



Child Friendly Asthma Education: Building Capacity in Canadian Communities

Final Project Report

Submitted to the
National Lung Health Program
Public Health Agency of Canada
Project #: 6281-15-2009/9010980

Helping Children with Asthma
Reach Their Full Potential



Submitted by:

Governors of the University of Alberta
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Executive Summary:

This project adapted a best practice asthma education resource to be nationally applicable, supported and accessible. It contributed to improving lung health in Canada by:

1. Providing **on-line childhood asthma education and skill development** to health care professionals (“hcps”) in communities across Canada (at www.raponline.ca);
2. Consolidating **resources necessary for hcps** to easily implement the Roaring Adventures of Puff (“RAP”) program in their communities to support children with asthma and their families;
3. Establishing **communities of practice and building cooperative teams** of hcps, academics, national and regional associations, and government to promote exchange of knowledge and successful practices, foster collaboration, support hcps in remote areas and sustain the on-line course;
4. Consulting across Canada to ensure **resource is relevant and accessible** in all communities including First Nations and Inuit, remote, immigrant and French speaking communities.

Background and Project Development:

Alberta Asthma Centre

The Alberta Asthma Centre (“AAC”) was established in 1993 as a formal centre of excellence within the University of Alberta and has maintained a close affiliation with Alberta Health Services. Our mission is two-fold:

- to maintain and extend excellence in asthma assessment, management and treatment; and
- to provide learning opportunities for patients and their care-givers to help overcome the hardships imposed by asthma in the community.

AAC's objectives (relating to this Project) include:

- To develop multi-jurisdictional networks of practitioners, interest groups and researchers, with a consistent mission, and for basic and applied research on the etiology, pathogenesis, treatment and prevention of asthma.
- To facilitate optimal use of existing knowledge and resources and to develop, test and implement new knowledge, processes and strategies in all aspects of asthma, thereby improving the quality of life of those with asthma and reducing the burden of asthma in the community.
- To foster an environment where members challenge the boundaries of knowledge and are encouraged to share their challenges with health professionals, researchers, schools, policy makers and patients.

A description of recent AAC activities is found in **Appendix A**.

Project Development

The RAP program was created (1993) and implemented (1995) to address gaps in asthma self-management education for children and the lack of related training and resources for hcps. The program consists of two complementary components:

1. **Curriculum for 6-12 year old children with asthma** (See Deliverables): Six lesson plans to be delivered in the school setting to small groups of children by a trained health care professional. These materials include instructions and templates for interactive activities, scripts for the instructor and "Puff the Asthmasaurus" puppet, rap-inspired songs, school assembly plans, posters and lists of resources.
2. **Curriculum for hcps who support children with asthma** (See Deliverables): Applying childhood education, social-cognitive and behavioural change theories, the course (entitled "RAP Instructor's Workshop") includes "Asthma 101", "Leading Small Groups", "Changing Behaviour", "Fun and Engaging Teaching Skills" and "Implementing RAP"¹. The original format was in-person instruction over 1.5 days with opportunities for role-playing and discussion. Strategies and templates to plan, prepare, implement and evaluate RAP are included².

Subsequent academic studies of RAP outcomes³, integration of the program into Ontario's Public Health School Asthma Project (Ministry of Health and Long Term Care) ("PHSAP")⁴ and Children's

¹ The complete course curriculum can be found at www.raponline.ca and is attached (see Deliverables).

² 2010 revised Roaring Adventures of Puff Instructor's Guide and Toolkit is found at www.educationforasthma.com and is attached (See Deliverables).

³ Mandhane PJ, McGhan SL, Sharpe HM, Wong E, Hessel PA, Befus AD et al. A child's asthma quality of life rating does not significantly influence management of their asthma. *Pediatr.Pulmonol.* 2010;45:141-8.

McGhan S, Wong E, Sharpe H, Hessel P, Mandhane P, Boechler V et al. A children's asthma education program: Roaring Adventures of Puff (RAP), improves quality of life. *Can.Respir.J.* 2010;17:67-73.

Cicutto L, Conti E, Evans H, Lewis R, Murphy S, Rautiainen KC et al. Creating asthma-friendly schools: a public health approach. *J.Sch Health* 2006;76:255-8.

Cicutto L, Murphy S, Coutts D, O'Rourke J, Lang G, Chapman C et al. Breaking the access barrier: evaluating an asthma center's efforts to provide education to children with asthma in schools. *Chest* 2005;128:1928-35.

McGhan SL, Wong E, Jhangri GS, Wells HM, Michaelchuk DR, Boechler VL et al. Evaluation of an education program for elementary school children with asthma. *J.Asthma* 2003;40:523-33.

Asthma Education Centre⁵ and continued promulgation by educators⁶ and lung associations⁷ support its standing as “best practice”.

In 2009, with the support of the University of Alberta Social Support Research Program (Dr. Miriam Stewart) and funding from Allergy, Genes and Environment Network (“AllerGen”), the instructor’s course was modified to an on-line format, piloted and evaluated (“the AllerGen project”). The on-line format revolutionized delivery of the course making it accessible to practitioners in remote areas, permitting flexibility in the timeline for completion, creating forums for interaction with numerous subject matter experts and reducing costs to participants and hosts.

The NLHF Phase 1 project concept sprang from the above work and evidence of success, and to address general and specific shortcomings in childhood asthma treatment and self-management education, namely:

General:

- The NLHF website is replete with statistics about the incidence and costs of asthma in Canada. Despite advances in treatment, statistics relating to rates of asthma in the general population and in children are discouraging. More than 60% of individuals with asthma are poorly controlled⁸; childhood asthma is the most common chronic condition in Canada. Poorly controlled asthma in children significantly affects physical activity, school attendance and performance, and results in high numbers of urgent care visits, inappropriate medication use and side effects and in some cases, death⁹.
- Evidence suggests that asthma is controllable in the majority of children through optimal self-management practices such as appropriate medication use, trigger avoidance and preventative actions.

Specific:

- As part of the AllerGen project, 47 health care professionals were surveyed about barriers to continuing education, learning needs and preferences relating to childhood asthma and allergies. Participants reported numerous barriers including ability to travel to, pay for and take time away from work and home responsibilities. At the conclusion of the pilot, participants reported that the course was accessible.
- Health care professionals also reported that they have little to no training about how to engage children with asthma in age-appropriate learning to change health behaviours. At the conclusion of the AllerGen project, course participants reported that the course addressed their skills gap and was relevant to their practice.¹⁰

⁴ part of Ontario’s Asthma Plan of Action, Nancy Garvey, Asthma Program Coordinator.

⁵ Dr. Allan Becker, Children’s Asthma Education Centre (“CAEC”), Winnipeg.

⁶ K.C. Rautiainen, Sue Murphy, Rebecca Lewis, Liz Conti and Cathie Snider of Ontario’s PHSAP; Lesley Stewart, Nancy Ross, Beverley Kulbaba, Jo-Anne St. Vincent and Shauna Filuk of Children’s Asthma Education Centre; Suzanne Murphy, The Credit Valley Hospital, Mississauga; Ontario Lung Association’s NLHF Phase I project, Asthma Society of Canada’s NLHF Phase I project.

⁷ Ontario Lung Association’s NLHF Phase 1 Project

⁸ Fitzgerald JM, Boulet LP, Mclvor RA, Zimmerman S, Chapman KR. Asthma Control in Canada Remains Suboptimal: The Reality of Asthma Control (TRAC) Study. *Can Resp J* 2006; 13 (5): 253-259.

⁹ Silverstein MD, Mair JE, Katusic SK, Wollan PC, O’Connell EJ, Yunginger JW. School Attendance and School Performance: A population-based study of children with asthma. *J Pediatr* 2001; 139(2): 278-283.

¹⁰ The AllerGen Project report is available upon request.

The intent of the NLHF Phase 1 proposal was to provide this best practice to a greater number of healthcare professionals but moreover to create a sustainable model of delivery. The proposal and its objectives were supported by Dr. Lisa Cicutto (University of Toronto), Ontario PHSAP, Ontario Physical and Health Education Association (“OPHEA”), Dr. Miriam Stewart (University of Alberta), Sue Murphy (The Credit Valley Hospital, Mississauga) and Heather Sharpe (University of Calgary).

Project Goals and Objectives:

Objectives set for this project were:

- To modify the on-line RAP Instructor’s course and all related materials to address the feedback of AllerGen Project participants, stakeholders and experts and thereby ensure RAP instructor’s training is relevant, accessible and sustainable for future broad implementation;
- To establish a National faculty, delivery process and recruitment plan;
- To deliver the on-line course to health care professionals;
- Through faculty, course participants and others, build leadership and capacity across Canada to educate and empower children with asthma using effective best practice program; and
- Evaluate process and inputs.

Early in the project term, and as a result of national consultation, related objectives emerged:

- To explore and catalogue barriers (and solutions) to implementation of school-centric asthma education in Canadian communities;
- To further identify high-risk and under-served populations and establish/strengthen strategic partnerships to affect health in these populations;
- To link and share expertise/resources among health care professionals, academics, policy and program developers committed to childhood asthma.

Where possible, and without increasing the original budget, project activities were expanded to address these additional objectives. For example, the agenda and list of participants at the national consultation meetings were expanded.

Project Activities

Activities were organized into four phases:

1. **National Consultation, Course Review and Revision:** AAC gathered substantial input from a nationally represented committee of researchers, asthma educators, health professionals, NGOs and stakeholders (n=17, see **Appendix B: National Committee Membership: Representation by Region**) with experience and expertise in the area of childhood asthma education and/or on-line learning (the “Committee”). By means of four national on-line meetings and an on-line community of practice, AAC collected recommendations respecting:
 - a. The content and delivery of the RAP instructor’s on-line course, RAP instructor’s manual (now called “RAP Instructor’s Guide and Toolkit”), lesson plans and learning activities.

- b. Barriers to childhood asthma education in Canadian communities, their effect on child health and potential strategies to address these barriers.

AAC implemented the Committee's recommendations and feedback from AllerGen project participants, reviewed and revised all 11 modules, added a new module entitled "Healthcare in Diverse Populations", and new section called "Tips from Experts". In addition, the on-line course (11,000 words), manual and the entire curriculum for children (37,000 words) were translated into French (called "Rémi l'Asthmasaure et ses aventures Périlleuses"). French links were researched and added and the entire translation was reviewed by Ms. Julie-Anne Bonhomme, asthma educator and Committee member from Quebec¹¹.

2. **Recruit National Faculty and Plan for Delivery of On-Line Course:** AAC recruited 16 subject matter experts to actively facilitate one or more on-line modules. A registry of facilitators was established for future courses. The course was nationally advertised to health care professionals as a "summer session"; 36¹² were registered and 43 placed on the waiting list.
3. **Deliver the Course:** AAC provided support, liaised with facilitators, added content, moderated discussion forums, marked exams, issued certificates, and collected exit surveys. Students completed the 10 mandatory (plus two elective) modules at their own pace within an initial 9-week timeframe, which was extended in order that more students could graduate.
4. **Evaluate Process and Impact:** Course participants wrote an exam and provided feedback on specific modules and the course as a whole. Faculty also completed a survey respecting the course and their role. These results have been reviewed and compiled by Project staff for future course revision. Project results have been presented to stakeholders and Committee members. A complete distribution list of this project report is attached as **Appendix C**.

There were no project activities that were not carried out. Two activities that were originally proposed as in-person were hosted as teleconferences in order to minimize travel costs and maximize participation from stakeholders and experts, namely:

- Committee meetings were organized as a series of four-½ day teleconferences, supplemented by on-line document sharing and an on-line community of practice; and
- Faculty meetings and training were accomplished by dissemination of written materials and subsequent e-mail and telephone follow-up.

Unintended Activities or Events

Although the original objectives related specifically to the RAP program, the exceptional calibre and broad representation of the Committee presented an opportunity to explore the state of childhood asthma education in general, compare approaches across regions and communities, and share resources. Thanks to Catherine Peirce, Project Manager of the Canadian Healthcare Education Commons ("CHEC"), an on-line community of practice was created for the Committee.

¹¹ See Deliverables; copies of French versions are attached.

¹² 36 was determined to be capacity based on workload for facilitators, marking and support requirements, timeframe and advice based on similar courses.

The participatory process used in this project meant that the project activities were tweaked at every stage. For example, a module respecting diversity in health care was developed after national consultation. Partnerships were established with other NLHF projects which were using the RAP curriculum to educate health care professionals and children with asthma¹³. For example, Shawna McGhan travelled to Sioux Lookout with the Ontario Lung Project team, publicized the RAP program, and presented and discussed this project and next steps with the FN Committee. New faculty and participants from at-risk communities were added at the suggestion of stakeholders. Project staff explored offering a compressed version of RAP on-line to health promoters in First Nations' communities. Strong and informed partnerships meant that we could include appropriate stakeholders at various project phases, for example RQAM and Julie-Anne Bonhomme's roles in developing the French version of RAP-online and manual. Through extensive networking, the project team discovered complimentary and updated materials which were consolidated into an on-line list of resources.

As a result of and concurrently with this project, Shawna McGhan was asked to chair a school health subcommittee of the Alberta Health Services ("AHS") Child Asthma Pathway Committee comprised of 15 key leaders who play a role in school health and/or asthma in AHS. Through this committee, Shawna publicized this NLHF project and demonstrated the potential of the RAP program for healthcare professionals and children with asthma. In addition, Shawna drafted a pathway for managing asthma in schools and integrating the role of the health system.

These additional but related activities strengthened the value of the project and outcomes.

Difficulties and Solutions

Timing of on-line course: When the project start date was delayed until March 12, 2010, project staff anticipated that certain activities that depended on completion of earlier phases, would be compromised. For example, the on-line course, structured as an 8 to 10 week course, was originally scheduled for the spring. With the late start, and the necessity to complete Phase 1 activities (which included gathering feedback for course revision), the course was pushed into the summer months, when faculty and students traditionally take vacation. The project team applied creative solutions to recruitment (of faculty *and* students), faculty training and course structure to address this issue. Of those participants who enrolled but did not complete the course, 50% gave the timing as a reason.

Recruitment of Student Participants: Although significant effort was made to invite participants from every region and a diversity of practice settings, we relied heavily on existing contacts with Committee members, professional associations, lung associations, asthma educators, PHSAP, other NLHF project teams, and groups currently implementing RAP, to disseminate our notices. The response rate of such groups varied and accordingly, our class had stronger representation in Manitoba, Alberta and Ontario, where RAP has been integrated into provincial or regional programs. In some cases, we were advised belatedly (in some cases months after our request) that a policy prevented dissemination. Others agreed to post the invitation in newsletters that were published monthly or less frequently. Given the above noted time constraints, we registered on a first come first served basis and were unable to give priority based on place of residence.

Set-Up: Given that the AAC does not have a large staff or operations, it was necessary to hire staff and set up offices specifically for this project. The delayed start date and the procedures required to post

¹³ Ontario Lung Association and Asthma Society of Canada.

positions, interview, hire, purchase equipment and establish a working office hampered our ability to start project activities immediately.

Translation: The final issue was the substantial volume of material to be translated and projected timelines of translators. We sought and were given an extension of the project term to address this difficulty. As well, we enlisted the services of an asthma educator from Quebec, who had been involved in earlier project phases, to review translated materials to ensure consistency, quality and appropriate medical terminology.

Participation of Population Group(s)

As explained above¹⁴, the RAP program consists of two curricula: one which targets **health care professionals** (on-line and in person formats, called “the RAP Instructor’s Course”); a second for **children with asthma**. Additionally, the program has resources which target the school (and board), families, communities and has implications for health care practitioners who treats children with asthma.

Role of Health Care Professionals

As explained in detail above, the original AAC proposal sprang from feedback from health professionals who participated in the AllerGen project. Eight asthma educators (including a student participant from the AllerGen project) sat on the National Committee¹⁵, and were seized with evaluating the on-line course (including all linked resources, the Instructor’s Guide and Toolkit, lesson plans and activities) and exploring barriers/solutions to educating children with asthma. In addition, Committee members made recommendations about potential faculty for the course, student recruitment and dissemination activities. Four asthma educators who implemented the PHSAP “asthma friendly schools” in Ontario schools reviewed the Instructor’s Guide. The faculty and course participants evaluated the course and provided detailed feedback. All of the health professionals that acted as faculty (save one) agreed to act as faculty in the future. Input was also solicited through formal and informal presentations at the Alberta Respiratory Health Symposium (World Cafe presentations), Alberta Child Health Meetings and Alberta Innovate, Influence, Implement RTNA Conference.

Role of Children/Families/Communities

The following efforts were taken to examine whether the RAP curriculum is optimal for children in a variety of communities:

- Recruited Committee members with experience in First Nations communities to inform content and process. Dr. Kim Barker, Ana MacPherson, Dr. Miriam Stewart and Glenda Isaak¹⁶ agreed to sit on Committee.
- Met with Dr. Kim Barker and Asthma Society of Canada project team about their project activities and use of RAP curriculum with First Nations.
- Met with Ana MacPherson and Carol Madeley, Ontario Lung Association, about their project activities and use of RAP to train FN health care professionals. At the invitation of Ana

¹⁴ Under the subheading “Project Development”.

¹⁵ See Appendix B Map and Biographical Information of Committee Members.

¹⁶ See Appendix B for Committee’s biographical information.

MacPherson, Shawna McGhan attended at Sioux Lookout for Ontario Lung Association's dissemination activities.

- Sent invitations for on-line course to FN health promoters through Asthma Society of Canada, Ontario Lung Association and National Committee members. Extended offer to host revised version of on-line course for FN health promoters.
- Enrolled health care professionals who work in First Nations communities in on-line course.
- Invited Ana MacPherson to act as faculty in modules relating to healthcare in diverse settings and implementing RAP.
- Consulted with parents and children with asthma through Committee members, AllerGen project team, on-line course discussion forums and evaluation surveys, child with asthma (and parent) role on faculty.
- Recruited and consulted with Committee members/faculty with expertise with under-served at-risk populations: Dr. Nicole Letourneau, Dr. Lisa Cicutto and Dr. Miriam Stewart, Sharon Anderson, Lesley Stewart and Jennifer Miller.¹⁷
- Added a course module entitled "Diversity in Healthcare" developed and facilitated by Helgi Eyford, Alberta Health Services.

Partnerships and Intersectoral Collaborations

Partners by Sector (some fall in multiple sectors), Institution and Jurisdiction:

- **Academia:**
 Dr. Lisa Cicutto, University of Toronto
 Heather Sharpe, University of Calgary
 Dr. Miriam Stewart, University of Alberta Social Support Research Program
 Sharon Anderson, University of Alberta Social Support Research Program
 Dr. Kim Barker, Assembly of First Nations
 Janice Butler, Memorial University
 Dr. Shannon Scott, University of Alberta
 Helgi Eyford, Alberta Health Services
 Dr. Nicole Letourneau, University of New Brunswick
 AllerGen NCE
 Dr. Sheldon Spier, Alberta Children's Hospital, Calgary, Alberta
- **Health Care/Lung Health Policy and Program Development and Implementation:**
 Newfoundland and Labrador Centre for Applied Health Research (Janice Butler)
 Ontario Physical and Health Education Association (Katie Glover)
 Ontario's Asthma Plan of Action (Public Health School Asthma Project; Cathie Snider)
 Alberta Health Services (Helgi Eyford)
 Alberta Health Services Child Health Committee, Asthma Pathway, (Chair Dr. David Johnson)
 Ontario Ministry of Health and Long Term Care (Nancy Garvey)
 Children's Asthma Education Centre (Dr. Allan Becker, Lesley Stewart)
 The Lung Association of Saskatchewan (Jennifer Miller)
 Ontario Lung Association (Ana MacPherson and Carole Madeley)
 Asthma Society of Canada (Oxana Latycheva and Rupinder Chera)
 Clean Air Champions

¹⁷ See Appendix B : Map and Biographical Information of National Committee

The Lung Association of BC (Kim Ablog-Morrant)
 The Lung Association of Alberta (Tony Hudson)
 Quebec Asthma and COPD Network (“QACN”¹⁸; Patricia Cote)

- **Health Care Professionals:**

Martha Greechan, IWK Health Centre, Halifax, Nova Scotia
 Sue Murphy, The Credit Valley Hospital, Mississauga, Ontario
 Elizabeth Conti, PHSAP, Ontario
 Rebecca Lewis, PHSAP, Ontario
 Cathie Snider, PHSAP, Ontario
 K.C. Rautiainen, PHSAP, Ontario
 Julie Gaalaas, Alberta Health Services, Camrose, Alberta
 Glenda Isaak, Community Health First Nations, Waywayseecappo, Manitoba
 Dr. Allan Becker, Children’s Asthma Education Centre, Winnipeg, Manitoba
 Lesley Stewart, Children’s Asthma Education Centre, Winnipeg, Manitoba
 Beverly Kulbaba, Children’s Asthma Education Centre, Winnipeg, Manitoba
 Nancy Ross, Children’s Asthma Education Centre, Winnipeg, Manitoba
 JoAnne St-Vincent, Children’s Asthma Education Centre, Winnipeg, Manitoba
 Shauna Filuk, Children’s Asthma Education Centre, Winnipeg, Manitoba
 Dr. Sheldon Spier, Alberta Children’s Hospital, Calgary, Alberta
 Julie-Anne Bonhomme, Asthma Educator, Asthma Education Centre of Gatineau, Gatineau, Quebec

- **First Nations and Inuit Advisors:**

Dr. Kim Barker, Assembly of First Nations, Ottawa, Ontario

- **Alberta Health Services, Diversity Consultant**

Helgi Eyford, Calgary, Alberta

- **Children with Asthma and Parents:**

Henry Atkinson and Noelle DeCorby

- **Online Learning:** Catherine Peirce, Canadian Healthcare Education Commons (CHEC), Ottawa, Ontario

Results

- **Expanded Scope of Course and Ensured it is Relevant, Accessible and Sustainable:** The following measures ensure the course is relevant, accessible and sustainable:
 - The review process was informed and thorough. It was completed by 20 committed individuals with expertise in childhood asthma education, behaviour change, asthma friendly schools, child health policy, social support/peer mentoring, and on-line learning. These individuals were drawn from almost every region (excluding only the territories and PEI) and practice setting. The course, the 148-page Instructor’s Guide and Toolkit and all linked materials and websites were reviewed and modified.
 - In response to Committee recommendations, the Project team recruited Helgi Eyford, Diversity Consultant, Alberta Health Services, to develop a new module entitled “Health Care in Diverse Populations”. Using three case studies, participants explored the concepts of “culture”, “power distance” and “individualism” and were provided with a

¹⁸ or, Réseau québécois de l’asthme et de las MPOC (RQAM)

list of questions to ascertain what affect diversity may have in patient interactions.¹⁹ Mr. Eyford acted as facilitator of this module during the on-line course.

- The project team sought out and established partnerships with First Nations and Quebec;
- Translated the on-line course (11,000 words), Instructor’s Guide and Toolkit (including the entire curriculum for children (37,000 words)) into French (called “Rémi l’Asthmasaure et ses aventures Périlleuses”). French links were researched and added and the entire translation was reviewed by Ms. Julie-Anne Bonhomme, asthma educator and Committee member from Quebec²⁰ for consistency, quality and appropriateness of medical terminology.
- Established registry of 23 trained and experienced facilitators for future courses;
- Expanded discussion forums and networking opportunities to facilitate exchange of information among participants.
- **Validated High Quality Online Course:** Results from exit surveys are found in the Evaluation section below. Participants’ consistently commented on the comprehensiveness and utility of the course. Participants valued the core content, opportunities to discuss practice examples with colleagues and experts, role playing, and strategies to work with parents, schools and communities. Participants rated the quality of materials, learning community, organization, and guest facilitators between 4.00 and 4.19 on a 5 point scale.
- **Increased Capacity of Health Professionals:** 37 health professionals enrolled. 18 completed all requirements including a written exam, role playing exercises, and 12 interactive discussion forums.
 - Although there was no “pass/fail” threshold prescribed for the exam, participants scored consistently high with an average of 80.8% on short and long-answer (including case study) questions²¹.
 - Graduates identified areas of their practice that would be strengthened as a result of the course including: being knowledgeable about asthma and behavioural change theory, keeping children’s attention, being comfortable with approaches, keeping message simple, having tools to make interesting, being able to judge child’s understanding. See the Evaluation section (below) for detailed survey results.
 - Links of participants established through the course to each other, experts, the AAC and resources will enable them to effectively implement RAP and access support.
 - With the consent of participants, The Children’s Asthma Education Centre contacted 2009 and 2010 graduates to maintain contact between Manitoba childhood asthma educators.
 - The course also strengthened the practice skills of the guest facilitators: Four of six respondents opined that the course was of value to their own practice.
- **Reached Diversity of Health Professionals:** Participants came from various regions, urban (n=8) and rural (n=8) centres, and a variety of practice settings including First Nations health centres (n=2).
- **Created Demand for Course:** Interest in the course was substantial: 43 were placed on the waiting list in June and July alone. The waiting list continues to grow.

¹⁹ See Deliverables for full curriculum of on-line RAP Instructor’s course.

²⁰ See Appendix B for Map and Biographical Information.

²¹ The exam is available upon request.

- **Compared and Catalogued Barriers to Child Asthma Education across** provinces, regions and in high-risk populations through consultation. A summary of the barriers identified by the Committee is attached as **Appendix D** Summary of Discussion Threads.
- **Expanded Awareness of Potential Impact:** This project has broad multi-jurisdictional and multi-sectoral reach. Members of the committees (Quebec; First Nations and Inuit), dissemination partners, and faculty came from all jurisdictions and demographics.
- **Influenced Practice to Impact Students, Families and Schools:** 75% of course graduates²² report plans to implement RAP in their community. Two graduates (AB and Ontario) have already been approved and scheduled RAP sessions for this school year.
- **Strengthened and Developed Partnerships:** AAC established new and strengthened existing collaborations resulting in increased use of best practices, efficiencies and sharing of expertise. RAP and Shawna McGhan were introduced to stakeholders in First Nations communities as first step in participatory process for planning/implementation in those communities.

Activities that will Continue beyond the Project

- 75% of Graduates intend to implement RAP in schools; two have received school/board approval and have scheduled sessions in elementary schools. Other implementation plans are listed in the Evaluation section below.
- The Ontario PHSAP and Winnipeg Children's Asthma Education Centre continue to integrate RAP Instructor's training, lesson plans, activities and templates into their asthma education policies and programs. These groups have translated certain education materials into French and have requested the French translation of RAP Instructor's Guide and Toolkit.
- The translations of the Instructor's Guide and Toolkit and On-line Instructor's course will be disseminated for use in Quebec and across Canada.
- The RAP on-line Instructor's course will be offered to the waiting list once minimal funding for course support is secured.
- Partners have been recruited on project proposals to address gaps identified by the Committee and Graduates; one proposal has been submitted to date; a second is being drafted.
- Partnerships have been forged with other NLHF Phase 1 project teams who conducted RAP Instructor's training (in-person) and implemented RAP in schools. AAC will continue to support such activities.
- The Instructor's Guide and Toolkit and all related resources and links can be found at www.educationforasthma.ca. The course site www.raponline.ca continues to host a Community of Practice for graduates.
- Shawna McGhan role as chair of the school health subcommittee of the Alberta Health Services ("AHS") Child Asthma Pathway Committee will continue. This subcommittee is comprised of 15 key leaders who play a role in school health and/or asthma in AHS. Through this committee, Shawna publicized this NLHF project and demonstrated the potential of the RAP program for healthcare professionals and children with asthma. In addition, Shawna drafted a pathway for managing asthma in schools and integrating the role of the health system.
- Results from this project will be included in article and abstract submissions.

Dissemination Process

²² This rate includes the plans of those who do not work with children.

The project was publicized to Alberta respiratory health professionals through poster presentations, distribution of two page leaflets and numerous informal meetings at the Alberta Respiratory Symposium. Similar materials were made available at the 2010 Canadian Respiratory Conference and disseminated to and through partners and stakeholders. The Project team presented the project in a discussion forum at “Innovate, Influence, Integrate” 2010 RTNA Conference. Finally, the Project team targeted and met with child/school health experts, provincial health policy decision makers and school health coordinators at AHS Child Health meetings, AHS Child Asthma Pathway and “Innovate, Influence, Integrate 1010 RTNA Conference”.

Interim progress reports were distributed to all Committee members and Faculty. The revised (2010) Instructor’s Guide and Toolkit has been mailed to the Committee, Faculty and all Graduates. The French version has been offered to Committee, Faculty, and all Graduates. Partners and stakeholders have been advised to go to www.educationforasthma.ca to obtain a copy of the Instructor’s Guide and Toolkit and related resources.

The final report was or is concurrently being distributed to the Committee and Faculty. An executive summary of this final report has or is concurrently been distributed electronically to the distribution list in **Appendix C**.

Evaluation

Evaluation of the on-line course was completed by surveys of the following groups:

1. **Course Graduates** (n=18): “Graduate” refers to someone who enrolled in the course, participated in the discussion forums of each of the ten mandatory modules, and completed the written exam and exit survey within the prescribed time.
2. **Participants who enrolled but did not start, withdrew or failed to complete** (n=19): Of these, 10 completed an exit survey. The vast majority of this group “dropped-out” after completing 3 modules or less, as measured by on-line discussion forum posts and/or module survey completion. Consequently, opinions about course content from this group should be given significantly less weight. The primary reason for non-completion given was competing commitments.
3. **Faculty** (n=17).

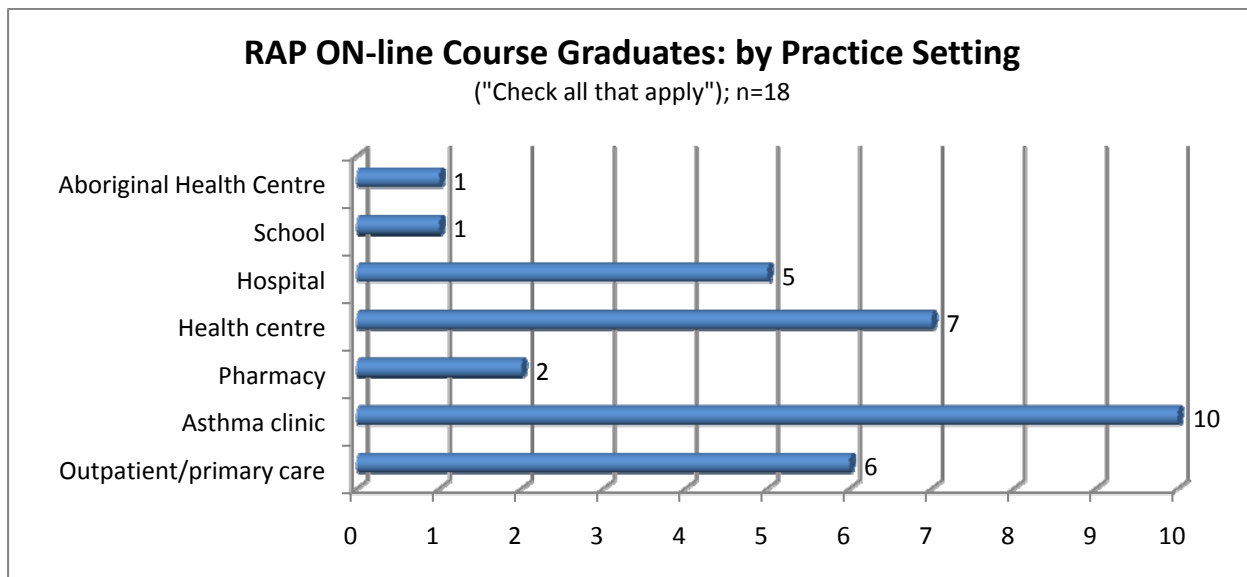
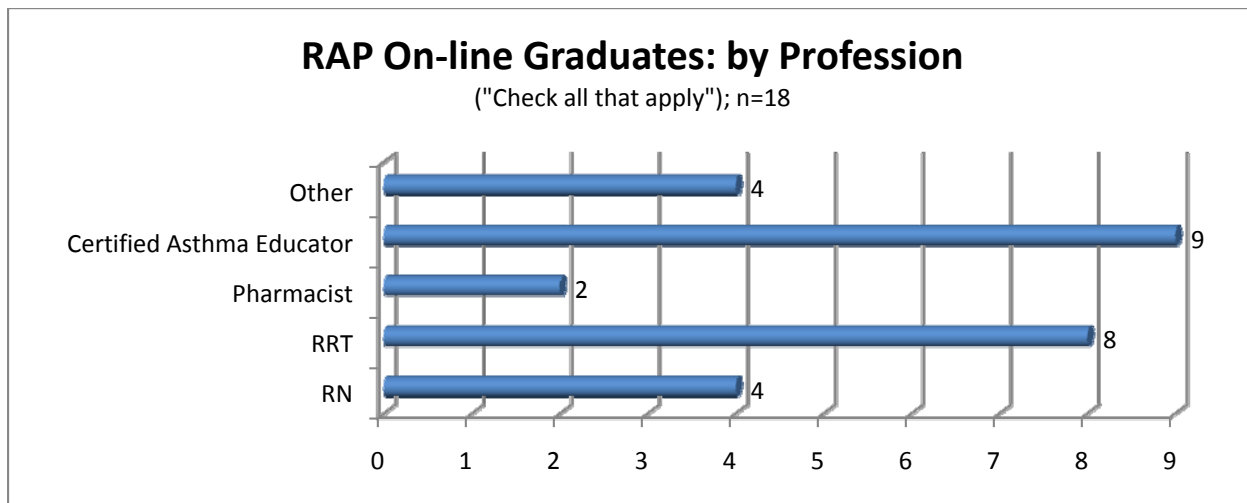
Surveys captured demographic information, opinions about course content, organization and format, workload, project team and faculty performance. Surveys were conducted on-line using www.surveymonkey.com. Graduates completed a more detailed survey (39 questions) than students who did not complete the course (29 questions).

Informal evaluations and feedback were gathered throughout the project term from the Committee (through participation in the national meetings; subsequent opportunities to blog, participate in CHEC Community of Practice and e-mails); faculty, participants, Alberta Respiratory Symposium attendees, stakeholders, NLHF project teams, AllerGen project team, Ontario PHSAP, NLHF Phase II application partners and others.

Survey of Graduates

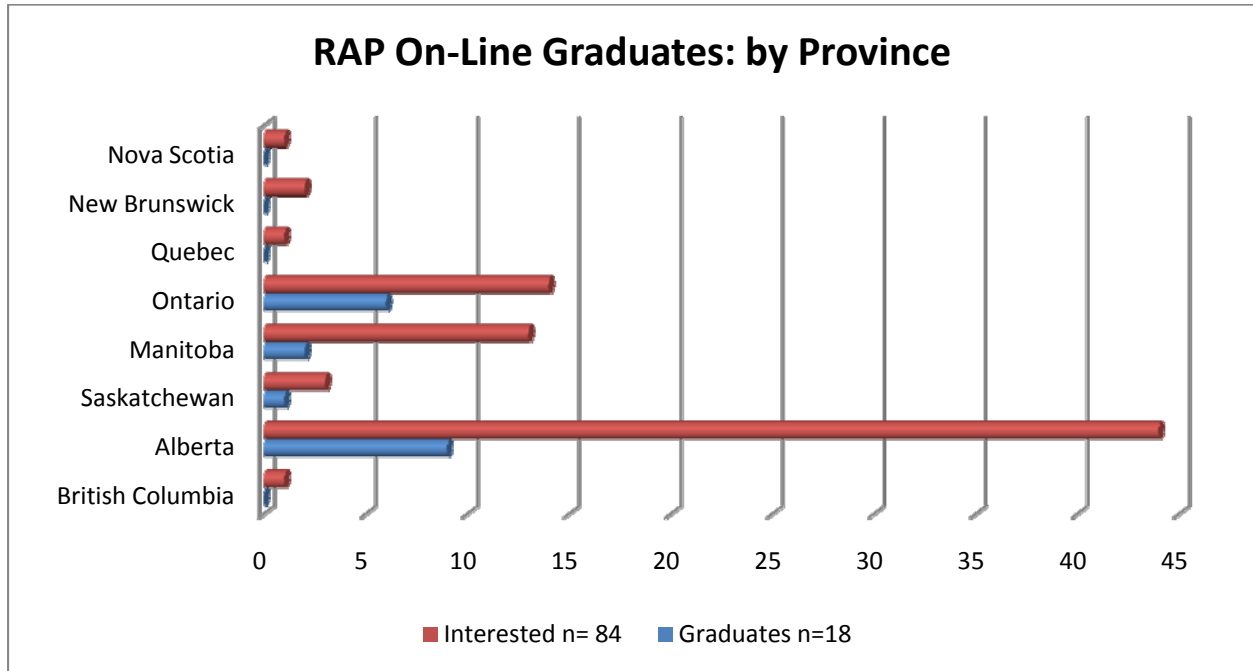
Demographics:

Information was collected about graduates’ professions, years of experience, practice focus and setting, location of practice (by province and size of municipality), and experience with on-line learning. The most relevant demographic data - demonstrating the reach of the project and showing the context for graduates’ opinions - is shown below. Additional information is found in the Summary of Graduates’ Survey Results at **Appendix E²³**.



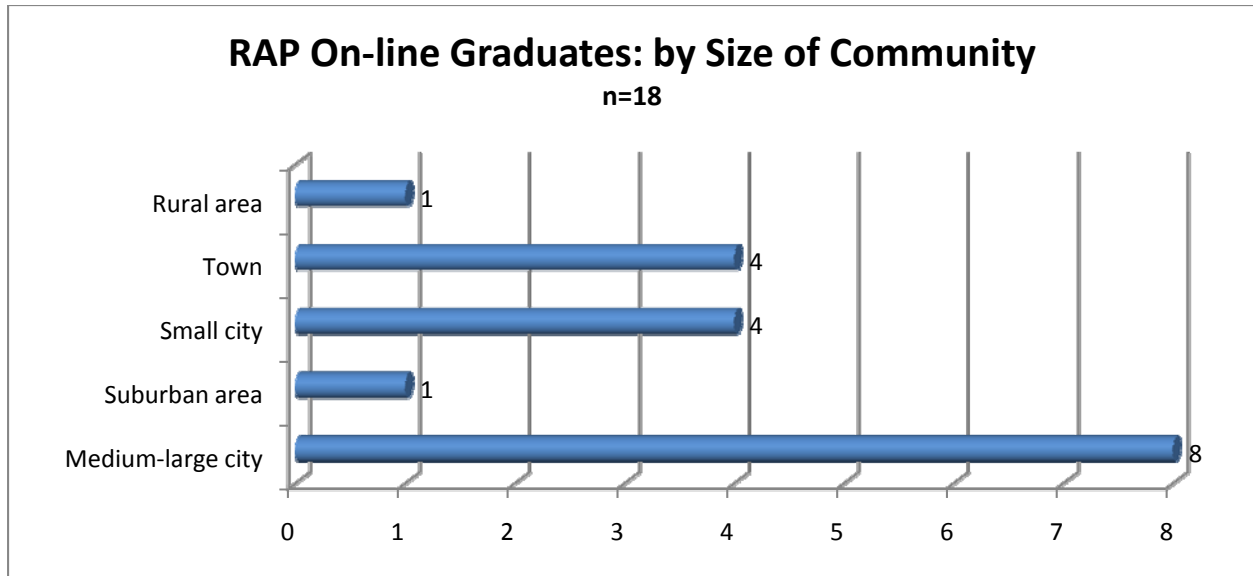
One graduate identified her practice setting as Aboriginal Health Centre, Anishnawbe Mushkiki Health Centre, Thunder Bay, Ontario. Although not reflected in the survey results, a second graduate works at Fisher River First Nations Health Centre in Koostatak, Manitoba.

²³ To protect personal information of respondents, the attached summaries from www.surveymonkey.ca do not include the responses to open-ended questions or comments. Certain of these responses are reproduced in this Report, all are available upon request.



As noted above²⁴, there was limited time to recruit a class of participants. In many cases, AAC requested that third parties forward the invitation in an expedited manner, which was not always possible due to procedural constraints. As a result, although students from a number of regions expressed interest and were enrolled (on “first come first served” basis), a greater number came from Manitoba, Ontario and Alberta where Project staff and the Committee had extensive contacts. When students withdrew, certain provinces were no longer represented in the class. The above table shows the residency of graduates as compared to all who expressed interest in enrolling.

²⁴ At page 7 under the subheading “Difficulties and Solutions”.

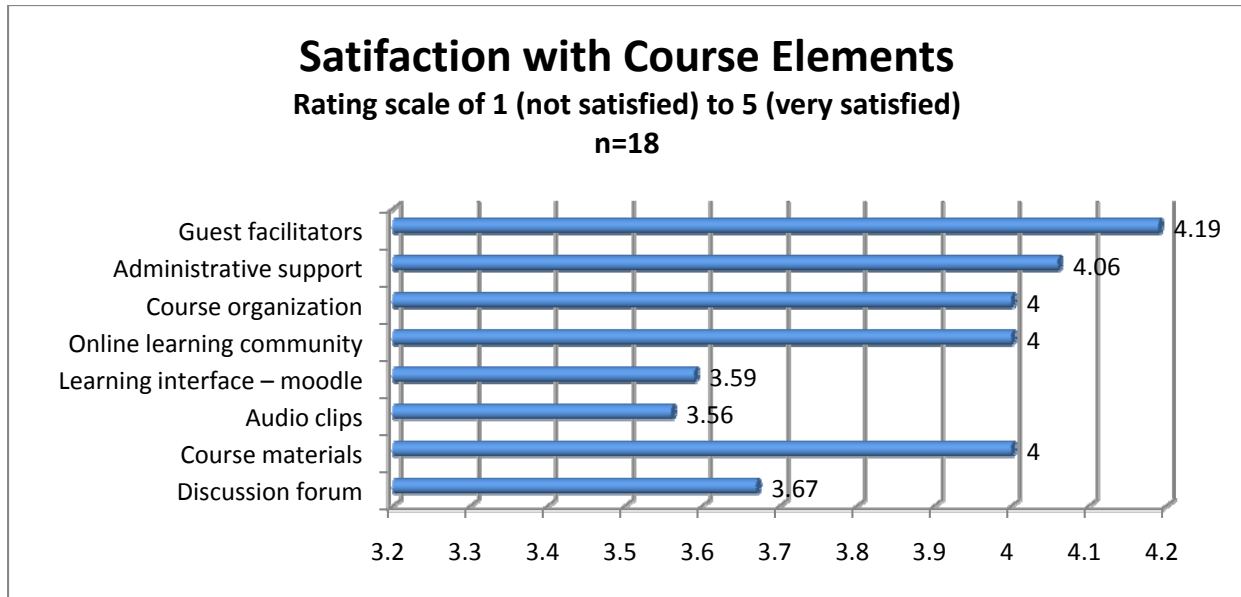


Evaluation of Content and Format:

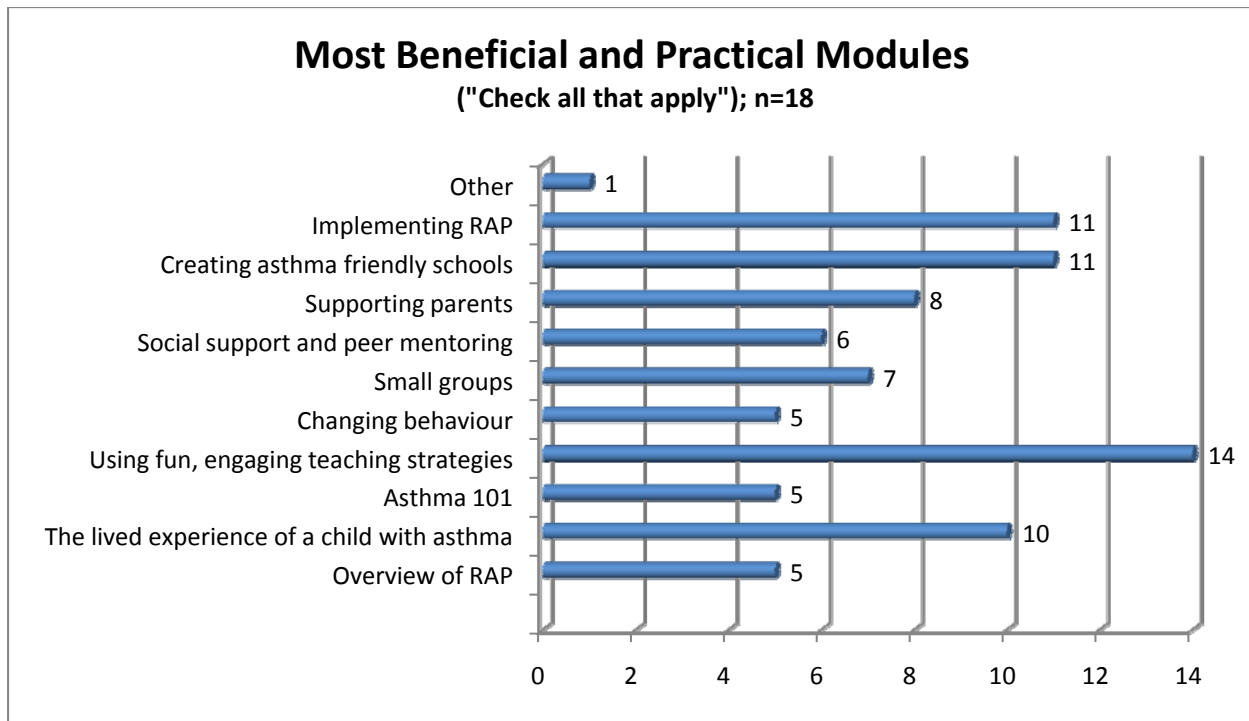
The majority of survey questions related to course quality. Results from these questions indicate that overall graduates felt the course was of high quality and contained comprehensive and useful content, tools and instruction.

Graduates were surveyed about the **quality of course materials**, course organization, discussion forums²⁵, guest facilitators, administrative support and learning interface. The following chart shows these ratings, on a scale from 1 to 5 ("5" being "very satisfied") and the averages. For example, the average rating for course content was 4.

²⁵ Each of the 12 modules includes an introduction, core content, linked readings and resources, case studies, anecdotes from experienced RAP instructors and a discussion forum. Discussion questions were entered by Project staff and guest facilitators to be discussed by participants. Participants were required to enter one post and respond to two other posts in each module.



The following chart shows graduates’ opinions about the “**most beneficial and practical modules**”. This question was not a pure ranking; graduates could enter multiple modules.



When asked to describe their **most significant learning experience**, graduates gave a wide variety of responses ranging from very specific (for example, “the research paper what kids would like at their appointments”) to very broad (“each module contained its own highlights . . .”). The range of responses may reflect the diversity of participants’ practice settings, learning styles and expertise. Some placed

the greatest value on teaching skills, lesson plans and activity instructions; others focussed on strategies to implement RAP in schools and gain support from parents.

Similarly, when asked to describe what they **“liked most”** about the course, participants’ answers were varied:

“How much information was available, it was endless! I would get caught up in reading and learning more and then once I got to the discussion board everyone’s (sic) comments seemed to bring it all together for me. I thought the Fun, Engaging Teaching Techniques was the most entertaining.”

“Being able to talk to other educators with various backgrounds and the suggestion they made.”

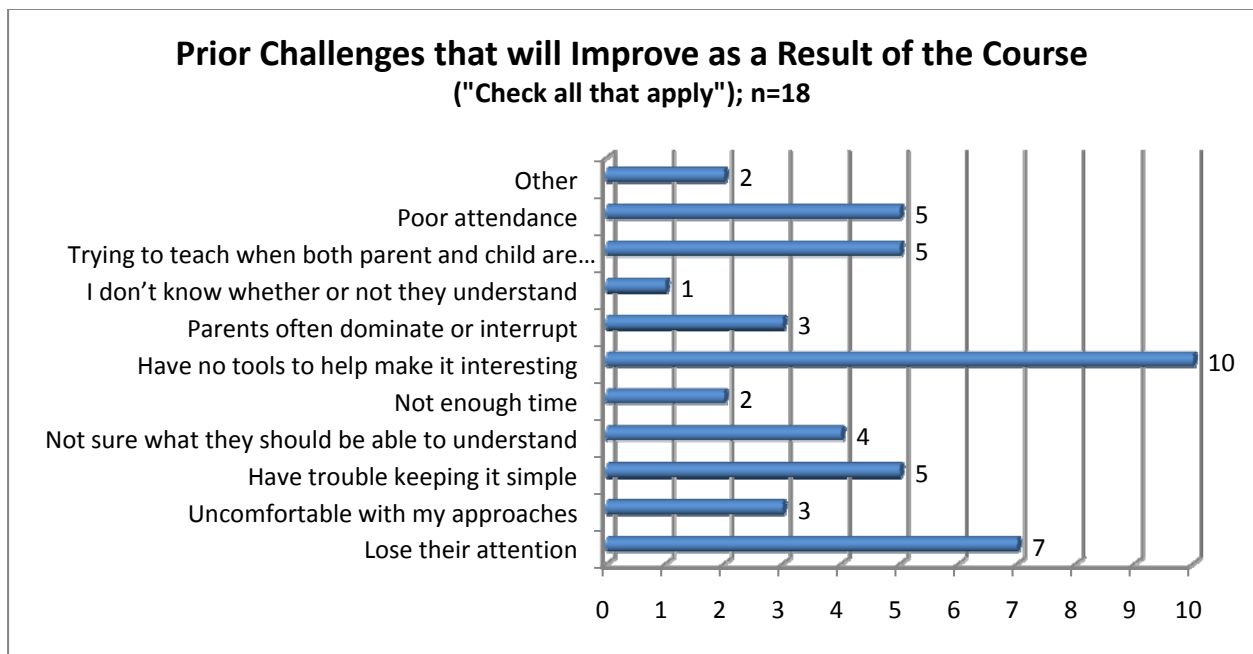
“The online aspect of it makes it easier for people who have a hard time travelling to take a course was on line”

“time- flexibility of (sic) the program”

“the manual/ toolkit”

“I think it was the best online program I have been a part of to date. I am glad to see the discussion groups will continue. That is a wonderful support.”

Finally, graduates were asked to identify challenges in their practice that were addressed by the information, skills and strategies presented in the course.



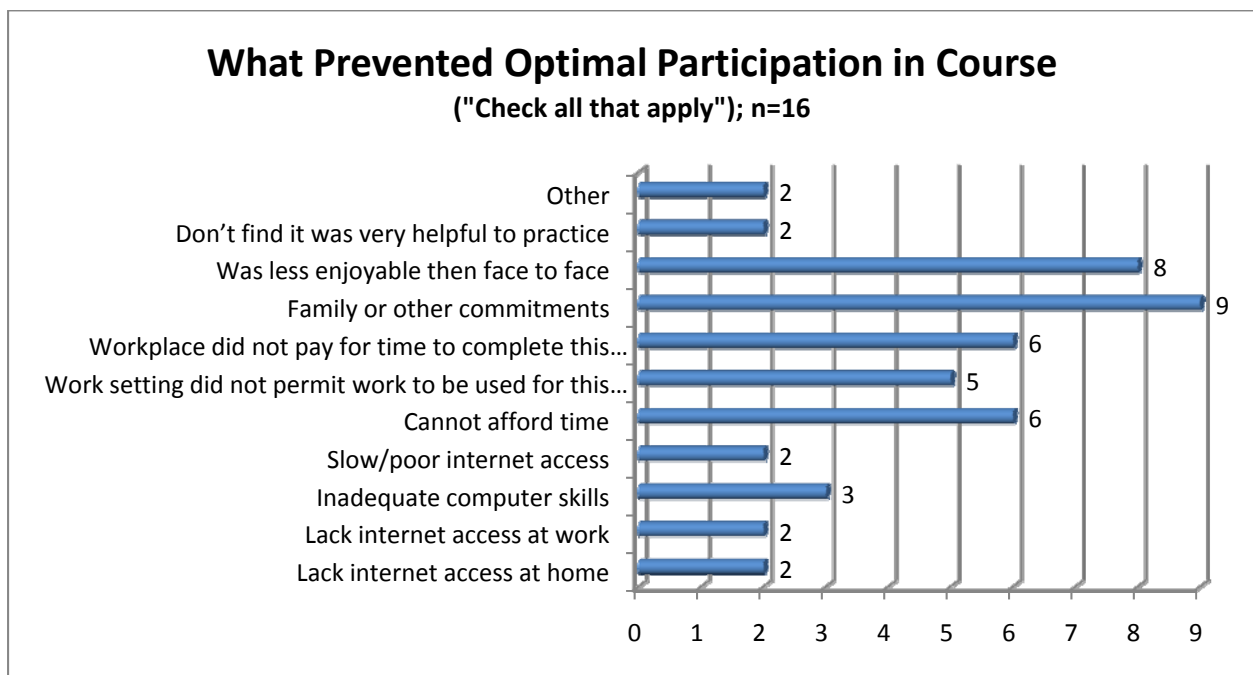
Responsiveness to Healthcare Professionals Needs

As noted above (under “Background and Project Activities”), the course was modified to address barriers and gaps in childhood asthma education and skill development opportunities identified by healthcare professionals. Feedback about such barriers and gaps was elicited at the outset and close of the AllerGen Project. Although graduates of the 2010 pilot reported factors which hampered their ability to participate to the extent “they would have liked” (see graph below), there were many comments which showed an on-line course, with flexible structure and timeline permitted greater access and learning opportunities, for example:

“for me, the time flexibility worked. modules where manageable, clear, concise, readings were manageable” (Q 31)

“The online aspect of it makes it easier for people who have a hard time travelling to take a course was on line” (Q23)

“I really enjoyed this learning style” (Q 38)

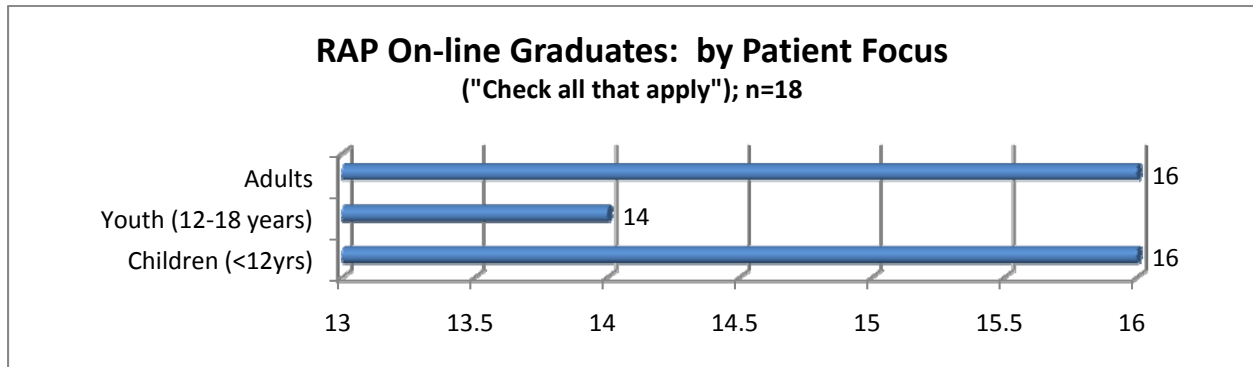


Plans to Implement and Potential Impact in the Community

A number of survey questions related to participants’ plans to implement RAP (in whole or in part) in their practice setting or in schools. 100% reported increased confidence in their ability to serve the needs of children with asthma.²⁶ 75% of survey respondents plan to teach RAP in the future. This is a very significant result, taking into account that:

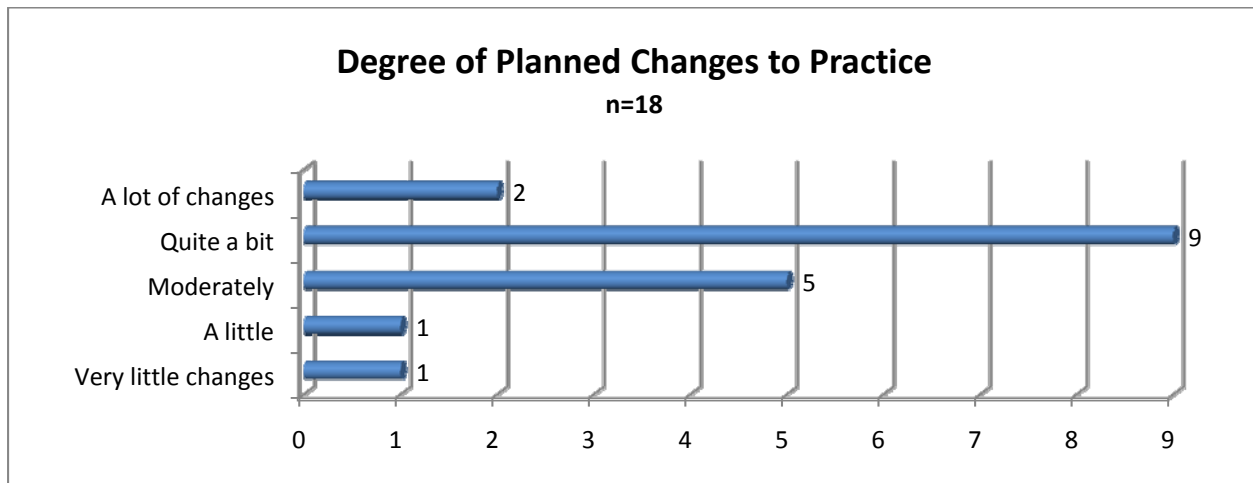
²⁶ See Question 12 in Appendix Summary of Graduates’ Responses.

- 2 of 18 graduates (or 11%; see table “Patient Focus” below) do not work with children;
- graduates work in a variety of practice settings; and
- perceived barriers to implementation.



Two graduates have already received permission to host RAP in schools in Camrose, Alberta and Geraldton, Ontario, respectively. A recent AHS newsletter publicizes the sessions taking place in Camrose schools.

The following graph captures the degree to which graduates plan to make changes to their practices:



The following is a sample of graduates’ plans to apply knowledge and skills from RAP On-line Instructor’s Course to their practices.

“I will use the child-friendly resources developed by the Alberta Asthma Centre. I will also incorporate more games and hands on learning into my practice.”

“I am going to try to get a RAP programming running in both our local elementary schools”

“I feel like I have have a wealth of resources to provide patients about asthma.”

“I plan on doing an asthma education session for children and parents. We are doing an asthma and COPD program and I feel my knowledge will greatly benefit this program.”

“I am going to implement some of the activities. I understand better about change theory, and social structures of families.”

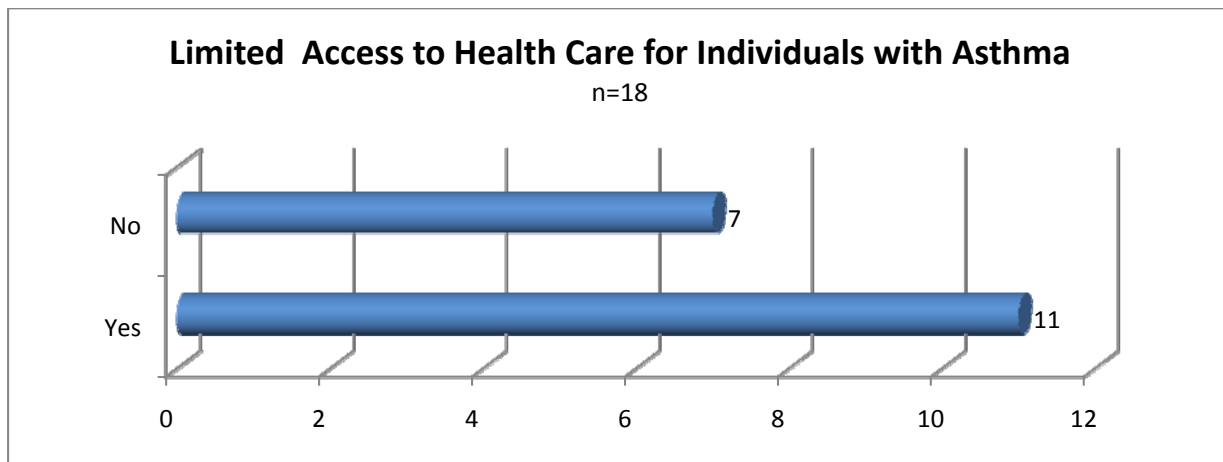
“try to take more time, because it is important for the child/parent and how to provide the support and guidance that is needed.”

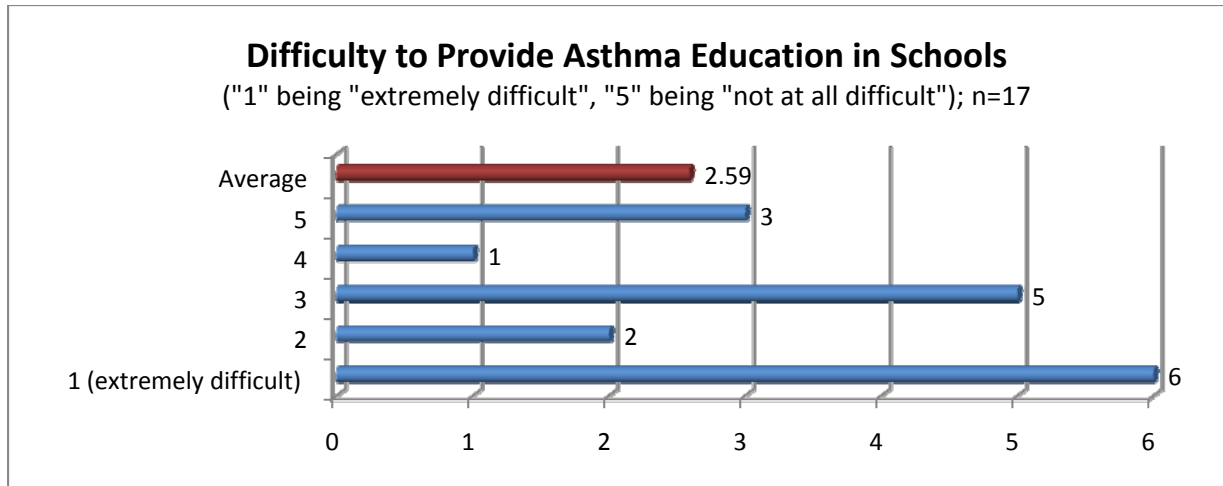
Recommendations for Next Steps

Three survey questions concerned Graduates’ perception of gaps in and barriers to treatment and education for individuals with asthma. 61% felt there was limited access to health care for individuals with asthma in their communities (see table “Limited Access to Health Care for Individuals with Asthma” below). 6 of 17 reported that it would be “extremely difficult” to provide asthma education in schools (see table “Difficulty to Provide Asthma in Schools” below). Barriers identified include:

- Funding (n=4: “We are very underfunded in terms of lung health issues. However, we should be able to make some small steps forward in delivering a holistic asthma education/support program.”)
- Lack of Parent/Community Support (n=5)
- Lack of School/School Board Support (n=8)
- Time (n=4)
- Location/Qualities of Community (n=3 : “the low socioeconomic area and multicultural community”, “Rural, remote, FN communities”);

These views are consistent with the opinions gathered from the Committee (See **Appendix D: Summary of Threads from Committee Meetings**) and, taken together, are the basis for AAC NLHF Phase 2 application.





Graduates were asked to recommend additions, deletions and improvements to the course. The Project team will consider the following feedback, and will conduct exit interviews where appropriate, in future offerings of the course:

- Should the course be scheduled during the summer when “there can be a lot of distractions”?
- Should there be more notice of the role playing requirement in order to recruit a group of children?
- Should the diversity in healthcare module be included? Mandatory? Should the content/scope be modified?
- What is the optimal number of weeks for completion from the perspective of students? Faculty?
- What is the optimal structure of the discussion forum? Is there a better way to encourage participants to start new threads for example “assign one question to each individual in the group and then have the others comment on their answer instead of all answering the same question”? Is there a format that would be easier to follow and see where a participant left off?
- Should there be more content about facilitating behaviour change?
- How to balance a flexible timeline with the concern that there may be few participants in the discussion forum at same time?
- Should the role play and submission of the role play be mandatory?
- Could we host on-line live discussions?
- Should the curriculum include budgeting for RAP sessions?
- Should there be more content about “[t]he importance of self-management skills in chronic disease. I think it would have been interesting to have some information to pass onto parents to let them know the importance of self-management as the child will probably encounter other chronic health conditions later (sic) in life.”
- Should there be fewer modules with less overlap?
- Can we publish a list of mentors by region? This proposal is included in NLHF Phase 2 application.
- Can we establish a permanent Community of Practice? This is included in NLHF Phase 2 application.

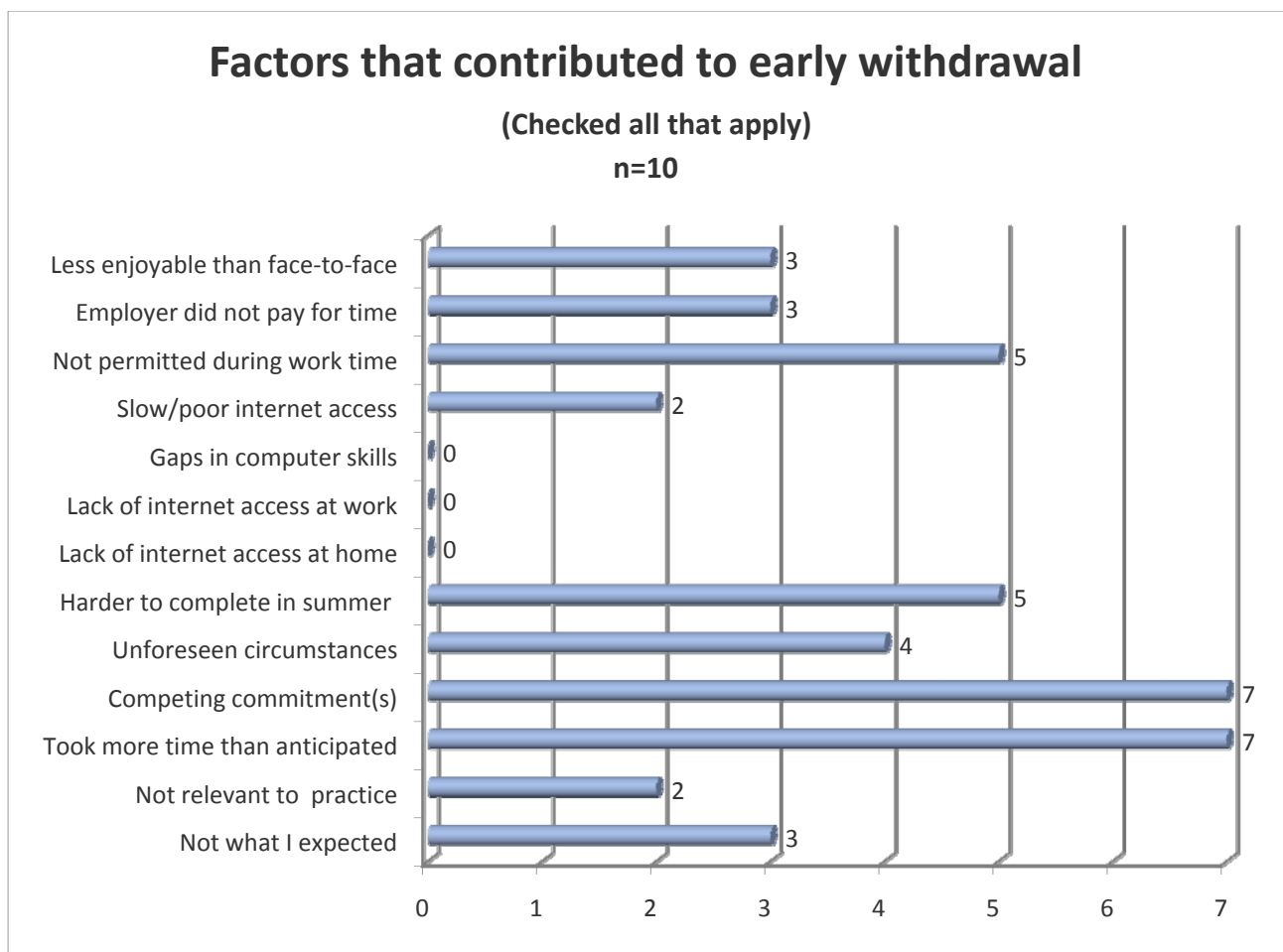
- Should we use the informal “coffee shop” feature (from 2009 pilot) to enable independent talk between students?

Survey of Participants who Withdrew or Failed to Complete

19 participants enrolled in the course and either expressly withdrew or failed to complete. Three communicated their intent to withdraw and gave personal reasons. Ten completed an exit survey using www.surveymonkey.ca. A summary of the responses from participants who withdrew/failed to complete is attached as **Appendix F**.

With perhaps two exceptions, this group withdrew after minimal participation. Two participants opened five to seven modules; the remainder went into only one to three modules. Project staff noted a similar degree of limited participation in the withdrawing participants as a whole (including those who did not respond to the survey) with one exception. One participant substantially completed the course but failed to complete the final exam or respond to e-mails from Project staff.

The following chart shows respondents’ reasons for withdrawal:



Clearly, the on-line format addresses barriers to continuing education and provides health care professionals with a valued opportunity to learn and interact with others working in similar areas of practice. The following responses were given to the question: “what did you like best about the course”:

“online availability”;

“Accessible . . . and free plus it connected me with other nurses’ (sic) lived experiences in teaching;

On-line go at own pace . . .

Finally, these survey results contain similar opinions about barriers to asthma education in the community:

“Who will pay for the RAP instructor and do the schools know about the problem and how can they help?”

“small city. ALOT of diversity, busy busy immigrant and working families, a very stretched and stressed educational system with children who rarely get to go outside alot and run around with the eception (sic) of being at school . . . at lunch . . . and/or at recess versus staying inside to learn RAP”

Survey of Faculty

Guest facilitators for the on-line course were asked 13 questions pertaining to course content and focus, time commitment, quality of support, and whether they would agree to act as facilitator in future courses. **Appendix G is a Summary of Faculty Survey Responses.** Seven responded, although one skipped the majority of substantive questions. Responses were favourable about the course, facilitation experience and interactive format. One respondent commented:

“I feel I was learning along with (sic) the participants. It was a very interesting way to increase educator capacity and confidence to teach small groups of children. An excellent option for health professionals.”

Content and Focus: Four respondents felt no changes should be made to the course content. Three suggested the addition of more case studies. One suggested adding video of a RAP educator conducting a school session including a puppetry demonstration²⁷. All respondents agreed that the focus is appropriate “given the ultimate goal is to equip health professionals to educate children with asthma about asthma and medications, foster the development of self management skills and facilitate peer support”.

Role as Facilitator: Six felt the time commitment was reasonable; one skipped the question. When asked if their participation was useful to his/her own practice, four respondents said “yes”, two said “no” and one skipped the question. Five agreed to act as facilitators in the future; one declined and one responded “possibly depending on other commitments at the time”.

²⁷ RAP online includes links to footage of puppetry demonstrations but none of Puff or applying RAP with the Puff puppet.

Exam Results

The final exam was a combination of short and long answer questions. Short answer questions were graded automatically by the course software; long answer questions were graded by Shawna McGhan. The average mark for participants (n=18) was 80.8%. Participants were provided with a Certificate of Completion with 30 to 36 credit hours²⁸ towards continuing education.

Recommendations

A summary of recommendations and implications from this project include:

1. A community based approach is needed for children with asthma and their families to receive consistent and accurate messages and support from the health and school sectors.
2. Health system employers need to ensure clear lines of responsibility, accountability and mandate with matching training and financial support to address the needs of children with asthma in a school setting.
3. Expanded training, ongoing professional mentoring, tools and resource access and an online community of practice for health care professionals would facilitate implementation of asthma education in a school, and engagement of children with asthma in small groups and/or school setting.
4. School boards and schools need to be involved in raising awareness of the needs and solutions for students with asthma and introduced to asthma education programs in school.
5. Health professionals in rural and/or remote communities need greater support and mentoring in order to build capacity and link with experts.
6. All children need to have an asthma management plan.
7. Where access to primary care is poor, school based asthma education is especially essential.
8. Health Services need to avoid structures that are set up for one-time instructional events and ensure that ongoing education and follow up combined with supportive policies and healthy environment are provided to empower families and enable the child/family to develop self-efficacy, self-management skills and supportive networks.
9. A system need to be established that encourages the adoption and utilization of the numerous high quality resources relating to asthma-friendly schools which have been developed and implemented successfully in some provinces.

AAC submitted a proposal for NLHF Phase 2 funding which encapsulates its recommendations from Phase 1, builds on Phase I project activities and addresses critical gaps identified by its national advisory committee. AAC proposes to coordinate and equip interdisciplinary teams to implement a comprehensive school-based asthma approach (“the PRESS model”), as a cost effective model to help elementary children with asthma establish healthy, enduring behaviors. This model, when implemented will build capacity and support in health and educational sectors, schools and communities to reach, educate and equip students with asthma.

We propose to do this by:

²⁸ 3 credit hours were awarded per module completed; Graduates who completed the electives received more credit hours.

- Establishing teams in 4 regions to implement the model at 16 school sites (4 per region). Quebec, Manitoba, Alberta and Ontario have committed resources to organize, recruit, train, and provide ongoing support
- Distributing widely existing successful school related resources that address the needs of students with asthma;
- Assessing results of innovative, team-based approaches and models of delivery;
- Employing proven knowledge transfer strategies targeting health professionals, decision makers in school and health sectors and community champions.

In order to ensure successful implementation, we have incorporated roles for national and regional partners. For example, in consultation with partners from and contacts made in Phase 1, AAC will prepare a plan for FN engagement and consultation. This project has the support of groups committed to students with asthma and collects evidence based resources and services that target these students in schools. Regional teams will measure results using an online tracking tool, feedback forms and pre/post survey results. The knowledge transfer activities will be measured by online web site statistics and an online support poll. By project's end, we will have developed a refined PRESS model and implementation strategies for widespread adoption. PRESS project results will be publicized and disseminated to stakeholders, health educators, policy makers and decision makers.

In addition, to further address the needs that were identified by the Committee and participants, we plan to apply to AllerGen NCE for Knowledge Translation funds. We propose a collaborative approach to identify and target decision makers and stakeholders in community and school health to inform and determine optimal KT methods. The overarching vision of this AllerGen proposal is that every Canadian elementary student with asthma will enjoy optimal quality of life resulting from well controlled asthma and knowledgeable, enabled and coordinated family, social, school and health supports. In order to help achieve this we will aim to engage decision makers and other school health stakeholders in community and school health in an exploratory process to:

- Identify needs and practical solutions for students with asthma;
- Communicate and share evidence of the needs, supports and effective strategies for students with asthma, namely PRESS.
- Formulate innovative and strategic means to motivate school health decision makers to think and/or act differently. They will receive targeted messaging that will: 1) draw attention to the need for school health to include asthma, 2) highlight evidence of proposed PRESS model as best practice, 3) discuss barriers and facilitators to implementation, 4) facilitate action towards adoption, 5) promote the use of existing programs and resources and a participatory team approach.

This project will build on work already occurring in various provinces and the initiatives proposed in the National Lung Health Framework Phase 2 application to PHAC.

Do Differently

Assess Commitment of Potential Participants before Enrolling: Although our invitations to potential participants contained a description of the course content and structure, and an accurate estimate of the time commitment, half of the participants who enrolled did not graduate. In fact, many of these completed a small number of the modules. Project staff made numerous attempts to move students

along including reviewing individuals' progress, publicizing new content, introducing facilitators, offering technical assistance and extending time for completion. For the next offering, we will consider measures to increase the number of graduates including:

- the composition and scope of our distribution list.
- the content of the invitation.
- whether to introduce eligibility criteria (including relevance to practice).
- when to offer the course.
- whether to offer a flexible timeline. Some participants felt this flexibility resulted in less activity in the discussion forums.
- whether a nominal or cost-recovery fee would lead to a more committed class.

Attachments/Deliverables

List of Appendices

Appendix A: Alberta Asthma Centre Recent Activities

Appendix B: National Committee Membership: Representation by Region

Appendix C: Distribution List for Final Project Report and Summary of Results

Appendix D: Summary of Committee Discussion Threads

Appendix E: Summary of Post Graduate Survey Results

Appendix F: Summary of Post Results – Participants Who Withdrew or Failed to Complete

Appendix G: Summary of Post Results - Faculty

Deliverables (Attached to e-mail to M. Bishop; hard copies available upon request):

1. Roaring Adventures of Puff Instructor's Guide and Toolkit 2010 (format distributed to Faculty, Committee and Graduates was binder with tabs; available to PHAC upon request)
2. Canadian Healthcare Education Commons ("CHEC") Community of Practice (access via username and password available upon request)
3. RAP On-line Instructor's Course curriculum (as word document); course introduction, module description, faculty, timeline are viewable at www.raponline.ca ; access via username and password available upon request
4. French translation of Instructor's Guide and Toolkit : Rémi l'Asthmasaurus et ses aventures Périlleuses
5. French translation of RAP On-line Instructor's Course website (as pdf)