



# 6th International Meeting on Indigenous Child Health Resilience: Our ancestors' legacy, our children's strength

March 20-22, 2015 / Ottawa, Ontario



## POSTER ABSTRACT PRESENTATIONS

### #1 **Smoking Sucks Workshops: Involving Cree Youth in Community-based Tobacco Reduction Efforts** *Rob Collins, Merryl Hammond, Ron Shisheesh\**

**Purpose:** Smoking rates among Cree youth were extremely high (~75%). The Cree Board of Health and Social Services of James Bay had produced a youth-friendly book, "Smoking Sucks: Kick Butt!" It now decided – with funding from Health Canada's Federal Tobacco Control Strategy – to workshop the book with selected school students in each community in Eeyou Istchee (northern Quebec). The goals of the "Smoking Sucks Workshops" project are to build critical awareness of the causes and effects of smoking, and to empower youth trainees to share their learning in both formal and informal presentations to people in their schools and communities.

**Methods:** Eleven "Smoking Sucks Workshops" have been run with 104 students in all 9 communities in Eeyou Istchee (8 in 2012, and 3 in 2014). More are planned for 2015. The target group is high school students (staff- or self-selected; smokers and non-smokers). Workshops have ranged from 7–12 participants, aged 12–19. The Workshop lasts 4 days, and uses participatory exercises to engage and inspire students to examine the root causes of smoking (including colonialism and historic transmission of trauma). Traditional use of tobacco is fully respected. A program to guide smokers who want to quit is also presented.

**Results:** Although the Workshop goal is tobacco education, not cessation, more than half of the smokers decided to quit: 55% were smokers at the start of the workshops and only 23% were still smoking by the end. Of these, some quit later, and of those who quit during the workshops, some will doubtless relapse. Of 104 student satisfaction evaluations using 21 criteria (under the headings of Workshop organization, Attitudes and skills of trainers, Training materials, and Student's impressions), the mean rating was 95% (range 88%–100%). There was also enthusiastic anecdotal support from parents, family and friends of the youth participants.

**Conclusions:** Each Workshop concludes with participants sharing what they learned in a formal presentation at a school assembly or community event. Speaking in public about an important community health concern is a major accomplishment. The Workshops have provided them with critical thinking skills, confidence and leadership to share their learning in public. Next steps: 1) involve "graduates" as co-trainers on future Workshops, and 2) a follow-up evaluation to assess the long-term impact of the Workshops. We recommend this approach of youth engagement to colleagues working in other regions and on other health topics.

### #2 **Together on Diabetes Program: Development and Implementation of a Paraprofessional-Delivered Home Visiting Program for American Indian Youth at Risk for Diabetes** *Allison Barlow, Rachel Chambers, Crystal Kee\*, Nicole Neault*

**Purpose:** Reservation-based American Indian (AI) youth are at the forefront of an obesity and type 2 diabetes (T2D) epidemic in the United States. One-third of AI youth are overweight or obese, and their T2D prevalence is 2.6 times higher than US All Races. T2D is more aggressive in youth than adults and demands a targeted public health response. "Together on Diabetes" (TOD) is a diabetes prevention and management intervention designed, implemented and evaluated by Johns Hopkins Center for American Indian Health in partnership with 4 southwestern AI communities. TOD targets youth and family-based change through in-home intervention and community outreach.

**Methods:** The TOD intervention and evaluation protocol was developed through a Community Based Participatory Research process in 4 southwestern reservation communities. Intervention participants include AI youth, 10-19 years old and diagnosed with or at risk for T2D, and a family-based support person. The intervention features a 12-month home-based curriculum delivered by paraprofessional AI Family Health Coaches to youth and support persons. Family Health Coaches also conduct case management with youth's providers and engage participants in community wellness events. Outcomes are being assessed at baseline, 3, 6 and 12-months through comprehensive demographic, psychosocial, behavioral and physiological assessments.

**Results:** Between 2012 and 2014, 257 youth (56.0% males; 43.6% females; 1 missing gender) and 226 support persons were enrolled across 4 sites. At baseline, 15% (n=33) of youth had T2D, and 85% (n=188) were at-risk. Of those enrolled, 13.5% were categorized as overweight and 82.6% as obese, and average fat intake was above recommended levels. In the past month, 40.0% experienced food insecurity and 17.2%

screened positive for depression. Preliminary 6 month outcome data show significant increases in knowledge related to TOD content and perceived quality of life; reduced depression; lower BMI-z scores for girls; boys' BMI-z scores were stable.

**Conclusions:** Preliminary findings indicate that it is feasible for paraprofessional AI Family Health Coaches to recruit and retain local high-risk youth and family members for a home-based lifestyle education intervention. Preliminary outcomes indicate positive impacts on youth's knowledge, quality of life, depression and BMI. This is the first intervention development and evaluation trial focused on American Indian adolescents, who have the highest risks for diabetes in the US, with important lessons for global diabetes control.

### #3 **The Effects of Perceived Body Weight on Dieting Behaviors and Physical Activity in Overweight and Obese American Indian and Alaska Native Adolescents**

*Teresa Abrahamson-Richards\*, Bonnie Duran, Melissa Schiff*

**Purpose:** Self-perception of body weight is an important issue among adolescents, a group at risk for body dissatisfaction and negative diet-related behaviors related to weight perception. The aim of our study was to evaluate weight perception among American Indian and Alaska Native (AI/AN) overweight and obese adolescents and examine the associations between the accuracy of perceived body weight and dieting and physical activity behaviors.

**Methods:** Using American Indian Alaska Native data from the national Youth Risk Behavior Surveillance System (2007-2011), we performed a cross sectional analysis of weight perception and dieting and physical activity among overweight and obese youth. Respondents' self-described weight status was matched with their body mass index (BMI) percentile using self-reported weight and height. Youth were classified as accurate perceivers if self-perception and BMI percentile coincided or misperceivers if the two were discordant. We evaluated the association between accurate perception versus misperception of weight and diet and physical activity outcomes using logistic regression to estimate prevalence odds ratios (aPOR) and 95% confidence intervals (CI), adjusting for sex.

**Results:** Misperceivers were more likely to be male and 15-16 years old than accurate perceivers. Misperceivers were 80 % (95% CI: 0.13-0.31) less likely to be trying to lose weight and 36% (95% CI: 0.40-1.03) less likely to be fasting to lose weight than accurate perceivers. Misperceivers were 48% (95% CI: 1.00-2.17) more likely to engage in  $\geq 60$  minutes of physical activity on  $\geq 5$  days per week 69% (95% CI: 1.15-2.48) more likely to attend physical education classes  $\geq 3$  days per week, and 95% (95% CI: 1.34-2.85) more likely to have played on  $\geq 1$  sports teams during the previous year than accurate perceivers. Misperceivers were also 64% (95% CI: 1.11-2.43) more likely to consume the recommended daily servings of fruit than accurate perceivers.

**Conclusions:** The finding that misperceivers were more likely than accurate perceivers to engage in physical activity and less likely to engage in unhealthy fasting behavior suggests that adolescents' self-perceived weight status should be considered when designing weight-related interventions in this population and warrants further investigation in future studies.

### #4 **Acceptability of Family Planning Interventions in AI/AN Teens: Mother-Daughter Lay Group**

*Aimee Johnson\*, Kristen Nadeau*

**Purpose:** American Indian and Alaska Native (AI/AN) women are disproportionately affected by gestational diabetes mellitus (GDM), adolescent obesity and adolescent pregnancy, with nearly twice the U.S. rates of each. GDM in turn increases the risk of obesity and diabetes in the offspring, creating a vicious circle. Thus, the need for early interventions to prevent GDM in AI/AN youth is compelling. Mothers can provide support to daughters regarding reproductive health. This qualitative pilot study was conducted to explore AI/AN mothers' and daughters' acceptability of family planning interventions in AI/AN teens.

**Methods:** 5 AI/AN mother and daughter (M-D) dyads were randomly selected from a study of 12-20 year olds associated with an Urban Indian clinic. One-hour face-to-face individual, open-ended interviews were conducted with M-D dyads regarding GDM awareness, risk, prevention, effects on pregnancy, culture, and acceptability of a M-D intervention. Responses were recorded and content analysis performed.

**Results:** All teens were aware of diabetes, but none knew about its effects on pregnancy. Two of the 5 teens had pregnancies. Mothers and daughters wanted the mothers to receive the program, but to also allow private time for the daughter without the mother present. Girls can "trust the information if mothers say it's OK". "Openness with mom helped me prevent pregnancy." Girls want a "native peer narrator" and tribal cultural content. "Being Native is very important to me; I'm proud of it and want those values." "Would like a program to learn tribal teachings about pregnancy." They believed face-to-face sessions would be helpful. All mothers and daughters wanted more information and felt this "information is very important".

**Conclusions:** All mothers were accepting of GDM and pregnancy counseling for daughters. Both mothers and daughters agreed that a culturally sensitive M-D intervention would benefit the teens.

**#5 Effect of the 13-Valent Pneumococcal Conjugate Vaccine on Pneumococcal Colonization in Alaskan Children, 2008–2013**

*Dana Bruden, Prabhu Gounder\*, Alisa Reasonover, Karen Rudolph, Gail Thompson*

**Purpose:** Pneumococcal colonization is a prerequisite for invasive pneumococcal disease (IPD). The 7-valent pneumococcal conjugate vaccine (PCV7) introduced in Alaska in 2001 eliminated the disparity in PCV7-serotype IPD between Alaska Native (AN) and non-AN children. Unfortunately, increased non-PCV7-serotype IPD after PCV7 introduction led to reemergence in IPD disparity between AN and non-AN children. In 2010, a 13-valent pneumococcal conjugate vaccine (PCV13) against the PCV7-serotypes plus six additional serotypes replaced PCV7 in Alaska's childhood immunization schedule. To evaluate the impact of PCV13 among rural (predominantly AN) and urban children, we conducted annual cross-sectional pneumococcal colonization surveys before and after PCV13 introduction.

**Methods:** Children aged <5 years were recruited from two urban clinics and 8 rural AN villages annually during the study period, 2008–2013. Household information was obtained by interviews, PCV-vaccination status from Alaska's central vaccine registry, and a nasopharyngeal (NP) swab specimen from all participants. Pneumococci were identified by using standard laboratory methods. We evaluated colonization among all children and the proportion colonized by specific serotypes among colonized children. Pearson chi squared test was used to assess for trends by specific pneumococcal serotypes from 2008–2009 (Pre-vaccine Period) to 2012–2013 (Post-vaccine Period).

**Results:** We obtained 5,251 NP swabs. By 2012, 96% of children had received >1 dose of PCV and 84% were age-appropriately vaccinated with PCV. Overall pneumococcal colonization remained stable during the study period among rural (mean: 67%/year) and urban (mean: 36%/year) children. PCV13-serotype colonization decreased among rural (18%–2%, p-value <0.05) and urban (9%–3%, p-value <0.05) children. Proportion of pneumococcal carriers with non-PCV13-serotype colonization increased among rural (47%–69%, p-value <0.05) and urban (25%–34%, p-value <0.05) children. From the Pre-vaccine to Post-vaccine period, colonization by vaccine serotypes 6A, 7F, and 19A decreased and non-vaccine serotypes 7C, 15 B/C, 21, and 35B increased significantly.

**Conclusions:** PCV13 vaccination decreased vaccine-type pneumococcal colonization in urban/rural Alaskan children; however, increased non-PCV13-serotype pneumococcal colonization resulted in stable overall pneumococcal colonization prevalence. Compared with urban children, rural children were twice as likely to be colonized by PCV13- and non-PCV13-serotype pneumococci before PCV13 introduction. The PCV13-serotype pneumococcal colonization disparity between rural and urban children disappeared after PCV13 introduction. Because rural children are more likely to be AN than urban children, PCV13 could reduce the disparity in IPD incidence between AN and non-AN children. Ongoing IPD surveillance is needed to determine if the increased non-PCV13-serotype pneumococci prevalence leads to increased IPD.

**#6 Native Expressions Drum & Dance Troupe**

*Kimberly Gurnoe, Gretchen Morris, Bethany Weinert\**

**Purpose:** We are expanding a traditional dance and nutrition curriculum to improve healthy eating, to increase physical activity, and to enhance the wellbeing and self-esteem of the children of the Red Cliff Band of Lake Superior Chippewa. We are collaborating with parents, educators, and elders in the community to provide traditional dance, nutritious snacks, and talks about healthy, traditional foods and lifestyle. The dance and education sessions will provide consistent physical activity and mentoring at an accessible location. Furthermore, the project will bring resources to the community that were previously difficult to obtain, including dietary instruction and a safe place exercise.

**Methods:** Dance education will be provided by members of Red Cliff experienced in traditional dance. Nutrition lessons focusing on local and traditional foods will be provided by a new diabetes educator. Traditional educators from the community will also provide teachings on healthy, traditional living. Talking circles for the children to teach each other about healthy lifestyles will continue. We will utilize evaluation measures including process evaluation and focus groups for outcome evaluation. The target beneficiaries are the approximately 300 school-age children on the Red Cliff Reservation.

**Results:** There have been many successes in the program already. The most noticeable has been the retention of children interested in learning traditional dance and nutrition. During the first year of the program, pre- and post-intervention survey analysis showed an increase in fruit and vegetable consumption and an increase in physical activity outside of dance practice for children who participated. Several overweight or obese children have also lost weight through the program. Over the years, program leaders

have seen improvements in self esteem and leadership skills in these children. And, community partnerships have been formed with the community garden and school district.

**Conclusions:** The mission of Native Expressions Drum and Dance Troupe is to help create a positive self-image and promote global ecological conservation through teaching and advocacy of holistic healthy living centered on Native American song, dance, art, and culture. The troupe's philosophy is one of unity and conservation promoting interconnectedness between all people and our Mother Earth. The troupe provides a safe, consistent environment for exercise as well as education on healthy, traditional nutrition and mentorship that children would otherwise not have available to them. By adding new educators and by focusing on evaluation we hope to strengthen our successful program.

## #7 **School Based Clinics in Indian Country - Growing Pains and Lessons Learned**

*Janet Erickson, Michelle Posselt\**

**Purpose:** The Fort Peck Tribes Health Promotion Disease Prevention program (HPDP) is a program of the Assiniboine and Sioux Tribe of the Fort Peck Reservation. HPDP operates three School Based Health Centers (SBHC) in the reservation schools and provides dental, medical, mental health and nutritional services. The program seeks to encourage lifestyles that prevent disease and encourage healthy behaviors. The HPDP programs in schools are intended to support the educational process as it is recognized that future social development, economic development and preservation of the Assiniboine and Sioux Tribes is dependent on a healthy and educated community.

**Methods:** *Development of:* School Based Policy and Procedure and operations manual specific to the Fort Peck Tribes HPDP and the schools it serves. *Creation of:* Health education material specific to the needs and culture of the tribal children, their families and community at large. *Execution of:* Health Programs particular to the needs identified by children. *Treatment of:* Tribal children within the school with the realization acute care is not enough.

**Results:** As health care providers, we assume the things we mastered within our discipline are adequate to meet the needs of our patients, execute treatment and have a successful outcome. Often times within a Native American Community, very little is considered with regards to the patient's cultural needs and perceptions thus creating barriers to health and healing. We as providers need to consider the cultural background, social economic status, historical trauma and environment when treating tribal children. Based on these findings, the HPDP School Based Program has been successful in identify the needs of the children. The following programs and initiatives have been created to achieve these goals and discuss the following disciplines: *Medical Practice, Behavioral Health, Dental, and Nutrition.*

**Conclusions:** The attendee will be able to: Understand the benefits and challenges of using the SBHC model to identify and address health needs of Tribal children, teens and their families. Understand the types of services a Tribal program can offer in the SBHC setting- dental, medical, mental health and nutrition services while also learning about the challenges posed by the focus on prevention. Discuss challenges of collaboration with parents/guardians, schools, Tribal council and community and discuss ideas for cultural adaptation and acceptance of SBHCs in Tribal communities.

## #8 **Disparities in Functional Outcomes during Inpatient Rehabilitation for American Indian and Alaska Native Children with Traumatic Brain Injury**

*Susan Apkon, Molly Fuentes\*, Nathalia Jimenez, Frederick P. Rivara*

**Purpose:** American Indian and Alaska Native (AI/AN) children have the highest injury mortality rates in the United States. Further, AI/AN people have the highest mortality rate secondary to traumatic brain injury (TBI) of all racial and ethnic groups (27.3/100,000 compared to 19.3/100,000 for Blacks and 18.8/100,000 for NHW). Despite disparities in TBI mortality for AI/AN people, few studies have examined TBI morbidity in this population; moreover studies among children are non-existent. The purpose of this study is to determine if American Indian and Alaska Native (AI/AN) children with traumatic brain injury (TBI) experience disparities in functional outcomes after inpatient rehabilitation.

**Methods:** Design: Retrospective cohort study using data from the Uniform Data System for Medical Rehabilitation (UDSMR) database. Participants: 114 AI/AN and 7,251 non-Hispanic White (NHW) children with TBI age 6 months-18 years who underwent inpatient rehabilitation during 2002-2012 at a rehabilitation facility in the United States utilizing UDSMR services. Main Outcome Measures: Motor and cognitive developmental functional quotients (FIM® or WeeFIM® raw score divided by age-adjusted norms x 100) at discharge and change during rehabilitation.

**Results:** Results: AI/AN children with severe TBI classification made less gain in functional mobility than NHW children (mean difference -14.7, 95% CI -26.2, -3.3). AI/AN race was an independent predictor of lower motor function for children with severe TBI (regression coefficient -13.77, 95% CI -24.07, -3.46), after

adjusting for age, gender, type of insurance, admission function, year of discharge and region. Classification of TBI severity, geographic region and year of discharge from rehabilitation had differential effects on functional outcome for AI/AN versus NHW children.

**Conclusions:** AI/AN children with TBI had disparate functional gains during inpatient rehabilitation compared to NHW children. Ongoing examination of the processes of care is needed to understand the rehabilitation experience of AI/AN children. Further research is needed to understand the AI/AN experience of injury, rehabilitation and community integration. This will allow development of culturally-sensitive interventions to improve the rehabilitation experience and outcomes for AI/AN people.

**#9 A Novel Approach to Building Community-University Relationships: Enabling Children to Lead the Way**

*Roger Beaudin, Shannon Blight, Tricia Burke, Ed Didur, Sabine Kristensen-Didur, Leslie McGregor\*, Lorilee McGregor, Melanie Trottier, Mary Jo Wabano, Lauris Werenko, Nancy Young*

**Purpose:** Partnerships between First Nations Communities and Universities offer unique opportunities to explore innovations may improve health outcomes on-reserve. However, building these relationships takes time. The timelines necessary for collaboration are not consistent with the timelines required to succeed in academia. Community members and faculty members must both gain a true respect for each other's culture. If this can be achieved, a strong and productive collaboration may result. The purpose of this presentation is to offer a new and unexpected method to building the foundation for strong collaboration, which begins with research, and offers opportunity for skills building locally.

**Methods:** During 2013-2014 a small research team, led by a First Nations Health Director (MJW) and a University Professor (NLY), engaged three new communities in collaborative research. The goal was to improve the health of First Nations children. The team leaders already had a strong collaborative relationship, and invited others to join. Together we worked through a process of sharing ideas, articulating the plan in research agreements, and conducting individual pilot interviews with children in each community. These pilot interviews were intended to refine tools and methods for the research initiative. What we learned was far more impactful.

**Results:** Most communities required a minimum of three detailed meetings to prepare for collaborative research. Approvals were required from both the University Research Ethics Board and the local Board or Chief and Council. The local community leader played a critical role as champion for the project within the community. However, it was the face-to-face time that the First Nations children spent with the local team and research team that cemented the relationships. By listening to the perspectives of children, we all came to understand one another. This enabled the research to move forward in a respectful and efficient way.

**Conclusions:** We believe in the lessons learned through the stories of the ancestors, but also in the new knowledge that can be contributed through respectful research. Collaboration is the key. Through the collective and collaborative experiences with three communities, we have identified the critical importance of detailed interviews with children as part of the process. We initially planned these interviews to help fine tune the research process. However, we discovered their greatest value was in uniting team members and building collaboration. We encourage other teams to consider this process of pilot testing and listening carefully to the words of the children.

**#10 The Next Generation Study: Early Life Factors for the Development of Type 2 Diabetes in Childhood**  
*Heather Dean, Catherine MacDonald, Jennifer Schneider, Elizabeth Sellers, Laura Tapley, Brandy Wicklow\**

**Purpose:** Children born to parents with type 2 diabetes (T2D) are at increased risk of developing T2D. The incidence rate is increasing annually and disproportionately affects the Manitoba Indigenous population. Rates of T2D in Manitoban children are 15-20 times higher than in any other Canadian province. Some of the genetic (HNF1 $\alpha$  G319S private polymorphism) and environmental (prenatal and postnatal) risks are known; however, the independent role of other potential risk factors remains to be determined. The goal of this longitudinal birth cohort study is to determine the natural history and independent risk factors of T2D in childhood.

**Methods:** Annual assessments, including anthropometric (height, weight, waist circumference, blood pressure), metabolic (glycemic control, inflammatory markers, glucose tolerance), and genetic (HNF1 $\alpha$  genotyping) measures were performed on the offspring of parents of Indigenous origin who were diagnosed prior to becoming parents. Environmental exposures related to smoking, health history, and socio-economic status were assessed at each study visit.

**Results:** In October 2014, there were 152 children (80 females, 72 males) of 68 parents (60 females; 8 males). Twenty-four children (16 females; 8 males), all born to mothers with pre-gestational T2D, have been diagnosed with T2D at a median age of 12.27 years. These children were larger at birth than offspring who

had not developed T2D by age 12 years ( $\beta = 0.72$ , 95% CI 0.002, 1.43). Offspring had genotypes of GS (n=16, 67%), SS (n=7, 29%), or GG (n=1, 4%) of the HNF1- $\alpha$  G319S polymorphism compared to prevalent frequencies of the GS/SS/GG genotype of 39%/13%/48% in the T2D clinic population, respectively.

**Conclusions:** We observed a high incidence rate of T2D in children born to mothers with pre-gestational T2D and a high carrier frequency of the S allele of the HNF1- $\alpha$  G319S polymorphism. This suggests that intrauterine exposure to maternal T2D presents a unique environment-gene interaction manifesting in early expression of T2D. More intensive follow-up of mothers and children will provide insight into mechanisms for these high rates of T2D in children. This longitudinal birth cohort provides a unique opportunity to explore new hypotheses in the fetal origins of T2D.

#### #11 **Global Indigenous Child Health Field School for Undergraduate Nursing Students**

*Elder Francine Dudoit Tagpua, Simone Foster\*, Nicole Hambley\*, Andrea Kennedy, Dion Simon, Francesca Simon*

**Purpose:** With guidance from our Elders and cultural teachers, Mount Royal University undergraduate nursing program piloted an indigenous child health clinical practicum for 3rd year students. Student nurses learned about resiliency, spiritual health, and indigenous ways of being and knowing in our local Canadian context, and extended learning through an international placement in Hawai'i with Elder Francine Dudoit and the Prince Jonah Kuhio (PJK) Elementary School family.

**Methods:** Ongoing feedback and teachings were shared by our Elder with professor and student nurses. Weekly anecdotal notes and formal midterm and final evaluation were provided by the professor with student nurses. Formal evaluation (paper) was offered by PJK school staff on health impact of MRU student nurses. Informal evaluation (interviews) by professor with PJK children. Post-field school evaluation was completed by student nurses (online) Likert scale and comments regarding MRU Internationalization Strategy, child health course benchmarks, and global indigenous child health objectives.

**Results:** Evaluation from all perspectives indicated strong satisfaction with this field school.

**Conclusions:** Student nurses learned how indigenous ways of being and knowing inform their role to promote child health. The field school will be offered again in Fall 2015 with the guidance our cultural teachers and Elders, to offer experiential learning that connects local and global indigenous child health.

#### #12 **Obesity Prevalence among School-aged Nunavik Inuit Children using Three BMI Classification Schemes**

*Pierre Ayotte, Michel Lucas, Salma Meziou, Marc Medehouenou, Gina Muckle, Cynthia Roy, Audray St-Jean\**

**Purpose:** Various studies reported an increasing prevalence in overweight and obese children. Adverse health consequences associated to overweight/obesity are well documented. Obesity and type 2 diabetes prevalence are higher among Indigenous compare to non-Indigenous people. Age and sex specific body mass index (BMI) is the most commonly used method to assess overweight/obesity. The inconsistent prevalence estimates based on different classifications pose a challenge. This study aims to compare obesity prevalence obtained with three BMI classification systems and assess their associations with metabolic profile and inflammatory biomarkers among school-aged Nunavik Inuit children.

**Methods:** We conducted a cross-sectional analysis among 290 school-aged children (8-14 years; 51% girls) who participated in the Nunavik Child Development Study (2005-2010). Anthropometrical data (age, height, and weight), metabolic (plasma insulin and glucose, and adiponectin concentrations) and inflammatory biomarkers (ferritin, hs-CRP, IL-6 and TNF- $\alpha$  concentrations) were measured. Obesity prevalence was determined according to three growth references: International Obesity Task Force (IOTF), Centres for Disease Control (CDC), and World Health Organisation (WHO). Weight kappa ( $\kappa$ ) statistics were used to measure the agreement between the different BMI classification systems. Association with metabolic and inflammatory biomarkers were assessed using multivariate analysis of variance.

**Results:** Obesity prevalence was 6.6% according to IOTF scheme, about two-fold lower than those obtained with CDC (11.0%) and WHO (12.8%) classifications. Overweight/obesity prevalence was 40.4% for WHO, 26.9% for IOTF, and 24.1% for CDC. The agreement among BMI criteria ranged from almost perfect between IOTF and CDC ( $\kappa=0.87$ ) to substantial between IOTF and WHO ( $\kappa=0.69$ ), and between CDC and WHO ( $\kappa=0.73$ ). Positive trends ( $P < 0.05$ ) were observed for plasma insulin, ferritin and hs-CRP levels from normal to overweight to obese children, especially with the IOTF classification.

**Conclusions:** In this population of school-aged Nunavik Inuit children, we observed a high prevalence of overweight/obesity. Fewer children were categorized as obese using the IOTF classification, but they exhibited higher levels of metabolic and inflammatory biomarkers among obese compared to those identified

with CDC and WHO schemes. This suggests that the IOTF classification is less sensitive but more specific and allow identifying obese children with greater metabolic disturbances.

**#13 Serological and Molecular Epidemiological Outcomes after Two Decades of Universal Infant Hepatitis B Virus (HBV) Vaccination in Nunavut, Canada**

*Maureen Baikie, Chris Huynh, Gerald Minuk, Carla Osiowy\*, Julia Uhanova, Lianne Vaudy, Thomas Wong*

**Purpose:** Chronic HBV within the Canadian Arctic is considered endemic (>2% prevalence). To control HBV infection in Nunavut, a vaccination program was initiated approximately 20 years ago, targeted at newborns and grade school students, as an interim catch-up program, with the aim that all individuals born after 1980 should be vaccinated. This study investigates the effectiveness of these programs and is the first seroepidemiological survey to determine HBV prevalence in Nunavut in the post-vaccination era.

**Methods:** Anonymized serum specimens scheduled for destruction following medical testing were collected between April 2013 and May 2014 from individuals granting consent. Date of birth, gender and health centre community were recorded for all specimens. Specimens were tested for antibodies to HBV (anti-HBs, anti-HBc) and hepatitis C virus (HCV). Anti-HBc positive samples were tested for surface antigen (HBsAg), and those positive were extracted for HBV DNA to perform molecular characterization. 4802 specimens (approximately 13.5% of the population) were collected according to the age distribution of Nunavut, with vaccine age cohort specimens comprising just over half of all collected specimens. Median age was 29 years (range 1 week to 93 years).

**Results:** Anti-HCV+ prevalence was 0.5%, with a high prevalence observed among those born between 1964 and 1968 (1.98%). Total anti-HBc+ prevalence was 9.4%; however, a 10-fold decrease in the rate of HBV exposure was noted among those born after 1980 compared to those born before (1.89% vs. 20.1%,  $p < 0.001$ ). HBsAg positivity was primarily documented in individuals born before 1980 (2.55%), although cases still occurred among the vaccine age cohort (0.21%). HBV subgenotype B5 (HBV/B5), formerly known as B6, and known to be unique among Inuit and Alaska Native people, was the most prevalent genotype observed (84%).

**Conclusions:** Based on HBV genotype analysis it is likely that several cases among the vaccine age cohort were attributable to immigration, although HBV/B5 was still observed; indicating persistence of locally acquired infection. Vaccine-based antibody as the sole serological marker was evident in the vaccine age cohort, although the rate of decay with increasing age was much greater than anticipated. Nearly two decades after the advent of HBV vaccination in Nunavut, HBV prevalence has decreased to 1.17%, indicating a non-endemic or low risk prevalence. However, the persistence of infection and a lower than expected prevalence of vaccine-based immunity in the vaccine age cohort will require further investigation to understand the causes and consequences.

**#14 Analysis of the Item Content in the Aboriginal Children's Health and Well-being Measure (ACHWM)**

*Tricia Burke, Brenda Pangowish, Melanie Trotter, Koyo Usuba\*, Mary Jo Wabano, Nancy Young*

**Purpose:** It has been difficult to accurately assess the health outcomes of First Nations children because of a lack of culturally-relevant measures. The Aboriginal Children's Health and Well-being Measure (ACHWM) was developed to address this gap. Anishinabek communities refer to this measure as the Aaniish Naa Gegii (ANG) meaning "How are you?" The purpose of this study was to assess the item content within the measure. Specifically, we sought to describe the relationships of the each item to the total score and the internal consistency. As part of this initiative, we hoped to identify the most informative items within the measure.

**Methods:** This study is the secondary analysis of data collected from one First Nation reserve in Canada during 2013-2014. Participants were asked to complete the ACHWM independently using an Android tablet. The ACHWM contained 58 items that represented four domains of health: Spiritual (15 items), Emotional (22 items), Physical (12 items), and Mental (9 items). A total of 125 children completed the survey. There was missing data for four participants; these were excluded from this analysis. We computed item-total correlations and a Cronbach's alpha for each quadrant and the regression analyses with data from 121 Anishinabek children from the community.

**Results:** There were no negative correlations between any of the items. All but one item (Q58 Long-time friendships: with a correlation of 0.2) correlated well its quadrant score at a satisfactory level (defined as a correlation  $\geq 0.3$ ). The Cronbach's alpha was 0.93 for all items in relation to the total score and ranged from 0.52 to 0.88 for the quadrant scores. The most informative items in the regression analyses were predominantly from the emotional and spiritual quadrants.

**Conclusions:** This is the first time that we have explored the internal item behaviour characteristics for this new measure. The ACHWM appears to have strong internal consistency. More importantly, the survey has

only one item related to long-term friendships that does not appear to function in the way it was intended. Emotional and spiritual quadrants seemed to be fundamentally important for the health and well-being in Aboriginal children.

**#15 Rethinking Attachment Theory in Coast Salish Territory**  
*Annette McComb, Marlene Moretti, Meghan Pritchard\**

**Purpose:** Attachment theory has increasingly played a role in shaping clinical and social interventions for children and their families. Concerns have been raised as to whether a Eurocentric theory of attachment is culturally appropriate in shaping services for Aboriginal families. The purpose of this study was to explore whether service providers working with Aboriginal families in Coast Salish territory believe that traditional attachment concepts are applicable to their work and can be translated into relevant services. Such findings help determine whether existing evidence based programs, including an attachment-based parenting program, can be adapted to better meet the needs of Aboriginal families.

**Methods:** To ensure our methods were flexible but rigorous we used semi-structured interviews. We established a list of potential participants who had been trained to deliver the attachment-based Connect Parent Group program and who worked with Aboriginal youth and their families. With snowball sampling from the 9 initial contacts, we were able to interview a total of 15 service providers working in Coast Salish territory, 6 of whom self-identified as having Aboriginal ancestry. Questions focusing on traditional concepts and measurement of attachment security were presented to each participant and the subsequent discussion was recorded and transcribed for coding and analysis.

**Results:** The service providers with whom we spoke generally felt that traditional attachment concepts were compatible with Aboriginal cultures. The idea that infants and young children require and benefit from attachment to caregivers was seen as universal; however, some respondents suggested that attachment may include a broader network of connections and relationships in Aboriginal families. Connections to community, culture, land, and Creator were emphasized and some voiced the opinion that secure attachment would include a sense of being grounded in your community and culture. Finally, our participants noted that we must consider disrupted attachments that result from Colonialism.

**Conclusions:** Attachment concepts have sometimes been rigidly applied to Aboriginal culture without consideration of cultural and historical contexts. Such approaches were rightly dismissed, not necessarily because attachment concepts have no relevance, but because respectful collaboration and a commitment to cultural understanding was lacking. The current work explored the common ground and unique perspectives of mental health providers in the Coast Salish territory engaged with Aboriginal communities. Our findings indicate that many respondents felt traditional concepts of attachment are applicable, but some areas were identified that required rethinking through a culturally sensitive lens.

**#16 Housing and Physical and Mental Health of Inuit Children**  
*Evelyne Bougie, Anne Guevremont, Dafna Kohen\**

**Purpose:** Housing conditions have been associated with child health. Inuit children are generally in poorer health than other Canadian children. They are also more likely to live in crowded housing conditions, in housing in need of major repair, and to be exposed to second-hand smoke in the home. This study examines a variety of housing conditions, family socio-economic conditions, and preschool aged Inuit children's physical and mental health outcomes.

**Methods:** This study uses the 2006 Aboriginal Children's Survey to examine the associations between physical (crowding, housing in need of major repair, unaffordable, smoker in the home) and psychosocial housing characteristics (home ownership, housing satisfaction) and the physical and mental health outcomes of Inuit children aged 2 to 5 years.

**Results:** Both physical and psychosocial housing characteristics were associated with Inuit children's health. Some factors (crowded housing and housing in need of major repair) were no longer associated with Inuit child health when other housing characteristics were considered. However, unaffordable housing, home ownership, parental housing satisfaction, and the presence of a smoker in the home were associated with Inuit children's physical and/or mental health over and above other housing factors and family and child socio-demographic characteristics.

**Conclusions:** Housing conditions in which young Inuit children live were associated with their physical and mental health, even after adjusting for family and child socio-economic factors.

**#17 Reductions in PCV13-type Colonization among American Indian Community Members**

*Lindsay Grant\*, Laura Hammitt, Katherine O'Brien, Robert Weatherholtz*

**Purpose:** The 13-valent pneumococcal conjugate vaccine (PCV13) replaced PCV7 in March 2010 on American Indian (AI) reservations in the Southwest United States. We evaluated the impact of PCV13 on vaccine-type (VT) nasopharyngeal (NP) colonization among vaccinated children and their unvaccinated family members.

**Methods:** From January 2010-April 2012 (27 months) an NP specimen was collected from each participating AI household member of a prospective, continuous, cross-sectional colonization study. A single NP specimen was collected from each participant. Pneumococci were isolated by culture following broth enrichment and serotyped by Quellung. The five serotypes unique to PCV13 (1, 3, 5, 7F and 19A) were defined as PCV5-types, which excludes serotype 6A due to cross-protection by 6B in PCV7. Prevalence ratios compared PCV5-type carriage in one-year periods before and after PCV13 introduction for participants <5 years, 5-7 years and 18+ years.

**Results:** A total of 6645 individuals from 1821 households enrolled. An NP specimen was collected from 6628 individuals (99.7%); 2187 (33%) were pneumococcus positive (52%, <5y; 36%, 5-17y; 12%, 18+y). PCV5-type colonization prevalence decreased from 12% prior to PCV13 introduction to 2% for immunized (PR=0.4, p<0.0001) and 3% for under-immunized children <5y (PR=0.4, p=0.03) in the second year of PCV13 use (April 2011-March 2012). Serotype 6C decreased significantly for <5y in year two of PCV13 use (PR=0.6, p<0.001), but not for older age groups. PCV5-type prevalence decreased (but not statistically significant) for those 5-7y (7%-5%, p=0.11) and adults 18+y (2%-1%, p=0.07).

**Conclusions:** Since PCV13 replaced PCV7 in March 2010 on the Navajo and White Mountain Apache reservations, pneumococcal colonization has remained common among children <5 years, but PCV5-type carriage has decreased in immunized and under-immunized children. A reduction in PCV13 serotype-specific colonization, especially of 19A, has occurred for children <5 years, but not for older children or adults. A similar trend has been seen for vaccine-associated serotype, 6C, also among children <5 years. Continued monitoring during routine use of PCV13 will be important to assess the longer term impact of PCV13 on residual VT colonization and disease as well as impact on NVT replacing strains.

**#18 Cree Leukoencephalopathy and Cree Encephalitis Carrier Screening Program: Evaluation of Knowledge and Satisfaction of High School Students**

*Annie Bearskin, Valérie Gosselin, Anne-Marie Laberge, Jessica LeClerc-Blain\*, Grant Mitchell, Andrea Richter, Jill Torrie, Brenda Wilson*

**Purpose:** A population-based gene carrier screening program (CSP) started in 2006 for Cree encephalitis (CE) and Cree leukoencephalopathy (CLE), two hereditary neurodegenerative conditions with high carrier rates in the James Bay Cree communities (Northern Quebec, Canada). Developed by local health authorities in collaboration with the Eeyou Awaash Foundation (a community family support group), the CE-CLE CSP offers education/counseling sessions and carrier screening, targeting high school students ( $\geq 14$  years), and women of reproductive age and their partners, mostly in prenatal settings. Our objective is to describe high school students' knowledge and satisfaction with the CE-CLE CSP.

**Methods:** Surveys were handed out before (survey A) and after (survey B) the CSP education sessions to grade 9-11 students in six high schools (n=267) in 2014. Students who had already been tested were excluded (n=59). Data was collected on demographics, knowledge of CE-CLE (clinical features, myths, inheritance, carrier risk), and satisfaction with the program. We report results from our analysis of both surveys. Chi-square tests were used to compare results between surveys.

**Results:** Of 208 eligible students, 90 answered survey A. Of these, 42 answered survey B. Ages ranged from 14-20 years. Seventeen were either pregnant or had at least one child. Eleven reported a positive family history for CE-CLE. When comparing groups who answered both surveys, improvement in knowledge following education sessions was significant for 10/14 questions (p<0.05). Of the 42 respondents, 34 thought they had enough/more than enough information to help them decide about carrier testing; 30 thought offering carrier testing in high school is a good/very good idea. Immediately following the education session, 59/208 eligible students had CE-CLE carrier testing.

**Conclusions:** We will increase participant numbers by administering surveys A and B in two more high schools, and assess screening outcomes (e.g. impact of carrier status on reproductive decisions, use of cascade screening), knowledge retention and satisfaction prospectively in a follow-up survey (survey C), one year after participation in initial surveys. Education sessions seem to have a positive impact on high school students' knowledge of the CE-CLE CSP. High uptake and positive image of carrier screening confirms its acceptability in high schools.

**#19 Catering Health Care for Aboriginal Peoples in Quebec**

*Alexandre Ferland, Rebecca Hoffer, Bonnie Huor, Mirianne Lemire, Harrison Saulnier\*, Kent Saylor*

**Purpose:** The province of Quebec is home to 11+ different groups of Aboriginal Peoples living on reservations, settlements and in villages with varying socioeconomic deficits attributed to nutrition, housing, echoes of discrimination and colonialism, and inaccessible to healthcare and education. This poster will present an introduction to a patient-centered approach that best establishes a respectable alliance with patients originating from Algonquin, Mohawk, Cree and Inuit communities. A collaboration between Medical Students that participated in clerkships within multiple communities in Quebec, the purpose of this poster is to provide answers to questions that physicians, nurses and medical support staff are faced with when admitting patients from the Aboriginal Communities in Quebec to their major healthcare facility. The topics to be covered include cultural safety, selection of practical long-term treatment plans and the barriers that prevent follow-up.

**Methods:** The group of 5 McGill Medicine 2nd Year Students participated in medical clerkships in a number of aboriginal communities and documented means of establishing a doctor-patient alliance, learnt methods of history taking for aboriginal patients and also hands-on assessment of the particular medical and social morbidities that Aboriginal Peoples are faced with.

**Results:** The results are a conglomerated summary of "tips" or an outline of how to cater a Health Professional's approach to the assessment, treatment and follow-up for Aboriginal Patients.

**Conclusions:** A summary of our presentation could be that a physician must acquaint themselves with the means to provide a culturally safe environment for their clientele, develop treatment regimes that consider the cultural, geographical and socio-economical status of the patient and remember that follow-up is possible, even in the bush or the far north, stay in contact with their local care providers

**#20 Acceptance of Long Acting Reversible Contraception by Navajo Adolescents in a School Based Clinic**

*Tracey Fender, Diana Hu\**

**Purpose:** Data presented on the acceptance and tolerance of LARC ( long acting reversible contraception) in a Navajo population with services offered at school based health centers linked with a tribal 638 medical center, in contrast with use at the pediatric and women's health clinics Specific focus on the use of Nexplanon in the school based clinics.

**Methods:** Epidemiology review of use of all methods of LARC for a 3 year period including method chosen, duration of use, pre and post use pregnancy status, weight gain, change from other method, and patient satisfaction/reasons for discontinuation. Population served by the school based clinic is 1100 total adolescents in two sites

**Results:** LARC is well accepted by Navajo teenagers in our setting but the early discontinuation rate is higher than noted in the literature

**Conclusions:** LARC is well accepted and tolerated by Navajo teenagers. LARC should be made available to Native American teens in an easily accessible, confidential setting. School based health centers offer such a venue and increase utilization by this high risk population

**#21 Impact of 13-Valent Pneumococcal Conjugate Vaccine on a Population at High Risk for Invasive Pneumococcal Disease**

*Megan Dormond, Lindsay Grant\*, Laura Hammitt, Robert Weatherholtz*

**Purpose:** Historically high rates of invasive pneumococcal disease (IPD) among Native Americans living on the Navajo Nation dramatically declined after pneumococcal conjugate vaccine (PCV7) introduction in 2000. In April 2010, 13-valent PCV (PCV13) replaced PCV7. We describe the IPD epidemiology in all ages during the PCV13 early routine-use era (September 2011-2013).

**Methods:** Pneumococcal isolates cultured from normally sterile sites in Navajo individuals were identified through active, laboratory-based surveillance. Isolates were serotyped by slide agglutination and confirmed by Quellung reaction. Indian Health Service User Population denominators were used for IPD rate calculations. IPD rates from 2007-2009 and 2011-2013 were compared.

**Results:** We identified 372 IPD cases before and 254 after PCV13 introduction, a 32% reduction in average annual cases. The PCV13-type IPD rate in children aged <2 years declined from 106 to 11 cases/100,000 ( $P<0.001$ ). Rates of IPD for serotypes 7F (50 vs. 4 cases/100,000;  $P=0.001$ ) and 19A (38 vs. 0 cases/100,000;  $P=0.001$ ) decreased significantly; non-significant reductions occurred in this age group for serotypes 1 (8 vs. 0 cases/100,000;  $P=0.27$ ), 19F (4 vs. 0 cases/100,000;  $P=0.52$ ). Among adults, the

PCV13-type IPD rate declined from 25 to 17 cases/100,000 (P=0.006). The rate of non-vaccine type IPD remained unchanged in children < 5.

**Conclusions:** PCV13-IPD rates among children and adults declined significantly following PCV13 introduction. Further surveillance is necessary to account for secular trends, to confirm PCV13 indirect effects and further measure serotype specific impact.

**#22 Agir pour favoriser le développement dès la petite enfance. Partenariat stratégique dans le milieu des Premières Nations**

*Sonia Daly, Ana Gherghel, Patricia Montambault, Nadine Rousselot, Caroline St-Louis\**

**Purpose:** Cette affiche présente l'entente entre Avenir d'enfants and la Commission de la Santé et des Services Sociaux des Premières Nations du Québec et du Labrador (CSSSPNQL), en détaillant les objectifs, les modalités, les résultats et les défis rencontrés. Ce partenariat vise à soutenir les communautés des Premières nations dans leurs projets collectifs pour le développement de la petite enfance.

**Methods:** Analyse critique

**Results:** Les résultats concernent les pratiques d'accompagnement de la CSSSPNQL et les communautés soutenues dans le cadre de l'entente.

**Conclusions:** Comprendre les défis liés à la mobilisation en contexte autochtone. Poursuivre le soutien des communautés locales, dans une perspective de renforcement des capacités.

**#23 Lessons Learned: Maximizing the Continuing Dissemination of an Alaska Native Youth Activity Book to Improve Nutrition**

*Christine DeCourtney, Karen Morgan\**

**Purpose:** In 2011, the Alaska Native Tribal Health Consortium (ANTHC) Cancer Program developed the *Traditional Food Guide Activity Book*, a culturally-focused children's nutrition activity book, with project funding from the Prevent Cancer Foundation. The activity book expands upon nutrition information from another ANTHC publication, the *Traditional Food Guide for Alaska Native Cancer Survivors* (2008). The activity book targets rural/remote Alaska Native (AN) youth aged 8-10 at risk for obesity.

**Methods:** the activity book is provided free of charge to rural/remote third and fourth grade teachers. After using the activity book, students have the option to submit a "healthy pledge" card to the ANTHC Cancer Program for a healthy snack. The initial 2011 distribution included a cover letter and activity book sample pages to 305 principals from 54 school districts statewide. Additional contacts were made for the 2012 and 2013 school years. The book has also been offered for purchase to internal and external preventive programs to offset the ongoing costs for distribution to teachers, including diabetes, head start, state public health nursing, and other tribal health organizations.

**Results:** The activity book has been far more popular than originally planned. Dissemination methods continue to evolve based on superintendent, principal, and teacher responses. Annual contact ensures that rural/remote school districts remain aware of and have access to the activity book. Each year more than 50 schools request copies of the activity book and more than 25 schools/school districts repeat their orders each year. In May 2014, an online survey was sent to teachers that have previously requested copies of the activity book. Their feedback will be used in the planned future revisions and/or reprints of the resource.

**Conclusion:** the annual promotion and dissemination of the *Traditional Food Guide Activity Book* requires review and adaptation of the previous year's contact methods with remote/rural school districts to ensure teachers remain aware of and have access to this free and culturally-focused resource. By engaging other groups concerned about AN youth nutrition, the activity book has become a self-sufficient resource whose reach and use has surpassed its intended audience.

**#24 Unintentional Injuries among First Nations, Métis, and Inuit Children in Canada: Research Highlights and Implications for Communities**

*Evelyne Bougie\*, Audrey Giles, Dafna Kohen*

**Purpose:** Unintentional injury is the leading cause of death and morbidity among Canadian children, and injury rates have been reported to be particularly high among Aboriginal children. This presentation will describe data sources available at Statistics Canada to study injuries among First Nations, Métis, and Inuit children and youth in Canada, highlight findings from a study that examined rates of unintentional injury hospitalization for children and youth living in areas with a high percentage of Aboriginal identity population, and present the relevance of these findings for Aboriginal communities.

**Methods:** Data are from the Hospital Morbidity Database (2001/2002 to 2005/2006) and the Canadian Census. Rates of unintentional injury hospitalization were calculated for 0- to 19-year-olds in census Dissemination Areas (DAs) where at least 33% of residents reported an Aboriginal identity. DAs were classified as high-percentage First Nations, Métis, or Inuit identity based on the predominant group.

**Results:** Unintentional injury hospitalization rates of children and youth in high-percentage Aboriginal identity areas were at least double the rate for their contemporaries in low-percentage Aboriginal identity areas. Falls and land transportation were the most common causes of unintentional injury hospitalization, regardless of Aboriginal identity status, but disparities between rates for high- and low-percentage Aboriginal identity areas were often greatest for less frequent causes, such as fire, natural/environmental, and drowning/suffocation.

**Conclusions:** The geographic areas where children live are associated with hospitalization rates for injury. The results, the ways in which they may be tied to the Aboriginal social determinants of health, and their implications for the development of interventions with Aboriginal communities will be discussed.

**#25 Infectious Disease Hospitalizations among Alaska Native Infants, Alaska, USA**

*Michael Bartholomew, Michael Bruce, Prabhu Gounder\*, Thomas Hennessy, Robert Holman, John Redd, Sara Seeman, Rosalyn Singleton, Claudia Steiner*

**Purpose:** The study examines the disparities in infectious disease (ID) hospitalization among Alaska Native (AN) infants, the age group with the highest rate.

**Methods:** Hospitalizations with a first-listed ID diagnosis during 2001-2011 were selected for AN infants (<1 year of age) living in Alaska from the Indian Health Service direct and contract healthcare inpatient data. For comparison, ID hospitalizations for the general US infant population were selected from the Nationwide Inpatient Sample. Hospitalization rates for IDs and ID groups were analyzed.

**Results:** Infectious diseases accounted for 53% of hospitalizations among AN infants during 2001-2011. The average annual ID hospitalization rate decreased from 17,525/100,000 infants in 2001-2003 to 15,776/100,000 infants in 2009-2011. The 2009-2011 rate was about 3 times higher than that for the general US infant population (5237; 95% CI=4758 – 5716). For 2009-2011, the highest hospitalization rates in the Alaska regions in two rural Alaska regions A and B (51,583 and 47,075/100,000) with IDs accounting for 62% and 40% of the hospitalizations, respectively. Lower respiratory tract infections (LRTIs) accounted for 75% of all ID hospitalizations in 2009-2011, and 77% of ID hospitalizations in regions A, B, and C.

**Conclusions:** The ID hospitalization rate for AN infants is much higher than that for the general US infant population, particularly in Alaska regions A and B. Prevention measures to reduce ID morbidity, primarily LRTIs, among AN infants should be increased in high-risk regions.

**#26 Metabolomic Biomarkers in Relation to Weight Status among School-aged Nunavik Inuit Children**

*Pierre Ayotte, Michel Lucas, Marc Medehouenou, Salma Meziou\*, Gina Muckle, Cynthia Roy, Audray St-Jean*

**Purpose:** Excess weight in children is a major public health concern that has negative consequences on their physical and mental health. Branched-chain amino acids (BCAAs) and their metabolites (carnitines), as well as aromatic amino acids (AAAs) concentrations are elevated in humans with diet-induced obesity, and are actually viewed as the best predictor of type 2 diabetes (T2D). In Canada, obesity and T2D prevalence are higher in Indigenous compare to non-Indigenous people. This study aims to understand the association between metabolomic biomarkers and weight status in Nunavik Inuit children.

**Methods:** We conducted a cross-sectional analysis among 250 school-aged children (8-14 years; 51% girls) who participated in the Nunavik Child Development Study (2005-2010). Anthropometrical measures and metabolite concentrations (BCAAs, AAAs, acylcarnitines, glucose and insulin) were assessed. The International Obesity Task Force (IOTF) cut-off values were used to define the children weight status categories. Multivariate analysis of variance was used to assess associations with dependant variables.

**Results:** According to the IOTF cut-off values, prevalence of overweight and obesity were 20.3% and 6.6% respectively. Higher concentrations of valine (BCAA) and tyrosine (AAA) were significantly associated with obesity status ( $p=0.01$  and  $0.02$  respectively). Plasma insulin concentrations were positively associated with an excess weight ( $p<.001$ ).

**Conclusions:** In our study, we noted that obese children were characterized by significantly higher plasmatic concentrations of valine (BCAA) and tyrosine (AAA). Children with excess weight and higher BCAA and AAA levels might be at higher risk of future T2D. Longitudinal studies are deserved to investigate if these metabolomic biomarkers can predict future insulin resistance.

#27 **Promising Healing Practices for Interventions Addressing Intergenerational Trauma in Aboriginal Youth: A Scoping Review**

*Raheem Noormohamed, Amrita Roy\*, Wilfreda Thurston*

**Purpose:** The trauma of residential schools and other legacies of colonization have had lasting intergenerational impacts on the health and wellbeing of Aboriginal peoples. There is accordingly growing recognition of the role of intergenerational trauma in the physical and mental health disparities facing Aboriginal (Indigenous) youth. The objective of this research was to examine recommendations on best practices for addressing intergenerational trauma in interventions for Aboriginal youth.

**Methods:** Academic-community partnerships were formed for this research, which involved a scoping literature review. Peer-reviewed academic literature and “grey” sources were searched. Of the 3135 citations initially uncovered from database searches, 16 papers were identified to meet the inclusion criteria, which sought papers published in English between 2001 and 2011, which documented interventions for Indigenous youth of ages 12-29 years in Canada, the United States, New Zealand or Australia. The papers were sorted and the literature mapped. Additionally, stakeholder input was sought through a consultation with community organizations in the Calgary (Canada) area.

**Results:** The literature review identified recommendations, which included the need to integrate Aboriginal worldviews into interventions; strengthen cultural identity as a healing tool and as a tool against stigma; build autonomous and self-determining Aboriginal healing organizations; and, integrate interventions into mainstream health services, coupled with education of mainstream professionals on Aboriginal healing approaches. The review also identified a paucity of reports on interventions, and a need to improve evaluation techniques and find evaluation approaches useful to all stakeholders. Furthermore, it was noted that most of the interventions targeted individual-level factors (such as coping skills), rather than systemic or policy-level factors.

**Conclusions:** By addressing upstream (distal) drivers of Aboriginal health, interventions that incorporate an understanding of intergenerational trauma are more likely to be effective in fostering resilience, in promoting healing, and in primary prevention efforts. There is a paucity of published research on evidence-based best practices, though a number of promising practices have been noted. Further research and action, across sectors in health, social services, and academia, are necessary to address the gaps identified in this review and improve capacity to address this critical issue.