Cost of illness for childhood diarrhoea in low and middle-income countries: a systematic review of evidence and modelled estimates

R. Baral[1], J. Nonvignon[2,3], F. Debellut[4], S. Agyemang[2], A. Clark[5], C. Pecenka[1]

[1]PATH, Seattle, USA, [2]Department of Health Policy, Planning and Management, School of Public Health, University of Ghana, Legon, Ghana, [3]Health Economics, Systems and Policy Research Group, University of Ghana, Legon– Accra, Ghana, [4]PATH, Geneva, Switzerland
[5]London School of Hygiene and Tropical Medicine, London, UK

Background
Several studies have reported economic burden of childhood diarrhea in a number of low- and middle-income countries (LMICs). Yet the cost of diarrheal illness is not known across a large number of LMICs. This study aims to review the existing literature on cost of childhood diarrhea in LMICs and generate comparable estimates of cost of diarrhea across 137 LMICs.

Methods
The systematic review included studies from all LMICs, published in English language between January 2006 and July 2018, and that involved primary data collection after 2006. To generate country specific costs, we used service delivery unit costs from WHO – CHOICE database together with share of direct and indirect medical cost derived from the literature, along with other reasonable assumptions guided by the literature and that had been used previously. All cost estimates are reported in 2015 USD.

Results
We identified 3,167 studies through database search, 25 of which were included in the final review. Based on the literature, the average cost of illness per episode for outpatient care was $36.56 (range $4.3 – $145.47) and that for inpatient care was $159.9 (range $41.01 – $538.33), with large variation across health care settings and geography. Our modelled estimates, across all countries, averaged at $25.57 per outpatient episode and $204.65 per inpatient episode.

Conclusion
Our modelled estimates generally correspond to estimates observed in the literature, with a few exceptions. These estimates can serve as useful inputs for planning and prioritizing appropriate health interventions for childhood diarrheal diseases in LMICs in the absence of empirical data.