Background
Each year in Low- and Middle-Income Countries (LMICs), Shigella, a genus of climate-sensitive enteric bacteria:
- Infects 160 million people
- Causes ~64,000 of the 573,000 diarrheal disease deaths in children aged <5 years

Vaccines are being developed and will require targeting to areas of high risk.

Methods
Objective: model the spatiotemporal variation in pediatric Shigella infection risk using Earth Observation (EO) and other data

Data sources:
- Studies that used PCR to test for Shigella in stool samples from <5 y/o children in LMICs
- Household-level covariates
- Static environmental spatial covariates
- Time-varying EO hydro-meteorological variables: rainfall, humidity, soil moisture, solar radiation, pressure, temperature, runoff and wind speed

Statistical analysis: Bayesian generalized multivariate models to estimate predictive probabilities and interpolate to unobserved locations using predictors

Conclusions
- Wide belts of elevated Shigella risk in tropical Sub-Saharan Africa, northern South America, southern China and Southeast Asia
- Smaller pockets in Ecuador, Suriname, Ethiopia, the Sahel, and Vietnam, among others.
- EO data has potential applications for prioritizing populations for vaccines