Variations of invasive *Salmonella* infections by population size in Asante Akim North Municipal, Ghana


**Background.** The Typhoid Surveillance in Africa Program (TSAP) estimated adjusted incidence rates (IRs) for *Salmonella enterica* serovar Typhi (ST) and invasive nontyphoidal *S. enterica* serovars (iNTS) of >100 cases per 100 000 person-years of observation (PYO) for children aged <15 years in Asante Akim North Municipal (AAN), Ghana, between March 2010 and May 2012. We evaluated how much these rates differed between rural and urban settings.

**Methods.** Children recruited at the Agogo Presbyterian Hospital and meeting TSAP inclusion criteria were included in the analysis: children aged <15 years originating from the study area with tympanic/axillary temperatures of ≥38.0°C/37.5°C or with reported history of fever within the past 72 hours were upon hospitalization. Towns with >32 000 inhabitants were considered urban; towns with populations <5200 were considered rural. Adjusted IRs for *Salmonella* bloodstream infections were estimated for both settings. Setting-specific age-standardized incidence rates for children aged <15 years were derived and used to calculate age-standardized rate ratios (SRRs) to evaluate differences between settings.

**Results.** Eighty-eight percent (2651/3000) of recruited patients met inclusion criteria and were analyzed. IRs of Salmonella bloodstream infections in children <15 years old were >100 per 100000 PYO in both settings. Among rural children, the *Salmonella* Typhi and iNTS rates were 2 times (SRR, 2.2; 95% confidence interval [CI], 1.3–3.5) and almost 3 times (SRR, 2.8; 95% CI, 1.9–4.3) higher, respectively, than rates in urban children.

**Conclusions.** Incidences of *Salmonella* bloodstream infections in children <15 years old from Ghana were high, with >100 per 100 000 PYO in the rural and urban settings, and with 2 to nearly 3 times higher rates in rural areas. The results emphasize the impact of community properties as risk factors for invasive salmonellosis and question the common view that typhoid fever is mainly a disease of high-density populations. These epidemiological data might support public health experts and policy makers to identify control measures including vaccine strategies and patient management requirements in the transitional societies of developing countries.