

towards adolescents and (5) perceived gaps in adolescent medicine training. Most providers felt that adolescents have different health care needs than children and adults and would benefit from dedicated health care services. There were concerns that not having a dedicated site or group of providers, as well as a pediatric cut-off age of 12 years pose significant barriers for adolescents seeking services. Providers admitted to not always feeling comfortable in discussing confidential topics such as substance use and although many discussed contraceptive options, they felt that gynecologists should prescribe. Most struggle with locating additional services especially related to unmet mental health needs. Finally, few providers felt that they had received adequate training in adolescent health during medical school and residency.

**Interpretation:** Providers recognize the need for increased and dedicated adolescent health care services. There is strong support for the creation of a credentialed national adolescent health training program.

**Funding:** None.

**Abstract #:** 1.058\_NEP

### The nutritional paradox of indigenous communities of Ecuador: engaging communities to affect change

X.J. He<sup>1</sup>, J. Morales<sup>2</sup>, M. Conejo<sup>2</sup>, A. Doucet<sup>3</sup>; <sup>1</sup>Faculty of Medicine, <sup>2</sup>Department of Family Medicine, McGill University

**Background:** Many indigenous people around the world struggle with food security, causing them to have a lower level of health and nutrition. Similarly, studies done by previous research students in the indigenous communities in North Andean Ecuador showed that only 7% of households was food secure. This statistic was accompanied by the finding that approximately 49% of indigenous children were stunted, and 48% of them qualified as overweight. This highlights the nutritional paradox that exists within the communities, where two forms of malnutrition, namely stunting and obesity, are concurrently present. Participatory research in these circumstances is an appropriate way to engage the communities in recognizing the issues at hand and becoming the factors of change that they need. The research student disseminated the results from previous years' studies to leaders in the communities and aimed to educate the communities and stimulate engagement through the development of a play on the topic of nutrition.

**Methods:** Development and writing of the play was done conjunctly with community health workers, community leaders and children participating in the play. The play has been left with community health workers, who can use the play as a tool to talk about nutrition with their peers and as a way to guide future program initiatives in the community.

**Findings:** The play on nutrition was performed by 10 children in the community center of Chilcapamba to over 30 spectators. Drawings of plates of balanced meals were collected from children to show their learnings, and the concepts of proportions and variety can be found in all of the drawings.

**Interpretation:** Despite its challenges, the student successfully developed an educative play with the support of the community members. This has taught the student to actively engage

a community in a project, and at the same time, has empowered the community health workers to reach out to other community members by taking a leadership role.

**Funding:** McGill Summer Student Research Bursary.

**Abstract #:** 1.059\_NEP

### Characterization of immune factors of chronic Chikungunya disease in Grenada, West Indies

C.J. Heath<sup>1</sup>, T.P. Noël<sup>2</sup>, R. Waechte<sup>2</sup>, J. Lowther<sup>2</sup>, C.N. Macpherson<sup>2</sup>, A.D. LaBeaud<sup>1</sup>; <sup>1</sup>Department of Pediatric Infectious Diseases, Stanford University, California, USA, <sup>2</sup>WINDREF, St. George's University, Grenada, West Indies

**Background:** Arthropod (mosquito) -borne viruses (arboviruses) are among the most important 'emerging' pathogens due to their continually increasing geographic expansion and public health impact. Chikungunya virus (CHIKV) is a rapidly re-emerging arbovirus which causes both acute and chronic illness. Initial fevers are often followed by severe skeletal and joint pain, arthritis and, more rarely, eye inflammation, vision loss, neuritis, paralysis, vasculitis, hepatitis and heart disease. In 50% of those affected, disabling arthritis and vasculitis can persist for years, yet our understanding of the risk factors and mechanisms underlying chronic disease are limited and there are currently no approved CHIKV therapeutics or vaccines. The virus now affects over 75 countries in Africa, Asia, Europe and, most recently, the Americas, where it now causes autochthonous outbreaks of disease. There have been > 590,000 confirmed and suspected cases across the Caribbean, Central and South America, and the southern USA. In our study site, Grenada, thousands of CHIKV cases have occurred since July 2014, with a wide spectrum of disease being reported. It is estimated that since that time, 90% of the Grenadian population has been infected with CHIKV and tens of thousands continue to suffer joint complaints.

**Methods:** During the CHIKV-disease outbreak of July–December 2014, serum samples were collected from ~ 500 acutely CHIKV-infected individuals. Currently, we are re-enrolling these individuals for long-term follow-up, using validated quality of life, risk exposure, past medical history and arthritis-score assessments to study demographic and exposure factors associated with chronic disease. In addition, participants have physical examinations and blood drawn for analysis using a Luminex multiplex cytokine quantification platform.

**Findings:** Immunological, demographic and human behavior data will be correlated with clinical and symptomology data from chronic vs. recovered subjects. Luminex will yield comprehensive immune response data and will identify key immune signatures important in protection from or promotion of chronic disease.

**Interpretation:** The data generated by this study addresses a fundamental knowledge gap about host factors that contribute to severe and chronic disease sequelae, allowing the optimization of risk control and therapeutics, and ultimately informing vaccine development.

**Funding:** American Society of Tropical Medicine and Hygiene.

**Abstract #:** 1.060\_NEP