Livestock ownership and child stunting in Eastern Africa: an analysis of national survey data

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Background: Stunting in childhood (linear growth failure) has pervasive consequences that hinder not only individual development but impact population health and economic improvement. Rural areas shoulder an unequal burden of stunting, and One Health approaches may represent an innovative opportunity to addressing stunting in these areas. Livestock ownership may promote child growth by providing dietary diversity and wealth, or suppress it through zoonotic disease transmission, but the risk-benefit relationship is unclear. This study sought to evaluate whether national cross-sectional data show a relationship between livestock ownership and growth stunting.

Methods: This study was a regional analysis of the most recent Demographic and Health Survey cross-sectional datasets from three East African countries, including Kenya (2008-2009), Ethiopia (2011), and Uganda (2010), restricted to children under 5 years living in rural areas. We calculated a Tropical Livestock Unit (TLU) score, which combines multiple species of livestock into a single weighted measure to represent the amount of livestock owned. The association between family livestock ownership and stunting was assessed using a log-binomial model adjusted for wealth and region, and was stratified by diarrheal illness, animal-sourced foods, region within country, and wealth index to identify high risk subgroups.

Findings: This analysis included the households of 8720 children from Ethiopia, 2214 children from Uganda, and 4203 children from Kenya. Stunting was highly prevalent in each country, ranging from 23.4% in Kenya to 38.7% in Ethiopia. A TLU unit increase in livestock ownership was not significantly associated with stunting prevalence in Kenya or Uganda, but was associated with a 2% decrease in stunting prevalence in Ethiopia (Ethiopia- PR 0.98,