CIHR Menu of Rural Health Research Themes:

For Discussion Purposes Only

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Table of Contents

Introduction

Why Develop a CIHR Menu of Rural Health Research Themes?

The health of rural Canadians is a priority of the Government of Canada and a strategic priority of CIHR. Canada's rural population (nine million people – 33% of the population) is scattered across 99.8% of the second largest nation on earth. Canada's culture, identity and economy are firmly based on the need for sustainable rural communities. Forty percent of Canada's exports are natural resources and the most basic components for urban living (e.g., food, water, energy, and building materials) depend on rural communities.

Good health and access to health care are central to sustaining rural communities. Across the country, rural citizens have repeatedly identified the need to take bold steps to improve rural health systems and health status. New, 'rural' approaches are required. Excellence in research can make substantive contributions to rural health, and to healthy public policy at all levels from the community to the federal government. Canada can become an international incubation center and world leader in innovations to improve rural health status and health service. CIHR has taken several steps to develop a national strategy for rural health research and to establish this area as one of its first major cross-cutting themes, including the development of this multi-disciplinary menu of rural research topics involving all thirteen CIHR Institutes.

What was the process used to develop the Menu?

All 13 CIHR Institutes opted to contribute to this cross-institute menu by providing key rural research questions and issues from the thematic perspectives of their respective Institute. Each Institute designated a rural representative to facilitate the process.

Prior to the St. John's Rural Health Research Forum (an event designed to facilitate the development of a Canadian strategy on rural health research), a draft version of the Menu was circulated to Forum participants. Participants reviewed the Menu and provided feedback related to omissions, key areas that fell between Institute cracks, and research themes that required further clarification.

Subsequently, the CIHR Special Advisor and her Research Assistant conducted a content analysis to organize the research menu according to macro issues and sub themes.

Please note: This is an evolving document and we expect that there will be future updates.

What does the Menu include?

The Menu includes an overview of the key rural health research principles and themes across Institutes and the specific areas of research identified by each Institute.

How can the CIHR Menu of Rural Health Research Themes be useful?

1. It helps establish the field of rural and northern health research as a major cross-cutting theme that is relevant to all 13 Institutes.

2. It provides a useful conceptual overview of the areas of rural and remote health that need attention in Canada, beyond curiosity-driven research.

3. It helps identify common themes, needs and gaps; e.g., what key rural health questions seemed to fall through the Institute cracks?

4. It assists researchers to see how their work might link to these themes and how the themes converge with rural health research agendas of other countries.

5. As we develop research syntheses, best practices and repositories of rural health research and researchers, the Menu will assist us to identify gains, what we know, what we need to know, researcher strengths and deficiencies.

6. It identifies specific content areas that can be used to develop partnerships, a window for visualizing the potential partnership opportunities available for the development of collaborative rural health initiatives.

7. A number of general principles and approaches for conducting rural health research emerge from the Menu (see below).

Principles to Guide the Development of a Rural Health Research Strategy

- It is time for Canada to "catch up" regarding *attention to rural health issues* and rural populations.

- Develop a strong *determinants of health* approach to health research and rural communities. This approach must be a core ingredient of a rural health research agenda. The sustainability and socio-economic status of rural communities is intimately connected to health status and health service.

- Use research knowledge to *build healthy communities* and to increase community capacity and self-empowerment for health.

- Build upon and strengthen *existing* research initiatives and infrastructure.

- Ensure that the *Canadian Institutes of Health Research* promotes rural health as a focus of research and as a unit of analysis.

- Researchers should collaborate with rural and remote communities to develop and engage in *relevant research*.

- Provide for a strong *participatory* approach in strategic development, research, training, dialogue and uptake by rural communities.
- Develop clear lines of *communication and solid linkages* with rural health-related policy-makers and with practitioners.
- Do *not appropriate knowledge* from communities. The knowledge must be shared.
- *Consult* a broad range of Canadians on research agendas and strategies.
- Develop strong *linkages* with the international rural health research community.
- Include opportunities for *student training, dissemination to the user community, and policy uptake* as key elements in calls for research proposals.
- Provide opportunities for *multi-disciplinary* approaches to rural health issues.
- *Value* Canada's rural landscape and ensure that all health researchers have Canada's rural populations in mind when they conduct research.

Key Rural Health Issues – Strategic Priorities

A content analysis of the CIHR Rural Health Menu indicated the following three major themes: Understanding and Improving the Health Status of Rural Populations, Redesigning Health Systems that Work for Rural and Northern Communities, and Making Efficient and Effective Use of Health Human Resources in rural Canada. Please note that this is not an exhaustive list - other issues have arisen in consultation with the researchers, practitioners and community members; however, this is the list that coincides with Institute foci.

Themes

1. Understanding and Improving the Health Status of Rural Populations

- Health status of rural populations and its determinants, including prevalence rates and mortality/morbidity changes over time; e.g., asthma and allergies, disability and functioning, Aboriginal people's health, nutritional status, diabetes mellitus, renal disease, hepatitis, distribution of musculoskeletal conditions, rural elders
- The positive aspects of rural living
- Environmental factors including: food, water and air safety, environmental toxins and living situations (sewer systems, housing) and their impact on health, and environmental determinants of health and illness; e.g., musculoskeletal health, arthritis, skin conditions, dental health
- Policies and practices that impact health: access to good food
- Health-related practices (e.g., early infant feeding)
- Strategies to address the special demands of weather and terrain on service delivery and design (mobility equipment, carrying supplies, food storage)
- Collective solutions to serving needs, e.g., rural elders
- The costs of obtaining health care and of engaging in health-related behaviors in rural communities (e.g., dental care, eye care and hearing resources)
- Gender inequalities and health in rural areas
- The effect of rural cultural processes on child and adolescent development
- Rural and northern work environments and health status

2. Redesigning Health Systems that Work for Rural and Northern Communities

- Research that contributes to improving the quality of health service in rural areas
- Research and policy uptake for alternative delivery strategies: traditional Aboriginal medicine; tele-health; outreach services (e.g., rehabilitation, diabetes services)
- Best practices in primary care, prevention and health promotion (maternal health and pregnancy, tobacco control, nutrition and obesity, injury prevention, physical activity) plus inclusive practices (e.g. older adults)
- Benchmarks, outcomes and performance indicators of health
- Youth health (prevention/health promotion)
- Rural work environments and their hazards to health (circulatory and respiratory conditions) – Quantifying understanding, preventing and treating occupational disease and risks.
- Optimal strategies (effective, efficient, acceptable) in rural communities for prevention, screening, diagnosis and treatment/management of conditions; e.g., STD's, HIV, AIDS, hepatitis, rabies, mental health and addictive and compulsive behaviors, injuries, breast cancer, FAS, colorectal cancer, prostate cancer, diabetes, disability, TB and respiratory infections, post transplantation monitoring, chemotherapy, school-based care, mental health and illness services
- Early screening for risk factors
- Supportive and community care (e.g., palliative care)
- Specific barriers to quality care (e.g., liver disease) – health care providers, counselling and support, access to lab facilities, access to specific procedures, access to inpatient or outpatient facilities.
- Dealing with the relation between distance and early, appropriate interventions
- Access to health information for rural-dwellers (cancer prevention, screening, opportunities to participate in clinical trials, treatment options, supportive and palliative care)
- Improved access for marginalized groups in rural communities
- Tele-health – what infrastructure availability and support in rural and remote communities is necessary for "e-health"?
- The community infrastructure support required for health service (e.g., transportation, housing, recreation facilities)

3. Making Efficient and Effective Use of Health Human Resources

- Increased access to health professionals, including specialist services
- Recruitment and retention of health professionals
- Models of health care resource utilization and effects on costs and treatment outcomes
- The conditions in rural communities that motivate health professions to live and work there
- Access to information/ best practices by rural health care workers
- Development of specific skill sets for rural populations and specific health conditions
- Public expectations of health professions and human resource distribution
- The evolving role of informal and voluntary care
- Lack of housing and other infrastructure gaps in northern areas for health professionals
- The effect of professional practice (boundaries of service) guidelines on health service availability and quality

The following is a list of generic recommendations to foster rural health research:

- Clarify definitions of rural/rurality for planning and delivery of health care
- Improve access by researches to rural populations
- Improve methodologies to incorporate the diversity of rural communities, and the heterogeneity of rural populations and health research issues.
- Ensure adequate sampling of rural populations in national surveys
- Support comparative studies of urban and rural populations (e.g., elders)
- Strategies to organize and access rural research funding and rural data
- Increase research on the effectiveness of health promotion and prevention strategies in rural areas

On behalf of Dr. Alan Bernstein, President of CIHR, and all the CIHR staff, very sincere thanks to the Institute Representatives, Institute Advisory Board members and St. John's Forum participants, for the valuable contribution you have made towards the development of the Menu.

Institute of Health Services and Policy Research

Prepared by: Dr. Martha MacLeod, University of Northern British Columbia

The IHSPR has identified four strategic areas of activity: people, data infrastructure, research and knowledge utilization. The development of research capacity, database development and access and knowledge translation, are priority areas under development. Research themes have been identified. The Institute realizes that it is critical to map the Health Services and Policy Research landscape in the country. In this mapping it is important to pay specific attention to rural and remote research needs and issues with respect to the number and capacity of health services and policy researchers, the development of relevant data infrastructures, and the utilization of knowledge.

Ten strategic research themes were identified as priority areas within the IHSPR. The overall priority areas were developed in part, through the collaboration with key national partners. (See *Listening for Direction* summary report). The following provides illustrative research questions with regard to rural and remote health research within the priority areas:

Rural Health Research Issues

Financing and Public Expectations

- In what ways do geographical issues impact the cost of health services?
- What factors influence public expectations of access by rural populations to health services?
- What are the rural public's expectations of health services, costs and delivery modes?
- What are the effects of financial barriers to access of services in rural and remote communities on health status and community sustainability?

Improved Access for Marginalized Groups

- What are the barriers to access of health services for persons in rural, remote and isolated communities (and what are the innovative approaches to addressing them)?
- What are the implications of different models of primary care on needs of and access to services for those living in small, rural, remote and isolated communities?
- What are some innovative approaches to the deployment of human resources, technology and transportation in addressing access to specialty services for small, rural and remote communities?

- What are the effects of health system reforms on persons in rural and remote communities?

The Evolving Role of Informal and Voluntary Care

- What is the burden of care on informal and voluntary care sectors in rural, remote and isolated communities? In what ways is this burden of care different than in urban areas?
- In what ways do changing economic and demographic factors in very small, rural and remote communities influence the capacity and sustainability of informal and voluntary care?
- What care models effectively integrate informal, voluntary care and formal care in very small, rural, remote and isolated communities?
- What are barriers and enablers to effective support for informal and voluntary caregivers in rural, remote and isolated settings?

Improving Quality

- What are the barriers and facilitators to the uptake of clinical best practices in rural and remote health care facilities?
- What facilitates or hinders quality improvements in rural, remote and isolated communities?
- What fosters the creation of clinical best practices within rural, remote and isolated clinical practice for dissemination elsewhere?
- What contributes to health system error (and its prevention/amelioration) in very small, rural and remote facilities?

Health Human Resources

- What incentives and strategies will improve the recruitment and retention of health care professionals in rural and remote Canada?
- In what ways can the human resource needs of rural and remote regions, and of particular marginalized and under-served groups, be met in a sustainable and cost-effective fashion?
- What incentives and strategies will improve the management and leadership capacity in rural and remote regions?

Governance and Accountability

- What are the impacts of different governance models for rural and remote health jurisdictions and organizations on costs, access, quality, and outcomes?
- What are the impacts of different accountability models on costs, access, quality, and outcomes?

- What organizational designs and practices facilitate cross-sectoral initiatives in rural and remote regions (e.g. what are barriers to, and facilitators of, cost-effective emergency medical services systems)?

Health Care Evaluation and Technology Assessment

- What is the effect of the availability of medical technologies and specialty consultations on-site in rural and remote communities on health outcomes?
- What is the effect of telehealth, and off-site availability of medical technologies and specialty consultations to health outcomes in rural and remote communities?
- What processes of technology assessment effectively involve providers, managers and the public in rural and remote communities?

Public Advice-seeking in the Era of 'e-health'

- What infrastructure availability and support in rural and remote communities is necessary for 'e-health'?
- What are the advice-seeking behaviours of persons residing in rural, remote and isolated communities?
- What is the impact on health care utilization, outcomes, costs and roles of health care professionals of access to WWW self-help information by rural and remote residents?

Continuum of Care and Delivery Models

- What regional, provincial and territorial management structures and processes improve the integration and co-ordination of services across the continuum of care for rural and remote residents?
- What management systems, policies and practices facilitate effective transfers between institutions, services and providers for residents of rural, remote and isolated communities?
- What are the impacts of increased day surgery and other outpatient activities on roles of the regional hospitals, local hospitals, community services, home care and self-care for residents of rural, remote and isolated communities?

Performance Indicators, Benchmarks and Outcomes

- What indicators are best able to reflect the services and impact of activity on patient outcomes in rural, remote and isolated parts of Canada?
- What variations of performance indicators and benchmarks are appropriate to reflect the responsibilities and challenges faced in providing health services to rural, remote and isolated parts of Canada?

Institute of Population and Public Health

Prepared by: Dr. Lesley Pinder, New Brunswick

Rural Health Research Issues

Special attention needs to be paid to the topics suggested by the Institute on Healthy Aging – especially transportation issues, housing arrangements, and technological assistance in rural areas.

Rural versus urban issues

- Research on the effectiveness of population level interventions – are there different approaches warranted in rural health settings as compared to urban settings?
- How do health-related behaviours differ between rural and urban populations?
- Can we tease out data from Statistics Canada and national health surveys to look at the clustering of health problems in rural areas, province by province?
- How can we identify familial diseases that occur in geographically and genetically isolated areas? There are more areas than just Newfoundland and Quebec.

Substance abuse and addictions

- What community characteristics foster substance abuse and increased numbers of accidents involving impairment? What protective factors can be identified, especially for rural youth and young adults?
- Addiction problems, suicide attempts, and completed suicides – how do they compare to urban data? Would standardization and implementation of psychological autopsies provide insights relevant to the rural context?

School/children

- Are there significant differences in provincial education programs and school subjects available to rural students compared to city schools, and if so, how does this impact on future wellness attributes e.g., the impact of the shortage of qualified teachers in rural areas on the success of young people?

- The "Asset-Approach" – giving kids what they need to succeed (*Life Skills and Resilience). There is an American copyrighted survey service being looked at by public health in some provinces. What resources do we need to develop Canadian content in health education? Is it okay to use American surveys and suggested remedies given our philosophical differences?

Note: *Life Skills implies anger management, conflict management, stress management, dealing with losses, relationship problems, self-esteem issues, sex education and sexual identity issues, and other social skills.

Health beliefs

- The nature and prevalence of several health beliefs in a rural context that may negatively impact health.
- Determine patterns of medication use in rural areas related to health beliefs.

Water and air quality issues

- Water quality – study the impact of privatization and regionalization of dumps and surface water contaminated with zoonotic organisms on rural water supplies (The problem being the "personal dumps" starting up in the "woods" to avoid long distances and fees). What are the effects of aquaculture and agriculture on water quality?
- There is now a fee for water testing. Is this a barrier to rural well testing and early detection of problems? Mercury, lead, and arsenic contamination – is there a need to initiate testing for these coast to coast? Need an inventory of older "make-do" septic systems in rural areas.
- What relationship is there between the use of antibiotics on salmon farms and allergic reactions in consumers? Determine the effect of salt-water pollution on the food chain.
- Air pollution – Due to energy costs, rural populations rely on wood burning. How is this (indoors and outdoors) affecting the rates of asthma and allergies in rural children as compared with urban ones?

Community recreation

- Compare areas with community recreation programs to areas having no program leadership to ascertain health benefits at various ages and stages of life.

Surveillance

- Is there a lack of formalized surveillance networks for influenza, serious respiratory viruses, and viruses brought back by foreign travellers, etc., in rural areas?

Transmission of interspecies infectious diseases

- Explore formal linkages to veterinary facilities in all regions as well as to local veterinary professionals to address problems like rabies, which is spreading from the US into rural border areas. There have been approximately 60 cases in southwest New Brunswick this year. There are no reliable data on effectiveness of containment procedures, and in New Brunswick's case, no provincial action taken for 1 year. (i.e.; after rabies had already been identified in the area despite several years lead time in information)

Injury Prevention

(The following needs to be part of a larger injury prevention thrust as currently planned by IHSPR/IPPH)

- Determine how many teenagers and young adults are driving ATV's on the highways, and how many are driving without helmets. Perhaps the CAA could do a survey of its members' observations.

Institute of Nutrition, Metabolism and Diabetes

Prepared by: Dr. Robert Reid, University of British Columbia

Rural health research is of particular relevance in many domains of the Institute of Nutrition, Diabetes and Metabolism. Not only are some determinants and/or diseases/conditions more prevalent in rural areas (e.g., type 2 diabetes mellitus), but there are unique challenges to preventing, diagnosing, and optimally managing these conditions in rural areas. Some issues are generic to many institutes (e.g., retention and recruitment of primary care providers, access to specialty care services) and thus will not be considered here. However, the following are a list of broad research questions where rural issues are of particular concern to this Institute.

Rural Health Research Priorities

Nutrition and Physical Activity

- What is the nutritional status of Canadians living in rural and remote areas? What are their dietary composition, dietary knowledge, and attitudes towards food consumption?
- What are the determinants of nutritional status for adults and children in rural communities?
- How available are good food choices (e.g., fresh fruits and vegetables) in rural and remote communities and how does this affect the health status of rural residents?
- What is the influence of financial and transportation factors on adherence to dietary recommendations?
- What are effective strategies to improve access to good food choices in rural areas?
- Are there effective and efficient ways to sustain access to nutritional support services in rural locales (e.g., telemedicine)?
- What is the impact of agricultural practices on the safety of the food and water supply in rural communities?
- What are the early infant feeding practices in rural populations, particularly in aboriginal communities? What are effective strategies to improve feeding practices in rural populations?

Diabetes and Endocrine Diseases

- What are accurate estimates of prevalence and incidence of diabetes mellitus in rural communities, particularly aboriginal communities? How is this burden of morbidity expected to change in the long-term?
- What strategies are effective at reducing the prevalence of undiagnosed type 2 diabetes?
- What are the social determinants of risk factors for Type 2 diabetes (poor diet, physical inactivity, obesity) in rural and remote areas? What are the most effective ways of addressing these determinants?
- How are diabetes-related services (e.g., specialized physician care, diabetes education, nutritional support) accessed and utilized by rural residents and what are their health outcomes (e.g., diabetes complications, blood glucose control)?
- What are innovative, effective and efficient ways to organize the delivery of diabetes services to rural and remote residents (e.g., telemedicine, outreach programs)?

Kidney Diseases

- What are accurate estimates of prevalence and incidence of chronic renal disease in rural communities, particularly aboriginal communities? How is this burden of morbidity expected to change in the long-term?
- What are optimal strategies for preventing, diagnosing and optimally managing chronic progressive renal disease in rural areas?
- How can strategies for early screening of risk factors for chronic renal disease best be implemented in rural communities
- What strategies are effective in delaying the progression of chronic renal disease in rural communities?
- What are the barriers to care for patients with chronic renal disease in rural areas (e.g., supply of health care providers)?
- What are effective, efficient and acceptable ways to organize the provision of specialized services in rural areas to persons with chronic renal disease (e.g., renal biopsy, outreach clinics, telemedicine)
- How can post-transplantation monitoring and services be delivered in a cost-effective and acceptable way to rural residents?
- How can home dialysis be more effectively monitored in rural areas?

Digestive and Liver Diseases

- What are accurate estimates of prevalence and incidence of chronic hepatitis in rural communities, particularly aboriginal communities? How is this burden of morbidity expected to change in the long-term?
- What are the barriers to care for patients with acute or chronic gastrointestinal disease in rural areas (e.g., supply of expert health care providers, access to diagnostic/therapeutic endoscopy, access to imaging and interventional radiologic procedures, access to enteral or parenteral nutritional support, access to inpatient facilities with the requisite medical and/or surgical resources to deal with their condition)?
- What are the barriers to preventive care for individuals in rural areas (eg. screening for GI malignancy, vaccination for adults at risk of hepatitis)?
- What are the barriers to care for patients with acute or chronic liver disease in rural areas (e.g., supply of expert health care providers, access to counselling and support, access to laboratory facilities, access to liver biopsy or imaging and interventional radiologic procedures, access to inpatient facilities with the requisite medical and/or surgical resources to deal with their condition)?
- What are effective, efficient and acceptable ways to organize the provision of specialized services in rural areas to persons with chronic gastrointestinal and liver disease (e.g. hepatitis clinics, telemedicine)?
- How can post-transplantation monitoring and services be delivered in a cost-effective and acceptable way to rural residents?

Institute of Human Development, Child and Youth Health

Prepared by: Dr. Jane Drummond, University of Alberta

The Institute for Human Development for Child and Youth Health has organized around five standing committees. Hence the themes for rural health research in this document have been organized around the concerns of those committees. Societal and cultural dimensions of health and environmental influences on health have often been neglected in research strategies for enhancing rural health. Many processes or factors contribute to the emergence of rural health challenges in Canada. Community by community these processes and factors are titrated differently and hence affect health status and the delivery of health services uniquely. Also, rural communities develop protective processes that also contribute to health status and health service delivery. Rural adverse processes (isolation, unsustainable economic security, reduced income, work and leisure patterns of both men and women, exposure to environmental hazards, reduced literacy and education level, increased cost of accessing services, eroding community infrastructure) and rural protective processes (sense of community, independence, resourcefulness etc.) are referred to in the material below.

Rural Health Research Issues

Reproductive Biology

- How do rural processes, both adverse and protective, influence the following:

  a) Fertility, and

  b) Development of appropriate strategies to enhance access and quality of reproductive health care in rural Canada?

Pregnancy and Fetus

- How do rural processes, both adverse and protective, influence the following:

  a) The prevalence and patterns of perinatal health challenges (violence, drug dependency including alcohol, maternal depression), and

  b) Development of appropriate strategies to enhance access and quality of prenatal, perinatal, and antenatal services to rural Canada?

Neonatology

- How do rural processes, both adverse and protective, influence the following:

  a) The prevalence and patterns of neonatal health challenges (low birth weight, congenital anomaly, other diseases of neonate), and

  b) Development of appropriate strategies to enhance access and quality of neonatal services, including supports to parents, in rural Canada?

Child

- How do rural processes, both adverse and protective, influence the following:

  a) Health promotion program delivery directed at children and their families (normal infant and child health, things like breast feeding, immunization, access to normal pediatric care, school health services etc),

  b) Presence of healthy family child bearing and child rearing resilient processes (family stability, family flexibility, parenting skill, social support, problem solving, involvement in civics) and the development of appropriate supportive services to healthy child bearing and rearing families,

  c) Prevalence and patterns of violence in families and on development of appropriate primary, secondary and tertiary intervention in violence in rural families, and

  d) Prevalence and patterns of child health challenges (physical disability, cognitive disabilities, challenges to child mental health-behavioural and social disability) and the development of appropriate primary, secondary and tertiary health care services in challenges to child health (an interesting focus might be home care)?

Youth and Adolescent

- How do rural cultural processes, both adverse and protective, influence the following:

  a) Access to supports to normal adolescent development (nutritional, recreational, social network development, work training, preparation for parenting role, etc.),

  b) Prevalence and patterns of health challenges (drug dependency, risk taking behaviour, injury due to accidents, etc.), and

  c) Development of appropriate programming for these key health habits and challenges?

Institute of Healthy Aging

Prepared by: Dr. Betty Havens, University of Manitoba

Rural Health Research Issues

Methodological issues

- Ensure adequate coverage and sample size in all national surveys to enable analyzing data to inform health policy, clinical practice and service delivery are appropriate to rural elders.
- Define rural and ruralness (or rurality) in their own right, not just as the residual from definitions of urban and urbanness, and ensure that these definitions fit with the experience of rural elders.

Determinants of health

- Identify the health status and the determinants of health of rural Canadian elders and specific sub-groups of elders. For example:

  1. Rural older women and rural older men,
  2. Rural Aboriginal elders,
  3. Rural older people with chronic conditions, including at a minimum:

     a) Cardio-vascular;

     b) Diabetes,

     c) Alzheimer's disease and other dementias

     d) Arthritis and related conditions

- Compare and contrast the health status and determinants of health of rural Canadian elders with those of urban Canadian elders, using the same examples.

Promoting and evaluating rural programs/initiatives

- Study the effectiveness of health promotion type programs with rural older persons and most importantly those that are specifically designed to postpone disability or the disabling effects of chronic diseases.
- Foster healthy community initiatives that explicitly include older persons and evaluate their effectiveness particularly with respect to their inclusiveness.

Determine the cost to seniors of maintaining their independence in rural communities.

- For example: cost of special diets, of transportation including transportation designed for those with disabilities, of securing health care including distances to physicians, eye care and hearing resources, pharmacies, dental care, diagnostic facilities, of assistive devices and other supplies, etc.

Service delivery and access

- Evaluate the access by rural elders to the full spectrum of health services, including primary health care, long-term care in the home and in residential facilities, supportive services and adequate housing and housing options, taking fully into consideration the demography and geography of rural communities.
- Identify strategies to address the special demands of weather and terrain on service delivery and design, e.g., design of mobility equipment (wheelchairs and walkers) for use on unpaved surfaces and in snow and ice, or the demands of carrying supplies (including food) in rugged terrain or in icy conditions, etc. This may be a special niche for which Canadian researchers should be particularly suited even when the target population is neither older, nor rural.
- What alternative service delivery strategies may be appropriate to serving rural elders, e.g., more supports to informal caregivers, greater reliance on technology (lifelines, bathroom modifications and lifts), strategies to provide assistive technology where visits to major centres are not feasible, collective solutions (congregate meals and day programs), etc?
- Recognizing the difficulties in attracting and retaining health professionals in rural areas, what conditions will mitigate these circumstances in health personnel that work with older rural Canadians?

Institute of Genetics

Prepared by: Dr. Daniel Gaudet, Université de Montréal and
Dr. Jane Green, Memorial University of Newfoundland

The Stakes

Human genome-issued information constitutes an important determinant of health. While adding powerful tools to the current arsenal of biological knowledge, genomics also presents a huge challenge as regards the application and transfer of genetic knowledge to rural populations and clinical services. Even in urban environments there are huge scientific, social and economic stakes involved. The situation raises additional challenges in rural or semi-rural environments, due to the diversity of Canadian rural population structures (aging, demography, cultural factors, presence of isolates…), to differences in clinical services needs and access to specialized resources, and to the distance of large urban centers and academic institutions, etc. In this respect, community genomics, particularly in rural or semi-urban environments, constitutes a complex challenge which results in the need to: (1) train researchers in the field of community genetics/genomics (2) develop transdisciplinary research initiatives; (3) involve rural communities in the process and (4) ensure true cohesion of such initiatives.

The Field

The IG is concerned with strategies and conditions required for genomic knowledge transfer, so as to ensure proper services are provided to people and communities. The IG field of health research in rural and remote communities is the acquisition, integration and transfer of human genome-related knowledge to rural communities. Priority should be given to research focussed on developing resources and technologies needed for prevention, screening and treatment of Mendelian genetic disorders, and complex diseases with a strong genetic components as well as on knowledge of genetic determinants of health.

The Opportunities

A large number of research initiatives have the resources, expertise and synergy to make Canada a leader in this field: (1) With Genome Canada, the federal government has affirmed its goal to make Canada one of the three world leaders in genomics research. (2) The creation of CIHR and the emergence of a new, integrated and multidisciplinary vision of health research have spurred the development of national research networks and programs in the fields of preventive genetics and community genomics, particularly ECOGENE-21 (www.ecogene21.org); (3) Several national and international research networks/programs have specifically identified themselves as partners of ECOGENE-21, including the World Health Organization (WHO)'s human genetics program, which has appointed community genetics as a priority. (4) The Canada Research Chairs Program (CRCP) has created Chairs directly concerned with genome-related knowledge

transfer or the study of rural health, creating crosspollination opportunities(www.chairs.gc.ca). (5) Several Canadian universities have recently introduced training programs relating to community genetics (or are about to do so). Emerging training programs focus on areas like genomic medicine, family medicine, genetic counselling, nursing, bio-informatics, biotechnology/ genomics management, law, ethics, sociogenetics, population genetics, pharmacogenomics, etc.

Rural Health Research Issues

1. To define rural health including genetic determinants of health, designating what is specific to rural environments.

2. To identify the specific genetic disorders in rural areas of each province and territory, including in Aboriginal communities, and

3. To document our knowledge and evaluate needs related to the integration and transfer of human genome-related knowledge to rural communities for prevention, screening and treatment of genetic disorders and complex diseases as well as integration of genetic determinants of health. This issue raises important needs for:

Evaluation of perceptions, social representations and genetic knowledge in different rural communities and comparison with different urban environments; In particular:

- Evaluate perception and knowledge of advances in medical genetics and genetic technologies;
- Explore possible relations between mode of transmission of genetic information, types of information conveyed and appropriation by various population groups;
- Analyze variations in perceptions and attitudes to genetic disorders of different population groups including health care professionals, educators, and the general public according to demographic, social, cultural and economic factors;
- Suggest an updated and integrated vision of community genetics / genomics adapted to rural environments.

Development and evaluation of tools and strategies for information and education on the human genome and related legal and ethical aspects;

- Develop exportable resources and strategies for information and education on genetic determinants of health;
- Develop and offer information tools regarding ethical and legal principles guiding health care workers, political decision-makers and all those taking interest in genetics as an element of predictive medicine;

- Document the availability of genetic/genomic services in different Canadian rural communities and evaluate the population's degree of knowledge as regards availability of specialized services.

Integration of genetic determinants of health in health-related assessment/ surveillance and prevention/promotion programs;

- Document the rural populations' current genetic health and develop population genomics tools for research on genetic components of complex disease, and gene-environment interactions;
- Identify, document and list familial diseases (Mendelian or complex) occurring in isolated Canadian regions;
- Promote the integration of a population or sub-population's genetic ¬characteristics in the health prevention and promotion process;
- Document and review the Canadian and international legal structures applicable to the transfer of genetic knowledge for public health purposes;
- Make rural health authorities aware of the importance of genetic determinants of health.

Development and evaluation of resources and strategies promoting balance between supply, demand and needs as regards rural genetic clinical services;

- Increase awareness by professionals involved in the health care process of clinical, socio-ethical, legal, economic and organizational issues of genetics;
- Document the Canadian and international legal context applying to the transfer of genetic knowledge, for clinical service purposes and suggest avenues for legislative reforms;
- Develop and validate of tools and strategies promoting balance between supply, demand and genetic clinical service needs;
- Examine, evaluate and assess the introduction of different familial intervention models for genetic services related to Mendelian traits and genotypes of susceptibility to complex traits;
- Develop and evaluate rural genetic health indicators;
- Identify and analyze ethical issues generated by the introduction of community genetics intervention strategies.

Transition from Mendelian genetics to strategies for prevention, screening and treatment of complex genetic disorders in rural environments.

- Develop and validate the integration of genotypic and phenotypic knowledge for predictive medicine purposes;

- Develop and evaluate clinical and community intervention models pertaining to susceptibility to frequent complex traits;
- Develop clinical management strategies for prevention, screening and treatment of complex genetic disorders (translational medicine);
- Encourage health care professionals and those from other disciplines to be aware of the reality of genomic information transfer.

Ensure training in community genomics for researchers who are open to possibilities of interactions with other disciplines and aware of expectations from the clinical environment and of their work's impact on community.

- Expose graduate students and post-doctoral trainees to community integration experiences in rural environments, so they can see and understand the impacts of their work on communities, and be aware of other members of the team working in the sphere of human genetics;
- Develop and evaluate community genomics graduate training tools (textbook, electronic tools).

Promote integration of genetic determinants of health in the graduate training of researchers in clinical sciences (nursing, public health, family medicine, etc.).

- Develop and evaluate models and strategies for integrating genetic determinants of health in therapeutic guidelines used by health professionals;
- Encourage the development of graduate training (cert., M.Sc, Ph.D.) in community genetics/ genomics for clinical sciences;
- Develop and suggest a theoretical training and transdisciplinary research training structure especially designed for health professionals receiving graduate training.

Strengthen collaboration between non-clinician researchers working in genomics and clinicians specializing in detailed phenotyping.

- Make non-clinician researchers aware of the importance of detailed phenotyping in genomics research;
- Ensure training of clinicians-researchers in development and analysis of techniques and procedures for fine phenotyping in genomic research.

Develop innovative models of complementarity and networking for Canada Research Chairs concerned with preventive genetics and community genomics or rural health.

- Promote "inter-Chair" mobility of researchers in training;
- Create a research training network in this field involving CRCP Chairs concerned with any dimension of community genomics.

Contribute to Canadian international stature in community genomics training.

- Establish connections with WHO objectives in community genetics.
- Develop research training tools consistent with the WHO plan and adaptable to resources and situations specific to different regions of the world.
- For all of the above, develop national and international partnership, ensure relations with other institutes and take advantages of opportunities provided by ECOGENE-21, the most important transdisciplinary network of community genomics applied research in Canada (**www.ecogene21.org**)
- Plan and organize validation processes and crosspollination strategies between ECOGENE-21 , IG and other CIHR or international research teams involving different rural communities (geographic validation areas) and different phenotypes/genotypes (genotypic validation areas);
- Promote dissemination of community genetics and harmonize operations required for such purpose.

Institute of Musculoskeletal Health and Arthritis

Prepared by: Dr. Juliette ('Archie') Cooper, University of Manitoba

"Musculoskeletal Health and Arthritis" includes:

"- conditions related to bones, joints, muscles, connective tissues, and skin such as arthritis, osteoporosis, facial anomalies, burns, psoriasis, etc.

- oral/dental health – structure and function, diseases of tissues in the oral cavity, oro-facial neurophysiology, orthodontics, prosthesis"

(http://www.cihr.ca//institues/imha/imha_about_institute_e.shtml)

- Ensure that the definition of "rural" is clear and accepted e.g., there is no question that Toronto and Vancouver are urban, but what about Corner Brook? Moose Jaw? Portage la Prairie? Iqaluit? Are these urban or rural communities? Without a clear definition we could end up working at cross-purposes with respect to planning and delivery of health care.
- How can access to rural populations by researchers be facilitated/enhanced (applies across the quantitative research spectrum from molecular/cell-level to population-level and to the qualitative research paradigm)?
- Heterogeneity of rural populations means that there are multiple rural research issues across the country and even within provinces (e.g. health issues in rural southwestern Ontario may be very different from those in rural northwestern Ontario)

Rural Health Research Issues

Distribution of musculoskeletal conditions in rural Canada

- Necessary in order to target other research efforts as well as to design delivery of relevant prevention and health care services.
- Examine rural versus urban patterns.

Health services availability and access in rural Canada

- Distribution of and access to general care and specialist services for arthritis and other musculoskeletal conditions.

- Determination of the barriers to health services delivery (prevention, screening, diagnosis, intervention, rehabilitation, palliation)
- Factors that affect availability of care (primary, secondary, tertiary) for musculoskeletal health in rural areas.
- Effectiveness and efficacy of innovative models of health care delivery especially for specialist/tertiary care for people living in areas in which the population is not large enough to support full time specialists - (e.g. partnerships with primary care, allied health professionals, visiting clinics, etc).
- Develop innovative models of care delivery in rural areas (especially for specialist care where the population is not great enough to support a full-time specialist).
- Examine issues related to retention and skill development of health service providers.

Attitudes and beliefs

- Examine issues related to entitlement of care/attitudes towards care. How do rural attitudes about health impact health outcomes?
- Examine attitudes towards home versus facility care among rural residents.

Determination of specific risk factors for rural-dwelling Canadians with respect to musculoskeletal conditions

- Factors that affect functioning, disability and health (ICIDH-2 definitions) in rural Canadians.
- Environmental determinants of health and disability with respect to musculoskeletal/arthritis/skin/dental health

Technology

- Examine the ability of technology to influence musculoskeletal morbidity in rural populations.
- Determine access to therapy equipment.

Support

- Examine family involvement/supportive care
- Examine support for the caregivers (family)
- Patient support groups and ways of facilitating meetings (e.g., ASMP)

Institute of Infection and Immunity

Prepared by: Dr. Noni MacDonald, Dalhousie University

Rural Health Research Issues

Food & Water Safety

- Microbial food and water safety with particular emphasis on agricultural and environmental contamination, e.g., Ecoli 0157, toxoplasmosis, crypotsporidiosis, and beaver fever.

Rural Health & Environment

- Impact on rural health due to environmental toxins and pathogens including exposure to multiresistent bacteria from antibiotic use in agricultural practice.

STDs/HIV/AIDS

- Prevention, diagnosis, and treatment in rural areas while ensuring confidentiality yet access to quality programs.

Hepatitis

- Prevention, diagnosis, and treatment in rural areas while ensuring confidentiality yet access to quality programs.

Allergies/Asthma

- Study the implications of infectious agents and environmental factors with particular relevance to rural areas on the development of asthma and allergies.

Rabies

- Prevention and intervention to decrease risk in rural areas.

Institute of Aboriginal Peoples' Health

Prepared by: Bronwyn Shoush, Government of Alberta

Rural Health Research Issues

A. General Issues

- Foster healthy community initiatives that contribute to community empowerment and build capacity among the community to undertake health research.
- Identify health status of rural Aboriginal children, youth, men women and elderly and identify Aboriginal specific health determinants.
- Identify research gaps with significant input from the Aboriginal community.
- Make sure that research in rural Aboriginal communities is transformative, by ensuring community relevance, and research dissemination in a meaningful way.
- Research the positive aspects of rural Aboriginal health and lifestyle.
- Identify alternative service delivery strategies such as complimenting cosmopolitan medicine with traditional Aboriginal medicine; more technological support for services such as tele-health;
- Research the benefits of using traditional medicine in rural Aboriginal communities.

B. Specific Issues

Environmental health

- Research the effects of environmental pollutants on rural diet/ country foods, drinking water, and breast milk, etc. Research on the effects of the physical (i.e., sewer systems, housing) and social environment on the health of rural Aboriginals.

Maternal health and pregnancy

- Healthy Start initiatives in rural Canada. Research to focus on care for the unborn, and healthy mother issues such as nutrition, addictions, and access to health and support services.

Mental health and addictions services

- Research the barriers to mental health services faced by rural Aboriginals.

Compulsive behaviours

- Research possible preventative measures for the following compulsive behaviours: drugs, alcohol, prescription drug abuse, and gambling.

Injury

- Research preventative measures that will decrease the incidence of involuntary accidents and intentional injury.

Screening process

- Evaluate the access by rural Aboriginals to a wide range of screening processes such as: breast cancer, FAS, colorectal cancer, prostate cancer, diabetes, and disability.

Lung health

- Research that will reduce the incidence of TB and respiratory infections. Anti-smoking initiatives that discourage the non-traditional use of tobacco.

Exercise and diet

- Need for nutritional education to decrease rates of obesity and discourage poor 'western" diets that are high in fats and sugars. Need to research the benefits of physical activity and research incentives for rural Aboriginal people to engage in physical activity.

Youth health

- Preventative research into risky youth behaviour such as drug and alcohol abuse, sexually risky behaviour leading to teen pregnancy and STIs, and careless behaviours leading to unintentional accidents (e.g., speeding, no seatbelts, drinking and driving/boating, no PFDs…).

Institute of Circulatory and Respiratory Health

Prepared by: Dr. Yvon Cormier, Université Laval

Health research issues that concern the ICHR include: work environments (quantifying, understanding, preventing and treating rural occupational diseases and risks); health delivery (new ways to assure adequate health services to remote areas need be developed, evaluated and applied); and the training of personnel for research and health delivery to rural areas.

Rural Health Research Issues

There are two major differences in the rural population compared to urban dwellers: work environments and distances. Urban centres as rural areas have their poor, their elderly, etc. Urban problems have been widely identified, studies, publicized, acted on, etc., while specific rural problems and particularities have been basically ignored by our policy makers. It is time to catch-up.

Work Environments

- Traditional rural work environments (farming, fishing and fish processing, mining and drilling, mineral and oil transformation, forestry with saw mills and paper mills, peat moss packaging, etc) pose specific hazards for circulatory and especially respiratory health problems. The work places are not only accident prone (farming has the highest accident risk of all industries) but often contaminated with toxic fumes and gases, chemicals, organic dust, endotoxins, bacteria, fungi, allergens, inorganic dust, pro-fibrotic and carcinogenic minerals, etc. Breathing air in these workplace increases the risk of a variety of diseases including airways obstruction and hyperreactivity (asthma, chronic bronchitis), interstitial lung diseases (alveolitis, fibrosis), cancers, and possibly cardiovascular diseases. We know that exposure to organic dust induces a systemic inflammatory response; chronic inflammation is now considered a risk factor for cardiovascular diseases. There are also important unanswered questions relating to the health effect of living in close proximity to large animal confinement units, grain elevators or pulp and paper mills.

Geographic Distance

- The second major rural specificity is distance. It is clear that early and appropriate interventions decreases the death rate and the long term sequelae of acute cardiocirculatory and respiratory events such as heart attacks, strokes, asthma, and chest or head trauma. The lack of nearby availability of appropriate medical resources, especially in remote rural areas, therefore

constitutes a health delivery problem to most rural dwellers. It is obvious that small rural communities will never have appropriate medical and surgical expertises to offer the same immediate care available in urban areas.

Obesity and High Blood Pressure

- There is also some evidence that rural dwellers are more obese and have more high blood pressure that urbanites; if so, this could have a significant impact as risk factors for cardiovascular disease.

Institute of Cancer

Prepared by: Dr. Sharon Buehler, Memorial University

Three of the highest-ranking priorities of the Institute of Cancer are prevention of suffering, access equity and health services.

Rural Health Research Issues

Availability and access of services for rural Canadians

- Availability and access to:

  a) Prevention - education and screening

  b) Treatment

  c) Supportive careprevention of suffering in patients/families from pre-diagnosis through palliation

- Cost-effectiveness is an important issue; it is unlikely we can afford to have the same kind of cancer services/programs in rural areas that can be provided in large urban centres.
- What new strategies such as telehealth, rural centres for chemotherapy can we develop to provide more equitable access?

Communication

(**Communication issues obviously overlap with access issues**)

- Basic communication of information - include. the difficulty of investigating and interpreting cancer clusters
- Patient-provider communication
- Communication to the public about research in cancer
- How do cancer patients and those at risk who live in rural areas gain access to information about prevention, screening, opportunities to participate in randomized trials, treatment options, supportive care and palliative care?

Institute of Neuroscience, Mental Health and Addictions

Prepared by: Dr. Stan Kutcher, Dalhousie University and
Dr. Marlene Reimer, University of Calgary

Rural Health Research Issues

Baseline data

- Rural areas must be represented in all mental health (mh) and mental illness (mi) data - sufficient to provide needed analysis of sub-populations (e.g. youth, etc.)
- Knowledge is required about how mental health and mental illness is UNDERSTOOD by rural residents (to design promotion and educational materials)
- Examination of family structures and family roles in terms of support for mentally ill family members
- An inventory of available services is required to critically assess regional rural disparities

Effectiveness

- All interventions and service models must be evaluated in rural as well as urban area - therefore need to include rural areas as research sites in all clinical research — need to support demonstration models for this

Novel delivery

- Study the most effective and economically viable means of delivery e.g., nurse clinician, telemedicine, school based care, shared care, integration of mental health and mental illness into basic health care services

Education

- Study the most effective methods of mental health/mental illness education provision to rural health practitioners

Recruitment, retention and training

- Develop strategies to recruit and retain mental health practitioners and to develop needed mental health/mental illness skill sets in rural or all health practitioners

Basic Science Research

- Environmental factors actually or potentially associated with disease risk;
- Neurodegenerative diseases such as Parkinson's and Multiple Sclerosis for which epidemiological evidence suggests increased risk in certain urban areas (e.g., links with toxins, well water, soil conditions);
- Mood and circadian rhythm disorders exacerbated by low light conditions in remote northern regions;
- Need for epidemiological research related to prevalence and population level intervention strategies'
- Effects of exposure to extremes of temperature, elevation, etc.

Clinical Research

- Research leading to the reduction of discrimination and stigma for persons with neurological (e.g., epilepsy, brain injury, autism, Parkinson's Disease), mental (e.g., schizophrenia, bipolar, depression), addictive (e.g., alcoholism, drug abuse), sensory (e.g., deafness), and sleep (e.g., excessive daytime sleepiness) disorders – a major priority for the INMHA. Management of stigmas and discrimination associated with these disorders presents unique challenges in rural and remote regions;
- Chronic pain management in rural emergency departments;
- Comparison and refinement of rural vs. urban intervention strategies (e.g., group therapy, addiction treatment);
- Gaps in diagnosis and external management of first episode neurological and mental health illness and addictions, sleep disorders, etc.

Health Services

- Access, acceptability, and adherence to mental health services including issues such as lack of anonymity, stigma, beliefs, insider-outsider phenomena, etc.;
- Provision of sustained specialized services for slow to recover patients with complex needs (e.g., severe brain injury, autism, schizophrenia, dual diagnosis);
- Urban-rural health care transitions (e.g., impact on families unable to take advantage of teaching and support services only available in large urban centres, spinal cord injury rehabilitation for life in poorly serviced areas);
- Recruitment and retention of specialized health practitioners to small urban centres (e.g., neurosurgeons , psychiatrists) as well as rural areas (e.g., mental health workers);

Population Health Socio-Cultural Issues

- Addiction prevention and treatment, particularly reduction of tobacco abuse which tends to have higher prevalence in rural areas;
- Injury prevention – farm, fishing, logging safety, rural motor and recreational vehicle accidents, drownings, etc.;
- Attitudes to safety and addictive substances.

Institute of Gender and Health

Prepared by: Dr. Barbara Neis, Memorial University

Gender is a recognized health determinant. Too often, health research is gender-blind leaving a legacy of gaps and problems within existing research. Where health research has addressed gender, too often it has treated gender as though it is equivalent to the other health determinants when, in fact, it is qualitatively different from the others in that each of the latter is also gendered. Thus:

- There is a sexual division of labour at work, at home and in communities that produces differences in the paid and unpaid work-related health risks and benefits that men and women encounter. For example, men in rural areas are more likely to developed mining-related respiratory problems whereas women are more at risk to develop occupational asthma to shellfish.
- There are biological differences between women and men which, when linked to gendered social and political environments, mean we need gender-informed genetics research and research on reproductive health.
- Sexuality is gendered and includes heterosexual, gay, lesbian, bisexual and trans-gendered forms of expression. Research on sexuality and on sexually transmitted diseases in rural areas needs to reflect these realities.
- Men's and women's physical and social environments differ somewhat, as do women's and men's involvement in and access to social supports. As a result, the health-related issues and experiences of young women and men or of male and female aboriginal elders may differ.
- The nature and extent of interaction with health services and the fit between needs and services can vary by gender, as can involvement with and access to nutrition and physical activity, patterns of substance abuse and addictions, and responsibility for informal care.
- Relatedly, health determinants research sometimes treats families and communities as "havens in a heartless world" failing to inquire into the nature of actual family and community relations in particular historical, social, economic and political contexts (Love et al. 1997).

Gender-based analysis is an essential ingredient in understanding the relationship between rurality and health. Done well, a gender-based analysis recognizes that there are diverse groups of rural women and men (i.e. young and old, upper and lower class, aboriginal and non-aboriginal, those with disabilities and those without) whose health can be differently affected by health determinants (Health Canada, 2000). It integrates the understanding that there are biological, environmental, psychological, cultural and socio-economic dimensions to gender.

A gender-based approach to health reminds us that health is multidimensional in that there are physical, psychological and social health-related issues. It alerts us to the fact that what people

define as health can vary a lot, and men and women may conceptualize health and threats to their health differently (Davidson et al. 1997: 9). Gender-based analysis allows for early identification and assessment of the differential impact on women and men of policies, programs, legislation, community and industrial development, and environmental change. It recognizes that policy cannot be separated from the social context of women's and men's lives and that social and economic issues are linked. It reminds us that women often confront institutionalized constraints that create and perpetuate inequalities related to gender, status, class and age.

Rural Health Research Issues

Gender Inequalities and Health in Rural Areas

Women of all ages, poor women, aboriginal and nonaboriginal women and women with disabilities in rural areas may represent particularly vulnerable groups of Canadians. One reason for this is the history of economic development premised on the notion of the male breadwinner in such areas and a history of colonial relations premised on male dominance in aboriginal and rural communities. Economic development and social and regional development programs have been shaped by a discourse within which full-time employment of male breadwinners in forestry, fishing, mining and agriculture was the economic basis on which successive generations of rural Canadians were raised (Osberg, Wien and Grude 1995: 1). As a result, rural working age women have tended to have lower incomes, more limited and uncertain options for paid work, and have tended to experience different occupational health risks from working age males. Women's paid and unpaid work has always been central to the support of rural households and communities. Because, on average, women have lower incomes, live longer than men but tend to have more chronic illnesses, and because of their responsibility for caring labour women's lives and their health may be affected differently from men's by poorly designed and dwindling health and social services, outmigration, resource degradation and changing markets for the products of rural industries and services. In addition, women have been under-represented in many decision-making bodies (government, union, management) within rural areas, and, as seasonal workers, particularly hard hit by recent changes to Employment Insurance regulations (MacDonald 1998).

Access and equity for marginalized populations

- Education is a health determinant. Research needs to explore gendered trends in access to education and training, the appropriateness of the training that is provided in rural areas and employment outcomes for rural women and men.
- Research examining gender differences in access to natural resources in rural areas, the implications of unequal access for the health of women and men and strategies for reducing inequities is needed.

- We need a clearer sense of how health care reform/privatization processes in rural areas and in provinces with primarily rural populations have compared to those in other provinces. Research should explore the gendered assumptions that inform these processes, as well as their gendered impacts.
- We need to know more about governance structures within provincial health care systems, including their gender dynamics.
- Given gender differences in involvement in volunteer and charitable work, a gender-based analysis of the potential impacts of privatization on the charitable and volunteer sectors in rural areas is needed.
- Given the history of feminist support for a shift to more accountable health care institutions with a greater focus on preventive care, we need to understand more clearly why reform and restructuring along these lines appear to have placed women at risk.
- More research is required on the differential impacts of health care privatization on women of different ages, aboriginal women, disabled women and gay and lesbian women in rural and urban areas.
- We need to access and analyse more fully gender disaggregated data on health service utilization, home care work, minimum wage recipients, satisfaction with health care services, responsibility for unpaid caring work, etc. in rural and urban areas.
- The impacts of changes in workers' compensation programs on injured women and men workers' access to compensation and rehabilitative services in rural and urban areas needs more research. Differences between unionized and nonunionized workers and seasonal/part-time versus full-time workers also need research.
- More research is needed on impacts of increased transportation costs borne by rural health service users (male and female) on freedom of access to services, as well as research on the consequences of these costs and other health care costs for the capacity of households to meet other financial obligations.
- More research is needed on the gender dimensions of out-migration from rural areas and their relationship to the fit between health service/caring needs and existing services.
- We need to know more about who (gender, rural versus urban, etc.) actually receives paid and unpaid home care and how these recipients compare with those who receive long-term care.
- We need to do a gender breakdown of who provides paid and unpaid home care and document ways that providing care might be affecting caregivers' health and well-being. We also need to know more about how those who need home care but do not have access to it are managing and the consequences of this for their health.
- We need more research on the ways the CHST, health care privatization, as well as restructuring in other areas of social policy such as EI changes and changes in postsecondary education,

might be interacting to affect the health of women and men and their access to health services. For example, existing research has linked the CHST to cuts to public childcare support in Canada, and to the erosion of national standards in social assistance benefits.[1] As childcare has become less accessible, worse quality and more expensive[2], how has this interacted with women's involvement in paid labour and the restructuring of the health care system to affect women?

Gender and health across the life span

- Further research is needed to explore the conditions under which women and men in rural areas prepare for retirement and on their adjustment to retirement.
- Housing is a health determinant. Men and women have different relationships to housing and housing maintenance. Different age and health trajectories for women and men, and the growing proportion of lone parent families (largely women-led) in Canada mean that the relationship between housing and the health of women and men in rural areas needs to be examined.

Gender and the environment

- Additional research is required to learn more about the occupational health risks to male workers and to women entering male-dominated work environments in rural industries such as fishing, farming, mining and petroleum industries.
- None of the existing research on occupational diseases associated with mining has involved a gender analysis. As the percentage of women employed in mining increases, it will be both possible and essential to conduct such analyses but they may require national or international level research.
- Research on the impacts of mining on the health of mining community members who do not actually work in the mine and on the health of communities is extremely limited.

Notes:

1 Katherine Scott, Women and the CHST: A Profile of Women Receiving Social Assistance in 1994, (Ottawa: Status of Women Canada, 1998).

2 Susan Prentice, "Less, Worse and More Expensive: Childcare in an Era of Deficit Reduction," Journal of Canadian Studies 34, 2 (1999) 137-158; Gillian Doherty, Martha Friendly and Mab Oloman, Women's Support, Women's Work: Child Care in an Era of Deficit Reduction, Devolution Downsizing and Deregulation (Ottawa: Status of Women Canada, 1998).