New findings show how human movement may have brought Chagas disease to urban Peru

December 15 2009

New research shows how the migration and settlement patterns associated with the rapid urbanization of Peru may link to Chagas disease transmission. The study, published December 15 in the open-access journal *PLoS Neglected Tropical Diseases,* suggests that the practice of shantytown residents from Arequipa making frequent seasonal moves to rural valleys where Chagas vectors are present may have contributed to the growing presence of Chagas disease near urban Arequipa, Peru.

Chagas disease causes more morbidity and mortality than any other parasitic disease in the Western Hemisphere. Vector-borne transmission occurs only in the Americas, where 8-10 million people currently have the disease. Despite remarkable successes in vector control, major challenges remain, among them the increasing urbanization of the disease.

Therefore, the researchers held discussions with groups of residents from communities around Arequipa to talk about changes in their communities in the past 40 years, including the communities' evolving demographics and the historical and current presence of triatomine insects, known locally as chirimachas. They also conducted interviews with individual residents about their life histories, with a focus on their migration histories, the presence of chirimachas, and animal raising in each place of residence.

The study found that migrants to shantytowns in Arequipa were unlikely to have brought triatomines to the city upon arrival. Instead, certain characteristics of shantytowns and their residents were revealed as key to Chagas transmission. Frequent seasonal moves by shantytown residents to rural valleys with chirimachas are an important contributor. The recent, rapid settlement of shantytowns and the practice of raising domestic animals, often in close proximity to houses, provides a favorable environment for proliferation and dispersal of the vectors.

The researchers propose three key interventions for improving the control of chirimachas in Arequipa and other urban areas with an emerging presence of Chagas disease. These include intensifying vector surveillance in areas with highly mobile populations, creating educational campaigns for migrant workers in Chagas-endemic areas, and fomenting collaboration between the Ministries of Health and Housing to include new shantytowns in the vector surveillance system.

More information: Bayer AM, Hunter GC, Gilman RH, Cornejo del Carpio JG, Naquira C, et al. (2009) Chagas Disease, Migration and Community Settlement Patterns in Arequipa, Peru. PLoS Negl Trop Dis 3(12): e567. doi:10.1371/journal.pntd.0000567