a diverse setting with its own challenges. The primary care medical home faces a balancing act of meeting the complex health needs of patients and tie-ins to a multitude of specialists. Rehabilitation services add another level of care. At the centre of all these services is the patient, who is met with a complex, interweaving health journey. Without a standardized approach, it is difficult to learn about the patient population at a system level.

The idea of MAP to MOTION is turning into reality with funds raised to date and with the combined input from clinicians, researchers, patients, and our in-house expertise. Our focus over the past year was to compile the measurement framework for the first featured module, to begin assembling the data platform, and to continue seeking out exciting partnership and collaboration opportunities with health providers, academia, and industry.

We're building the foundation to extend the reach of health data, past the traditional point of clinical encounters.

When a treatment works, people don't often return to their provider and there are success stories lost to the health system. With opportunities to collaborate with researchers, the scientific community, and industry, it will be a gateway for predictive analytics and digital technologies to lead advancements in clinical knowledge, to drive new ideas, and to support shared decision-making with patients.

BOEING 787

500 GB OF DATA/FLIGHT

The size equivalent of:

125 high-def movies or

200,000 eBooks

MODERN CAR

25 GB OF DATA/HOUR

The size equivalent of:

6 high-def movies or

10,000 eBooks

PATIENT HEALTH RECORD

0.08 GB OF DATA/YEAR

The size equivalent of:

0.02 high-def movies or

32 eBooks

MAP TO MOTION



We're actively seeking opportunities and identifying champions promoting strong health analytics and health knowledge across Canada.



We aim to enable sustainable evidence-based solutions to the pain, loss of mobility, and reduced quality of life so many Canadians face due to the burden of musculoskeletal conditions.



Insights and Trends

The COVID-19 pandemic greatly accelerated the pace of digital and virtual technology uptake as many in the healthcare space were forced to adopt new processes to provide remote care and supports. Virtual appointments, virtual assessments, and virtual education classes are redefining how patients receive care and will likely continue change the way care is provided in the future.

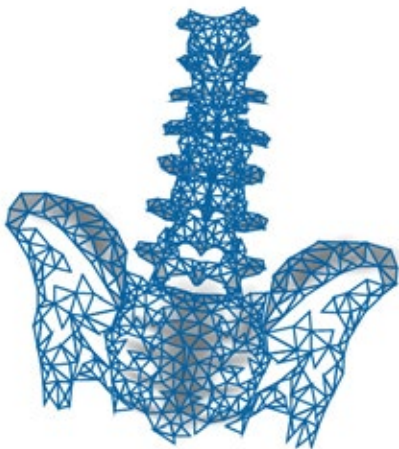
The potential for artificial intelligence to transform healthcare continues to grow. Predictive analytics provides opportunities for estimating the likelihood of outcomes, taking into account health history, comorbidities, and other determinants of health (personal, social, economic and environmental factors). Rather than focusing on a single injury or condition, integrated and holistic

insights are possible. But it relies on a certain critical mass of data – the more data, the more accurate the predictions.

Investments in stronger health data capacity also has the potential to generate health solutions that are drivers of economic growth.

We've engaged with companies like Precision Health, the Alberta Machine Intelligence Institute and AltaML who have expertise with advanced analytic technologies and research development.

Grant applications were completed in 2020 focusing on improved health data, predictive analytics, artificial intelligence and emerging remote health assessment technologies.



BONE & JOINT HEALTH BEYOND THE OFFICE

Our team is composed of 16 dedicated quality improvement managers and coordinators, data analysts and developers, administrative staff, and executive team leaders.

Our work has the ABJHI team spending most of our time in front of computers and this sedentary lifestyle seemed to have increased tenfold with the pandemic. With our own bone and joint health in mind, much of our staff focused on increasing their daily walks throughout 2020 to keep active.

A few team members felt the switch to home-based activities was a greater struggle of self-discipline than going to the gym or participating on their usual sports teams. Others found support

through virtual fitness classes and phone apps. With our Calgary office located close to the mountains, our hiking enthusiasts spent much of their summer along the beautiful trails in Kananaskis. Even despite the constantly moving toddlers that are part of the ABJHI extended family, as the winter months approached many of us found ourselves experiencing a drop in motivation. With the new year upon us, we've reset our targets and intentions for keeping active and in good health into 2021.

ABJHI Office, Winter Walk Day February 2020



● COMMUNITY GIVING

2020 was a challenging and difficult time for so many and we're grateful for the continued support of our donors.

The Dianne and Irving Kipnes Foundation

The Allard Foundation

Mary Ritchie

Ian Robinson

Martin Ferguson-Pell

Liz Evens

Christopher Smith

Oct 2019 - Sep 2020

*Because of
you, we've
taken a
momentous
step in
innovation
with MAP to
MOTION*



● FINANCIAL SUMMARY

Audited

ABJHI Fiscal Year Oct 1, 2019 to Sept 30, 2020

Revenue:

Government contracts and grants	\$ 1,431,681
Other contracts and grants	\$ 247,536
Restricted donations	\$ 145,858
Rental income	\$ 12,102
Fundraising event	\$ 8,978
Interest income	\$ 7,034
Unrestricted donations	\$ 3,461
Gain on sale of assets	\$ 38
TOTAL	\$ 1,856,688

Expenses:

Salaries, wages and benefits	\$ 1,278,782
Contracted services	\$ 219,813
Rent	\$ 201,178
Professional fees	\$ 52,080
Information technology	\$ 46,365
Business expenses	\$ 45,069
Fundraising expenses	\$ 34,076
Amortization	\$ 15,780
Materials, supplies and equipment	\$ 6,516
Bank charges	\$ 2,001
TOTAL	\$ 1,901,660

(Deficiency) excess of revenue over expenses for the year (44,972)

Net assets - Beginning of year	\$ 663,887
Net assets - End of year	\$ 618,915

PUBLICATIONS

ABJHI contributed to the following publications:

Abdulla I, Mahdavi S, Khong H, Gill R, Powell J, Johnston K, Sharma R. Does body mass index affect the rate of adverse outcomes in total hip and knee arthroplasty? A retrospective review of a total joint replacement database. *Can J Surg* 2020;63(2):E142-E149.

Beaupre, L.A., Lier, D., Smith, C. et al. A 3i hip fracture liaison service with nurse and physician co-management is cost-effective when implemented as a standard clinical program. *Arch Osteoporos* 15, 113 (2020).

Ellis K, Azeez S, Reczek K, Brockman E. Education as a Core Conservative Treatment for Hip and Knee Osteoarthritis Patients in an Alberta Hip and Knee Clinic. May 2020. *Clinical Innovation Poster Abstracts, Canadian Journal of Pain*.

Godziuk K, Prado CM, Woodhouse LJ, Forhan M. Prevalence of sarcopenic obesity in adults with end-stage knee osteoarthritis. *Osteoarthritis and Cartilage*. Dec 2019. 27(12):1735-1745.

Goplen C, Randall J, Kang S, Vakilian F, Jones A, Voaklander D, Beaupre L. The Influence of Allowable Refill Gaps on Detecting Long-Term Opioid Therapy: An Analysis of Population-Based Administrative Dispensing Data Among Patients with Knee Arthritis Awaiting Total Knee Arthroplasty. Oct 2019. *Journal of Managed Care & Specialty Pharmacy*. 25: 1064-1072.

Raghav S, Powell J, Sharma R, Puloski S, Mahdavi S, Smith C, Johnston KD. One-stage versus 2-stage bilateral total joint arthroplasty: a matched cohort study. *Can J Surg* 2020;63(2):E167-E173.



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