



## Physical Anthropology Section – 2009

### H20 Differentiating Between Foreign National Hispanics and U.S. Hispanics in the Southwest: The Influence of Socioeconomic Status on Dental Health and Stature

*Bruce E. Anderson, PhD, Forensic Science Center, 2825 East District Street, Tucson, AZ 85714; Tamela R. Smith, BA\*, Arizona State University, Tempe, AZ 85281; Walter H. Birkby, PhD, Forensic Science Center, 2825 East District Street, Tucson, AZ 85714; Todd W. Fenton, PhD, Michigan State University, 354 Baker Hall, Department of Anthropology, East Lansing, MI 48824; Carolyn V. Hurst, BA, Michigan State University, East Lansing, MI 48823; and Claire C. Gordon, PhD, U.S. Army Natick RD&E Center, Kansas Street, Natick, MA 01760-5020*

After attending this presentation, attendees will learn how the Pima County (Arizona) Office of the Medical Examiner uses dental health and stature of certain decedents to aid in inferring socioeconomic status and likely foreign citizenship.

This presentation will impact the forensic community by illustrating how unidentified individuals can be classified as probable foreign nationals through an assessment of their dental health and stature.

Differentiating between U.S. Hispanics and foreign national Hispanics is of paramount importance to the Pima County (Arizona) Office of the Medical Examiner (PCOME). This is due to the large number of foreign national migrants who have died in the Sonoran Desert during the past seven years. Because the PCOME has identified slightly more than 800 of the 1,138 migrants whose remains were recovered between 2001 and 2007, biological profiles for many of these identified individuals have proved to be instrumental in helping characterize the over 300 unidentified individuals as likely migrants. Two aspects of the biological profile that have proved to be useful in distinguishing U.S. Hispanics in Arizona from foreign national Hispanics are stature and dental health. Crown-heel measurements taken during the postmortem examination comprise most of the data ( $n=742$ ) for migrant stature, with mean stature estimates derived from skeletal elements rounding out the sample of nearly 800 individuals. Dental examinations performed during the more than 200 forensic anthropology examinations on known foreign national migrants comprise the second postmortem sample. Dental health characteristics evaluated include caries, abscesses, antemortem tooth loss, restorations, crowded teeth, alveolar bone loss, dental calculus, enamel hypoplasias, and tooth wear. Dental health and stature were recorded from the known migrants and then compared to several databases of U.S. Hispanics. Several thousand Southern Arizona Hispanics who were examined at the PCOME between 2001 and 2008 comprise the first U.S. sample. The second U.S. sample comprises ethnically Mexican subjects ( $n=465$  males;  $n=537$  females) from the 2005-2006 National Health and Nutrition Examination Survey (NHANES) for stature and dental health data from the Hispanic Health and Nutrition Examination Survey (HHANES). The final database is the U.S. Army's 2007 ANSUR II Pilot Study which includes stature data on 123 ethnically Mexican male soldiers and 28 female ethnically Mexican soldiers. Results from the stature comparisons reveal that U.S. born Hispanics, at least those of Mexican heritage, are taller on average than migrants born in Mexico. U.S. foreign-born stature differences were the largest for civilian males (89.2 mm), with a mean difference of 24.7 mm for civilian females and 28.3 mm for Army males. The Army female sample included only three foreign born soldiers, and so its mean difference is not reported although it follows the same directional trend as the other samples. Results from the dental health comparisons reveal that U.S. Hispanics of Mexican heritage have better dental health than the Mexican Nationals who have died while attempting to migrate. It is postulated that because many of the deceased migrants examined at the PCOME come from impoverished areas of Mexico and Central America, their lower socioeconomic standing prevents them from having an optimum diet and from seeking adequate medical and dental care. Because U.S. Hispanics apparently have a better standard of living than this, their stature is greater and their dental health is better. One implication of these findings is that a "socioeconomic profile" can be generated from the unidentified individuals to gauge whether they are more likely U.S. citizens or foreign national migrants. This profile is one line of several that is utilized in classifying some unidentified individuals as probable migrants.

#### Dental Health, Stature, Socioeconomic Status