Survey of “northern” child and maternal health research being conducted in Canada

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ABSTRACT

Objectives. The purpose of the study is to better understand the scope of research being conducted by Canadian paediatric and maternal health centres on the topic of maternal child health of northern populations. In addition, the results are intended to help assess the prospects for the creation of a research network dedicated to this topic.

Study design. Questionnaire study complemented with review of database.

Methods. Data were collected using a short questionnaire with qualitative and quantitative questions. Surveys were sent by email to members of two Canadian national paediatric groups, representing 17 organizations. Supplementary information was obtained through review of the database for research funded by the Canadian Institutes of Health Research (CIHR) and by the International Polar Year Program.

Results. Response was limited, with most input coming from academic environments with a strong commitment to research conducted among northern populations. Research focuses included health as well as other disciplines. The definition of “the North” provided by respondents fit generally within the operational definition identified by the researchers.

Conclusions. The topic of maternal and child health is more thoroughly examined among rural and remote populations than specifically among northern populations. The existence of a type of network, the evidence of a lack of inter-institutional communication and the identified need for support lead to the conclusion that a formal research network would be of benefit. Research is already funded by national funding agencies, suggesting that there may be an opportunity to collaborate with a national agency in the development of an appropriate network.

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INTRODUCTION

The health status of children in the North is significantly worse in some northern geographies than for children who live in the south of Canada; for instance, infant mortality rates for all of Canada in 2007 was 5.1 per 1,000 live births, compared with 8.5 for the Yukon, 4.1 for Northwest Territories and 15.1 for Nunavut (1). While the rate is low for the Northwest Territories, because of the small population and small rate of births and deaths, the trends should be interpreted with care. This disparity is of considerable concern and there has been a call to increase our focus on these mothers and children in order to better understand the determinants of this disparity and to introduce services that would support improvements.

Academic institutions have a special responsibility to pay attention to and address these disparities. No comprehensive degree-granting universities exist in Canada’s northern territories, the southern border of which is geographically located at latitude 60° N. Some universities are located in northern areas of the contiguous provinces but most are located in southern Canada, within 100 miles of the USA–Canada border, which coincides with the concentration of the majority of Canada’s population. Equally important, national research funding is distributed in Canada in support of high-quality proposals from those with excellent research qualifications; that is, university-trained doctoral level or medical researchers. With few exceptions, institutions north of latitude 60° N do not receive funding directly from national peer-reviewed agencies because of the eligibility requirements of granting federal agencies, a process partly overcome through development of partnerships with eligible agencies (2).

The question is to what extent do academic institutions in the south focus on the health issues of children and mothers in the North? To address this question we conducted a survey of academic maternal and child health institutions in Canada to determine the extent to which they are addressing issues of child and maternal health in the North.

MATERIAL AND METHODS

A brief survey was sent to members of 2 national academic paediatric organizations in Canada to understand the extent to which maternal and child-relevant research is conducted in northern Canada. The members of the 2 national academic paediatric organizations were affiliated with 17 different academic institutions across Canada. Surveys were sent by email to members of the Canadian Association of Paediatric Health Centres (CAPHC) and the Council for Canadian Child Health Research (CCHR). The CCHR was established to bring together the major child-focused academic health centres in Canada to encourage and support collaboration in child health research across the spectrum from basic science to clinical, health services, and population health sciences (http://www.ccchr.org/). The mission of the CAPHC is to represent multidisciplinary health professionals who provide health services for children, youth and their families within Canadian quaternary and tertiary health centres, community health centres, rehabilitation centres, as well as home care provider agencies. Combined, the 2 organizations have members from all of the academic maternal child health centres in Canada and have contact with the maternal child health researchers at these academic centres.

To encourage a response, the survey was short and contained only 8 questions which asked information on engagement in child and
maternal health research. The 2 national organizations provided introductory contact people at each academic centre and these individuals were asked to complete the questionnaire. To increase the response rate, survey recipients were asked to identify or refer any other possible respondents who may be involved in northern child health research.

In addition to the survey, databases of the Canadian Institutes of Health Research (CIHR) (3) and the International Polar Year (IPY) (4) were searched for relevant initiatives with the overall intent to assess the scope of research being conducted through Canadian paediatric and maternal health centres on the topic of maternal, newborn and child health within northern populations.

Searches of the CIHR grant registry from 2000 to 2010–2011 and Canada’s IPY database (not recorded by date) were conducted on the topic of child and maternal health in northern populations. Keywords used in the search were north, and mother or maternal or child or youth. Grants which only specified northern health as an addendum to research in rural and remote communities were excluded.

The operational definition of North was created by drawing a line that connected the most northerly medical degree-granting educational institutions across Canada – anything

![Figure 1. Most northerly medical degree-granting educational institutions across Canada, by province.](image-url)
that fell above the urban centre housing these institutions was defined as “northern” (see Fig. 1). These northern universities are the Universities of Northern BC, Alberta, Saskatchewan, and Manitoba; the Northern Ontario School of Medicine (an initiative of Lakehead [Thunder Bay] and Laurentian [Sudbury] Universities); Université de Laval; Dalhousie University; and Memorial University of Newfoundland. Of the list, the most northern are the University of Northern British Columbia at Prince George, British Columbia; University of Alberta at Edmonton, Alberta; and Memorial University of Newfoundland, all of which are approximately at latitude 54°N. The northern territories, starting at latitude 60°N, have no universities or medical schools.

Ethics approval was obtained from the University of British Columbia.

RESULTS

From the 17 academic institutions contacted, responses to the survey were received from 8 individuals, constituting a 47% response rate. One of the respondents reported having no research with northern populations at his/her institution.

All respondents who affirmed that their institutions conducted research in the North defined the region as fitting within the parameters of the operational definition originally defined by the researchers (Fig. 1). Five respondents reported conducting research in Nunavut and/or northern regions of the provinces, and one other specified his/her research was restricted to northern Ontario. These respondents also provided specific examples of research that they and their colleagues were conducting. All respondents reported that their research was being conducted by multiple disciplines in addition to medicine (nursing, pharmacy, medical genetics, anthropology, and other social sciences).

Five of the respondents reported receiving the majority of their funding from national peer-reviewed funding agencies, while 1 stated that only minimal funding was received from these agencies. Specifically, as 1 respondent wrote, the institution had trouble obtaining peer-reviewed funding due to the small size of their institution and limited resources. Six respondents confirmed that their faculties supported graduate students conducting northern research. Only 1 person reported that his/her faculty/institution had resources specifically dedicated to the research of northern populations. There was overlap between the institutions which had identified being recipients of national grants and institutions identified by the researchers as being grant recipients through examination of the CIHR and IPY databases.

The search of the CIHR grants awarded across Canada, from 2000 until 2010–2011, revealed 26 projects specifically focused on the health of northern populations of women and children. CIHR grants were awarded to 13 different academic institutions across Canada as well as 3 additional non-academic research centres, as shown in Table I. Table II indicates that the majority of these projects were focused on the health of children rather than maternal health. CIHR grant-supported projects addressed various health and related multi-disciplinary topics, including factors that contribute to health such as housing and other social determinants. CIHR grants awarded ranged from large-scale longitudinal interdisciplinary studies to smaller meetings-based initiatives. In some cases research teams were established as investigators built on partnerships established earlier. The search of the Canadian IPY database yielded 3 studies, 2 were completed and 1 was underway. Two relevant studies were conducted...
in Nunavut and a third in Nunavik, northern Quebec. The 2 studies in Nunavut were a part of a partnership between McGill University, the University of Toronto and territorial and community groups, and both studies used data from Nunavut Inuit Child Health Survey conducted by the partnership. The study in Nunavik is still in progress, and is being conducted through a research partnership among regional and provincial government health research centres.

Table I. Source of data by province and university.

| Province       | Academic centre                          | CIHR grants | IPY database database | Survey responses |
|----------------|------------------------------------------|-------------|-----------------------|------------------|
| British Columbia | University of Victoria                   | Yes         |                       |                  |
|                | University of British Columbia           | Yes         |                       |                  |
|                | University of Northern British Columbia  | Yes         |                       |                  |
|                | Simon Fraser University                  | Yes         |                       |                  |
| Alberta        | University of Alberta                    | Yes         |                       |                  |
| Saskatchewan   | University of Saskatchewan              | Yes         |                       |                  |
| Manitoba       | University of Manitoba                  | Yes         |                       | Yes              |
| Ontario        | University of Waterloo                  | Yes         |                       | Yes              |
|                | University of Toronto                   | Yes         | Yes                   |                  |
|                | McMaster University                      | Yes         |                       |                  |
|                | University of Ottawa                    | Yes         |                       | Yes              |
|                | Laurentian University                    | Yes         |                       |                  |
| Quebec         | McGill University                        | Yes         |                       | Yes              |
|                | Université Sherbrooke                    |             |                       |                  |
|                | Université Laval                         |             |                       |                  |
| New Brunswick, | Various Non-academic Research Centre     | Yes         |                       |                  |
| Nova Scotia,   |                                          |             |                       |                  |
| Prince Edward Island, |                                    |             |                       |                  |
| Newfoundland,  |                                          |             |                       |                  |

Table II. Topic by province and university.

| Keywords                  | Province       | University                                      |
|---------------------------|----------------|-------------------------------------------------|
| Maternal OR mother AND north | Saskatchewan   | University of Saskatchewan                      |
| Child OR youth AND north  | British Columbia | University of Victoria                          |
|                           |                | University of British Columbia                  |
|                           |                | University of Northern British Columbia         |
|                           |                | Simon Fraser University                          |
|                           | Alberta        | University of Alberta                           |
|                           | Saskatchewan   | University of Saskatchewan                      |
|                           | Manitoba       | University of Manitoba                          |
|                           | Ontario        | University of Waterloo                          |
|                           |                | University of Toronto                           |
|                           |                | McMaster University                              |
|                           |                | University of Ottawa                            |
|                           |                | Laurentian University                            |
| Both: maternal OR mother AND north | British Columbia | University of British Columbia                  |
|                           |                | University of Northern BC                        |
| child OR youth AND north  | Saskatchewan   | University of Saskatchewan                      |
|                           | Quebec         | McGill University                                |
|                           | Various        | Non-academic Institutions                        |
DISCUSSION

Funding resources in Canada have supported research for those labelled rural and remote populations and considerable investment has been made in the area of Aboriginal health in Canada. These combined research focuses have not necessarily addressed the health research needs of remote northern populations in Canada, especially those north of 60°N. Various CIHR Institutes could target funding for northern child and maternal research, including the Institute of Aboriginal Peoples Health or the Institute of Human Development, and the Child and Youth Health; however, there has been no national funding program specifically targeting maternal, newborn or child health in the North.

Under these conditions, Canada has failed to maximize the efficacy of the maternal and paediatric research which could be achieved through inter-institutional cooperation and shared resources, particularly partnerships between paediatric researchers in southern universities and communities in the North. While research grants could readily be provided based on geographical region, that process isolates academic institutions and their research from each other and may not benefit the communities in question to the same degree that cooperative research networks might achieve by pooling funding and resources to increase research productivity and publications. There was also overlap between the institutions identified as grant recipients and those institutions identified in the database search, none of the specific projects identified through the database search were the same as those identified by survey respondents. This supports our conclusion that the absence of a response should not be taken to indicate an absence of research being conducted. It is possible that some survey respondents may not be aware of research being conducted elsewhere within their academic institutions. The example of the Nunavut Inuit Child Health Survey (5) being conducted by an inter-academic institution and community partnership provides evidence that research networks are in place.

If research funding is only granted to researchers at southern institutions, northern communities or health units or institutions must then rely on partnerships with researchers from the south in order to submit grant proposals and conduct the studies. Chatwood and Young (2) suggest a new model for research in northern Canada based on reports written over the past 20 years that advocate research expansion and take into account more recent developments conducive to research partnerships, in particular, new structures and leadership.

Conclusion

Despite the limited response rate, survey findings suggest that the creation of a maternal and child health research network for northern populations is feasible and potentially beneficial to Canada. The study results identified the existence of an informal network. One respondent reported a lack of institutional cooperation between academic institutions in the North and the south. Their appears to be a general lack of awareness of projects being conducted and funded within one’s own academic institution, so that a more formalized process could help communication. As well, respondents identified a need for support. These findings confirm our conclusion that a formal research network would be of benefit. Researchers from smaller institutions would benefit from collaboration with larger institutions through the type
of interactions that are facilitated by a research network. Further, as many researchers are independently funded by CIHR there may be an opportunity to cooperate with such a national agency in the development of a suitable network. Improved communication fostered by a research network that includes research organizations and institutions located in the North and interested researchers from Canadian universities would help to ensure that researchers are able to maximize the effectiveness of their work by addressing health disparities of northern mothers and children.

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