One hypothesis to explain this observation is that exposure to measles and accompanying pneumonia during a 1916-17 epidemic lessened the severity of the 1918-19 flu epidemic in these two regions. The proposed mechanism is that family members in households experiencing measles deaths may have developed immunity to pneumonia. When the flu epidemic arrived two years later they may have become ill, but may not have died and so would not appear in the mortality records. If this is the case, locations with high rates of mortality during the measles epidemic would be expected to experience low rates of mortality during the flu epidemic. Prior analyses using data aggregated at regional and community levels have not provided an adequate test of the measles-flu interaction hypothesis. In the present study epidemic patterns within the capital city, St. John’s, are analyzed. Using addresses of persons listed in the mortality records, locations of deaths have been plotted on a 1914 map of the city (which shows individual houses). Statistical analyses designed to detect clustering of cases have been performed. Results show that there are several hot spots within the city where there were statistically significant excesses of measles deaths in comparison to flu deaths, lending support to the hypothesis that exposure to measles provided some protection during the flu epidemic.

Support: Government of Canada–Canada Studies Faculty Research Grant Program, MU Research Council, UM Research Board.

PLENARY: 4:00 p.m.

Toxic foods: What shouldn’t be for dinner? LM Schell, MV Gallo, J Ravenscroft, KM Nelder, KK Burnitz

Toxic foods: What shouldn’t be for dinner? LM Schell, MV Gallo, J Ravenscroft, KM Nelder, KK Burnitz. 1Department of Anthropology, 2Department of Epidemiology and Biostatistics, 3Center for the Elimination of Minority Health Disparities, University at Albany, Albany, NY.

Food is both more and less than nutrition. Pesticides, hormones and pharmaceuticals that used to increase productivity are now present in the food chain. Additives to processed food and leakage of chemicals from packaging and local pollutants. The Akwesasne Mohawk Nation has traditionally depended on fish from the St. Lawrence River and locally grown crops, but contamination of the river has lead to a generation of Mohawk people exposed to polychlorinated biphenyls (PCBs). As these have myriad effects on endocrine related components in the Shuar, an indigenous Ecuadorian population living in a high pathogen environment. Our hypothesis is that in high pathogen environments increased EBV is a biomarker of investment in humoral immune function, and will be positively associated with 

This work was supported by grants from the National Institutes of Health (NEIHS-ES04913-10; ES01904-06; NCMHD-1P20MD003373-02). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Center on Minority Health and Health Disparities, or the National Institutes of Health.

P. 61

The Shuar Health and Life History Project: immune pathways and Epstein-Barr virus. H Shattuck-Faegre, JG Ridgeway-Diaz, AD Blackwell, FC Madimenos, MA Liebert, EC Squires, LS Sugiyma, and JD Snodgrass. 1Department of Human Evolutionary Biology, Harvard University; 2Department of Anthropology, University of Oregon; 3Integrative Anthropological Sciences, University of California, Santa Barbara.

Much of our understanding of the immune system is based on research from Western populations, yet immune function is mediated by environmental conditions. Little is known about how the immune system develops in the face of limited energy and increased pathogen load, or whether these demands modify the relationships seen in Western populations. This study contributes to our knowledge of immune functioning in non-Western populations by analyzing the relationship between Epstein-Barr Virus (EBV) and other immune components in the Shuar, an indigenous Ecuadorian population living in a high pathogen environment. Our hypothesis is that in high pathogen environments increased EBV is a biomarker of investment in humoral immune function, and will be positively associated with IgE and negatively associated with CRP. IgE is another component of acquired immunity, and CRP is an innate inflammatory immune response. At least one past study, which was conducted in 2008, has suggested that EBV has a negative relationship with innate immune response in high pathogen environments. Participants in our study are a cross sectional sample of 220 Shuar villagers, broken into age and sex groups in accordance with previous work that demonstrates age related trade-offs in immune functioning. Biomarkers were measured in dried blood spots. Preliminary analysis indicates sex differences in EBV (p = .05), but no differences among age groups. Multivariate analysis suggests that interactions between EBV, IgE and CRP, controlling for nutritional status, are sensitive to individual and local factors. Understanding these variations in immune pathways is an important new direction in research.

Support: Wenner-Gren Foundation for Anthropological Research (7970); NSF BCS-0925910; Leakey Foundation; UCSB Center for Evolutionary Psychology (via NIH 5DP1OD00516-04); University of Oregon; Center for Latino/a and Latin American Studies, University of Oregon.