

Publication

Antibiotic exposure among children younger than 5 years in low-income and middle-income countries: a cross-sectional study of nationally representative facility-based and household-based surveys

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Antibiotic resistance is a major threat to global health. Although detailed information about antibiotic use in high-income countries is available, little is known regarding the use of antibiotics and cumulative exposure to antibiotics in low-income and middle-income countries (LMICs). We aimed to quantify antibiotic exposure in children younger than 5 years in LMICs.; We did a cross-sectional study in sick children younger than 5 years who attended a health-care facility in eight LMICs (Haiti, Kenya, Malawi, Namibia, Nepal, Senegal, Tanzania, and Uganda) between May, 2006, and December, 2016. Demographic and Health Surveys were used to estimate the cumulative number of illnesses related to a fever or cough and the cumulative number of visits to a health-care facility because of these illnesses for each country. We also used clinical observation data from nationally representative health-care facility-based Service Provision Assessment (SPA) surveys to estimate the proportion of children who were prescribed an antibiotic during a visit to a health-care facility and the number of antibiotic prescriptions issued that were unrelated to fever or respiratory problems. By combining these estimates, and using bootstrap analysis to compute uncertainty intervals, we estimated cumulative antibiotic exposure in children from birth up to age 5 years in each LMIC.; From SPA surveys, we identified 22 519 clinical observations of children younger than 5 years who visited a health-care facility because of an illness between July, 2007, and December, 2016. From DHS surveys, we identified 68 826 children younger than 5 years who visited a health-care facility between May, 2006, and November, 2016. 85·4% of health-care facility visits were related to either a fever or cough. Antibiotics were prescribed to 80·5% of children diagnosed with respiratory illness, 50·1% with diarrhoea, and 28·3% with malaria. The mean number of antibiotic prescriptions issued to children between birth and age 5 years across the eight LMICs was 24·5 (95% CI 22·6-26·7), ranging from 7·1 (6·3-7·9) in Senegal to 59·1 (54·1-64·6) in Uganda.; Between birth and age 5 years, children in LMICs are prescribed a remarkably high number of antibiotics. A large proportion of these prescriptions appear to be unnecessary. National and local efforts to reduce unnecessary prescription of antibiotics to children would likely improve both patient wellbeing (in terms of preventing side-effects) and reduce the global threat of antimicrobial resistance.; None.

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