Atii! Let’s Do it! Healthy Living Interventions for Inuit Children, Youth, and Families in Nunavut

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Photo Caption: Elder in Gjoa Haven, NU patting ‘tulugarjuk’ on the head, providing encouragement.
Photo Credit: Dr. Tracey Galloway
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EXECUTIVE SUMMARY

This collaborative project focused on exploring the social and cultural aspects of the interventions that resonate with participants in Nunavut, as well as health determinants for the target populations of the interventions, in the hopes that other Indigenous groups will be able to develop interventions which reflect needs of the population.

Activities

- Pilot the Atii Gameshow, a school-based intervention game for 5 to 12 year olds in Nunavut, which was developed by Inuit youth for Inuit children. It is delivered in English and/or Inuktitut. The game is designed to promote community-identified health messaging related to maintaining healthy bodies by drinking water, eating country food, choosing nutritious store-bought foods, and being active.
- Conduct a case study of the Young Hunters Program in Arviat, NU
- Work with a youth media team to develop an app version of the Atii! Gameshow in Inukitut.

Short-term outcomes (within 2 years)

- Youth were engaged in culturally strengthening activities and developed leadership and capacity as message carriers
- Youth cultural skills were improved and families valued messages promoting cultural strengths
- Increased health literacy among parents and Elders by engaging in the interventions and taking home materials such as recipe cards
- Event-based activities such as Atii! can play key roles in schools as celebrations, stress-relievers, rewards, markers of passage, and delivery vehicles for curriculum around leadership and healthy lifestyles
- Atii! Gameshow and Young Hunters Program provided opportunities to encourage school attendance and build positive associations between fun and learning
- Atii! Gameshow and Young Hunters Program provided children with exposure to traditional Inuit dietary and physical activities as well as the opportunity for development of traditional oral language skills
- Atii! Gameshow and Young Hunters Program provided youth with opportunities to develop leadership and mentorship skills
- Atii! linked children with strong youth role models for healthy living and sporting behaviour
SECTION 1: BACKGROUND

“I think to some degree [that knowing what are the right foods to eat may be a problem for young people], ... Well I shouldn’t say, “Just younger people,” but even the older people. I will say as an example that traditional food is, of course, the best in terms of consumption of food in the north, because [we’re] used to it. And traditional food, there’s no bad food in that sense. But since the introduction of southern foods, there’s all kinds of choices now ... just look at the stores, I can give you an example of one store, a little store that has aisles and aisles of stuff. I can’t even say that they’re food. They’re stuff. But you consume through your mouth, but they’re not really healthy at all. They’re just all junk food.”


Inuit in Nunavut were nomadic peoples whose culture and lifestyle were founded on hunting and gathering foods from the local environment, land, and marine mammals, birds, and plants. Societal changes within the last century have brought about a dietary transition, characterized by decreasing consumption of traditional (country) foods and an increase in the consumption of processed, market foods. This transition may be attributed to a multitude of factors, such as colonization, overall food access and availability in today’s communities, food insecurity, and climate change. Data from the 2007-2008 Nunavut Child Health Survey suggest the overall prevalence of overweight and obesity among Inuit children is 68% (Galloway and Saudny 2012). Research examining Inuit body profiles and the standard measurement tool (Body Mass Index), has identified several limitations with the use of this measure among Inuit populations, and may possibly be overestimating obesity in this population, however, observations about eating patterns, food access, and activity highlight the need for supportive community interventions that address nutrition in Nunavut communities (Wakegijig 2012).

Traditional Inuit food (country food) is more nutrient-dense than market food and contributes to a lower incidence of cardiovascular disease among Inuit (Kuhnlein 1992). Terrestrial wildlife, including caribou and moose; fish, including Arctic char, trout, and other species; and marine mammals such as seals and beluga whales, remain important sources of food. A decrease in subsistence hunting among Nunavut youth is resulting from a number of
factors, such as increased reliance on wage employment which reduces opportunities for hunting; lack of access to funds for purchasing equipment used in hunting/fishing; changing dietary preferences; inadequate training due to requirements of western-style schooling; lack of interest in an increasingly “marginalized” activity; and an increased participation in organized sports. (Chan et al, 2006).

Country food is also of fundamental significance in the lives of Inuit individuals, households, and communities, as it holds physical, cultural, spiritual and economic importance (Chan et al, 2006). The harvesting, preparation, and sharing of country foods elevates the importance of country food in the diet – not only is it nutritionally superior to market foods, but it also plays a role in promoting social networks and cohesion; conveying life skills to a younger generation; promotes mental health and wellness; promotes physical activity; promotes family cohesiveness; and engages the community as a collective. Cultural food security is identified as an additional level of food security beyond individual, household, and community (Power, 2008).

In promoting nutritional practices among Inuit communities, traditional food use must be maintained and promoted; consumption of nutritious market foods should be taught and encouraged; and the societal values reflected in the harvesting and preparation of the Inuit diet must be emphasized in the overall promotion of food (Blanchet et al, 2000). The promotion of Inuit cultural practices related to the harvesting and preparation of food can lead to healthier weights by promoting knowledge about the nutritional benefits of country food; promoting the skills needed to harvest foods; could reduce food insecurity in communities; and

There has been an increasing movement in prevention science to study the cultural adaptation of interventions (Backer, 2001; Kumpfer, Alvarado, Smith, & Bellamy, 2002; Castro, Barrera, & Martinez, 2004). At the same time, a dialogue is emerging on the tension between the implementation of the intervention as intended by the developer (fidelity), and the modification of the program based on the specific needs of a target group (adaptation) (Castro, Barrera, & Martinez, 2004). Among the literature on family-based interventions with First Nations, Inuit and Metis peoples, the process tends to begin with the identification of a sound intervention designed for a specific population, which is then adapted to be inclusive of socio-cultural expectations of the target First Nations, Inuit, and/or Metis audience. For this project, we plan to reverse this process, instead, focusing on the development, implementation, and evaluation of interventions designed by and for Inuit in Nunavut – and measuring them. These interventions are embedded in the social context, language, and values of the population for whom they are designed. Our project will focus on exploring the social and cultural aspects of the interventions that resonate with participants, as well as health determinants for the target populations of the interventions, in the hopes that other Indigenous groups will be able to develop interventions that are reflective of their population needs.
SECTION 2: PROJECT GOALS AND OBJECTIVES

In Phase 2, we aimed to meet the following key objectives:

1. To explore the social and cultural significance (as perceived by community members, families and children) of implementing an intervention to promote healthy weights, through physical activity and nutrition, that was designed by and for Inuit youth and that is founded on Inuit knowledge, foods, and language.

2. To explore the social and cultural elements of the intervention that generate the greatest positive response from children and their families in order to inform a growing body of literature that focuses on ‘cultural adaptation’ of or ‘culturally informed’ interventions.

3. To explore and identify key social determinants of children’s health specific to Nunavut communities (connects to Child and Youth Mental Health and Wellness Project), particularly related to nutrition, food security and obesity.

Within these objectives, we aimed to accomplish 5 specific tasks:

1. To improve the ability of Inuit families to make healthy choices about food and physical activity in order to foster healthy body weights.

2. To improve health literacy in Inuktitut

3. To engage children, parents and guardians in a fun, culturally relevant health promotion activity in school settings

4. To explore an avenue to help increase opportunities for children and youth to learn vital traditional harvesting skills

5. To hire and train youth to lead and implement the intervention development and delivery
SECTION 3: PROJECT IMPLEMENTATION AND ACTIVITIES

To meet our objectives, we had proposed interventions across 6 inter-woven components of the project:

Activity 1: Revise the content of the Atii! Gameshow intervention (piloted in Phase 1) and continue to pilot in Iqaluit and Arviat as well as in 2 more schools in Nunavut where Inunnguiniq Parenting Support Program Pilots were held in 2011-2012 to help reinforce messages to parents already involved with the Child and Youth Mental Health and Wellness Project (Cambridge Bay and Gjoa Haven). Train youth in these communities to facilitate the game.

Activity 2: Case study evaluation of the Young Hunters Support program in Arviat which aims to teach young children (8-12 years) traditional Inuit land and harvesting skills to provide food for their families and community as they progress into adulthood. Ultimately, this activity is about skill development in the community, as well as a means to help address food insecurity among families. This innovative program formalizes age-old knowledge transfer practices among Inuit to foster the next generation into the roles they will ultimately play in providing for their families and community.

Activity 3: Building on Inusiqsiarniq (Arviat Healthier Weights Project Phase 1) to develop culturally-appropriate, innovative multimedia, such as an app for iPod/iPad, to promote the 4 messages identified by participants in Phase 1: the importance of eating country foods; drinking water; eating healthy breakfasts; eating healthy snacks with the Youth Media Team in Arviat, NU. In an increasingly ‘wired’ world and recognizing the growing number of initiatives designed to support Inuktitut language skills, an iPad app was the next logical step in utilizing available technologies to promote health messages. Characters from the Atii! Gameshow convey the above messaging. Data would be collected on the message uptake in a limited pilot of the ‘app’.
**Activity 4:** Incorporate Inusiqsiarniq messaging into the Makimautiksat Youth Wellness and Empowerment Camp curriculum module entitled ‘Increasing Awareness of the Body, Movement and Nutrition’ (This camp is Component 1 of the Child and Youth Mental Health and Wellness Project). Evaluate message uptake over the course of the remaining pilots of the Makimautiksat program in 2013-2014.

**Activity 5:** Invite parents/guardians/elders/community to participate in the Atii! Gameshow pilots. Evidence from Makimaniq Nunavut Poverty Reduction Strategy demonstrates that parents want a closer involvement with the school and in-school activities. This intervention is a good opportunity to be responsive to the needs of Nunavut parents identified at the Poverty Summit (Iqaluit, 2011), and expand the intervention to a larger, family-based audience. Objectives accomplished for Activity 5 will be reported upon in the summary for Activity 1, below.

**Activity 6:** Incorporate the 4 nutrition-based lesson plans and recipe material from the Inunnguiniq Parenting Support Program, as well as the 4 Inusiqsiarniq messages, into the Atii! Gameshow pilots - to be determined by community partners how this will be accomplished. Data collection from parents and community on the use of the materials, relevance, and utility. Activity 6 will be reported upon in the summary for Activity 1.

The resources developed will be useful for schools, community program planners, and community organizations. The data is essential for evidence-based decision-making among Nunavut’s policy makers and agencies advocating for change in the landscape of food insecurity and healthy living in our territory.
SECTION 4: PARTNERSHIPS AND INTER-SECTORAL COLLABORATION

**Nunavut Tunngavik Incorporated (NTI):** NTI provides advice, direction and advocacy on policy and programs on behalf of beneficiaries of the Nunavut Land Claim. It will provide expertise on social and cultural development; relevant policy and research; and represent the interests of Inuit in Nunavut.

**Qikiqtani Inuit Association (QIA):** QIA is the regional land claims organization that represents the Inuit residents of the Qikiqtaaluk region of Nunavut. Its mandate is to protect and promote Inuit rights and values. The Atii! game was developed and implemented by QIA’s Youth Development workers for its Sprouts Day Camp, and QIA staff will lead the further development and implementation of Atii! in Nunavut schools including engagement and training of youth leaders. Because the Young Harvester Program links youth with adults and Elders possessing knowledge and skills in traditional harvest, both NTI and QIA will play a role in identifying and mobilizing aspects of Inuit culture integral to the promotion of cultural competence and community wellness.

**University of Toronto, University of Manitoba:** The universities are partners in the project as the bases from which researchers provide the project with baseline data on Inuit child health and obesity; provide expertise on assessment of nutrition and physical activity patterns and interventions in children; and lead the evaluation of Atii! and the Young Harvester Program.

**Nunavut Dept. of Education:** The Department of Education is responsible for curriculum development and school services in all Nunavut communities. In addition, it provides early childhood and adult education, career training and development, and works closely with other government departments to ensure children and families have access to supportive services.

**Coalition of Nunavut District Education Authorities:** The District Education Authorities (DEAs) are community school boards which oversee the implementation of public education in Nunavut and advocate for children,
parents, Elders and other members of the school communities. They provide advice and direction to school
administration and staff and to other program and service providers who interact with schoolchildren. As a group,
the Coalition of DEAs serves as the collective voice of communities in discussion with the Department of
Education.

**Pinnguaq:** Pinnguaq means “play” in Inuktitut. Born and based out of Pangnirtung, Nunavut, Pinnguaq aims to
bring quality “play” experiences that foster learning, growth and fun. No platform or concept is out of bounds.

At the root of Pinnguaq is a respect and care for the rich languages and cultures that make up this planet.
Pinnguaq was created out of a desire to see strong programming available in Inuktitut, the Inuit language, and it
roots itself in that mission as it moves forward. With the belief that technology and entertainment written in your
language can help make the world seem a little smaller, and a little more accessible, Pinnguaq mission is to make
sure all you need to do, is play. Pinnguaq provided extensive app development expertise to the project as well as
led the implementation of the Code Club/Workshop in Arviat with the youth media team and students.

It would not have been possible to implement the Youth Media Team without the establishment of an extensive
network of partners, all of whom provided support to the youth group at no cost. These partners contributed
general training for the youth group as well as specific assistance with the actual development of the app. These
partners brought new equipment, software and funding to the project.

- Nunavut Arctic College Communication Officer
- Adobe Youth Voices, Global Foundations Initiative
- Louise Abbott & Niels Jensen—Photo Journalists
- Arviat Film Society—Video & audio editing and production
- Arviat TV/Isuma Films
- PointsNorth Services—concept & design
- Inuit Creative Expressions (ICE)—illustrations, websites, video productions
- Communication Program, University of North Dakota (Dr. Tim Pasch)—coding
- Canadian Institute for Child Health (CICH)—Healthy Bodies Project

Given the fact that Arviat is a remote and isolated community, collaboration with partners was often dependent on:

- the serendipitous meeting of an individual with the needed expertise who happened to be visiting Arviat for
  another purpose;
- a virtual collaboration;
- the engagement of local experts to assist as and when they were available.

The Youth Media Team was also able to partner with community programs such as Arviat Film Society, Adobe
Youth Voices and Arviat TV, which were engaged in similar work and so there were opportunities to carry out
projects across multiple stakeholder groups and sectors in a collaborative way.
We took the initiative to approach experts when word spread of their arrival in the community and would invite them to do some training with our group, which consistently generated great positive responses and interest. These sessions were very valuable for the youth and the visitors were all extremely gracious in their time with the group and with their follow-up mentorship and encouragement.

Virtual connections were more difficult to sustain because they depended on good access to internet and often required local facilitation. Although the bandwidth was available in the community, the project did not have the funding to access this on a consistent basis. This became challenging over the longer term. Other partnerships enabled the Youth Media Team to accomplish its goals without requiring additional funds. The critical support provided by the University of North Dakota and Pinnguaq was essential to the successful implementation of the coding for the app.
SECTION 5: IMPLEMENTATION OF KNOWLEDGE DISSEMINATION AND EXCHANGE PLAN

Activity 1: Implementation of the KD&E Plan
Qaujigiartiit Health Research Centre implements a program of knowledge sharing in English and Inuktitut. The plan for sharing knowledge from this project included providing information via:

- an electronic newsletter;
- sharing the successes of the tool with the community through the website
- community radio;
- sharing the perspectives of the young participants through the Atii! Gameshow website developed in Phase 1;
- school assemblies, in the case of the schools that are involved in the pilots
- at conferences and meeting venues
- in the published literature
- and in any other way the partner organizations identify.

To date, Qaujigiartiit has disseminated the results of this evaluation to participating schools and communities and to its partners:

- Arviat Wellness Centres
- Nunavut Tunngavik Incorporated
- Qikiqtani Inuit Association
- Coalition of Nunavut District Education Authorities
- Curriculum and Support Services Division, Dept. of Education
- All schools involved in the pilots
- Arviat Community Wellness Committee

The findings from Atii! have been distributed to other key stakeholders including:

- The Nunavut Food Security Coalition
- Dept. of Social and Cultural Development, Nunavut Tunngavik Inc.
• Nunavut General Monitoring Plan
• Territorial Nutritionist, Dept. of Health, Government of Nunavut
• Nunavut Roundtable for Poverty Reduction

Select findings from Atii have also been presented at National and International venues including:
• International Congress on Circumpolar Health (2015)
• ArcticNet Annual Scientific Meeting (2014)
• Canadian Public Health Association Conference (2013 and 2014)
• Indigenous Health Conference (2014)
• Inuit Studies Conference (2014)

A number of conference presentations and publications are also in development.

Activity 2: KD&E Meeting of Northern Projects
As part of the knowledge exchange and dissemination of project information across the north, we hosted a 2-day meeting of the Northern Projects in July 2014 in Iqaluit. The intent of the first day was to hear presentations about the interventions that were implemented by the northern teams and discuss detailed aspects of those interventions. The second day was a retreat held at a local territorial park located at a remote location from the community. At this retreat, an in-depth discussion about the uniqueness of Northern public health interventions was facilitated, and a number of philosophical and contextual ideas were discussed in the context of wellness in our communities.

The group developed a visual model of the operational perspective on northern programs, which is shown in Figure X. The intent of the visual model is to articulate the uniqueness of northern programs; our collective assumptions when engaging in such programs; our adaptations of projects; the scalability of interventions in our contexts; our actions as northern researchers; and our overall philosophy as northerners. A more detailed presentation of the findings of the KD&E meeting is provided in Appendix X.

The Northern Projects Team group photo, and members of the team exploring the land around the Sylvia Grinnel River, a traditional harvesting location, which remains in high use today.
Figure X: A visual diagram of the perspectives of the Northern Projects on interventions which are designed to benefit the community.
## SECTION 6: EVALUATION ACTIVITIES AND METHODS

### Activity 1. Atii Gameshow pilots in Nunavut schools

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| **Location(s)**      | Levi Angmak Elementary School, Arviat NU, 16 Nov 2011  
                      | Nanook School, Apex NU, 22 Nov 2011  
                      | John Arnalukjuak High School, Arviat NU, 23-25 April 2013  
                      | Quqshuun Ilihakvik Elementary School, Gjoa Haven NU, 8-10 May 2013  
                      | Kullik Ilihakvik Elementary School, Cambridge Bay NU, 13-15 May 2013 |
| **Target population**| School-aged children and youth |
| **Delivery method**  | School-based Atii Game Show event |
| **Deliverer**        | Qaujigiartiit and school staff with youth leaders from participating communities |
| **Consent**          | All children in participating classes with written/telephone consent of a parent or guardian who were present at school on the day of the Atii event took part in the Atii game activities. No children were excluded.  
                      | The study protocol was approved by the Public Health Agency of Canada and the Board of Qaujigiartiit Health Research Centre (QHRC). Parental consent forms were sent home with teachers who were willing to have their classes participate. Teachers and Principals followed up with families to obtain informed written or telephone consent for the participation of students. |
| **Equipment and Resources:** | Full sets of Atii game materials were provided to each community. These materials included a game wheel, cards, activity 'pucks', team pinnies, sweatshirts (for Raven Game), balloons and posters. In addition, the events utilized resources that existed in community facilities such as schools and youth centres: balls, hula-hoops, scooter-boards, tricycles, skipping ropes, floor hockey sticks, gymnasium mats, poster paper, markers, tape. Where available, sound systems and microphones were utilized. |
| **Core staff competencies** | Minimal skills needed; enthusiasm and willingness to engage in a fun, youth-led intervention. |
| **Type of Evaluation** | Pre/post intervention design  
                      | • Quantitative assessment of children’s knowledge from pre/post surveys  
                      | • Qualitative assessment of children’s game experience from direct observation  
                      | • Qualitative assessment of the impact of the Atii intervention on communities from observation and teacher interviews |
| **Demographics**     | Age: 5-13 years  
                      | Sex: n = 267 children, 133 boys and 134 girls |
## Activity 2. Case Study of Young Hunters Program

### Intervention Details

| Location(s) | Qitiqliq Middle School, Arviat NU  
|            | John Amalukuak High School, Arviat NU  
|            | Arviat Wellness Centre, Arviat NU  
|            | Community of Arviat, NU  |

| Target population | Children and youth ages 8-14 years, Community of Arviat NU  |

| Delivery method | After-school community program with Elders and adult/youth leaders from participating community  |

| Deliverer | Hunters and Trappers Association volunteers and Arviat Wellness Centre  |

| Consent | All children welcome to participate. Written consent of the parent/guardian of child participants.  |

| Equipment and Resources: | Harvesting tools and equipment provided by Hunters and Trappers Association as well as community volunteers.  |

| Core staff competencies | Skill in harvesting techniques, equipment preparation and use, skinning and butchering, location of local berries and game, safe travel on the land, and wilderness survival skills.  |

| Type of Evaluation | Case Study  
|                   | Qualitative assessment of children's knowledge from participant and parent surveys  
|                   | Qualitative assessment of children's program experience from participant and parent surveys  
|                   | Qualitative assessment of sustainability of the intervention from parent surveys  
|                   | Qualitative assessment of the impact of the Atii intervention on communities from participant and parent surveys  |

| Demographics | Age: 8-14 years  
|             | Sex: n=31 children; exact numbers of girls and boys not recorded; both boys and girls participated, though more boys than girls  |
## Activity 3. Youth Media Team

| Intervention Details | | |
|----------------------|---------------------|
| **Location(s)**      | Community of Arviat, NU |
| **Target population**| Youth ages 16-25 years |
| **Delivery method**  | Community youth program |
| **Deliverer**        | Arviat Community Wellness Centre/Qaujigiartiit Health Research Centre |
| **Consent**          | Youth self-identified to participate. No consent required. |
| **Equipment and Resources:** | Equipment was borrowed from other initiatives in the community (see partnerships) or donated by other programs (see below) |
| **Core staff competencies** | Skills in use of media, graphic design, visual arts, media messaging. |
| **Type of Evaluation** | Process and Impact Evaluation |
|                      | • Qualitative assessment of youth perspectives re: participation and perceived benefits |
|                      | • Descriptive assessment of project deliverables |
| **Demographics**     | Age: 17-25 years |
|                      | Sex: n = 9, 2 women and 7 men |
SECTION 7: RESULTS

Activity 1. Atii Gameshow pilots in Nunavut schools

Activity 1 Outcomes Compared to Original Objectives

Objective 1: To improve the ability of Inuit children to make healthy choices and carry health knowledge forward with them into adolescence and adulthood

• Children gained knowledge about healthy nutrition, physical activity, safe food harvest, food sharing, and safe travel on the land
• Through continued participation in Atii!, they will have opportunities to carry this knowledge into adulthood and provide mentorship for other children and youth

Objective 2: To improve health literacy in Inuktitut

• Children gained Inuktitut and Inuinnaqtun language skills in the areas of traditional food, harvest techniques, games, songs and other cultural activities
• Through engagement with knowledgeable Elders during game activities, children gained an appreciation for Elders’ stories, songs, games and culture
• Parents saw the value of traditional Inuit lifestyles for improving children’s motivation and behaviour

Objective 3: To engage children in fun health promotion activities

• Children participated in fun, exciting event-based activities in their communities that conveyed important knowledge about health promotion through novel and engaging means
• Children identified healthy, nutritious foods and meals suitable for active, growing bodies
• Children played games, including Inuit games, that demonstrated healthy lifestyles, which can be achieved in their own homes and communities
Objective 4: **To promote and evaluate local interventions developed by young, motivated Inuit youth workers in Nunavut.**

- All elementary schoolchildren in Nunavut will now have the opportunity to participate in Atii!, a game developed by Inuit youth, where and when funding is available.
- Through game play, youth received numerous opportunities to provide leadership and mentorship in their communities.

Objective 5: **To hire and train youth to lead and implement the intervention development and delivery**

- Youth led the development and delivery of the Atii! game pilot and intervention.
- Youth continue to serve as leaders in their communities by identifying opportunities to play Atii!, leading the game, mentoring other youth to become game leaders and facilitators, and providing mentorship to younger peers.

The recipe information from the Inunnguiniq Parenting Program was distributed to parents who attended the game pilots. They enjoyed and valued receiving the material. The Dept. of Health Recipe Cards were particularly popular.

The Inuusiqsiarniq messages (drink water; eat a healthy breakfast; stay active; choose healthy snacks) were incorporated into the *Timiga’* (my body) module of the Makimautiksat Youth Camp Program for the pilots held in 2013 in Panniqtuq and Coral Harbour. The messages fit naturally in to the programming and activities and facilitators observed that the messages resonated with the youth.

**Short-term outcomes (within 2 years)**

- Youth are engaged in culturally strengthening activities.
- Youth develop leadership and capacity as message carriers.
- Youth cultural skills are improved.
- Families value messages promoting cultural strengths.
- Key social determinants of health related to nutrition, food security and obesity are identified for Nunavut communities.
- Increased health literacy among parents and Elders.
Long-term outcomes (more than 2 years)

- Day-to-day health decisions such as food and beverage choices and active lifestyles lead to improved nutrition and healthier weights
- Culturally-grounded activities result in improved mental health and promote cultural healing
- Children, youth and parents recognize the value of interventions grounded in Inuit culture for improving health outcomes in families and communities
- Key social determinants of health related to nutrition, food security and obesity are linked to cultural protective factors and strengths for sustainable change
- Increased health literacy in Nunavut communities improves health outcomes

Unintended Outcomes

A key finding of the evaluation was the degree to which event-based programs such as Atii! serve in small, remote northern communities. Both teachers and children described the event as an unanticipated and pleasurable experience. Teachers were enthusiastic about the opportunity for their students to participate in an exciting and fun activity.

Events such as Atii! are adaptable enough to produce a novel game experience even in communities where the game is played relatively frequently (as evidenced by use of the game in a recent smoking cessation event).

Teachers were enthusiastic about the chance to relieve students’ boredom and relieve the monotony that can occur during the long school year.

The event also has considerable merit as a form of stress-relief in communities experiencing prolonged poor weather or periods of sadness, such as those that occur after the death of a beloved community member.
Activity 2. Case Study of Young Hunters Program

Activity 2 Outcomes Compared to Original Objectives

Objective 1: To improve the ability of Inuit children to make healthy choices and carry health knowledge forward with them into adolescence and adulthood

- Children gained knowledge about healthy nutrition, physical activity, safe food harvest, food sharing, and safe travel on the land
- Many children report continuing to harvest and share food using the knowledge they gained during the Young Harvester Program
- Through continued participation in Young Harvester Program, they will have opportunities to carry this knowledge into adulthood and provide mentorship for other children and youth

Objective 2: To improve health literacy in Inuktitut

- Children gained Inuktitut language terminology in the areas of traditional food, harvest techniques, other cultural activities
- Through engagement with knowledgeable Elders during the program, children gained an appreciation for Elders’ knowledge and culture
- Parents saw the value of traditional Inuit lifestyles for improving children's motivation and behaviour, and reported significant changes in their child’s engagement and feelings of pride in Inuit harvesting activities.

Objective 3: To engage children in fun health promotion activities

- Children participated in fun, educational program-based activity in their community, which conveyed important knowledge about health promotion through novel and engaging means
- Children learned to harvest local traditional foods available in their communities, and to eat and share these foods in their families and communities
- Children were active on the land and water near their own communities
- Children learned to make and maintain hunting equipment
- Children learned that safe travel on the land and water, and observation of weather, can be fun
- Country foods that were harvested included: caribou, geese, ptarmigan, eggs, rabbit.

Youth participants in the Young Hunters Program learning to safely butcher caribou, build qamutiit (traditional sleds for moving gear and supplies; and drilling an ice-fishing hole
Objective 4: **To promote and evaluate local interventions developed by young, motivated Inuit youth workers in Nunavut.**
- Through the Young Hunters Program, youth received numerous opportunities to provide leadership and mentorship to the younger students in the community and on the land.

Objective 5: **To hire and train youth to lead and implement the intervention development and delivery**
- Youth led the evaluation research on the outcomes associated with the Young Harvester program.
- Youth continue to serve as leaders in their communities by providing mentorship to participants of the Young Harvester Program.

**Unintended Outcomes**
A key finding of the case study was the improvement of school attendance among the children participating in the program. For logistical reasons, the program was moved from a setting in the community, to operating out of the school. As a result, children must have attended school that day to participate in the after school activity. School attendance was observed to have increased among those students during the time they were participating in the Young Hunters Program.

**Activity 3. Youth Media Team**

In Phase 1 of the Healthier Weights *Inusiqsiarniq* project, a Youth Media Team was established to develop healthy messaging for the community of Arviat, NU. The expectation was that youth would become effective message carriers to the larger community. The initial success of this project, led to an expanded role for the Youth Media Team in the Phase 2 Atii, Let’s Do It! Project. The objectives for this aspect of the project were to continue to provide training in various aspects of media design and development and to have youth practice these skills in the development of health messaging, including the production of an app for 6-12 year olds that would teach and reinforce healthy nutrition and activity messaging.

Building on *Inusiqsiarniq* (Arviat Healthier Weights Project Phase 1) to develop culturally-appropriate, innovative multimedia, such as an app for iPod/iPad, to promote the 4 messages identified by participants in Phase 1: the importance of eating country foods; drinking water; eating healthy breakfasts; eating healthy snacks. In an increasingly ‘wired’ world and recognizing the growing number of initiatives designed to support Inuktitut language skills, an iPad app is the next logical step in utilizing available technologies to promote messages. The National Film Board of Canada has recognized the opportunities that exist with this technology and have been offering workshops in Nunavut that focus on iPad app design and programming, specifically targeted for youth. These participants have been engaged for this activity specifically, to capitalize on capacity being built concurrently in Nunavut. Characters from the Atii! Gameshow will convey the above messaging, as well as messaging to be...
developed by the Dept. of Health and Social Services Nutrition Team (one of their forthcoming projects) in English and Inuktitut. Data will be collected on the message uptake in pilot of the ‘app’ and other tools.

To accomplish this activity, training workshops were held to expose the Youth Media Team members to various forms of media and to build skills in the development of promotional materials in each of those areas. We attempted to provide opportunities throughout the project for the youth to employ these skills in the creation of products that promote healthy messages.

- **Mentorship**: Nunavut Arctic College Communication Officer provided mentorship to the team over a 6 month period. During this time they discussed the power of media messaging and ways to create “sound bites” to draw audience attention. Youth prepared formal press releases, participated in news interviews, blogged, and used other forms of social media to inform and worked on basic writing skills. They prepared a series of key messages to be used in the Atii! App. These messages were recorded in English and Inuktitut along with accompanying script.

- **Adobe Youth Voices**: During the project, the youth team received training in Adobe Youth Voices. Adobe Youth Voices is the Adobe Foundation’s global initiative to increase creativity and prepare young people to be problem solvers, critical thinkers, and the leaders of tomorrow. Through this program, youth were able to develop original media, which highlighted health issues, identified solutions and, in the process, foster critical creative skills and a passion for making a difference. The team gained creative confidence – and the ability to harness their creative skills to solve problems – using advanced digital media tools and tested storytelling techniques. They became skilled in use of the Adobe software, which was made available to the project at no costs.

- **Film Production**: The Youth Media Team are members of the Arviat Film Society. This group meets weekly and received
instruction in film editing and production. They are given opportunities to practice these skills in collaborative projects. This training is on-going. One of the projects created by the team is the “Culture of Cooking” which aims to promote cooking healthy food from scratch amongst youth. It features using locally harvested food in a how to format.

- **Photo Journalism:** Louise Abbott is a longtime writer, photographer, and filmmaker who has concentrated on documenting rural culture and history. Louise’s photos have appeared in more than thirty photo anthologies. In 2002 she won the Norman Kucharsky Award for Cultural and Artistic Journalism given by PWAC (the Professional Writers Association of Canada) and the Greg Clark Internship Award given by the Canadian Journalism Foundation. She collaborates with her husband award-winning cabinetmaker and photographer Niels Jensen. Louise and Niels presented a week-long workshop in photography techniques and photo journalism. They also presented the team with four Sony digital cameras for use in our project.

- **Storyboarding:** A three-day workshop is conceptual development and storyboarding was provided by Colleen Armstrong of PointsNorth Services. Colleen Armstrong, is an artist, educator and multimedia developer. She has produced several interactive web/CD-rom based projects she has learned to integrate instructional and graphic design skills. The team received training in animating drawing through the creation of vectors. They also developed storyboards for several game concepts which they created. They identified educational objectives for the app, set game goals, identified audience and skill sets, created original characters, avatars and settings, created a game story that outlined 10 potential games for the game wheel, and identified outcomes for game completion.

- **Storybook Production:** The Canadian Institute for Child Health approached the team with an opportunity to create a series of children’s storybook and songs to promote healthy eating. The team collaborated on the story development and illustrations, looked at translation of concepts between languages and developed a website to host the materials. Training in these areas was provided by Inuit Creative Expressions (ICE). ICE is a local company operated by Olivia Tagalik, a multi-media web designer. The Healthy Bodies project is hosted on the Arviat TV website at www.arviat.tv/healthy-bodies.ca
Atii! App Development

The team met with Tim Pasch, Professor in Communication from the University of North Dakota. Tim offered to have his undergraduate students provide coding for the games in development. The team met with Tim to discuss the possibilities for the proposed games and to look at the ways to rethink movement through the proposed games using similar kinds of code strategies. In summer of 2014, a workshop was conducted by Tim, the Arviat Youth Media Team, Arviat TV and interested community researchers to brainstorm the potential for an Atii! app, and the mini-games that should be developed. Many ideas emerged, including the inclusion of Super Shamou (which was an old superhero comic character from the 1980s and was deemed to be outside of the scope of the project), Fabulous 4 characters from the Arviat community food project, and the Atii! Gameshow characters. The game evolved from there:

- Fall of 2014, Pinnguaq was brought on board because of their expertise with the Unity Game Engine. It was determined that the game development would be outside of the scope of Apple Xcode, which was the expertise that Dr. Tim Pasch offered to the project, and that a more versatile engine (Unity) would be required.
- Early Winter of 2014, a meeting took place between Taha Tabish (QHRC), Shirley Tagalik (Arviat), Charlotte Karetak (Arviat Youth Media Team), Tim Pasch (UND), and Ryan Oliver (Pinnguaq) in Quebec City, where project details were discussed and outlined. The games and content of the game were confirmed at this collaborative meeting.
- Fall 2014 & Winter of 2014/15 was spent creating assets for the app (audio and visual), and building them into the different mini games (see Tables 4-6).

Table 4:

<table>
<thead>
<tr>
<th>Game Criteria</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enjoyable</td>
<td>Games have to be fun and enjoyable, so that they will be played by children and youth</td>
</tr>
<tr>
<td>Intuitive</td>
<td>Games have to be easy to play, with minimal instruction with audio instructions</td>
</tr>
<tr>
<td>Relevant</td>
<td>Game design needs to incorporate the health messages chosen by the Atii! Project</td>
</tr>
</tbody>
</table>

Table 5:

<table>
<thead>
<tr>
<th>Mini Games in App</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meal or No Meal</td>
<td>making healthy food choices</td>
</tr>
<tr>
<td>Blanket toss</td>
<td>– connecting messages of drinking water and health</td>
</tr>
<tr>
<td>Health Trivia</td>
<td>Text-based questions about nutrition choices and active living</td>
</tr>
<tr>
<td>True or False</td>
<td>Text-based questions about nutrition choices and active living</td>
</tr>
</tbody>
</table>
Table 6:

<table>
<thead>
<tr>
<th>Other Features</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glasses of water are the ‘lives’</td>
<td>Designed to teach the association between drinking water (instead of pop or other sugary drinks) with health in the game</td>
</tr>
<tr>
<td>“Sugar rush” penalty</td>
<td>Designed to teach the poor health outcomes associated with consuming too many sugary foods/drinks. It creates a disadvantage in the game - the next game played happens at a faster speed, making it more difficult to score points</td>
</tr>
<tr>
<td>“Water Break” bonus life</td>
<td>Taking a break for water, and rewarding the game player with a bonus life, further associating drinking water with health in the game</td>
</tr>
<tr>
<td>True or False</td>
<td>Text-based questions about nutrition choices and active living</td>
</tr>
</tbody>
</table>

**Code Club/Coding Workshop**

Pinnguaq provided a four-day workshop in coding for the Youth Media Team members February 16-20, 2015. They were trained following a train-the-trainer model allowing them to pass on their skills to community youth as part of a weekly code club. Code Club was a computer coding education program for Nunavut youth, initiated by Pangnirtung-born app development company, Pinnguaq, and in partnership with the Qaujigiartiit Health Research Centre. The aim of this program was to provide Nunavut youth with training in computer coding through instruction and activities centered on building video games. Participants learned about the basics of computer logic, programming syntax, and game design. In doing so, the aim is to have them acquire new skills, to work together to build those skills, and to exercise their creativity in developing their games and improving their designs. The implementation of this program in Arviat also involved the partnership of the Arviat Wellness Centre and the community’s Youth Media Team.

The first two days were focused on “training the trainers”. These trainers are older youth in the community (age 16-21 years old; 3 male, 1 female), with an interest in technology, who were taught the basics of programming language and instruction in advance of the Code Club program for middle school-aged youth participants (age 9-13 years old; 11 male, 1 female at peak attendance). They were also taken through a version of the Code Club program that the younger youth participants would be invited to during the following three days, to expose them to the teaching activities and material that would be covered.
The youth participants then took part in the three-day workshop, which was jointly administered with the older youth trainers. More details are provided in Appendix C.

Throughout the week of the Code Club, a keen interest for the program was expressed, so it was organized, in partnership with the older youth from the Arviat Youth Media Team, that a weekly after-school club would be arranged. Jamie Okatsiak, one of the older youth, took on this responsibility, and led the weekly Code Club program for the participating youth until the completion of the school year. Throughout the program, feedback and evaluation was collected from the trainers and youth participants. This feedback was quite positive. Summaries of the analysis for the results from the training workshop and code club event are provided below.

The Code Club portion of the program, which was targeted toward middle school-aged youth in the community, attracted an attendance, which ranged from 8-12 participants. The participants, at peak attendance, were aged 9-13 years old, 11 male and 1 female. At the end of the training session, the 8 participants that were in attendance (7 male, 1 female) expressed during the feedback discussion that they all rated their overall experience with the Code Club as 5 on a scale of 1 (very bad) to 5 (very good). They also expressed that they really enjoyed learning how to make games, and had fun during the three days that they were together. In addition, they pointed out that it was nice for them to meet people who work in the video game industry, and that they valued the new mentorship relationships that had been created with the program organizers. All of the youth participants played video games on a computer, video game console, or portable device, and the majority of them (83%) said that they attended the first day of the program because they were looking forward to making games of their own.
During the Code Club program, the youth had the opportunity to create their own video games, and each of the 8 participants who consistently attended all the sessions throughout the three days created a minimum of 3 games in Scratch. To apply their learning beyond computer programming, they also modified real-world games like tag and various Inuit games in order to demonstrate their understanding of game structure, rules, and how that impacts user experience.

The trainers also had an opportunity to provide feedback about their experiences of delivering the various training sessions during the 3-day Code Club. The four trainers rated their experience of conducting the Code Club at an average rating of 4.75 on a scale of 1 (very bad) to 5 (very good). They all saw the benefit of learning the skills from the program, and teaching them to the younger youth in the community, to foster innovation, improve creativity, promote critical thinking, and provide an outlet to learn new skills. Of the 4 trainers, 3 of them had stated that they would be willing to continue facilitating the program as an after-school club. One of the trainers took the lead on organizing this, and delivered the program weekly for the remainder of the school year.

Overall, the program was a success in its reception by the trainers and youth. It provided an outlet for the youth participants and trainers to learn new skills, and express their creativity in a way that was fun and engaging. There was an appetite to learn these skills, as the youth were already quite familiar and comfortable with technology, and this program allowed them to further manipulate and customize the tools that they had already been using and have access to. The potential to grow this program beyond its one-time delivery was realized by the initiative taken by the trainers to implement a weekly Code Club in the weeks following the initial program. There is further potential to build on this uptake.
Unintended Outcomes

The Healthy Bodies project was an opportunity that presented itself when the Canadian Institute for Child Health was approached by the Coca Cola Foundation and asked to design an intervention for young Nunavummiut who were consuming too many sugar drinks. Having the Youth Media Team in place enabled us to partner on this project and create a set of messages and materials that targeted the early years and build additional capacity for the Atii Let’s Do It! Project.

The Culture of Cooking initiative emerged out of the teams’ concern that their peers were eating a lot of pre-packages ready to heat foods. They felt that in order for there to be uptake of the healthy messages, we had to provide the opportunity to promote and develop basic cooking skills for healthy eating.

In addition to the creation of the Atii App, the following knowledge products were developed:

- Six original storybooks and accompanying learning activities designed for children in the early years and their parents ([www.arviat.tv/healthy-bodies.ca](http://www.arviat.tv/healthy-bodies.ca))
- Six original songs promoting healthy living ([www.arviat.tv/healthy-bodies.ca](http://www.arviat.tv/healthy-bodies.ca))
- Website to provide information about the project ([www.arviatwellness.ca/index.php/atii/the-atii-gameshow](http://www.arviatwellness.ca/index.php/atii/the-atii-gameshow))
- Four powerpoint presentations for use on cable TV channels to support the key messages identified by the Inusiqsiarniq youth team.

Challenges

- **Membership in Youth Media Team:** The membership of the Youth Media Team changed over the period of the project. Fortunately, since the group were collaborating with other initiatives such as Adobe Youth Voices and Arviat Film Society, we were in a position to bring in new people who were aware of the project and had a basic skill set to contribute to our collective efforts. Those members who left the project left for various reasons. One was offered full time employment, one returned to school, one went onto post secondary training. We did encounter significant difficulties with the coding aspect of the app development project.
• **Time:** Time was a major limitation, with a lot of development taking place in a short timespan. A scaffolding for the game was developed, which will make future changes and additions easy to do.

• **Resources:** Funding limitations were also problematic. In the initial project proposal, youth who were trained in app development by the National Film Board were engaged in the development of the app. However, the software/hardware platform for building the app changed over the course of the project, and the knowledge carried by the youth became redundant. We were required to pursue professional expertise, which required funding that we did not possess. Pinnguaq provided most of the programming and construction of the game, much of which became in-kind contributions to the project because of their belief in the outcomes of such an app. A valuable relationship has been forged with that organization, and we are looking into ways to fund future development of the app, through an additional update cycle.

• **Weather:** The weather in Arviat provided a barrier to access.

• **Access to technology:** The technology-focused nature of the program drew a pool of participants who were already inclined to such interests. Though this made program delivery easier, due to the alignment of the subject matter with personal interest, it is understood that lack of access to technology like computers and portable devices could have impeded the participation of other youth in the community.

**Next Steps**

• Test the Atii! app games with youth in the field, and evaluate whether and how the three game criteria have been met (enjoyable, intuitive, relevant)

• An update cycle (to update the game in the Apple Store) is necessary to incorporate some additional feedback from testing with youth in the field

• Add more mini-games, and refine the ones that currently exist

• Further develop the knowledge and training capacity of the trainers by providing extra learning material and training resources

• Expand the availability of a Code Club program to other communities across Nunavut, by providing similar training to interested youth

• Create online infrastructure to share new material, and facilitate communication and interaction between program staff, trainers, and youth media team. This has the potential to expand into an inter-community knowledge-sharing network for a Code Club program.

• Further leverage the mental wellness benefits of this program (i.e. learning new skills, creating an outlet for creativity and expression, etc.) along with the socioeconomic benefits of teaching employable skills in demand in the job market. This could be tied to opportunities for interested to further pursue this field through various scholarship opportunities.
SECTION 8: RECOMMENDATIONS AND CHANGES FOR FUTURE PROJECTS

Incorporation of Atii into Nunavut elementary schools provides an opportunity to assess the positive impacts of this and other healthy lifestyle programming on child health outcomes. Given the increase in childhood and adult obesity and pre-diabetes in many Indigenous populations, it would be useful to assess the efficacy of positive messaging on a large scale.

New research is examining the outcomes of young harvester programs for food security and their impacts on children’s overall health and well-being. This is warranted, given the persistence of challenges surrounding mental wellness and food security in Indigenous communities, particularly those in remote northern regions.

Youth Media Team: The youth were engaged as leaders and drivers of the app development project. Through the project, they developed a significant skills set in media and also demonstrated strong on-the-job skills that will serve them well into the future. In their design of healthy messaging for the community, they have gained a solid understanding of key principles of nutrition, wellbeing, active lifestyle and obesity prevention. They identified the need to expand the messages to include a focus on tobacco and substance use prevention. Their advocacy and the skills to deliver change messages should provide significant capacity for health improvements to our community into the future. A key intent in this project was that data would be collected on the message uptake in pilot of the ‘app’ and other tools. Due to the many delays in the coding process associated with the app development, the pilot has not yet taken place and uptake cannot be reported on. It will be important to complete this activity and also to attempt to collect data on other unintended products that resulted from this project such as the CICH sponsored Healthy Bodies Project and the youth Culture of Cooking initiative. There were also several storyboards developed by the youth for the Atii App that we not able to be developed in time for this project. These games required more in-depth development because they have a focus on actually teaching health related information and not just assuming what is known. The current app could be greatly enhanced by adding these game applications in the future.
Limitations and Generalizability

We believe the Atil Gameshow has applicability and merit beyond Nunavut:

(1) As an opportunity for Inuit children in other northern and urban regions to connect with valuable Inuit knowledge about healthy lifestyles; and

(2) As an educational tool about Inuit culture. Data on ethnicity of participants may yield information on the relative value of the intervention for Indigenous and non-Indigenous students, however we felt benefits were experienced by all participants.

Many Indigenous communities have developed programs to support sustainability of traditional harvest practices among their residents. The positive outcomes associated with the Young Harvesters Program in this community are testament to its powerful impact and could be used to improve access to and sustainability of these programs in Indigenous communities. Data on ethnicity of participants may yield information on the relative value of the intervention for Indigenous and non-Indigenous students, however we felt benefits were experienced by all participants.
BIBLIOGRAPHY


APPENDIX A - ATII GAMESHOW AND YOUNG HUNTERS PROGRAM EVALUATION REPORT
APPENDIX B - ATII APP DEVELOPMENT PROJECT SUMMARY
APPENDIX C - CODE CLUB WORKSHOP REPORT