

ASSESSING NEEDS: ASTHMA IN FIRST NATIONS AND INUIT COMMUNITIES IN CANADA

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ABSTRACT

Objective: To explore the perceptions and experiences of asthma and related allergies in First Nations and Inuit communities in Canada to assess needs.

Study Design: A mixed-method study using telephone surveys and focus groups in First Nations and Inuit communities of Canada.

Methods: An initial environmental scan provided a comprehensive understanding of the population characteristics needed to design the study and develop the survey questionnaire and focus group materials. Data were collected using telephone surveys with community health personnel and focus groups with community members (e.g., parents, children, and school personnel) affected by asthma to assess the burden of illness and to gain in-depth understanding of community health resources and supports.

Results: Risk factors such as smoking; housing; and air quality, along with access to adequate expertise and knowledgeable health care professionals, were found to

be barriers to asthma care in both First Nations and Inuit communities. Gaps in family and community resources were seen as contributing to heightened perception of risk of respiratory health outcomes, particularly with children and elderly people. Parents, in particular, identified the need for community resources (i.e., certified asthma educators) and culturally relevant educational materials to increase education and awareness of the implications of smoking and lung health. Community health providers emphasized the importance of developing a framework for asthma and allergy care to improve disease detection and management and to assess resource needs to bridge gaps for families living in remote areas.

Conclusions: Respiratory health represents a challenge to First Nations and Inuit community members. Increasing access to health care services through certified asthma educators and culturally relevant awareness, education, and detection strategies require a coordinated approach to mitigate this burden of illness.

Key words: assessing needs, asthma, allergies, First Nations communities, Inuit communities

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INTRODUCTION

Despite its status as a key cause of morbidity worldwide, the epidemiology of asthma remains less developed than other chronic conditions (Moore et al., 2007). In general, research on asthma in Aboriginal populations (Moore et al., 2007; Dawson, 2004) is limited and in particular, there are very few studies on Canadian Aboriginal populations (Sin et al., 2002; Senthilselvan et al., 2003; Crighton et al., 2010). However, in recent years there is increasing recognition of factors that Indigenous people share (e.g., rural location, communication, socioeconomic status) in the development of asthma that contributes to health disparities (Marrone, 2007). For example, Australia has designated asthma a National Health Priority Area (Dawson, 2004; Moore et al., 2007; Cunningham, 2010), the Australia Centre for Asthma Monitoring (ACAM), given its prevalence amongst Indigenous compared with non-Indigenous adults and its significant burden to children (Poulos et al., 2005; Redding and Byrnes, 2009).

In Canada, asthma is a common condition among Aboriginal peoples. The National Lung Health Framework (NLHF) recognizes First Nations, Inuit, and Métis as “vulnerable populations” who bear a large burden of risk for respiratory illness due to unique social, economic, and environmental conditions (NLHF, 2008). The framework’s broad strategic priorities — health promotion and disease prevention; detection and management; policy, partnerships, and community/systems support; and research, surveillance, and knowledge translation — illustrate the need not only to improve overall respiratory health, but to reduce disparities between Aboriginal and non-Aboriginal populations (ACAM, 2008).

As with many health indicators and outcomes (NLHF, 2008), Aboriginal peoples experience greater disparities in respiratory health compared to non-Aboriginal Canadians (Lix et al., 2010; Crighton et al., 2010). According to the 2005 Community Health Survey, prevalence rates of asthma (11.7%) and chronic bronchitis (4.9%) among Aboriginals were significantly higher than in the non-Aboriginal population (8.3% and 2.4% respectively) (Garner et al., 2010). Comparable rates of diagnosed asthma and

overall respiratory illness were documented in the 2006 Aboriginal Peoples Survey (Garner et al., 2010). Aboriginal peoples are disproportionately affected by respiratory health due to the conditions in which they live (Poulos et al., 2005) including tobacco use, indoor and outdoor air pollutants, moulds, and crowding (Centre for Rural and Northern Health Research, 2010; Rona, 2000).

Social determinants (e.g., education, housing, income, health services) are the living conditions that shape health (Raphael, 2009). Social determinants influence a wide range of health vulnerabilities and capacities, health behaviours, and health management (Wilson and Rosenberg, 2003). Individuals and communities that experience inequities in the social determinants of health not only carry additional burden of health problems, but often have limited access to resources that might ameliorate problems. (Mikkonen and Raphael, 2010). For instance, the health of Aboriginal peoples in Canada is inextricably tied with their history of colonization and the result has been adverse social determinants of health and adverse health outcomes (Smiley, 2009).

Aboriginal populations may be more susceptible to respiratory illness due to their exposure to a variety of determinants of respiratory illness, including poor indoor air quality (in part from tobacco smoke) (Ahluwalia and Matsui, 2011; Bashir, 2002), smoke ceremonies, and cooking practices (Stapleton et al., 2011). The overall smoking rate among First Nations adults is 58.8% (versus 24.2% non-Aboriginal) (Health Canada, 2009) and 39% of Aboriginal youth are smokers compared to 21.8% of non-Aboriginal youth (Health Canada, 2002). Notably, First Nations children are twice as likely to be diagnosed with asthma (14.6%) than children in the general Canadian population (8.8%) (NAHO First Nations Centre, 2007).

Aboriginal populations also experience significant gaps in treatment. In 2006, 28.5% of asthma patients in Aboriginal communities did not receive any medication or other form of treatment (Garner et al., 2010). Access to health care professionals is often hindered by geography, lack of culturally relevant programs or educational materials, limited financial resources, and medicalized approaches, especially for those living in remote and northern

areas (Lix et al., 2010; NAHO First Nations Centre, 2007; Hare, 2004).

A thorough understanding of barriers to asthma care faced by Aboriginal peoples is needed for the NLHF to appropriately address its strategic priorities; thus, this research focused on exploring the perceptions and experiences of asthma and related allergies in First Nations and Inuit communities in Canada (Asthma Society of Canada [ASC], 2009) to assess needs.

MATERIALS AND METHODS

This exploratory study employed a mixed-method design, including both quantitative and qualitative approaches. Telephone surveys and focus groups were deemed most appropriate for exploring needs and investigating the perceptions and experiences of peoples affected by asthma in First Nation and Inuit communities. Study clearance was granted from the Assembly of First Nations. An initial environmental scan was conducted to provide a comprehensive description of the population of interest that helped design the study and develop the survey questionnaire and focus group materials. The scan consisted of a review of relevant and available federal and provincial surveys (e.g., Canadian Community Health Survey; National Population Health Survey; NLHF; Statistics Canada; Aboriginal Peoples Survey), and library databases (e.g., Pub Med). Analyses provided background information related to population characteristics (e.g., population growth, geographic distribution, age, language), determinants of risk (e.g., substandard housing, smoking, air quality, age, poverty, and income inequity), which identified the need for improved access to and better quality care, and timely, reliable data to explore the health risks First Nations and Inuit communities confront.

PARTICIPANTS

The subjects for the telephone surveys were selected to represent health personnel working in First Nations and Inuit communities in Canada. The researcher obtained names of community health personnel that fulfilled the criteria from the Chiefs of the Assembly of First Nations (AFN) and Inuit Kanatami (ITK). A total of 30 participants FN (n=15) and ITK (n=15) agreed to participate in the study. All

participants consented to participate in the study. An information letter was explained regarding the details of the study so that participants had an opportunity to ask questions and decline if they chose to, before providing verbal consent.

The focus group participants were purposefully selected to represent community members (e.g., parents, children, school personnel) who were affected by asthma. Several methods were used to recruit participants (e.g., community announcements, targeted bulletins, and introductions by community health managers). A total of five communities ITK (n=3) and FN (n=2) enrolled primarily parents, children, and school personnel from: Vancouver Island (n=10); Fort Frances (n=12); Labrador (n=12); and 2 groups from Ottawa (n=30) and (n=12).

DATA COLLECTION AND DATA ANALYSIS

The study consisted of 2 stages of data collection: (1) telephone surveys, and (2) focus group sessions. At the first stage, an independent researcher conducted telephone surveys with First Nations (n=15) and Inuit (n=15) participants from across Canada to explore the impacts and experiences of asthma and gaps in existing services. The survey questions and focus group materials were developed by the research team and reviewed for cultural appropriateness by the Advisory Committee members (Assembly of First Nations, Inuit Tapiriit, the Public Health Agency and First Nations and Inuit Health Branch, Health Canada, and AllerGen). The survey consisted of 16 questions categorized within 4 main sections (community health, community resources, burden of illness, community expertise). The survey results were analyzed with SPSS v.18 using simple descriptive analytic techniques.

At the second stage, focus group sessions were conducted with participants affected by asthma from First Nations (n=2) and Inuit (n=3) communities across Canada. A co-facilitation model (independent researchers and Indigenous community member) was used to conduct focus group sessions to facilitate language translation and relationship building. Open-ended questions explored broad themes that emerged from stage 1. Focus group sessions were approximately 90 minutes in length. Data were transcribed, and member checking was under-

taken (Gibbs, 2002). An independent researcher thematically analyzed the data into a coding scheme encompassing themes generated both deductively from the research objectives, and inductively as they emerged from the interviews.

RESULTS

The results (Table 1) of the telephone surveys with community health personnel identified several determinants of respiratory health (NLHF, 2008) (housing, culture, age, environment), risk factors (Redding and Byrnes, 2009) (tobacco use, indoor and outdoor air quality) and access to care issues (health care providers, culturally relevant education, respiratory health expertise). For example, the majority (80%) of all respondents reported having no culturally appropriate asthma materials. While suicide was identified as the highest community priority, followed by chronic disease, respondents reported asthma and respiratory illness in the “other health priorities” category. Notably, more than half of all respondents reported having no available community asthma care supports. In particular, the majority of First Nations respondents (73%) reported having no available expertise and more than half (60%) reported having no informed health professionals. Also notable, the majority of Inuit respondents (67%) reported having no family skills (“hands-on” asthma education, knowledge about adverse living conditions, proper medication instruction) to address asthma.

Focus group sessions generated three main themes: 1) accessibility of community expertise and resource; 2) accessibility of culturally relevant education; and, 3) accessibility of community health services.

1) ACCESSIBILITY OF COMMUNITY EXPERTISE AND RESOURCE

More than half of all participants reported having no available community health expertise in their communities to support asthma care. All participants reported that inadequate health services were due primarily to a lack of health care providers and ambulances. In particular, Inuit peoples tied geography, transportation, and jurisdictional issues to an overall lack of awareness about asthma and a lack of trained community supports:

	First Nations N (%)	Inuit N (%)
<i>Total number</i>	15 (100)	15(100)
Community Health		
Health priorities		
Suicide	9 (60)	6 (40)
Chronic disease	5 (33)	7 (47)
Other	1 (7)	1 (7)
Risk factors		
Air quality	6 (40)	6 (40)
Tobacco use	6 (40)	3 (20)
Housing	3 (20)	6 (40)
Ways to reduce asthma		
Reduce triggers at home	10 (67)	7 (47)
Increase education/awareness	3 (20)	5 (33)
Improve air quality	2 (13)	2 (13)
Most affected groups		
Children	11 (73)	13 (87)
Elderly	1 (7)	1 (7)
Other	2 (13)	1 (6)
Barriers to accessing resources		
Culturally relevant resources	9 (60)	6 (40)
Jurisdictions or transportation policy	3 (20)	4 (27)
Overburdened health care system	2 (13)	3 (20)
Community Resources		
Resources that exist in the community		
Hospital, public health nurse, or community health nurse	9 (60)	8 (53)
Free puffers or medication	2 (13)	—
Program for pregnant women	2 (13)	3 (20)
Resources that would be helpful		
Culturally relevant education	10 (67)	9 (60)
Primary health care providers	3 (20)	5 (33)
Don't know	2 (13)	1 (7)
Culturally sensitive asthma materials		
Yes	—	1 (7)
Somewhat	2 (13)	1 (7)
No	12 (80)	12 (80)
Don't know	1 (7)	—
Informed health professionals		
Yes	—	2 (13)
Somewhat	2 (13)	6 (40)
No	9 (60)	5 (33)
Don't know	3 (20)	—
Community Expertise		
Available expertise to address asthma		
Health care providers or ambulance	3 (20)	7 (47)
Community health or resource centres	1 (7)	—
None	11(73)	7 (46)
Don't know	—	1 (7)
Family skills to address asthma		
Initial response to symptoms/attack	4 (26)	1 (7)
Education from health care provider	2 (13)	3 (20)
None	7 (47)	10 (67)
Ideas to help address asthma		
Culturally relevant education materials	9 (60)	9 (60)
Regular check-ups or preventative programming	3 (20)	3 (20)
Tobacco control by-laws	—	2 (13)
Asthma workshops or taskforce	1 (7)	—

* Percentages may not equal 100 due to missing cases and/or categories.

The health centre is it — it is the only place that has the expertise and it is a distant resource.

[We] have no available supports at the community level unless you go to the health centre. Only a few staff members are in health centres; there are not enough trained people to provide information in culturally sensitive manner.

All participants viewed risk as part of the context of their communities — living/housing conditions and tobacco smoke were recognized as major risk factors. Yet, most participants reported a gen-

eral lack of confidence with the availability and competence of community resources to increase education and awareness related to the implications of smoking and lung health. Participants viewed certified asthma educators and nurse practitioners as ideal community resources that would bring treatment closer to people. Other suggestions, such as “talking with people who have quit or visiting cancer patients,” restricting smoking in public offices or implementing “blue-light initiatives for smoke-free homes” would encourage smoking cessation. For example, the Blue Light project originated in 1998 in nine Cree communities in Northern Quebec to raise awareness about the dangers of exposure to second hand smoke, particularly for children. The blue light over a door is a visible sign of a smoke free home (Manitoba Lung Association, 2012).

In contrast, participants cited limited knowledge of asthma management and lack of training opportunities for health care providers as major barriers in service support:

It's [expertise] that is not sufficient for the level of people who have asthma. It [knowledge] varied from nurse to nurse and a replacement nurse might have basic knowledge ... simply, more people need training.

Medical professionals do not have much education around asthma. They cannot be specialist in everything, yet we need specialist in these areas.

2) ACCESSIBILITY OF CULTURALLY RELEVANT EDUCATION

Accessibility of asthma education materials and services was inconsistent among First Nations and Inuit communities. However, parents of asthmatic children expressed frustration with the lack of accessible educational materials, community resources, and screening support. Our sample identified the need for “culturally relevant educational materials” that reflected the diversity of language and community customs (e.g., “printed flyers, pamphlets in people friendly language”). Respondents suggested a range of hands-on, face-to face activities, including community workshops, education fairs, and appropriate printed materials, “to help children manage their asthma.”

[People] need to live with it; [education] needs to be hands-on; if people don't really see and live with something they don't really understand it, so teaching needs to be hands-on.

Participants also reported availability of health care resources such as information and informed health care personnel as barriers to accessing adequate asthma care:

I think the nurses need to be better educated as well. In a clinic in an isolated place they need to know what to do. My son had an allergic reaction and she [nurse] gave me an Epi-pen and she didn't know how to use it.

When children suffered symptoms of asthma and allergies at school, they were encouraged to stay at home, which parents believed affected learning. Parents of children with asthma reported frustration with the lack of teacher training and school-related asthma policies, meaning the burden of administering medication often fell on children, regardless of age and ability:

There is a policy in the schools concerning asthma, but it doesn't encourage people to send their children to school when they are having active asthma symptoms ... schools require children to administer medications themselves and sometimes children are too young to do so.

The policy requires that children sign papers and obtain medical forms filled out by doctors to allow medications to be kept at the school, but staff cannot administer the medications.

[We] are supposed to have a paper signed by the doctor. The puffers can't be at school unless this application is signed. We can't have a puffer up there now because the papers are not signed by the doctor — [the school has to have] proof that the doctor prescribed the puffer.

Many parents disclosed the burden they felt when dealing with symptomatic children with asthma at school. In such cases, concerned parents often kept children at home, which affected both the parents and child. Parents explained that teachers are trained in first aid and CPR, yet their role in supporting children with asthma is very limited (i.e., not able to administer asthma medications).

Respondents viewed teachers as ideal community asthma champions; in particular, for providing much needed hands-on education to children and their families.

Respondents linked the dearth of culturally relevant asthma education with lower levels of diagnoses and improper medication use. Parents worried that “everyone gets inhalers, even with no diagnosis of asthma” and considered asthma-related policy development as a means to access timely, appropriate care, and instruction.

3) ACCESSIBILITY OF COMMUNITY HEALTH SERVICES

A breakdown between education and diagnosis was seen as evidence of inadequate accessibility of community health care services. A need for a “proper framework for asthma management,” was reported, whereby “education and protocols would be similar to protocols for TB, so health professionals have a map to follow.” Yet, respondents noted funding disparities as a major barrier in sustaining such community support:

There are vast disparities in service being allotted to First Nations population versus the Community Care Access Centre home care for the general population. This could be addressed at a higher level to attain relative parity of funds and service.... A united health care program for all status clients would be ideal (First Nation Home Care would deal with all First Nation people, on and off reserve).

In terms of physical geography, participants reported costs of transportation and access to timely emergency health care, including population distribution, isolation, and inclement weather, as major barriers in accessing primary and secondary health care:

You're in isolation and in order to get to a bigger centre you have to travel a distance, you have to go through your doctor to get tested for allergies.... How many people with asthma ever saw a respiratory therapist to teach them how to use a puffer correctly? You have asthma and allergies so you live with it.

Some communities are 75 km just to the highway [remote for the land ambulance]. If you have the ability to come into the clinic you can get educa-

tion, but you need money to come in, vehicle, and time.

In general, respondents felt disempowered by the obstacles (funding, transportation, isolation) preventing them from taking control of and managing their asthma. Funding disparities affected everyday lives, and respondents reported they had difficulty coping without education, assistance, and proper screening from “proper health care providers”:

[There is a] lack of money for nurses in the community.

[The] wait in the emergency unit is long. If it is not life threatening, the reception is very surly, not welcoming.

Participants connected the lack of funding for asthma to a lack of empowerment. They described an escalating urgency as limited resources were compounded with inadequate living conditions; all of which made coping more difficult.

DISCUSSION

The National Lung Health Framework is a strategic action plan to improve the respiratory health of all people living in Canada (NLHF, 2008). Recent evidence recognizes increasing rates of respiratory disease among Aboriginal peoples in Canada, as well as the social and poverty inequities affecting health outcomes (Senthilselvan et al., 2003; Sin et al., 2002; Garner et al., 2010). In this regard, many individuals, families, and communities encounter barriers, which may explain why they are disproportionately affected. In this study, major gaps in family and community resources were consistently associated with heightened perception of risk of respiratory health outcomes, with children and elderly individuals bearing the greatest burden. These data support the findings that the communities in which people live affect their respiratory health (Lix et al., 2010; Garner et al., 2010). Analyses by Stapleton et al. (2011) demonstrated that cigarette smoking and second hand smoke in asthmatics are associated with poor patient outcomes. Others have suggested that a lack of culturally relevant programs and materials, especially in remote areas, are barriers to

good health care (Department of Health and Social Services, 1999; Benoit et al., 2003).

While these results are preliminary, they offer direction for understanding prevalence and risk factors of chronic respiratory disease for First Nations and Inuit community members. Gaps in coordinated care are often the result of a lack of professional health care resources and training opportunities, which stem from accessibility issues. Aboriginal populations of Australia and New Zealand face similar rural health personnel inequities, yet studies show that Inuit populations of Canada are seen to be even more isolated and disadvantaged (Cunningham, 2010). These findings support those by Crighton et al. (2010) that geographic location is significantly associated with asthma for adults and children who are also least likely to be diagnosed.

Study findings have several policy implications. It is clear that a federal framework for asthma and allergy care needs to be developed to improve disease detection and management and to assess resource needs to bridge gaps for families living in remote areas. It is also evident that increasing the visibility of respiratory health through culturally relevant educational materials can empower citizens, increase awareness, and improve accessibility of health services. In particular, the NLHF identifies common consistent health promotion messaging and education as key “health promotion, awareness, and disease prevention” strategies, but fails to specify the need for culturally relevant information, which these study findings strongly support. These results strongly support Asthma Canada’s work in engaging First Nations and Inuit community members directly in the development and adaptation of asthma educational materials that are culturally appropriate (ASC, 2010). Partnerships between policy makers and community working groups are essential to ensure the content, language, and delivery methods of education reflects the diverse range of specific community needs. Finally, in keeping with the objectives of the NLHF, it is imperative that key stakeholders work together to develop a health care delivery model to address the needs of First Nations and Inuit peoples living with respiratory diseases

(NLHF, 2008). For instance, these findings reinforce the need for a federal “asthma care” framework that mandates health care resources to adhere to the government asthma guidelines specific to Inuit and First Nations communities. In consultation with the National Lung Health Framework, such a structure may be funded, guided, and developed in partnership with policy makers and community members to ensure that community needs drive the design and implementation.

While this research may contribute to our understanding of the risk factors affecting respiratory health in five First Nations and Inuit communities, its generalizability across other communities is limited. The sample was relatively small, purposefully selected, and not representative of all asthma sufferers. Future research should focus on the cross-cultural experiences of respiratory health in other First Nations and Inuit communities.

Respiratory health represents a challenge to First Nations and Inuit community members who are motivated to protect the health of their communities. These study results reinforce the need to develop a health care model that aligns with the needs of First Nation and Inuit peoples living with chronic conditions. In particular, developing asthma-related policy will ensure that patients and their families can access timely, appropriate, instruction and care. Finally, increasing access to health care services through certified asthma educators and culturally relevant awareness, education, and detection strategies can mitigate this burden of illness. These results support a coordinated approach to respiratory health (NLHF, 2008).

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Susan Elliott, PhD, MA, BA (Hons), is Dean of the Faculty of Applied Health Sciences at the University of Waterloo, where she holds joint appointments in the Department of Geography and Environmental Management, and the School of Public Health and Health Systems. She is also an adjunct professor at the United Nations University, Institute for Water, Environment and Health. Dr. Elliott is a medical geographer, and her primary research interests are in the area of environment and health, the global environment, urban social geography, and philosophy and method in the social sciences. Dr. Elliott is a program co-leader, research management committee member, and funded researcher at AllerGen NCE. She also holds research grants from CIHR, SSHRC, and the Heart and Stoke Foundation. In her work with the Asthma Society of Canada, Susan undertook a review of relevant federal and provincial surveys (Canadian Community Health Survey; National Population Health Survey; NLHF; Aboriginal Peoples Survey), and library databases.

Michelle Vine is a doctoral candidate and research coordinator in the School of Geography and Earth Sciences at McMaster University. She is trained as a social geographer, with a strong research focus on the environment and health, qualitative research methods, and chronic disease health promotion, particularly at the community level. Michelle completed her undergraduate education at McMaster University, and Master’s degree at Acadia University, both in Sociology. Her doctoral research examines the environmental context of school nutrition policy and programming at various spatial scales — the national, provincial and regional — in Canada.

In her role as Research Coordinator in the School of Geography and Earth Sciences at McMaster University, Michelle has had the opportunity to work on several health research projects, including those funded by: the Canadian Institutes of Health Research; the Heart and Stroke Foundation of Canada; and the Asthma Society of Canada. As part of her work with the Asthma Society of Canada, she analyzed focus group and interview data with First Nations and Inuit community health personnel, community health providers, and community members (e.g., parents, school principals) to assess the determinants of respiratory health risk factors, and issues associated with access to care.

Christine Hampson obtained a Ph.D. in Health Geography at McMaster University in 1997. At McMaster she specialized in environment and health research while serving as an Instructor in the Department of Geography at Brock University. Christine is the Founder and Principal of Hampson/Roberts Solutions Group Inc., a consulting company specializing in political organization, training and fundraising/development consulting. During the first term of Ontario Premier Dalton McGuinty from 2003-2007, Christine held the position of Executive Lead, Strategic Operations in the Office of George Smitherman, Ontario's Minister of Health and Long-Term Care as well as Executive Lead, Human Resources in the Office of the Premier. Christine then served as President of the Ontario Liberal Fund where she was responsible for all fundraising for the Ontario Liberal Party's successful 2007 re-election campaign. In November 2007, Christine joined the Asthma Society of Canada where she served as President and CEO until November 2011. The Asthma Society under her leadership conducted the community research, which forms the basis of the manuscript under consideration. Christine is currently the President and CEO of The Sandbox Project. Christine serves as a member of the Board of Directors of both The Company Theatre and AllerGen NCE.

Oxana Latycheva, MHSc, PHD, CHE is Vice President, Programming at the Asthma Society of Canada. Oxana is a foreign trained medical doctor

from Russia where she also earned her PhD degree in Medicine in 2002. After coming to Canada, Oxana obtained her Master's degree in Health Science at the Department of Health Management, Policy and Evaluation, University of Toronto and the Certified Health Executive (CHE) designation from the Canadian College of Health Leaders. Prior to joining the Asthma Society of Canada, Oxana coordinated the Primary Care Asthma Pilot Project, a part of the Ontario Provincial Asthma Plan of Action, and organized community-based Asthma Education Clinics implementing the best practices for asthma management in primary healthcare. At the Asthma Society of Canada, Oxana led the implementation of various community-based asthma educational programs and initiatives aimed to improve knowledge and awareness of this chronic disease. Since 2006, she has also led the development and pilot testing of public health materials and tools on respiratory health and the risk factors for chronic respiratory disease for First Nations, Inuit and Métis community members working closely with multiple stakeholders and Aboriginal communities from across Canada.

Kim Barber, PhD is a graduate of McMaster Medical School and University of Toronto Family and Community Medicine Program and a fellowship in International Health. She currently holds an academic position in the Community Medicine division of the Northern Ontario Medical School. She has held numerous population health positions overseas with UNICEF and USAID and is now focusing on the Indigenous population health both Canada and globally.

Jo-Anna Gillespie was born in Victoria, BC and received her early nursing education at the Royal Jubilee School of Nursing. After graduation in 1977, Jo-Anna worked in various acute care hospital settings in Victoria and Vancouver. In 1993 Jo-Anna changed career direction embarking on asthma research. In 1995 Jo-Anna achieved her diploma in Asthma Care followed by her instructor's certification from the Asthma Training Centre in the UK. In 2009 Jo-Anna completed her Degree (Hons) in Respiratory Care from Edgehill University, UK. Starting in 1993

to 2012 Jo-Anna has applied her asthma and allergy education by helping both patients and allied health professionals in Canada, United States and Europe. Using a team model Jo-Anna has worked with an allergist/immunologist providing asthma and allergy care both in the Vancouver region and in northern British Columbia clinics. After completing two terms

as the CSACI Chair of the Allied Health Section Jo-Anna is currently the western representative for the Asthma Society of Canada. Her future goal is to develop an asthma and allergy education program that is effective and financially sustainable for all patients regardless of their geographic location.

