



Research Week 2021

Characterizing Childhood Anemia in Tumbes, Peru: Preliminary Results

Lauralee Fernandez, Ricardo Gamboa, Percy Vilchez, William Lambert, Molly Kile, Caren Weinhouse, Mirko Zimic, Seth O'Neal.

fernanla@ohsu.edu Oregon Health & Sciences University and Portland State University School of Public Health
PhD Epidemiology Candidate

Keywords

Childhood Anemia, Peru, Iron-deficiency, Underlying Causes

Abstract

Background:

In Tumbes, Peru, despite mass nutritional supplementation and deworming to reduce childhood anemia, its prevalence has had minimal change compared to other coastal regions. Historic mining in and around the region contaminates the Puyango-Tumbes River Basin, and increases likelihood of chronic heavy metal exposure. The regional government considers anemia a health priority and has solicited support to develop new control strategies.

Objective:

For reasons described above, we aim to characterize anemia and plausible underlying causes in Tumbes, Peru.

Methods:

We are conducting a cross-sectional study of children 6-59 months old (n=900) to estimate the prevalence of childhood anemia using automated blood count as well as demographic, dietary, and clinical risk factors. We use stratified simple random sampling to provide a representative regional sample across potential exposure strata of interest (urban, rural along contaminated River, rural distant from river, and coastal).

Results:

To date, we have recruited 264 children from rural communities near and far from the main river. Among these children 17 % (N=44) have anemia. We have evaluated nutritional markers in 17 of the 44 anemia cases and 9 have either iron or vitamin B12 deficiency. There is no evidence of folate deficiency. In communities near to the river sex

is significantly associated with anemia status, whereas in communities far from the river age and open defecation are significantly associated with anemia status.

Significance:

Presumptive iron supplementation is standard treatment for children screening positive for anemia in many resource-limited regions but is only effective for iron-deficiency anemia. Our results provide early evidence of a need for alternative control strategies.

Conclusions:

Iron-deficiency is not the only cause of anemia in Tumbes, Peru and risk factors likely vary across regions. Therefore, regional anemia screening should include communities with diverse diets, environmental exposures, and clinical histories to explore alternative control strategies.