CIHR IRSC

Institute of Musculoskeletal Health and Arthritis

STRATEGIC PLAN 2014–2018:

Enhancing Musculoskeletal, Skin and Oral Health

Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Canada

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MESSAGE FROM THE SCIENTIFIC DIRECTOR

As Scientific Director of the Institute of Musculoskeletal Health and Arthritis (IMHA), it is my great pleasure to introduce our strategic plan for 2014 to 2018.

This plan is the culmination of a great deal of consultation with a wide spectrum of IMHA's stakeholders over the past two years. The consultation process included surveying our community researchers, considering recommendations of the 2011 Canadian Institutes of Health Research International Review Panel, striking a Strategic Planning Committee with members from our Institute Advisory Board (IAB), and meeting with researcher communities face to face at national and international conferences. All input from our stakeholders was carefully considered.

In March of 2014, we assembled an international group of researchers and citizens at a workshop in Vancouver to seek input on an actionable list of strategic priorities for the Institute. The discussions from this key workshop formed the basis for the first draft of the strategic plan. After further input from our IAB and CIHR's Subcommittee on Planning and Priorities, and with refinements by IMHA staff and the IAB Strategic Planning Committee, we finalized a strategic plan that was approved at all levels of CIHR's senior management and Science Council.

The strategic plan addresses priorities that are important to Canadians and for which there are compelling research needs and gaps. Our three overarching strategic research priorities are (1) chronic pain and fatigue, (2) inflammation and tissue repair, and (3) disability, mobility and health. Within each of these priorities are research themes that span the areas of biomedical, clinical, health services and population health research. They also encompass the full spectrum of focus areas within IMHA's mandate, these being arthritis, bone, muscle, rehabilitation, oral health and skin disorders. The funding tools we will use to address these priorities will ensure that we encourage capacity building where needed, foster innovation in a transdisciplinary manner, and support the translation of the research into health care practice and health policy. These funding tools will integrate fully with CIHR's Signature Initiatives and Strategy for Patient-Oriented Research. IMHA will lead a number of these large initiatives in partnership with other CIHR Institutes.

IMHA, and CIHR as an organization, recognize the critical importance of partnerships in achieving impactful strategic goals. As an Institute, IMHA has a long history of successful partnerships, particularly partnerships with organizations that share similar strategic priorities. IMHA continues to embrace partnership as the centrepiece of our 2014–18 strategic plan. In addition to the internal partnerships with other CIHR Institutes, IMHA will work, nationally and internationally, with other funding agencies, and with charities, professional organizations and non-traditional partners in the public and private sector, to address its strategic priorities. Finally, I would like to acknowledge the key role that patients, and citizens in general, play in setting and addressing research priorities.

I hope you will join IMHA in working towards our goals over the next few years. I believe that our ambitious research agenda will benefit a large number of Canadians, and, indeed, the global community in which we live.

Dr. Hani El-Gabalawy
SCIENTIFIC DIRECTOR
CIHR–Institute of Musculoskeletal Health and Arthritis

IMHA's Mandate: Musculoskeletal, Skin and Oral Health

IMHA is the hub for strategic initiatives in musculoskeletal (MSK), skin and oral health research in Canada. IMHA's mandate is to support ethical and impactful research to enhance active living, mobility and oral health, and to address the wide range of conditions related to bones, joints, muscles, connective tissue, skin and teeth. Musculoskeletal health is critical for promoting the physical activity needed to maintain mobility, productivity and general health and well-being. Prevalent MSK disorders such as arthritis and osteoporosis can limit mobility and physical activity, creating a vicious cycle of inactivity, degeneration and loss of productivity. Similarly, poor oral health and skin conditions can affect overall health and well-being.

BROAD MANDATE

The diseases covered by IMHA's mandate are wide-ranging. Here are some examples of primary MSK, skin and oral diseases and conditions:

MSK	Skin	Oral
Osteoarthritis	Inflammatory skin conditions:	Dental caries
Inflammatory arthritis (primarily rheumatoid arthritis)	➤ Psoriasis	Periodontal disease
Crystal arthritis (e.g., gout)	➤ Eczema	Malocclusion
Back pain	➤ Seborrheic dermatitis	Tooth loss
Chronic pain syndromes (e.g., fibromyalgia)	➤ Acne	Cleft lip and palate
MSK injuries (e.g., sports-related, falls)	Skin injury and wound healing (e.g., burns, cuts)	
Metabolic bone diseases (primarily osteoporosis)		

Societal Costs: A Call to Action

Musculoskeletal diseases affect 11 million Canadians annually over the age of 12. This number is projected to increase with the aging baby boomer population to up to 15 million in 2031.[1] Osteoporosis is estimated to affect 1.5 million Canadians aged 40 and older.[2] Arthritis is reported to strike more than 4.2 million Canadians over the age of 15, with expectations of even greater prevalence of this disease in the next decade.[3,4,5] The chronic skin disease psoriasis affects nearly 1 million Canadians.[6] Tooth decay and periodontal diseases are the most common chronic diseases in the Canadian population. Millions of Canadians lose teeth, endure pain and develop oral infections that contribute to systemic diseases, compromising their overall health.[7]

The expected increase in the prevalence of musculoskeletal conditions will come at a high cost to the Canadian economy, and will reduce the quality of life of even more Canadians.

A Significant Personal Burden That Needs to Be Addressed

Despite being diverse with regard to pathophysiology, MSK disorders are linked anatomically, and, along with certain skin diseases and oral health conditions, share many characteristics: the diseases are almost all chronic, are the most common cause of long-term pain and disability, and exert a significant physical and psychological toll on both those who suffer from them and their families. Musculoskeletal, skin and oral health conditions can affect people from all racial and ethnic populations, and socio-economic backgrounds. Due to the chronic nature of these disorders, individuals can live for many years, or even decades, with the same painful and debilitating condition, necessitating rehabilitation and mitigation strategies. Acute injuries, such as those to bones, joints, muscles, skin, teeth and oral tissues, are all very common and involve slow recovery. Further, MSK injuries and the resulting physical inactivity are risk factors for the development of other ailments and for an increase in long-term health concerns and subsequent health care utilization.

ARE CANADIANS DYING OF MUSCULOSKELETAL DISEASES?

Although not commonly associated with the loss of life, MSK diseases can lead to premature death.

NEARLY
25%
of people over 50 who break a hip die within five years of the injury.[8]

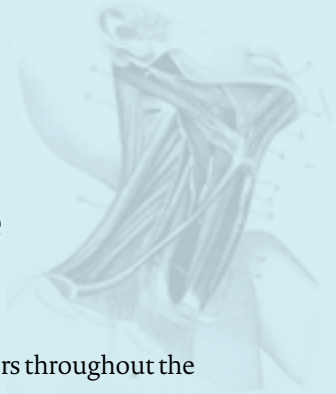
There is an increased cardiovascular risk associated with diseases such as rheumatoid arthritis.[9]

Economic Burden for All: A Cause for Concern

The prevalence of MSK (and some skin and oral) conditions increases significantly with age. With an increasing number of older people, it is no wonder that "population aging represents one of the greatest challenges to the Canadian economy over the medium to longer term."[10] The economic burden of MSK, skin and oral conditions can be framed largely by their impact on the Canadian labour force and health care system.

Combined, the estimated direct and indirect economic burden of MSK diseases was reported to be the highest of any group of diseases in a recent Public Health Agency of Canada (PHAC) report.[11] Musculoskeletal diseases are estimated to cost the Canadian economy upwards of $22 billion each year, with injuries costing an additional $15 billion annually. While the direct costs of MSK diseases and injury are high (e.g., hospital care, physician visits, rehabilitation prescription drugs), three-quarters of the overall costs are indirect (e.g., absence from work and lost potential earnings, underperformance at work). Direct costs for the treatment of oral diseases are the second highest of any disease category in Canada, at $11.6 billion in 2011.[12]

IMHA Strategic Prioritization: Thinking Big to Address Complex Problems



IMHA's strategy from 2001 to 2013 was focused on better positioning its research community to address Canada's major MSK, skin and oral health challenges. The selected priorities were addressed in the last decade with both small and large initiatives. Over the next four years, IMHA will continue to fulfill its role as a convener and community builder to tackle big questions, and to expand on multidisciplinary and translational opportunities as mandated by the 2011 International Review of IMHA as well as by the priorities of CIHR's strategic plan Health Research Roadmap II: Creating innovative research for better health and health care.

Consultative Process

IMHA engaged stakeholders throughout the development of the strategic plan using a variety of methods. Surveys and in-person meetings with researchers and partners were arranged to ascertain their thoughts on the most important areas requiring a research focus. Partners included non-governmental organizations and health policy decision makers. Environmental scans of research funders in MSK, skin and oral health from around the globe were also completed to assist in identifying research gaps, priority areas and partners.

A Strategic Planning Committee of the Institute Advisory Board oversaw all stages of the process. In addition to the development of specific strategic priority areas, there are several values and approaches that will guide the implementation of the plan.

Values and Approach

Four core values and accompanying approaches will guide IMHA's activities and implementation of priorities: ethics, evidence-informed decision making, performance measurement, and openness and public accountability. IMHA's values and approaches are strongly aligned with CIHR's Road Map II strategic direction of organizational excellence.

Ethics

IMHA promotes interdisciplinary integrative research into ethical, legal and socio-cultural issues related to its research priority areas. High ethical standards are maintained by working closely with CIHR and academic institutions across Canada to ensure ethical research practices are employed. IMHA is keen on partnering with external groups and organizations that uphold high ethical standards.

Performance Measurement

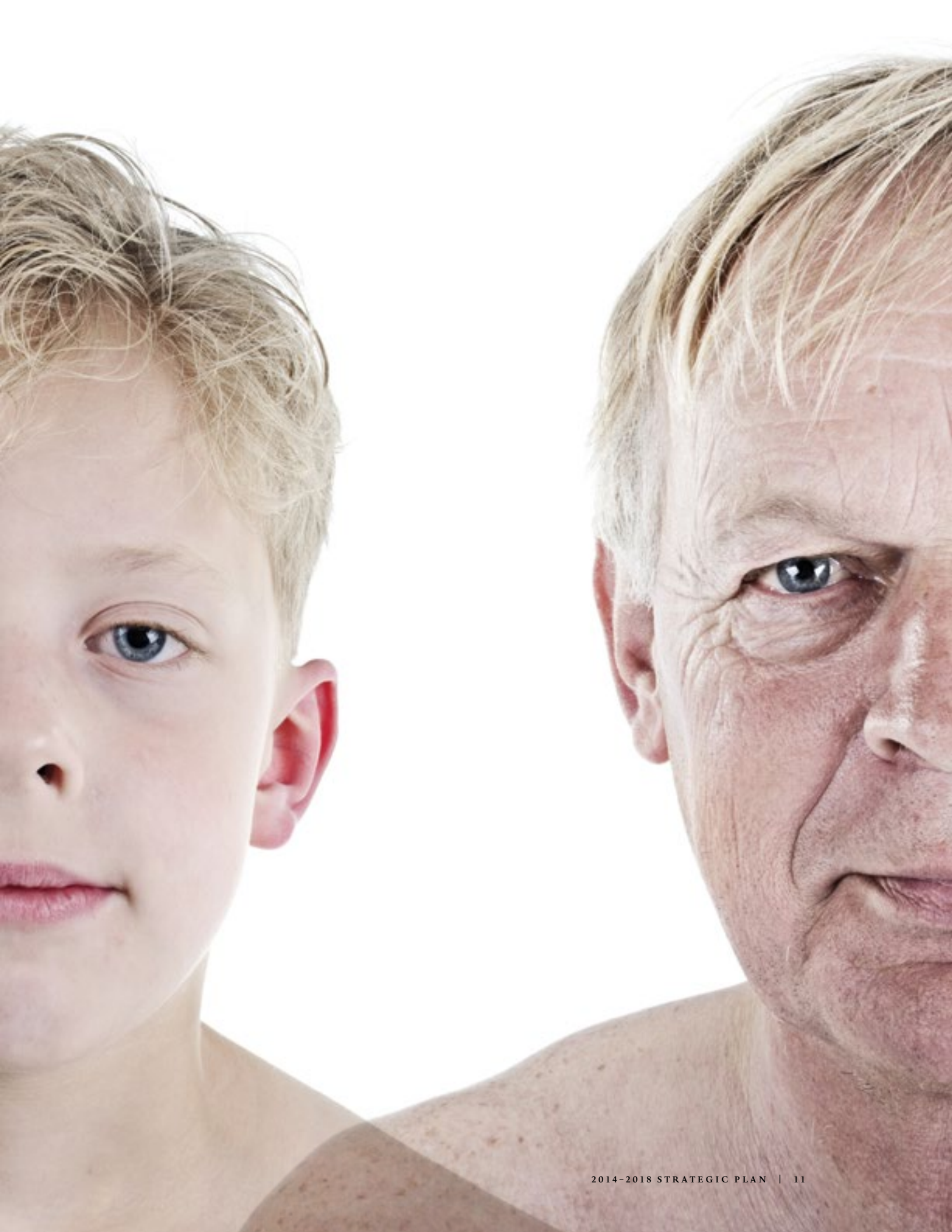
A comprehensive measurement plan connects IMHA's desired short- and long-term outcomes to metrics that can be readily collected and reported on. Performance measurement will improve IMHA's understanding of underlying processes, and will help determine if IMHA is meeting its strategic objectives and where improvements can be made. Guidelines from CIHR helped shape the overall plan and ensure additional consistency and comparability across CIHR institutes.

Evidence-Informed Decision Making

IMHA aims to use the best available evidence from consultation, research, practice and experience to inform decision making and to develop strategic priorities and programs. The process is characterized by the systematic and transparent appraisal of evidence as an input into our decision-making process.

Partnerships and Citizen Engagement

Partnerships with relevant IMHA stakeholders – researchers, health care providers, policy makers, the Canadian public, the private sector and patients/patient groups – as well as non-traditional partners will ensure that all energy and efforts can work towards a shared vision. Special care will also be directed at the continuation of our citizen engagement activities, so that Canadians are actively involved in IMHA's decision making and aware of our activities and the knowledge that is created.



Overall Vision

IMHA's vision is to lead MSK, skin and oral health research and knowledge translation to improve the lives of Canadians.

Guiding Research Themes

IMHA has selected three overarching themes that will help to guide and inform the selected strategic priority areas and support the implementation of Road Map II:

CAPACITY BUILDING | INNOVATION | TRANSLATION

Capacity Building

Strengthen the MSK, Skin and Oral Health Research Communities

One of IMHA's major roles is that of a community builder and convener, setting out to leverage partnerships and collaborations with government, policy makers, industry and health charities, as well as patients, caregivers and their representatives. IMHA is committed to ensuring that the scientists it supports are well-trained, informed and connected as the national funding landscape evolves.

Supporting a culture of collaboration and knowledge exchange in MSK, skin and oral health areas for researchers at all career stages is imperative. This entails building and sustaining research networks that aim to advance research, training and knowledge translation across multiple disciplines, with a focus on expediting knowledge uptake to mobilize and build IMHA's research community. This is a particularly timely direction given the increased need to promote multidisciplinary and multi-sectoral engagement to tackle complex research questions, including ethical and legal questions and the socio-economic burden underlying MSK, skin and oral diseases and conditions.

Innovation

Foster Innovative Research in MSK, Skin and Oral Health

Innovative approaches to tackling big research questions are necessary to effectively address the significant socio-economic burden, and the ethical and legal dimensions associated with IMHA-relevant diseases and conditions. Breaking barriers between researchers and stakeholders working across different disciplines, sectors, life stages and disease areas will fuel the innovation needed to promote the development of transformational science.

IMHA is committed to fostering innovation by bringing together researchers from across focus areas, and themes with other external stakeholders including patients and families, charitable groups and policy makers. Providing new funding opportunities that recognize the changing research landscape will also help promote innovation.

Translation

Promote the Integration of Research into Practice for MSK, Skin and Oral Health

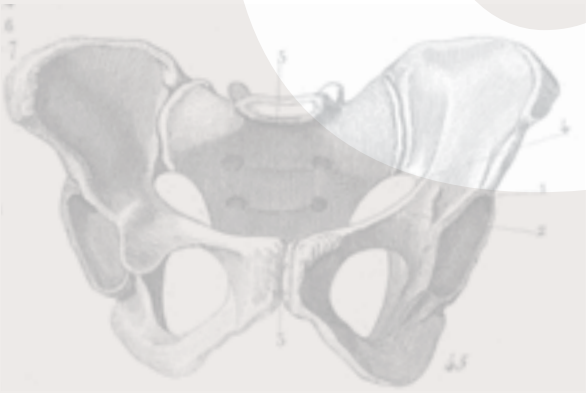
Translation includes epidemiologic and behavioural studies, knowledge synthesis, outcome and health services research and exploration of different models of care, as well as the development of therapeutic interventions, new technologies and commercialization opportunities. It also includes clinical trials and studies, rehabilitation studies, personalized medicine, assistive technologies and any study designed to help close the gap between what is already known and what is being delivered. Cost-effectiveness studies on health-intervention strategies are also an important component of translational research.

The translation of knowledge to settings where it can be applied as part of practice is integral in improving the health of individuals. The development of partnerships opens up additional channels of communication for IMHA-funded research and assists in the commercialization of important discoveries.

The Next Five Years

Our Strategic Investment Priorities

IMHA believes that strategic efforts can be maximized by responding to compelling needs across stakeholder groups and supporting the following CIHR priorities: health innovation for an enhanced patient experience and outcomes, health equity for Aboriginal people, a healthier future through preventive action, and improved quality of life for persons living with chronic conditions. Key strategies include partnering on CIHR Signature Initiatives to tackle complex research questions from a multidisciplinary and multi-sectoral perspective.



THE IMHA STRATEGIC PLAN 2014–18
WILL FOCUS ON THREE STRATEGIC PRIORITY AREAS:

Chronic Pain and Fatigue

- Developing a better understanding of the complex causes and clinical manifestations of chronic pain and fatigue
- Defining optimal strategies of care and management through improved models of care
- Improving our understanding of the impact and consequences of chronic pain and fatigue

Inflammation and Tissue Repair

- Improving our understanding of the underlying mechanisms of inflammation
- Mitigation of the damage, functional loss and disability that result from inflammation and tissue injury in the muscles, bones, joints, skin and oral cavity
- Developing personalized medicine strategies that achieve the best outcomes for chronic inflammatory and non-inflammatory disorders

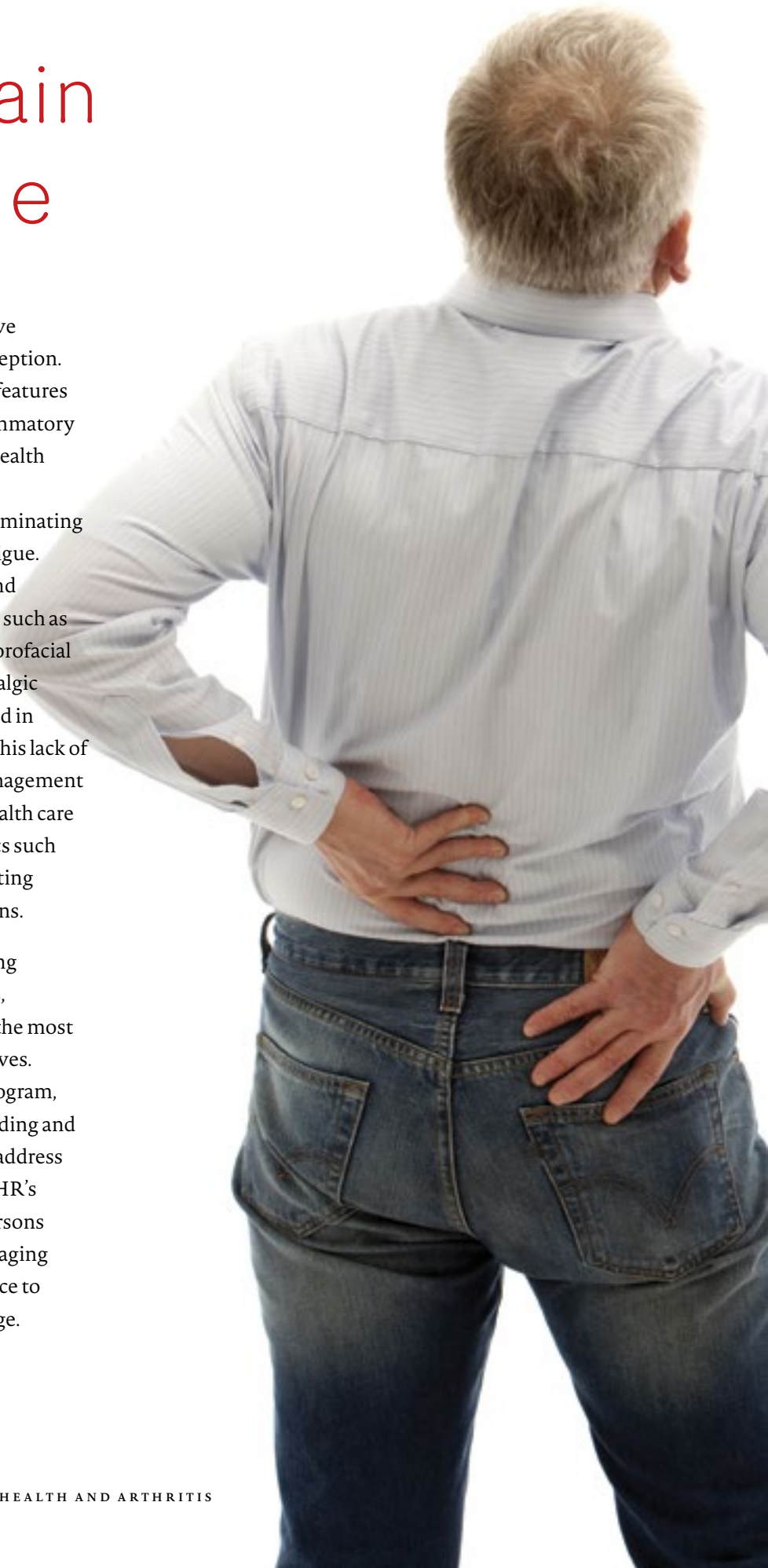
Disability, Mobility and Health

- Prevention of chronic musculoskeletal, skin and oral health disorders through the identification and management of common risk factors
- Improving health, injury reduction and disability management in the workplace
- Reducing musculoskeletal, skin and oral/dental health disparities in vulnerable populations based on ethnicity, gender, age and geography

Chronic Pain and Fatigue

Pain, disability and chronic disease have been priorities of IMHA since its inception. Chronic pain and fatigue are prominent features of multiple inflammatory and non-inflammatory MSK disorders and are major drivers of health care costs. Modern therapies that impact inflammatory pathways are the key to eliminating or minimizing symptoms of pain and fatigue. However, a wide spectrum of localized and generalized non-inflammatory disorders such as fibromyalgia, chronic back pain, chronic orofacial pain and chronic fatigue syndromes (myalgic encephalomyelitis) are poorly understood in terms of their causes and pathogenesis. This lack of understanding leads to less effective management of these conditions, and to substantial health care expenditures. Misuse of potent analgesics such as opiates is also a common problem relating to the lack of more definitive interventions.

IMHA will use established priority-setting approaches based on input from patients, caregivers and researchers to determine the most compelling priorities for research initiatives. To continue to build a strong research program, attention will be directed at capacity building and networking activities. IMHA's efforts to address chronic pain and fatigue will support CIHR's priority of improved quality of life for persons living with chronic conditions by encouraging research that progresses from basic science to clinical implementation and policy change.



Developing a better understanding of the complex causes and clinical manifestations of chronic pain and fatigue

IMHA will develop a broad-based research program that integrates basic, translational and health care delivery initiatives for chronic pain and fatigue to achieve transformative changes in the care of these challenging disorders. Such a program will address the underlying biological mechanisms of chronic pain and fatigue, and incorporate biomarker discovery and the development of potential new therapeutic targets. It will also promote approaches evaluating the interaction between chronic pain and fatigue and how they may independently contribute to poor health and quality of life.

Defining optimal strategies of care and management through improved models of care

The full impact of research in chronic pain and fatigue will only occur through changing the models of care for these disorders. IMHA will work with other CIHR institutes and external partners to facilitate better models of care for chronic pain and fatigue syndromes, where entry points into primary care are appropriately equipped with access to multidisciplinary specialized care teams.

Improving our understanding of the impact and consequences of chronic pain and fatigue

Chronic pain is associated with the poorest quality of life compared to other chronic diseases (e.g., chronic lung or heart disease), impacting physical, psychological and social functioning in those afflicted.[13,14] Prescription drug misuse continues to be a concern for those experiencing pain, and additional attention is required to address the root causes and understand the long-term consequences. For those experiencing chronic conditions that include both chronic pain and fatigue, there may be even greater declines in quality of life. Further recognition of longer-term consequences of chronic pain and fatigue is of interest to IMHA to better understand how these symptoms impact one another and to assist in the selection of comprehensive interventions.

Inflammation and Tissue Repair

A wide spectrum of chronic inflammatory and non-inflammatory disorders impact the MSK system, skin, and the oral cavity. Mechanisms underlying the progressive tissue damage of disorders such as osteoarthritis (OA) are not completely understood. Approaches to preventing tissue damage, promoting tissue repair, and replacement of irreversibly damaged tissues can profoundly affect the outcomes of prevalent diseases such as OA, rheumatoid arthritis (RA), tooth decay and psoriasis. For example, joint replacement has dramatically improved the functional outcomes in OA and RA. Similarly, improved control of systemic inflammation using an expanding arsenal of targeted biologic therapies has revolutionized the treatment of RA, psoriasis and many other chronic inflammatory diseases.

IMHA is committed to supporting research that better defines the mechanisms of tissue damage and develops effective strategies for preventing this damage and promoting tissue repair.

Improving our understanding of the underlying mechanisms of inflammation

Inflammation is a physiological process that normally helps fight infection and aids in tissue repair. Dysfunctional inflammatory responses, however, contribute to the development and progression of several common chronic diseases including asthma, cardiovascular disease, arthritis, diabetes, neurodegeneration and cancer. Inflammation is also a factor in chronic infections such as hepatitis C and HIV, is a critical aspect of transplant rejection, and is influenced by human microbiota.

IMHA is working in collaboration with other institutes to fund research that examines the underlying mechanisms of inflammation across a variety of disease areas. The identification of common markers of inflammation is of particular interest to IMHA and an important component of the Inflammation in Chronic Disease Signature Initiative.

Mitigation of the damage, functional loss and disability that result from inflammation and tissue injury in the muscles, bones, joints, skin and oral cavity

The molecular mechanisms underlying chronic immune/inflammatory diseases evolve over the entire life course and are influenced by multiple gene-environment interactions. There is increasing recognition that socio-economic factors play an important role in the outcomes of these chronic diseases. Effective diagnostic/prognostic tools, therapeutic strategies, and programs to prevent and modulate maladaptive inflammation will make a major impact on a wide spectrum of chronic diseases.

IMHA is leading the CIHR Signature Initiative of Inflammation in Chronic Disease and will oversee multiple programs and funding pathways.

Developing personalized medicine strategies that achieve the best outcomes for chronic inflammatory and non-inflammatory disorders

Momentum continues to build for personalized medicine approaches to chronic inflammatory disease (e.g., lupus, RA, periodontal disease). Tailoring treatment to a patient based on their genomic information and on factors known to be related to treatment effectiveness offers new hope to those suffering from inflammatory conditions, and leads to safer and more cost-effective care. Additional opportunities for personalized medicine fall in the areas of early diagnosis and risk stratification for progression. IMHA is committed to working with stakeholders and with national and international partners to further our knowledge and application of personalized medicine to a variety of areas, including inflammation.

Disability, Mobility and Health

Disorders of the MSK system are the leading cause of disability in our society.[1,15] The impact of congenital abnormalities, injuries, and a wide spectrum of inflammatory and non-inflammatory disorders on an individual's physical mobility and dexterity can result in profound functional limitations throughout their lifespan. This, in turn, can lead to an inability to engage in the workforce and to social isolation. Moreover, impaired mobility can limit participation in health-promoting physical activities such as exercise, further contributing to unfavourable outcomes for a wide range of chronic diseases, particularly those of the cardiovascular system.

Thus, a key aspect of IMHA's mandate is to prevent and minimize disability, promote mobility and improve overall health and well-being. This is achieved by supporting research that addresses the continuum of health from primary and secondary prevention to rehabilitation and maximum restoration of functioning. Innovative solutions to complex health problems, and proper translation of knowledge into common care pathways are essential to improving the health of our population. Recognizing the diversity within Canada, and working towards an improved understanding of needs and appropriate and effective interventions will help improve the health of all Canadians, especially the disadvantaged and vulnerable.

Prevention of chronic musculoskeletal, skin and oral health disorders through the identification and management of common risk factors

Modifiable risk factors, common to many chronic diseases, include diet, weight, physical activity, alcohol intake and smoking. Adopting healthy lifestyle behaviours can reduce the risk of all chronic diseases, including MSK, skin and oral health conditions. Breaking down barriers to adoption and careful identification and management of disease will improve the health of Canadians. Reducing the risk of onset of arthritis and osteoporosis, avoiding injury to joints and skeletal muscle, promoting healthy, balanced diets and preventing falls are all important measures. IMHA will build on the successes of its previous flagship theme of physical activity, mobility and health, as exercise is increasingly being recognized as a potent "medicine" with measurable benefits in multiple domains.

IMHA's priority of prevention provides an opportunity to develop a primary and secondary prevention initiative across multiple institutes and to support CIHR's priority of a healthier future through preventive action overall. Building on the evidence-based interventions that can be used to educate the public on the prevention of these disorders, IMHA will focus on both research and knowledge translation.

Improving health, injury reduction and disability management in the workplace

The ability to fully engage in the workforce is a fundamental priority for all Canadians. Disorders of the MSK system, whether congenital or acquired through injury or chronic diseases, can profoundly impact an individual's capacity to participate in the workforce. IMHA will actively promote innovative approaches that enhance the ability of disabled individuals to adapt to the work environment, improve work environment accommodations for those with disabilities, prevent workplace injuries and promote overall health and wellness.

Reducing musculoskeletal, skin and oral/dental health disparities in vulnerable populations based on ethnicity, gender, age and geography

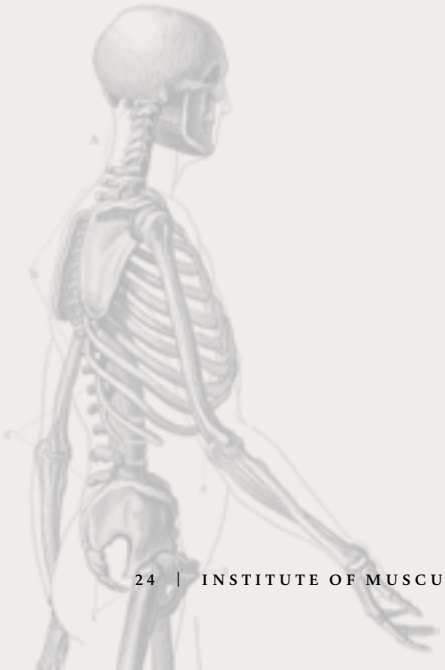
Disparities exist in the prevalence of MSK, skin and oral health conditions in Canada and elsewhere. There are issues related to gender differences, and geographic, socio-economic and racial disparities that need further exploration. IMHA will identify scientific opportunities as well as knowledge translation gaps with respect to these disparities.

IMHA is helping to advance CIHR's priority area of addressing health disparities by co-leading the CIHR Pathways to Health Equity for Aboriginal Peoples Signature Initiative. The Pathways Signature Initiative has an explicit focus on reducing health inequities between Aboriginal and non-Aboriginal peoples in Canada through collaborative and ethical approaches and appropriate protocols and practices. IMHA will play a key role in ensuring the needs of the oral health community are sufficiently represented and will support activities aimed at reducing oral health disparities in Aboriginal populations.

Performance Measurement

CIHR has developed an extensive performance measurement plan that provides a framework for CIHR to measure the impact of health research and to monitor and report on CIHR activities. The framework also promotes consistency in reporting activities across institutes.

In developing the measurement plan for IMHA, both short- and long-term outputs and outcomes are included to provide more immediate feedback on the implementation of initiatives and their longer-term outcomes. Indicators that are supported by CIHR have been incorporated into the research themes and priority areas for IMHA to maintain consistency. To effectively evaluate priorities specific to IMHA, additional indicators have been identified and incorporated into the performance measurement plan. (The full IMHA performance measurement plan has been included in a separate document.)



Concluding Remarks

The need to tackle the underappreciated socio-economic burden of MSK, skin and oral health disorders is well recognized. As suggested by the 2011 International Review expert panel, the time has come to emphasize the development of multidisciplinary collaborations, translational research, and the tackling of big questions to work towards attenuating pain, suffering and disability, and to address the significant economic burden that is expected to increase in the coming decades as the Canadian population ages. IMHA's strategic plan provides a framework for the next four years, and is designed to be a fluid document that will evolve through feedback and consultation. With the three themes of capacity building, innovation and translation, it is hoped that IMHA can continue to support the development of concrete solutions aimed at improving the health of Canadians and the economy.

Appendix

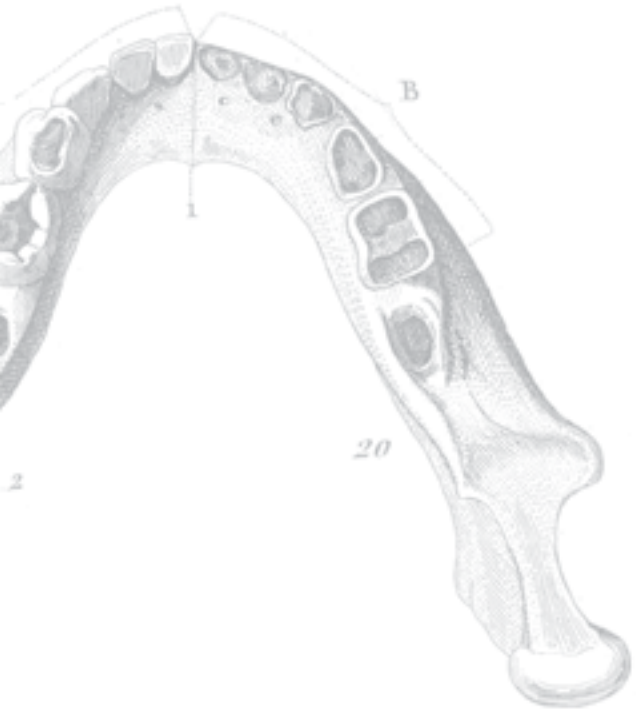
Institute of Musculoskeletal Health Institute Advisory Board Members*

CHAIR:

Gignac, Dr. Monique
Associate Scientific Director, Institute for Work and Health
Senior Scientist, Toronto Western Research Institute
Associate Professor, Dalla Lana School of Public Health, University of Toronto

VICE CHAIR:

Pouliot, Dr. Marc
Professor, Dept. Microbiology, Infectious Diseases and Immunology
Faculty of medicine, Laval University



MEMBERS:

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Western University

Feldman, Dr. Debbie
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Grynpas, Dr. Marc
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Zhou, Dr. Youwen
Professor, Department of Dermatology and Skin Science,
Faculty of Medicine, University of British Columbia

* At time of publication

References

1. Canadian Orthopaedic Care Strategy Group. (2010). *Backgrounder Report: Building a Collective Policy Agenda for Musculoskeletal Health and Mobility.*

2. Public Health Agency of Canada (2010). Fast Facts from the 2009 Canadian Community Health Survey – Osteoporosis Rapid Response (PDF Document, 242 KB – 3 pages). Available at: www.phac-aspc.gc.ca/cd-mc/osteoporosis-osteoporose/index-eng.php (last accessed July 30, 2014).

3. Arthritis Community Research and Evaluation Unit, Toronto (2010). *Building a Collective Policy Agenda for Musculoskeletal Health and Mobility,* Canadian Orthopaedic Care Strategy Group, Winter/Spring, 7.

4. Public Health Agency of Canada (2010). *Life with Arthritis in Canada: A personal and public health challenge.* Available at: www.phac-aspc.gc.ca/cd-mc/arthritis-arthrite/lwaic-vaaac-10/pdf/arthritis-2010-eng.pdf (last accessed July 30, 2014).

5. Perruccio, A. V., Power, J. D., and Badley, E. M. (2006). Revisiting arthritis prevalence projections – it's more than just the aging of the population. *Journal of Rheumatology*, 33 (9), 1856–62.

6. Canadian Dermatology Association (n.d.). Living with psoriasis. Available at: www.dermatology.ca/skin-hair-nails/skin/psoriasis/living-with-psoriasis/ (last accessed July 30, 2014).

7. Ioannidis, G. et al. (2009). Relation between fractures and mortality: results from the Canadian Multicentre Osteoporosis Study. *Canadian Medical Association Journal*, 181 (5), 265–271.

8. Marzolini, S., Oh, P. I., Alter, D., Stewart, D. E., and Grace, S. L. (2012). Musculoskeletal comorbidities in cardiac patients: prevalence, predictors, and health services utilization. *Archives of Physical Medicine and Rehabilitation*, 93 (5), 856–862.

9. Department of Finance Canada (2014). *Jobs Report: The State of the Canadian Labour Market.* Available at: www.budget.gc.ca/2014/docs/jobs-emplois/pdf/jobs-emplois-eng.pdf (last accessed August 7, 2014).

10. Public Health Agency of Canada (2009). *Investing in Prevention – The Economic Perspective.* Available at: www.phac-aspc.gc.ca/ph-sp/preveco-index-eng.php (last accessed July 22, 2014).

11. Canadian Institute for Health Information (2013). *National Health Expenditure Trends, 1975 to 2013.* Available at: https://secure.cihi.ca/free_products/NHEXTrendsReport_EN.pdf (last accessed August 7, 2014).

12. Health Canada (2010). *Report on the findings of the oral health component of the Canadian Health Measures Survey 2007–2009.* Available at: www.fptdwg.ca/assets/PDF/CHMS/CHMS-E-tech.pdf (last accessed August 7, 2014).

13. Lynch, M.E. (2011). The need for a Canadian Pain Strategy. *Pain Research and Management*, 16 (2), 77–79.

14. Choiniere, M. et al. (2010). The Canadian STOP-PAIN project – Part 1: Who are the patients on the waitlists of multidisciplinary pain treatment facilities? *Canadian Journal of Anesthesia*, 57 (6), 539–548.

15. Woolf, A.D. and Pfleger, B. (2003). Burden of major musculoskeletal conditions. *Bulletin of the World Health Organization*, 81, 646–656.