Interdisciplinary Research: Pathway to Addressing the Gaps & Challenges in Aboriginal Health

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Types of Bonds Occurring in a Mucous Gel

1. COVALENT BONDS
   - glycoprotein subunits are linked primarily by intramolecular S-S bonds

2. IONIC BONDS
   - mucin macromolecules have both positive and negative fixed charges, which are capable of interacting

3. HYDROGEN BONDS
   - H-bonds link the oligosaccharide side-chains

4. VAN DER WAALS' FORCES
   - interdigitation between oligosaccharide moieties may be important

5. INTERMINGLING
   - physical entanglements between mucin macromolecules

6. EXTRACELLULAR DNA & F-ACTIN
   - parallel network formation in infection

Each of these types of bonds is subject to Mucolysis
CIHR’s 13 Institutes

Aboriginal Health Research:
Addressing the Ongoing Challenges to First Nations, Inuit, and Métis Wellness

- Infectious (communicable) diseases
- Chronic (non-communicable) diseases
- Mental illness, addictions
- Injuries & violence
- Barriers to access to health care
- Socioeconomic disadvantage
- Colonization, loss of land/culture/language, residential schools, racism
IAPH Strategic Goals & Objectives

• Increase awareness, understanding and appreciation of Aboriginal ways of knowing and traditional knowledge among researchers, peer reviewers and the wider Canadian population.

• Recognize, promote and incorporate the excellence and rigour of methodologies derived from Indigenous knowledge systems.

• Increase the number of First Nation, Inuit and Métis researchers conducting Aboriginal-related health research.

• Increase the number and quality of Aboriginal-related research projects submitted to CIHR Open Competition for peer review.

• Increase the number of community-based organizations that are eligible to receive and manage funds on behalf of CIHR in order to foster and support communities’ abilities to address their own health issues.
The Heart of the New IAPH Strategic Plan

IAPH’s overall goal is to foster research based on the concept of “two-eyed seeing”, as put forward by Mi’kmaq Elder Albert Marshall.

To see from one eye with the strengths of Indigenous ways of knowing

And to see from the other eye with the strengths of Western ways of knowing

and to use both of these eyes together.

CIHR Strategic Reform

These 8 initiatives business cases have been launched or are under development:

- Evidence-informed Healthcare Renewal
- Clinical Trials Networks/Support Units
- Personalized Medicine
- Community Based Primary Health Care
- Pathways to Health Equity for Aboriginal Peoples
- Alzheimer’s
- Epigenetics
- Inflammation in Chronic Disease

CIHR Roadmap Priority Areas

- Enhance Patient-Oriented Care and Improve Clinical Results through Scientific and Technological Innovations
- Support a High-Quality, Accessible and Sustainable Health-Care System
- Reduce Health Inequities of Aboriginal Peoples and other Vulnerable Populations
- Prepare For and Respond To Existing and Emerging Threats to Health
- Promote Health and Reduce the Burden of Chronic Disease and Mental Illness
Pathways to Health Equity for Aboriginal Peoples

Pathways is a Road Map Signature Initiative
• Led by IAPH, IPPH and IGH.
• Contributes to reducing health inequities of Aboriginal peoples.
• Focuses on four exemplars – Suicide, Obesity, Oral Health & Tuberculosis.

Pathways will fund implementation research to
• Enhance understanding of how to implement multilevel and scalable interventions.
• Improve health of Aboriginal Peoples.
• Increase understanding of how to reduce health inequities.
• Increase research capacity in the area of implementation science.

Implementation science aims to improve our understanding of what works, for whom and under what circumstances, and how interventions can be adapted and scaled up in ways that are accessible and equitable.

Implementation Science as a Pathway to Aboriginal Health

• Involves the convergence of three domains of science: determinants of health, efficacious and effective interventions, and contextual and implementation systems.

• Recognizes that determinants, interventions and context dynamically work together to produce change. Implementation science creates generalizable knowledge that can be applied across settings and contexts.

• Moves away from uni-directional, linear processes where researchers develop evidence and then transfer it to practitioners to implement.

• Requires engagement of a broad range of stakeholders.
Types of Questions

- Efficacy - “does it work” under ideal circumstances?
- Effectiveness - “can it work” under “normal/usual” conditions?
- Implementation science - what works, for whom and under what circumstances; how can interventions be adapted and scaled up in ways that are accessible and equitable?
- Knowledge translation - how can we move knowledge to action?

Exemplar from HIV/AIDS: Immediate vs. Delayed ART in Sero-discordant Couples

HR = 96.3% reduction in transmission
No difference whether index pt was M or F

HIV Care Cascade: U.S. Implementation Gaps

Cohen, et al. MMWR 2011

Framework for Intervention Research
Nancy Edwards, 2009

Effectiveness
Does it work?

Efficacy
Can it work?

Foundational Science
Effectiveness
Does it work?

Efficacy
Can it work?

Complex system integration
Is it scalable?

Slim Haddad, PHIR International Symposium, March, 2012

- Effectiveness and Effectiveness
  - Homogeneity of effects
  - Co-variates
  - Logic of controls
  - Logic models
  - Point estimates of effects
  - Isolate effects
  - Credible & plausible relationships

- Implementation
  - Science
    - Heterogeneity of effects
    - Interactions of intervention-context-people
    - Comparators
    - Theory of change
    - Sensitivity analysis
    - Internalize natural diversity
    - Actionable knowledge

Foundational Science
Pathways

Objectives

Develop a better understanding on how to implement and scale up interventions and programs that will address Aboriginal health inequities in four specific exemplar areas – Suicide, Obesity, Tuberculosis, and Oral Health. Specific goals are:

- Overcome implementation challenges;
- Scale up interventions across a range of settings;
- Strengthen systems to improve health outcomes while reducing disparities across populations.

Outcomes

- Enhanced understandings of how to implement multilevel and scalable interventions that will contribute to reducing health inequities facing Aboriginal Peoples;
- Improved health of Aboriginal Peoples across the four priority areas;
- Better understanding of how to reduce health inequities and how this new knowledge can be adapted and applied to other populations and in other contexts (reverse innovation, reciprocal learning);
- Increased research capacity in the area of implementation science related to the health of Aboriginal Peoples and other vulnerable populations.

Rationale for and choice of the 4 exemplars

- Aboriginal Communities and F/P/T Governments have prioritized suicide, obesity, oral health and tuberculosis.
- These four areas are ready for implementation science.
- Tackling the four exemplars will contribute to learning in different domains … Mental Health & Addictions, Communicable Diseases, Chronic Diseases, and Health System Accessibility.
Multidisciplinarity

Interdisciplinarity

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Thank you

Miigwech

Bessie (King) Tobicoe, Frank King & baby Lloyd S King (1916)