

# PANORAMA

Thematic portfolio



## Global Burden of Animal Diseases (GBADs)



# PERSPECTIVES

# DOSSIER

# AROUND THE WORLD

## PERSPECTIVES

### ► OPINIONS AND STRATEGIES

## Balancing the nutritional benefits and infection risks of livestock in low- and middle-income countries

### KEYWORDS

#animal health, #Campylobacter, #economic impact, #Ethiopia, #food safety, #Global Burden of Animal Diseases (GBADs), #low- and middle-income country (LMIC), #One Health, #public health, #statistics.

### AUTHORS

A.H. Havelaar<sup>(1)\*</sup> & S.L. McKune<sup>(2)</sup>

(1) Professor, [Emerging Pathogens Institute](#), [Food Systems Institute](#) and [Department of Animal Sciences](#), University of Florida, Gainesville, FL, United States of America.

(2) Research Assistant Professor, [Department of Environmental and Global Health](#), [Center for African Studies](#) and [Food Systems Institute](#), University of Florida, Gainesville, FL, United States of America.

\* Corresponding author: [ariehavelaar@ufl.edu](mailto:ariehavelaar@ufl.edu)

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*More than one in five children globally has stunted growth, a state of malnutrition associated*

with increased mortality, impaired cognitive development, reduced income and life expectancy, and an increased risk of chronic diseases. Despite decreasing global prevalence, the trend is not sufficient to meet the United Nations [Sustainable Development Goals](#). Additional interventions that address the complex drivers of stunting are needed [1].

## Child growth

Normal child growth and development require an adequate diet, protection from major diseases, and sufficient gut health. Animal-sourced foods are the best available sources of high-quality, nutrient-rich food for young children [2]. The sustainable intensification of livestock production in low- and middle-income countries (LMICs) helps to improve the livelihoods of the poor and can contribute to increased availability and consumption of animal-sourced foods [3]. However, relationships between animal ownership and child growth are complex. Several studies report net beneficial effects, but other studies suggest that these beneficial effects can be reduced or even negated by the exposure of children to animal faeces [4].

## Child gut health

Environmental enteric dysfunction (EED) is a chronic subclinical disorder of the intestines associated with settings of poverty and unsanitary living conditions. Colonisation by intestinal pathogens and malnutrition are important triggers for EED [5].

The MAL-ED study<sup>(1)</sup>, a birth cohort study in eight LMICs, found that 24-month, length-for-age Z scores were positively associated with complementary food and negatively associated with diarrhoea and (asymptomatic) colonisation by specific enteropathogens. Among these, *Campylobacter* bacteria were the frequently found genus in the stools of children, most commonly without any clinical symptoms. There was a significant negative association between the *Campylobacter* burden in children and faltering linear growth [6].

Transmission of *Campylobacter* from livestock reservoirs occurs through food, direct animal contact, or environmental contamination. In industrialised countries, foodborne transmission from chicken reservoirs is the main pathway. Very few data are available describing *Campylobacter* reservoirs or transmission pathways for infection in children in LMICs. Formative research in Ethiopia has shown that children are typically colonised by multiple *Campylobacter* species and suggests that chickens and ruminants may be important reservoirs [7].

## Conclusion

Animal-sourced foods are essential components of a healthy diet for children in LMICs. Understanding reservoirs and pathways of zoonotic pathogens is essential for safely managing livestock production and animal-sourced food consumption to protect child health. The [Global Burden of Animal Diseases \(GBADs\)](#) Human Health theme works at the interface of human and animal health and is well positioned to contribute to tackle this challenge.

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(1) MAL-ED: Etiology, Risk Factors, and Interactions of Enteric Infections and Malnutrition and the Consequences for Child Health and

Development study [6].

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12, rue de Prony - 75017 Paris, France  
Tel.: +33 (0)1 44 15 18 88 - Fax: +33 (0)1 42 67 09 87 - [oie@oie.int](mailto:oie@oie.int)