



Enteric Infections

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Despite reduction in mortality worldwide, diarrhea still accounts for more than 2 million deaths annually. The morbidity and mortality in children under age 5 is significant in both developed and developing countries. In USA, data from the National Hospital Discharge Survey indicate that >170,000 children under 5 years were hospitalized yearly during the 1980s and 1990s and that approximately 300 children die annually from complications associated with diarrheal illnesses. The most common bacterial pathogens affecting young children are *Salmonella*, *Campylobacter*, *Shigella* and *E. coli* O157:H7. In a recent FOODNET surveillance study from CDC, USA in children younger than 1 year, *Salmonella* had the highest rates at 134/100,000 followed by *Campylobacter* at 33.5/100,000. The disease burden is much heavier in the developing countries.¹ Furthermore, the progressive increase in antimicrobial resistance among enteric pathogens is a problem of concern. Antibiotic treatment is indicated for dysentery caused by *Shigella* species, for instance, but shigellae are becoming increasingly resistant to most antimicrobial agents commonly used in the treatment of diarrhea. As another example, the emergence of *Campylobacter* that are resistant to ciprofloxacin as well as azithromycin has threatened to undermine the effective treatment of travelers' diarrhea.² Non-typhoid *Salmonella* are another common enteric pathogen in the developing countries; outbreaks of foodborne salmonellosis often attract less media coverage, but in fact such infections can generate a substantial mortality or morbidity, depending on the host factors and serotypes of causative organisms involved.³ The prevalence of the illnesses in the pediatric population and the need to treat severe *Salmonella* infections in this age group with antimicrobial agents impacts on the escalating antimicrobial resistance that is being seen globally.⁴ In a case-control cohort study from Denmark, the 2-year death rate for people infected with *Salmonella* strains resistant to ampicillin, chloramphenicol, streptomycin, sulfonamide, and tetracycline was 4.8 times higher than that of the general population, and the 2-year death rate for people infected with *Salmonella* strains with nalidixic acid resistance was 10.3 times higher.⁵ It is for sure that the increasing resistance to antimicrobial agents in enteric pathogens will further decrease survival among infected patients. Despite the seriousness of the resistance problem, surveillance for antibiotic-resistant enteric pathogens in developing countries has not been established or well reported. A longitudinal surveillance system that would offer new insights into the antibiotic resistance trends for the most common bacterial causes of diarrhea in developing countries is necessary.

References

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