



7th International Meeting on Indigenous Child Health

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POSTER ABSTRACT PRESENTATIONS

#1 Encouraging, Respecting and Responding to the Voices of Children in Canada's First Nations – An Example as Part of a Community Health Survey Using the Aboriginal Children's Health and Well-being Measure

Marnie M. Anderson, Nancy L. Young, Trisha Trudeau, Mary Jo Wabano*

Purpose: Health assessment in Canada is often predicated on the medical model. Children's health is often evaluated using observational measures, which rely on adult perceptions. Rarely are there opportunities for the voices of children to be recorded or heard. It is important that we develop sustainable methods to hear their voices and processes to respond to in a timely manner. This presentation discusses how a novel approach to child health assessment, through their eyes and voice, encourages children to share their perspectives and stimulate action in response.

Methods: The Aboriginal Children's Health and Well-being Measure (ACHWM) or Aaniish Naa Gegii (Ojibway traditional territory name) is a tablet-based survey. It has been completed by more than 400 children, between the ages of 8-18 years, in Ontario. Some children meet with a mental health worker, immediately after the survey, to discuss their overall wellness results. This process is flexible and personalized to each individual. It brings attention to what the child's strengths and needs are at that time. This process demonstrates respect for the children, showing them that local staff are prepared to take action based on their perspectives.

Results: We have discovered that important information is elicited through the ACHWM and children have identified challenges that they have not previously been able to share. The ACHWM results have enabled local health staff to hear the perspectives of the children. Staff report that this process is a catalyst to an honest dialogue about each child's health, and connect them to the appropriate local services (i.e. mental health, right to play, social support etc.); opportunities that would have otherwise been missed. Children feel that their perspectives are valued, because support is given in response to their conversations.

Conclusions: We have demonstrated a new process for encouraging, respecting and responding to children's voices. The tablet effectively engaged children in providing an honest and comprehensive report about their health. It provided local health staff with an opening into robust conversations that would not have been possible otherwise. This process has improved timely access to appropriate local health supports and promoted children's visions of health and well-being. This process may also enhance children's health literacy. Respecting children's voices is an important component of health promotion that should be considered in advocating and improving child health in Canadian First Nation Communities.

#2 Community Engagement: A Novel Method for Increasing American Indians Representation in the Biomedical Workforce to Help Reduce Health Disparities

Scott Willie, Maija Holsti*

Purpose: American Indians (AI) represent only ~0.3% of the US biomedical workforce. Educational disparities negatively influence the AI biomedical workforce and health equity for AI populations. Eliminating health disparities, such as cardiovascular disease, cancer, diabetes, and obesity among AI requires the identification, recruitment, education, and training of a diverse group of scientists in the US. At the University of Utah, we have established a Native American Research Internship program that uses the principles of community engagement and Native elders, faculty, and student guidance with the goal of increasing AI representation in the biomedical sciences and thus reducing health disparities.

Methods: Discuss American Indian community engagement and the development and continued cultural support of the Native American Research Internship (NARI).

Results: List the academic, cultural, career, and educational support needed to promote the personal and professional development of American Indians in the biomedical sciences.

Conclusions: Understand how to provide continued support and mentorship after completion of the NARI program.

#3 Medicine Wheel Balance App: Complimentary Component to the Aboriginal Children's Health and Well-being Measure (ACHWM)

Trisha Trudeau, Mary Jo Wabano, Marnie M. Anderson, Nancy L. Young*

Purpose: The Aboriginal Children's Health and Well-being Measure (ACHWM) is a comprehensive health assessment, including a screening and triage process. The ACHWM is grounded in the Medicine Wheel and covers four key health concepts: spiritual, emotional, physical and mental. It is completed by children on computer tablets. A creative design was needed to facilitate sharing of ACHWM results in a way that would resonate with children and support a conversation with local mental health staff. A key principal was to refocus the conversation with children to a more balanced discussion on wellness, and move away from a focus on illness.

Methods: This notion drove the development of a complimentary Medicine Wheel Balance App. A new App was developed to incorporate the 4 health concepts, celebrate individual strengths and foster discussion for growth towards a balanced well-being. The ACHWM results are typically presented as numeric scores for each of the 4 health concepts and one overall wellness score. The Medicine Wheel visual was selected as it is non-numeric and Aboriginal children have a strong cultural understanding and connection to the Medicine Wheel.

Results: We programmed a new Balance App for Android tablets that generates a colorful illustration of ACHWM scores in the form of a Medicine Wheel. The image displays colored quadrants, with the size of each quadrant representing the individual's strength in terms of their spiritual, emotional, physical and mental health. This image helps guide the conversation between the mental health worker and the client during their follow-up screening. This visual of their ACHWM results is a catalyst to support local health staff in identifying and celebrating a child's current strengths while working to achieve balance in their well-being.

Conclusions: The Medicine Wheel Balance App is designed to provide local health staff the opportunity to visually display ACHWM scores in a unique manner that resonates with children. This Well-being Medicine Wheel helps direct conversation by both celebrating current strengths and illustrating where opportunities to grow may reside in order to establish a balance among the 4 health quadrants. This demonstrates how the ACHWM addresses holistic well-being by moving away from focusing on one health concept. Therefore, the Balance App enhances the performance of the ACHWM by resonating with children, guiding conversation, recognizing strengths, and highlighting opportunities for growth

#4 The Home Environmental Assessment and Remediation (HEART) Study in White Mountain Apache

Erin Vigil, Janene Colelay, Novalene Goklish, Francene Hinton, Dianna Quay, Laura Brown, Katherine Nicolet, Catherine Sutcliffe, Robert Weatherholtz, Laura Hammitt, Angel Reid*

Purpose: Environmental exposures in the home, such as inadequate potable water, indoor air pollution and hazards, can contribute to poor health among American Indian children by increasing the risks of gastrointestinal and respiratory infections, cancers, and injuries. Addressing home environmental hazards through minor home repairs may be a feasible approach to reducing the risks of illness and injury among American Indian children. This study was undertaken to assess the feasibility and sustainability of improving environmental health hazards through home remediation.

Methods: Up to 25 households will be selected for enrollment in the study in collaboration with Tribal Housing Authority. Houses will be selected if at least one resident is ≥ 50 years of age and/or ≤ 5 years of age, the home contains a wood-burning stove, and the home was built before 2000 and participates in a housing program. Once enrolled, the home will undergo an initial assessment including air and water quality and a safety assessment. Based on this assessment, minor repairs will be identified and made by Tribal Housing Authority. Two months later, a follow-up assessment will be made.

Results: This study will be conducted between November 2016 and March 2017 on the Fort Apache Reservation of the White Mountain Apache Tribe. Measures of indoor air quality, water quality and household hazards will be compared between the initial and follow-up assessment. Challenges to conducting the home assessments and repairs will be identified.

Conclusions: Addressing home environmental hazards may be a vital and cost-effective approach to reducing the burden of illness and injury among American Indian children.

#5 Obesity-associated Metabolic Syndrome and Behavioral Factors Associated with Oral Health in Urban American Indian and Caucasian Youth

Aimee Johnson, Kelsey Boschert, R. Paul Wadwa, Elaine H. Morrato, Gregory Coe, Heidi Tyrrell, Sara Cambell, Laura Pyle, Anne Wilson, Terry Batliner, Lonnie Johnson, Judith Albino, Kristen J. Nadeau*

Purpose: American Indian (AI) and Alaska Native (AN) adults have increased rates of periodontal disease (PD). Early intervention is important while PD is still reversible. Dental caries severity is higher in AI/AN youth, as are rates of obesity-associated metabolic syndrome (MetS) and diabetes. Less is known about early stages of PD or the role of obesity in oral health in AI/AN youth, who are now increasingly living in urban settings. We collected data on precursors of PD in AI/AN vs. Caucasian urban adolescents, and analyzed the relationship between oral health and potential contributors.

Methods: Demographic data, fasting labs, anthropometrics, questionnaires about oral health knowledge and behaviors, and dental/periodontal examinations were obtained in 134 AI/AN and 44 Caucasians, ages 12-20 years.

Results: AI/AN adolescents had significantly more dental pain, decayed/missing/filled teeth and surfaces, calculus, gingival bleeding and pocket depth, especially among females. Despite no differences in oral health knowledge or diet between groups, AI/AN adolescents reported significantly less frequent brushing and dental insurance, higher tobacco use and had more MetS characteristics. MetS characteristics related to oral health, including BMI, diastolic blood pressure, triglycerides, HbA1c, fasting glucose and estimated insulin sensitivity, as did brushing, smoking, insurance, and time of last dental visit.

Conclusions: Compared with Caucasians, AI/AN adolescents have poor dental health and more signs of progression to early PD, showing the need for interventions to interrupt this process. Potential areas for PD prevention identified include BMI, oral hygiene, smoking, dental care access, and sweetened beverages, arguing for collaboration between pediatric and dental providers.

#6 The Feasibility of Using Telemedicine to Provide Tertiary Pediatric Obesity Care

Reza Sadeghian, Rebecca Gooch, Leigh Ann Phelps, Daniel Preudhomme*

Purpose: Although Telemedicine implementation in tertiary care has been tried, the satisfaction and outcome data is limited due to small sample sizes and the variation of methods and personnel by which the telemedicine technology is delivered and participants assessed. Our objective was to determine the feasibility of using telemedicine to deliver Pediatric tertiary obesity care and to evaluate Patient/MD/Staff satisfaction.

Methods: Although Telemedicine implementation in tertiary care has been tried, the satisfaction and outcome data is limited due to small sample sizes and the variation of methods and personnel by which the telemedicine technology is delivered and participants assessed. Our objective was to determine the feasibility of using telemedicine to deliver Pediatric tertiary obesity care and to evaluate Patient/MD/Staff satisfaction.

Results: 27 telemedicine consultations performed to completion. Technology error troubleshooting was the most common cause of incomplete sessions and technology dissatisfaction. MD/staff/patient responders agreed that the use of telemedicine is an appropriate and effective use of the clinician's skillset and time ($\geq 96\%$), and can avoid patient travel from an underserved area to a tertiary care clinic ($\geq 95\%$). All responders were comfortable and satisfied using the Telemedicine equipment ($\geq 85\%$). MD and patients agreed that the telemedicine equipment helped the patient avoid a face-to-face visit ($\geq 90\%$). Patients felt the technology was effective in the management of their visit ($\geq 93\%$).

Conclusions: We successfully delivered tertiary obesity care through the use of telemedicine equipment in different clinical situations associated with Pediatric Obesity. Wireless internet connectivity and adequate training of personnel to use the equipment are important aspects of successfully completing telemedicine sessions with patient, staff and physician satisfaction. Access to pediatric tertiary obesity care is a major barrier specifically for low socioeconomic populations, in our opinion telemedicine represents a realistic and cost-effective modality to provide well-received specialty care for the obese pediatric population.

#7 Relationships Between Breastfeeding and Select Health Outcomes among Off-reserve First Nations, Métis and Inuit Children

Nadine Badets, Tamara Hudon, Michael Wendt*

Purpose: This study examines the relationship between breastfeeding and two outcomes, diagnosed asthma/chronic bronchitis and ear infections, among off-reserve First Nations, Métis, and Inuit children in Canada, 1 to 5 years. Previous research on the general population has found breastfeeding to be protective

against several negative health outcomes; however, research specific to Aboriginal peoples has been limited, often focusing on a single health outcome within a single Aboriginal identity group. This study examines each Aboriginal population separately, but within a single study, to develop a better understanding of associations with breastfeeding, and with social determinants of health for each group.

Methods: Descriptive and logistic regression analysis were used to examine the relationship between breastfeeding and two outcomes (asthma/chronic bronchitis and ear infections) by three Aboriginal identity groups (off-reserve First Nations, Métis, and Inuit children). Predicted probabilities were used to interpret the logistic regression results. The data source is the post-censal and cross-sectional 2006 Aboriginal Children's Survey conducted nationally by Statistics Canada. Model building was done by the Hosmer-Lemeshow method, using collinearity testing as a model diagnostic. Estimates took into account the complex design of the survey. The initial sample size, after taking into account overlap with other surveys, was 17,472.

Results: Preliminary results show that, after taking several clinical, demographic, and socioeconomic factors into account, being breastfed was marginally related to lower likelihood of asthma/chronic bronchitis among off-reserve First Nations children, but not for Métis or Inuit children. On the other hand, being breastfed was related to lower likelihood of ear infections only for Métis children. The results of this study show that non-exclusive breastfeeding has significant associations with lower likelihood for specific health outcomes and Aboriginal populations, and that longer duration of breastfeeding (more than six months) generally results in better health outcomes.

Conclusions: The results of this study indicate that breastfeeding is not necessarily associated with a reduction in negative health outcomes across all Aboriginal populations, and that other determinants of health, particularly socioeconomic characteristics, may exert a greater influence on health outcomes. The implication for research on Aboriginal peoples is that care should be taken not to generalize and apply findings for non-Aboriginal, pan-Aboriginal, or single Aboriginal identity groups to all Aboriginal peoples. This is particularly important in Canada, as research often informs and influences the development of health policies and programs for Aboriginal peoples

#8 Factors Associated with Oral Health Knowledge, Behavior, and Beliefs of American Indian Mothers
Tamanna Tiwari

Purpose: This presentation will discuss the maternal knowledge, behavior and health beliefs related to their child's oral health. Six hundred American Indian (AI) mother- child dyads were enrolled and randomized in a clinical trial testing the efficacy of Motivational Interviewing to prevent early childhood caries. Baseline results revealed that overall oral health behavior score was 66%, and oral health knowledge score was 77%. The mean for oral health knowledge and internal oral health locus of control were higher for mothers with more education. Parental comorbidities such as depression and anemia or other blood disease have significant effect on the oral health behaviors.

Methods: Describe the level of oral health knowledge that AI mothers have related to the oral health of their children.

Results: Discuss the factors associated with maternal oral health knowledge, behaviors and attitudes. Higher maternal education is associated with higher oral health knowledge. Mothers with higher education perceive themselves as being able to control or influence their children's oral health. Education is strongly associated with the attitudes and health beliefs of mothers (primary caregivers) related to the oral health of their children.

Conclusions: Understand how parental comorbidities can be associated with decreased oral health behaviors related to their children.

#9 Persistent Invasive Haemophilus Influenzae Type B Disease among American Indian Children During Routine Vaccine Use
Lindsay Grant

Purpose: American Indian children have historically experienced markedly higher rates of invasive Haemophilus influenzae disease compared to general U.S. children. Dramatic reductions in H. influenzae type b (Hib) disease but no reciprocal increases in H. influenzae type a (Hia) disease followed introduction of the Hib conjugate vaccine 1989 among Navajo children. We assessed rates of invasive H. influenzae disease and characterized persistent invasive Hib disease cases in the era of routine use of Hib vaccine.

Methods: We identified cases of invasive H. influenzae disease among children <5 years of age by active, laboratory-based surveillance at Indian Health Service and private facilities serving Navajo Nation. H. influenzae isolates were serotyped by slide agglutination. Data from 2004 – October 2016 were analyzed.

Annual disease rates were calculated using Indian Health Service user population estimates as the denominator.

Results: Eighty-nine cases of *H. influenzae* (Hia: 49; Hib: 21; other types: 19) invasive disease were identified among Navajo children <5 years of age between 2004-October 2016. The average annual rate of Hia invasive disease was 17.2/100,000 (min: 6.2/100,000 in 2016; max: 28.6/100,000 in 2009). From 2004-2014, the average annual rate of Hib invasive disease was 5.6/100,000, increasing to 10.3/100,000 in 2015 and 30.8/100,000 in 2016. Of the Hib cases in 2015-2016 (N=7), three had pneumonia, two meningitis and two sepsis; only one had an underlying comorbidity. Of six cases with vaccine history available, five had received ≥ 2 doses of PedvaxHib.

Conclusions: Use of Hib conjugate vaccine resulted in dramatic declines in invasive Hib disease among Navajo children and children around the world; however, rates of Hib disease among Navajo children remain elevated compared to the general US population. Recent cases have occurred in vaccinated children who may have experienced waning immunity rendering them susceptible to acquisition of Hib from a persistent reservoir within the community and to invasive Hib disease. Further studies are needed to identify the reservoir for transmission, determine if waning immunity is contributing to disease and assess risk factors for invasive Hib disease.

#10 **Similarities and Differences in Clinical Characteristics Between Australian and Alaskan Children with Chronic Suppurative Lung Disease**

Rosalyn Singleton, Anne B Chang, Gregory Redding, Keith Grimwood, Leslie Herman, Gabrielle McCallum*

Purpose: Among Indigenous populations living in some developed countries, chronic suppurative lung disease (CSLD) remains prevalent. While largely preventable, CSLD is known to cause premature death in the 3rd-4th decade of life among Indigenous Australians and Alaskans. In our previous study, we found that children with CSLD from Australia, New Zealand and Alaska shared similarities, but there were also country specific differences in demographic and clinical characteristics. No other studies have examined for similarities and differences using the same methodology. Moreover, there are no published long term studies that have examined whether these characteristics persist.

Methods: We compared the long-term clinical characteristics of Indigenous children with CSLD from Australia (n=97) and Alaska (n=41) who participated in our previous study, 'Bronchiectasis Observation Study' (BOS) (2004-2012). During 2015-16, we clinically reviewed as many children as possible living in the larger remote communities where respiratory clinics or health centres were available. Research staff administered standardised questionnaires with caregivers and performed a clinical examination, including spirometry (where able). Additional medical history was extracted from the BOS dataset and from the medical records. Children were classified by physicians into 4 overall categories (well, improved, stable, worse) based on their clinical impression.

Results: The median age of the 80 children reviewed was 11-years (IQR 7.1-18.6), 48% males. 44/63 (70%) children with Computerised Tomography (CT) had confirmed bronchiectasis (Australia=67%, Alaska=38%). In Australian children, cough was present in 16%; wheeze=2%, crackles=0%. The corresponding prevalence in the Alaskan children was: 7%, 21% and 21% respectively. The proportion of children with normal spirometry was similar (Australia=43%, Alaska=39%) but airway obstruction and clinical asthma were more common in Alaskan (57%, 32%) than Australian (21%, 4%) children. Despite these differences, the summary clinical status was similar: Australia: well=24%, improved=24%, stable=51%, worse=0% and Alaska: well=21%, improved=50%, stable=29%, worse=0%.

Conclusions: In a subset (58%) of children with CSLD followed over a 10-year period, we found that earlier differences in the prevalence of wheeze between Alaskan and Australian Indigenous children remained. Asthma and airway obstruction (on spirometry) was more common in Alaskan than Australian children. Although Australian children were more likely to have CT confirmed bronchiectasis compared to children from Alaska, the overall clinical status in adolescents with childhood CSLD was similar. The high rate of ongoing symptoms and abnormal spirometry underscores the importance of continued management; however, the higher rate of airway obstruction in Alaska may dictate different treatment regimens

#11 **Fetal Alcohol Spectrum Disorder in Aboriginal Youth. A Descriptive Study of Presentations to Child and Adolescent Psychiatric Emergency**

Sinead Nugent, Ellen Jopling, Amanda Degenhardt, Ali Eslami*

Purpose: This study aims to examine the presentations of Aboriginal children and adolescents with Fetal Alcohol Spectrum Disorder (FASD) admitted to the Child & Adolescent Psychiatric Emergency (CAPE) at BC Children's Hospital over a 5-year period.

Methods: A retrospective chart review of admissions to CAPE between 2009 and 2014 identified all patients with a diagnosis of FASD. Information was collected using the Discharge Abstract Database and supplemented through manual review of electronic and paper charts. 84 admissions were recorded (64 patients, 20 repeat admissions). Of the 64 patients, 54.6% were identified as Aboriginal and 45.3% as non-Aboriginal. The Aboriginal group made up 60.7% of admissions, inclusive of repeat admissions

Results: Behavior problems, suicidality, and psychotic symptoms were common admission reasons for both groups. Other reasons for admission (self-harm, depressive symptoms) were low across groups. 72.4% of non-Aboriginal patients had a diagnosis of ADHD and 41.4% had a diagnosis of ODD compared to 31.4% and 25.7% of Aboriginal patients. Depressive (20%) and stress related disorders (28.5%) were higher in the Aboriginal group than the non-Aboriginal group (6.9% and 13.8%). 43.8% of non-Aboriginal admissions were discharged to their family homes compared to 23.5% Aboriginal admissions. 37.5% of non-Aboriginal admissions were discharged to foster care compared to 51% of Aboriginal admissions.

Conclusions: According to the 2006 Aboriginal Census, ~5% of the population of BC identify as Aboriginal, however, according to our findings, a disproportionate number of Aboriginal youth have diagnoses of FASD and require emergency psychiatric admission for co-occurring mental health crises. This highlights a critical need for further research into the mental health of this group in order to inform the development of culturally informed therapeutic interventions.

#12 Impact of PCV on Draining Otitis Media in American Indians Less Than 5 Years of Age Living on the Navajo and White Mountain Apache Reservations

Douglass G, Grant LR, Weatherholtz RC, Brown LB, Donaldson C, Reid R, Rudolph KM, Santosham M, O'Brien KL, Hammitt LL*

Purpose: American Indian children living on the Navajo and White Mountain Apache (WMA) reservations experience a high burden of otitis media (OM). We assessed the impact of pneumococcal conjugate vaccines (PCV7 in 2000; PCV13 in 2010) on draining OM.

Methods: Through active, laboratory-based surveillance we identified pneumococci grown from draining OM specimens of Navajo and WMA children <5 years. Pneumococci were serotyped by latex agglutination and the Quellung reaction. Culture practices varied over time so we assessed the change in the proportion vaccine-type (PCV7-type during 2000-2009 and PCV13-type during 2010-2016) using the Chi-square test for trend. PCV7-types were 4, 6B, 9V, 14, 18C, 19F, and 23F. PCV13-types were 1, 3, 5, 6A, 7F, 19F and PCV7-types.

Results: 273 cases of pneumococcal draining OM were identified from 2000-2016; serotypes were available from 205 (75%). The proportion of OM caused by vaccine-types declined during the PCV7 period (from 48% [10/21] PCV7-type in 2000 to 8% [1/12] in 2009, $p < 0.0001$) and the PCV13 period (from 100% [9/9] PCV13-type in 2010 to 27% [6/15] in 2016, $p < 0.0001$). During 2010-2016, serotypes 3, 19A, and 19F accounted for 32 (94%) of 34 PCV13-type cases and 34% of all cases. Nineteen (76%) of 25 children with PCV13-type OM were fully vaccinated for age.

Conclusions: Use of PCV7 and PCV13 in this otitis-prone population was associated with a decline in the proportion of draining OM caused by vaccine serotypes; however, vaccine-type draining OM (predominantly 3, 19A, and 19F) persists. Most vaccine-type cases occur in PCV-vaccinated children.

#13 Effect of the 13-Valent Pneumococcal Conjugate Vaccine on Pneumococcal Colonization in Alaskan Children, 2008–2014

Prabhu Gounder

Purpose: Alaska Native (AN) children have historically suffered disproportionately from invasive pneumococcal disease (IPD). The 7-valent pneumococcal conjugate vaccine (PCV7) was introduced in Alaska in 2001 and eliminated the disparity between AN and nonAN children in PCV7-serotype IPD. The IPD disparity between AN and nonAN children reemerged after PCV7 introduction because of increases in nonPCV7-serotype IPD. In 2010, Alaska's childhood immunization schedule introduced a 13-valent pneumococcal conjugate vaccine (PCV13). Since pneumococcal colonization is a prerequisite for IPD, we conducted annual pneumococcal colonization surveys before and after PCV13 introduction to evaluate the effect of PCV13 among rural and urban children.

Methods: Children aged <5 years were recruited from two urban clinics and eight rural AN villages annually from 2008 to 2014. For all participants, we obtained demographic information by interview, PCV-vaccination status by medical records review, and a nasopharyngeal (NP) swab specimen. Pneumococci were identified and serotyped using standard laboratory methods. Cochran-Armitage test of trend was used to assess

colonization between 2008–09, 2011–12, and 2013–14. A P value ($P < .05$) was considered significant except $P < .002$ was considered significant to account for multiple comparisons in evaluations of individual serotypes.

Results: We enrolled 2,996 urban (52% AN) and 3,161 rural (99% AN) children during 2008–2014. By 2013, 83% were age-appropriately vaccinated with PCV. Overall pneumococcal colonization increased among rural children (67% to 72%; $P = .003$) but not among urban children (34% to 37%; $P = 0.41$). Among colonized children, PCV13-serotype colonization decreased in rural (28% to 5%, $P < .001$) and urban (25% to 7%, $P < .001$) children; nonPCV13-serotype colonization increased in rural (65% to 90%, $P < .001$) and urban (72% to 90%, $P < .001$) children. We observed increased colonization by nonPCV13 serotypes 35B (2% to 9%, $P < .001$) and 21 (2% to 5%; $P < .001$).

Conclusions: The introduction and widespread use of PCV13 has dramatically reduced colonization by vaccine-serotype pneumococci. However, overall colonization remained the same among urban children and increased among rural children because of increased colonization by nonPCV13-serotype pneumococci. Ongoing surveillance is necessary to determine whether an increase in invasive disease caused by nonPCV13-serotype pneumococci could replace the disease prevented by use of PCV13.

#14 Regionalization of Pediatric Emergency Care in Rural and Tribal Areas: The Child Ready Program
Robert Sapien, Katherine Schafer, Norman Coeeyate, Joan Caldwell, Christie McAuley, Jeffrey Bullard-Berent*

Purpose: The care of the acutely ill or injured child can be stress-inducing to medical providers especially in remote, rural and tribal areas. Access to pediatric emergency specialty care is limited in these areas as pediatric emergency clinical services are traditionally concentrated in urban areas. Regionalization of care aims to get the right care to the right individual at the right time—enhancing access to care. The Child Ready Program believes that not only do the medical providers in the community need to be prepared for the child, but the entire community must be prepared.

Methods: The Child Ready Program utilizes a community engagement approach to help communities self-assess their level of preparedness for the acutely ill or injured child. After the identification of a local champion, a half-day community engagement exercise is conducted where local stakeholders (e.g. tribal leadership representatives, school nurses, health clinics, Emergency Medical Services (EMS), hospitals, WIC representatives, etc.) begin by defining their community. Then they assess their community resources and limitations. Four formal checklists, Resource Inventories, are completed by the stakeholders in the areas of: community; provider (EMS, school health providers, health facility); health facility; and prevention (chronic and acute disease).

Results: Child Ready has facilitated the process in seven rural and tribal, and two urban, underserved communities. Additionally, the Child Ready Program has met with leadership in twelve Native American tribes, presenting the program and asking for endorsement by the tribal leadership. Three areas of focus have been identified by communities to help them regionalize pediatric emergency care: a model of regionalization which modifies the traditional spoke and hub model to one of overlapping regions to support the child and get them access to care; telehealth (clinical and educational services) to the rural and tribal areas; and injury prevention activities.

Conclusions: Through a community engagement process, communities defined their community, self-assessed their level of preparedness for the acutely ill or injured child, and identified modalities of regionalization to enhance access to care for their children.

#15 Building the Child Ready Virtual Pediatric Emergency Department Telehealth Network
Robert Sapien, Christie McAuley, Jeffrey Bullard-Berent, Norman Coeeyate, Katherine Schafer*

Purpose: Care of the acutely ill or injured child can be stress-inducing to medical providers especially in remote, rural and tribal areas. Access to pediatric emergency specialty care is limited as these services are traditionally concentrated in urban areas. Through a community engagement process where communities self-assess their level of preparedness for childhood emergencies (are they Child Ready?), accessing clinical care via telemedicine was identified by Native communities as an area of need. In response, Child Ready set out to build a Virtual Pediatric Emergency Department to enhance access to pediatric emergency care for children in rural and tribal areas.

Methods: The CRVPedED Telehealth network was constructed to offer direct patient consultation and co-management of children in situ of local, community, rural and tribal hospitals by connecting with the pediatric emergency tertiary care facility in the only urban metropolitan area in the state. In addition to physician consultation, nurse-to-nurse clinical consultation is offered. After a technical information assessment of each site, telehealth carts are deployed and training conducted using medium fidelity simulation to ready the local

providers to use the telehealth equipment for future patient care. Periodic educational clinical rounds over the network are also offered to local providers.

Results: With the support of the Albuquerque IHS Area leadership a professional agreement was reached encompassing all Area medical facilities with credentialing and privileging by proxy. Currently there are eight sites, including two IHS facilities. There are three additional IHS sites which are in the final telehealth cart deployment and training stages. Ten consultations with have been conducted thus far, with only two children transferred and eight remaining in their community for treatment, saving over 3500 patient miles. Periodic nursing educational sessions have been conducted over the network, and behavioral health emergency and child abuse evaluation clinical services were recently added.

Conclusions: The Child Ready Virtual Pediatric Emergency Department Telehealth Network has demonstrated a significant savings in patient-mile due to children remaining in their community for care. In addition to miles saved, the financial, emotional and convenience cost savings to families is significant.

#16 Describing Disability among Children Receiving Care from Clinics in the Portland Area Indian Health Service

Molly Fuentes, Thomas Weiser*

Purpose: There have been no studies of pediatric disability using a dataset specific to American Indian and Alaska Native (AI/AN) children. The purpose of this study is to describe the proportion of visits associated with disabling diagnoses among children served by the Portland Area Indian Health Service (IHS). Secondary objectives are to describe the most common disabling diagnoses and the types of functional impairments as this will guide plans for service delivery for AI/AN children with disabilities in this region.

Methods: Pediatric encounters in the Northwest Tribal Epidemiology Center's EpiDataMart 2006-2014 were screened with the Children With Disabilities Algorithm (CWDA, containing 669 ICD-9 codes likely causing disability -- long-term physical, mental, intellectual or sensory impairments causing participation restrictions) to identify encounters associated with disabilities. Five pediatric rehabilitation professionals assigned functional impairment categories associated with each CWDA diagnosis. Descriptive statistics characterized disability at the individual and encounter level in this population.

Results: There were 67,264 children who received services from Portland Area IHS, of which 2,615 had CWDA diagnoses (3.9%). Over 17,000 encounters during the study period were associated with CWDA diagnoses. Of the encounters associated with at least one CWDA diagnoses, the most common diagnostic categories were alcohol/drug dependence (37%), speech language disorders (32%), autism/pervasive developmental disorders (13%), hearing impairments (2%), and cerebral palsy (2%). Among children with CWDA diagnoses, 89% had possible cognitive impairment, 74% possible communication impairment, 68% possible sensory impairments, 46% possible physical impairment, and 37% possible emotional impairment.

Conclusions: The prevalence of disability among pediatric encounters within the Portland Area IHS region was 3.9%, which is lower than the prevalence of disability reported in surveys not specific to AI/AN children. This may be due to discordance between provider-coded diagnoses and family-identified disability, or AI/AN children with disabilities may be seeking care outside of the IHS or tribal clinic system. While all domains of function are affected by CWDA diagnoses, in this sample there is a high need for treatments addressing cognitive, communication, physical, and emotional dysfunction. Collaborative work is needed to ensure AI/AN children with disabilities are receiving optimal care.

#17 Linking Health Through Research Partnerships: Denver Indian Health and Family Services (DIHFS)

Crystal LoudHawk-Hedgepeth, Rachel Simpson*, Adrienne Maddux, Del Nutter, Betty Gress, Stephen Weelock, Jim Morman, Charlene Irani, Carol Berry*

Purpose: There are 91,398 American Indians and Alaska Natives (AIANs) living in Colorado, 84% of whom live in urban settings. Nearly 24% of Colorado AIANs are uninsured, compared to all Coloradans at 17.6%. Denver Indian Health and Family Services (DIHFS) is a non-profit urban Indian health program providing healthcare services largely to AIANs within the Denver area. Since 2012, there have been an increasing number of request from organizations to develop research partnerships, but little corresponding guidance for clinics which choose to participate in research. Partnerships offer a way to learn, collectively. The purpose of this poster is to assess the community-academic research partnerships.

Methods: DIHFS conducted an internal evaluation of the nine community-academic research partnerships, (from pilot studies to large-scale scientific research projects) using Community-Based Participatory Research (CBPR) Principles and Research Process to assess the partnership, context, process, outcomes, challenges, benefits, tribal traditions, and experience of CBPR use.

Results: CBPR engagement among partners varied from those using traditional (top, down) research approaches, to CBPR. Partnerships were usually established during the “sample selection phase” and engagement ceased approximately 6 months after the “Analysis” phase. Additionally, some projects did well integrating CBPR principles (and have engaged in follow-up studies) whereas others did not. For example, one investigator cited “funding limitations: as a factor in meeting the community engagement guidelines established by DIHFS, and “had not budgeted” for dissemination. That study was terminated by the DIHFS Board of Directors, and the investigator has not initiated further study.

Conclusions: CBPR attempts to place equal emphasis on community participation; however, it takes time to build rapport with researchers and establish working relationships. CBPR can be used to help foster partnerships for improved health but communities may continue to struggle to understand their roles, rights, and responsibilities within academic research. Similarly, researchers (especially in increasingly competitive funding climates) may struggle to understand, and meet, community expectations.

#18 Aboriginal Children and Youth's Acute Care Hospitalization for Canada

Anne Guèvremont, Gisele Carriere, Evelyne Bougie, Dafna Kohen*

Purpose: Despite evidence that Aboriginal children/youth experience worse health than non-Aboriginal children/youth, data about hospital service use for these groups in the population have not previously been available nationally for Canada. Especially data gaps persisted for First Nations living on Indian reserves for whom health service use information is not usually collected in national population health surveys. Furthermore, population hospitalization information do not routinely collect information to identify Aboriginal persons. This study uses information from the 2006 Census of the population linked to hospital Discharge Abstract Database administrative records to describe patterns of hospitalization by Aboriginal identity groups for children and youth aged 0 to 19 years for all jurisdictions for Canada except Quebec.

Methods: Over 23 million respondents to the 2006 Census of Population were eligible for linkage to the Canadian Institute for Health Information's Discharge Abstract Database from 2006/07 to 2008/09. The DAD provides about 3 million records annually for all Canadian jurisdictions except Quebec including discharges from all acute care facilities. Hospital records were examined according to these Aboriginal identity groups: First Nations (living on or off reserve); Metis; Inuit living within Inuit Nunangat (The Inuit homeland). Hospitalization events were organized using the most responsible diagnosis code classified according to diagnostic chapters of the International Statistical Classification of Diseases and Related Health Problems (10th revisions, Canada (ICD 10 CA). A frequency ranking procedure was first applied to linked discharges. highest ranking chapter codes, in addition to hospitalizations for all diagnoses combined, with and without pregnancy can childbirth related hospitalizations were used to report hospitalization rates by each Aboriginal identity group for children and youth ages less than 1 year to 19 years. Ages were grouped as 0 to 9 and 10 to 19. Age-standardized hospitalization rates (ASHRs) per 100,000 population and age-standardized rate ratios (ASRRs) were calculated according to Aboriginal identity by age relative to non-Aboriginal children and youth.

Results: Preliminary results suggest consistently higher ASHRs among Aboriginal children and youth relative to their non-Aboriginal counterparts. ASHRs for children and youth were 1.5 times higher and 2.0 to 3.8 times higher relative to non-Aboriginal children and youth. For 0- to 9 year olds the leading diagnostic chapter pertaining to hospitalizations was diseases of respiratory system with ASRRs at 1.7 to 2.5 times that found for non-Aboriginal children and youth. For 10 to 19 yr olds disparities existed between Aboriginal and non-Aboriginal injury due to assaults with ASRRs from 4.8 to 10.0, self-inflicted injury ASRRs from 2.7 to 14.2 and pregnancy childbirth related ASRRs from 4.1 to 9.8 times higher than the rates for non-Aboriginal children/youth.

Conclusions: Preliminary results revealed ASHRs for leading diagnoses were consistently higher among Aboriginal children and youth relative to their non-Aboriginal counterparts. Strengths include large population linked data that enable examination of leading health conditions requiring acute care hospitalization according to distinct Aboriginal identity for children and youth for Canada excluding Quebec. Future research is needed to examine potentially confounding factors that may be associated with these preliminary resulting hospitalization disparities between Aboriginal and non-Aboriginal children and youth,. Rich information provided via linkage to the 2006 Census information could adjust for socioeconomic demographic geography and hospital use.

#19 Unintentional Injuries among Young Inuit from Nunavik
Anne-Marie Therrien, Marilyn Fortin, Gina Muckle, Richard Belanger*

Purpose: Injuries are by far the leading cause of death and long-term disabilities among youth in North America. Canadian Inuit are not left out as more than half of the total gap in life expectancy at birth between them and other Canadians results from injuries. Particularly, youth from diverse Indigenous communities worldwide seem to experience a significantly higher burden of morbidity and mortality from unintentional injuries than any other groups. As Inuit youth may not share the same predisposing factors on this important issue with other populations, this study depicts unintentional injuries and their socio demographic determinants among adolescents from Nunavik (Québec, Canada).

Methods: This study used data from the Nunavik Child Development Study (NCDS) – Adolescent (2013-2016; N=212). Data were missing for 4 adolescents and 9 did not correspond to our inclusion criteria; the sub-sample represented 199 youth aged 16-21 years. Descriptive statistics were used to document prevalence of serious unintentional injuries needing medical assistance in the past 12 months, and their reported causes (e.g. machine/tool related, animal/a person, fall). Sociodemographic characteristics (gender, age, education, socioeconomic status, employment, marital status, coast of residence) were used at the bivariate level (using t-tests and chi-square tests - $p \leq 0.05$) to observe which were linked with unintentional injuries (yes/no).

Results: The mean age of participants analyzed was 17.9 years, with more than half (55.8%) being females and currently employed (55.3%). 17.5% of young Inuit inquired reported at least one injury over the past year which needed medical assistance and 85.7% were likely unintentional. Motor vehicle-related injuries (motor collision, car collision, snowmobile collision, and scooter/motorcycle collision) represented 53.3% of all these serious unintentional injuries, for which 20% was related to car collision. Bivariate analyses demonstrated no sociodemographic difference between youth with and without a serious unintentional injuries in the past year.

Conclusions: This study demonstrates the high proportion of serious unintentional injuries from a convenient sample of Inuit youth from Nunavik over one year and the implication of motor vehicle in them. More researches need to understand why these injuries take place, the importance of behavioral factors in them, and how communities may better prevent unintentional injuries among young Inuit. Based on our results, prevention messages and programs need to focus on all young Inuit, regardless of their gender, age or other sociodemographic factors.

#20 Sudden Infant Death Syndrome in Alberta: A Geospatial Analysis of Known Risk Factors in Aboriginal and Non-Aboriginal Communities
Ian Mitchell, Delshani Peiris*

Purpose: The rate of SIDS in Alberta has declined in the last 20 years. However, the rate of SIDS in Aboriginal populations remains high; Aboriginal populations occupy specific geographical areas in Alberta. Understanding geographic variations in SIDS incidence can help thus indicate where further educational and investigative efforts should be directed. Understanding changes over time can help inform variations in public understanding of safe sleep practices for infants. Our purpose is to combine the epidemiology of specific known SIDS risk factors with Geographic Information Systems (GIS) technologies to understand how the variation of risk factors by geographical area in Alberta changes over time and how geographical area is related to social determinants of health.

Methods: 2371 sudden and unexpected deaths in infancy were investigated by the Medical Examiner in Alberta, 1977-2013; 1955 (82.5%) cases were classified as SIDS, using a consistent definition. This data and specified risk factors and population characteristics were mapped to generate a visual spatial distribution pattern throughout Alberta. Exploratory spatial data analysis was performed using the Anselin Local Moran's I statistic. Data was analyzed using STATA 13 statistical package. Risk factors and/or population characteristics were compared using test of proportions (Chi-Squared).

Results: Maps displaying the spatial distribution of SIDS events in Alberta (1977-2013), specified risk factors and population characteristics were developed. SIDS collection points (postal codes) were aggregated to the community/neighbourhood level to explore spatial patterns of specified risk factors. There is noticeable geographical variation in SIDS incidence and specified risk factors within communities of Edmonton and Calgary. A comparison of community level SIDS outcomes and specified risk factors to overall SIDS outcomes revealed statistically significant clustering. Differences between areas of high SIDS numbers and those with lower numbers was significant, $p < 0.01$, Local Moran's I; $p < 0.05$, Chi-Squared).

Conclusions: The use of GIS technologies provides a visual depiction of geospatial clusters of SIDS events at one point in time, and over time, and by integrating census information provides further analyses including socioeconomic status. Geospatial analysis of SIDS in Alberta permitted the identification of spatial clusters

of SIDS events over time, which allowed for the exploration of several questions, specific to certain known SIDS risk factors of interest in Alberta. The use of GIS techniques provides insight to and allows for greater understanding of the epidemiology of specific known risk factors and social determinants of health of SIDS within populations.

#21 Use of Modified Pediatric Early Warning Score (Mpews) in Rural Alaska to Predict Need for Medical Transport

Lilian Ho

Purpose: Medical transport decision-making is challenging in rural Alaska where the nearest tertiary care facility is 400 miles away. A large number of Alaska Native children in the Yukon-Kuskokwim Delta are transported by air ambulance from remote villages to a community hospital and often on to a regional center each year. The modified Pediatric Early Warning Score (mPEWS) combines vital signs, medical complexity, and clinical interventions to generate an acuity score that has been validated to assess potential for clinical deterioration. We implemented a quality improvement project using mPEWS to assist medical decision-making surrounding the transfer pediatric patients to higher levels of care.

Methods: Emergency room and inpatient nurses at the Yukon-Kuskokwim Health Corporation in Bethel, Alaska were trained to use a modified Pediatric Early Warning Score (mPEWS) tool for all pediatric patients being admitted to the local hospital. Acuity levels were assigned based on the mPEWS, with higher scores designating patients as higher acuity. Patients at higher acuity levels were assessed by inpatient nurses prior to admission, and a multidisciplinary team determined disposition for these patients. The mPEWS for admitted patients and final disposition – local admission or transfer to a regional center – were collected from 9/22/2015-4/30/2016.

Results: Of a total of 276 pediatric patients admitted during this time, 202 (73%) patients had at least one mPEWS score calculated at time of admission. 25 (12%) of these patients were transferred to a higher level of care after initial admission to the local hospital, on average 37 hours after admission. Higher mPEWS correlated with higher likelihood of transferring after admission, but the sample size was small. A mPEWS of ≥ 3 had a sensitivity of 0.680 and specificity of 0.605 at predicting transfer after admission. 20% of patients with a mPEWS ≥ 3 were transferred versus 7% of patients with scores < 3 .

Conclusions: Higher mPEWS appears to be correlated with higher acuity and potential need for higher level of care. More data are needed to determine its effectiveness as a screening tool. Future directions include having mPEWS calculated for patients who are transferred directly from the Emergency Room and tracking mPEWS throughout admission at the local hospital.

#22 Establishment of Oral Health Surveillance in Alaska Using the Electronic Dental Record

*Gretchen Day, Dane Lenaker, Jonathan Newman, Timothy Thomas**

Purpose: For many American Indian and Alaska Native (AI/AN) communities the prevalence of dental cavities among children is the highest in the U.S. A 2008 oral health survey in five rural Southwest Alaska communities showed 91% of children aged 4-15 years had cavities. Conducting comprehensive oral surveys is costly and labor intensive; even more so in remote regions of Alaska. AI/AN dental care in Southwest Alaska is provided through the regional tribal health organization (THO) which serves a population of 23,717 AN people living in 50 remote villages (excluding hub town). We explored use of a recently established electronic dental record (EDR) system for surveillance purposes to allow ongoing report on the oral health status of the pediatric population.

Methods: The THO's dental unit uses proprietary software for its EDR. The project involved updating the software to create a table which documents the status [decayed, missing, filled (dmft)] for each of the twenty primary teeth and date of the examination. This was linked to demographic data (date of birth, community of residence) and dates of dental services, and dental service codes. We used census data to calculate population numbers for our targeted age groups, for the region and by community.

Dmft scores were created for all children 0-5 years of age that had a comprehensive dental exam within the previous 12 months, for each year 2011-2015. We validated the dmft scores for fifty randomly selected patients by comparing the dmft table data with patient dental charts. We calculated average dmft scores for children aged 5 years born in the same calendar year for the region, community of residence, community's in-home piped water status and presence of a dental health aide therapist (DHAT). We also determined the number of full mouth dental reconstructions (FMDR) among children 0-5 years over the same period. We compared mean dmft scores using independent t-tests. Two-sided p-values less than 0.05 were considered significant. Data analyses were performed using the statistical software SAS 9.4 (SAS Institute Inc., Cary, NC).

Results: Between 2011 and 2015 the proportion of 5 year old children obtaining comprehensive exams each year increased from 17% to 49%. Over 90% of 5 year olds had caries experience and there was no change in average dmft scores (10.1 in 2011 and 10.8 in 2015), however the proportion with un-treated decay declined from 85% in 2011 to 70% in 2015 ($p < 0.05$). Excluding the communities ($n=5$) that fluoridate the water, the average dmft scores over 2011-2015 in communities with ($n=22$) and without ($n=23$) in-home piped water were 10.4 and 11.9 respectively ($p < 0.05$). Between 2011 and 2015 comprehensive exams among 5 year olds increased from 16% to 63% in the 28 DHAT communities and from 13% to 35% in the 21 non-DHAT communities. Average dmft scores were lower in DHAT (10.5) vs. non-DHAT villages (12.1), ($p < 0.05$). However there is a significant interaction between DHAT and piped water such that neither was significant in multivariate analysis. An average of 467 FMDRs/year were conducted over this period; 73% of children had undergone an FMDR by their 6th birthday.

Conclusions: Using the electronic dental record we were able to establish dmft scores for the region's AN children aged 5 years and compare by community characteristics. Average dmft scores were very high overall and did not change over the 5-year period, however an increasing proportion of children were evaluated and received treatment. More children were evaluated in villages with DHATs. Continued passive surveillance using the EDR is feasible and allows for ongoing monitoring and evaluation of the impact of oral health interventions.

#23 A Mixed Methods Evaluation of Health Canada's Children's Oral Health Initiative (COHI). Does it Lead to Improved Oral Health for Young First Nations and Inuit Children?

Robert Schroth, M McNally, H Martin, J Edwards, K Hai-Santiago, K Avery Kinew, M Bertone, M Brownell, A Hayes, J Lavoie, D Martin, ME Moffatt, L Star, H Tait Neufeld, D Keays-White, P White, J Douglas, W McNab Fontaine, N Nickel, J O'Keefe, L Dufour, A Bronsard*

Purpose: Too many Canadian children develop Early Childhood Caries (ECC), especially Indigenous children who are disproportionately affected by a more aggressive form of ECC, called Severe ECC (S-ECC). Public health strategies are needed to lower risk of S-ECC. Health Canada implemented the Children's Oral Health Initiative (COHI), a population health approach in many First Nations and Inuit communities to promote early childhood oral health, prevent ECC and address population disparities. COHI emphasizes prevention and timely treatment, minimizing the need for general anesthesia. A published evaluation is needed to measure the impact of the COHI intervention on children's oral health.

Methods: A mixed-method approach using quantitative and qualitative methods will evaluate the impact of COHI. Project 1 compares S-ECC surgery rates between both COHI and non-COHI communities and before and after implementation. Project 2 determines whether COHI communities are receiving more preventive dental services, requiring less treatment and referrals for surgery using data in the COHI database and dental claims. Project 3 will use focus group feedback from caregivers and community members, together with COHI key informant interviews about their views of COHI and the impact it has on children's dental health, facilitators and barriers to delivering COHI in communities.

Results: We anticipate that COHI interventions will reduce the need of high-risk treatment involved with S-ECC and improve oral health and well-being of Indigenous children.

Conclusions: We hope that evidence will inform decision-making, continuation, enhancements and expansion of COHI programming in other communities to address oral health inequities faced by Indigenous children.

#24 Silver Nitrate: A Minimally Invasive Approach to Dental Decay

Joseph Churchill

Purpose: A remarkable proportion of young American Indian and Alaska Native (AI/AN) children experience severe dental decay. The latest survey by the Indian Health Service (IHS) in 2015 revealed that AI/AN children are over 400% more likely to experience dental decay than other children in the United States. This occurs despite the best prevention efforts made by the IHS Department of Oral Health (DOH). The standard treatment for dental decay is a surgical intervention (i.e. "drilling and filling"), which can be a traumatic experience for a young child. Surgery is often done under general anesthesia, an expensive and potentially frightening experience.

Methods: Silver nitrate solution is a topical medicine which arrests dental decay in a minimally invasive manner. There is abundant research documenting the effectiveness of silver diamine fluoride (another formulation of the medicine). In late 2015 we implemented a silver nitrate followed by fluoride varnish protocol that is utilized by a handful of other IHS dental clinics. The treatment was offered as an alternative to conventional surgery for children seeking care in our dental clinic.

Results: The treatment has been very well received by the children and families in our community, and has contributed to an overall reduction in referrals needed to the pediatric dentist. There are some limitations, but if dental decay is diagnosed before the child develops symptoms, silver nitrate is a safe, atraumatic, and effective treatment option that is creating positive experiences for the children and families in our community.

Conclusions: The sheer prevalence of the dental decay, the absence of an effective prevention strategy, and the historical use of treatments which are traumatic for children have contributed to a generational cycle of suffering. With the silver nitrate protocol we have been using, we now have a tool to help end this cycle

#25 A Picture Says a 1000 Words: Developing the Child Ready Home Safety App for Community Health Representatives and Families

Robert Sapien, Joan Caldwell, Norman Cooney, Katherine Schafer, Jeffrey Bullard-Berent*

Purpose: Through a community engagement process where communities self-assess their level of preparedness for the acutely ill or injured child (are they Child Ready?), injury prevention was identified by Native communities as an area of need. In response, an interactive and instructional injury prevention app for Community Health Representatives to review with families during home visits--Child Ready Home Safety App--was developed. Due to challenges with internet availability in rural and tribal communities, a tool which could be used independent of internet access was proposed. This injury prevention tool raises awareness of common injury hazards for children.

Methods: Using commercial software, we built a home floor plan including yards. We inserted images and text describing hazards and prevention recommendations. Once programming for the app platform was built, images and information were transferred. The app was distributed to our Child Ready Community Advisory Committee (health care, injury prevention and community stakeholders) for alpha testing. Their feedback was incorporated and the app distributed to five medical providers for beta testing. Reviewers visited every room of the floor plan and gave edits and feedback which were incorporated into the final Android version. An Apple device version is in development.

Results: The app was released on GooglePlay for cost-free download. The design is such that internet access is only necessary for initial download and subsequent updates, thus making the app available in rural and tribal areas where internet connection may not be possible. Release of the app was promoted via the national EMS for Children newsletter (The Pulse), local television news and newspaper coverage, during visits to various Native communities in Albuquerque Area IHS and to our Child Ready Community Advisory Committee. Within 30 days of release, we tracked greater than 150 downloads. Downloads will continue to be tracked.

Conclusions: In response to a community self-assessment on preparedness for the acutely ill or injured child, we were able to develop an injury prevention educational app which is accessible in rural and tribal areas with limited internet connectivity.

#26 Evidence Based Strategies to Support Infant Skill, Efficiency and Endurance During Oral Feedings

*Alee Glass, Molly Rutledge**

Purpose: Micro-aspiration in indigenous Alaska and Canadian infants can co-occur in the setting of previous lower respiratory tract infections. Micro aspiration is also observed in indigenous infants without a history of pulmonary compromise.

Methods: Evidenced based interventions across breastfeeding and bottle feeding modalities often do not overlap as the coordination across oral and pharyngeal structures required for feeding by breast and bottle are different. The difference in coordination requires explicit teaching and support to caregivers to successfully reduce and eliminate micro-aspiration with a common and consistent language across feeding modalities for all infants.

Results: Our serial poster presentations will describe the similarities, differences, and contraindications across breast and bottle feeding, feeding position, teat/nipple placement intraorally, rate of flow vs. viscosity, and the challenges associated with purchasing artificial nipples in reducing the frequency of micro aspiration among indigenous infants.

Conclusions: 1. Micro-aspiration in otherwise neurologically typical developing children can occur 2. The positive feeding cues seen in infant feeding development inform caregivers for decreased aspiration risk 3. Evidence-based strategies that support infant skill, efficiency and endurance during feeding are provided. 4. Evidence-based strategies are increasingly routine, but are not well known among caregivers will now be salient to participants.

#27 The Use and Misuse of Tobacco among Canadian Indigenous Children and Youth
Radha Jetty

Purpose: While tobacco is sacred in many Indigenous cultures, the recreational use of commercial tobacco is highly addictive and harmful. Smoking rates for Canadian Indigenous youth and their families have reached alarming levels. The especially alarming rates of smoking in northern Canadian Indigenous youth are not captured in the national tobacco monitoring surveys such as the Canadian Tobacco Use Monitoring Survey. Awareness of this crisis needs to be raised. Prevention and cessation strategies need to recognize the traditional and ceremonial use of tobacco when appropriate and be culturally appropriate. Pediatric health care providers need to be aware of this crisis and capitalize on their unique position to collaborate with Indigenous communities to prevent and treat tobacco misuse in youth and their families.

Methods: Understand the distinction between traditional and commercial tobacco use and how it applies to some and not all Canadian Indigenous groups.

Results: Recognize the impact of high smoking rates in Canadian Indigenous youth and the paucity of data resulting from the exclusion of the most high-risk Northern Canadian regions from national tobacco use surveys

Conclusions: Understand the new recommendations from the Canadian Paediatric Society on tobacco smoking prevention and cessation as it applies to Canadian Indigenous children and youth

#28 Differences in Psychosocial Health Patterns During Pregnancy Based on Immigrant, Aboriginal and Income Status
Kelsey Dancause

Purpose: Sociocultural differences in psychosocial health patterns have been observed among Canadian adults. For example, rates of depression tend to be lower among immigrants, higher among First Nations and aboriginal groups, and higher among individuals with lower income. Fewer studies have analyzed these patterns during pregnancy. Past studies on psychosocial health during pregnancy among socially advantaged or ethnic majority groups might not be generalizable to immigrant, aboriginal, or socially disadvantaged women, who might experience different physical, emotional, and financial stressors. Studies of psychosocial health during pregnancy from large, diverse samples could help to better pinpoint groups at risk.

Methods: We analyzed data on distress (Kessler-10 distress scale) and depressive symptoms (short form developed from the Composite International Diagnostic Interview) among nearly 49,000 women ages 18-45 who participated in the "Canadian Community Health Survey" from 2011-2014. We used Univariate ANOVA to compare differences in patterns among women who were currently pregnant, breastfeeding, or not pregnant nor breastfeeding, based on immigrant or aboriginal (including First Nations, Métis, and Inuit) identification, and measures of socioeconomic status including household income (province-specific quintiles), and education (4 categories, from less than 8 years to post-secondary). Analyses controlled for age, household size, and marital status.

Results: Immigrant, aboriginal, and income status predicted distress and depression ($p < 0.001$ for all). Symptoms were lower among immigrant women, and greater among aboriginal women and women with low income. Symptoms were lower among pregnant or breastfeeding women ($p < 0.001$), but trends differed among groups. For example, whereas distress was lower among immigrant than non-immigrant women in general, these differences were not evident during pregnancy. Furthermore, depression symptoms among aboriginal women were higher among pregnant (mean score=1.9) than non-pregnant (1.1) respondents. In contrast, among women with low income, depression scores were higher among breastfeeding (1.8) compared to pregnant (0.9) or non-pregnant (1.1) women.

Conclusions: Our study highlights psychosocial health patterns during pregnancy and breastfeeding which differ from trends observed in the general population based on immigrant, aboriginal, and income status. Psychosocial health patterns might be obscured in studies that do not consider pregnancy or breastfeeding status. Given the links between psychosocial health during pregnancy and the postnatal period, and both short- and long-term child development outcomes, further studies among at-risk groups are being developed. These preliminary analyses provide a general overview of psychosocial health during pregnancy that could help guide the development of more detailed assessments, and to better identify women at risk.

#29 Single Versus Divided-Dose Steroids in Treatment of Rheumatic Carditis

Khaled Sanousy

Purpose: Patients with rheumatic carditis and more than minimal cardiomegaly and/or congestive heart failure should receive corticosteroids. The usual dose of prednisolone is 2 mg/kg/day in 4 divided doses. We aim by this study to compare the regimen of giving steroids in a single daily dose with that of giving them in four-divided doses.

Methods: The study was conducted on 24 patients having rheumatic carditis. 12 patients were started on prednisolone at a dose of 2 mg/kg/day in a single daily dose 2-3 weeks. The other 12 patients were started on prednisolone at a dose of 2 mg/kg/day in four divided doses for 2-3 weeks.

Results: There was no significant statistical difference between the two groups of patients as regard the duration of treatment before remission. No complications related to steroids were observed in any of our patients.

Conclusions: prednisolone, as a single morning dose is as effective as divided doses for treatment of rheumatic carditis with no higher risk of complications. As single dose steroid therapy is likely to be associated with better drug compliance, we recommend it as the regimen of choice for treatment of rheumatic carditis.