



Sanitation Challenges and Enteric Disease Prevalence in Informal Tropical Settlements

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DESCRIPTION

Enteric infections remain a significant burden in informal tropical settlements, where sanitation systems are either absent or severely compromised. In these densely populated areas, the risk of disease transmission is heightened due to poor infrastructure, limited access to clean water, and inadequate waste disposal. The continued presence of illnesses such as cholera, typhoid, and shigellosis reflects the intersection of environmental neglect and social inequality.

In many urban areas across the tropics, the expansion of informal settlements has outpaced municipal planning. These neighborhoods often develop on marginal land, including floodplains, hillsides, or abandoned industrial zones, where basic services are either not provided or cannot be maintained. The absence of sewage networks forces residents to rely on pit latrines, makeshift toilets, or open defecation. During heavy rains, these sources of waste are carried through open drains or surface runoff, contaminating water sources used for drinking and cooking. Without physical barriers or regulated waste systems, bacteria and viruses that cause gastrointestinal infections spread rapidly within these communities.

Children under the age of five are particularly vulnerable, with repeated infections contributing to malnutrition and developmental delays. Chronic diarrhea, often dismissed as a routine illness, can impair nutrient absorption and lead to long-term growth issues. Studies in South Asia and sub-Saharan Africa consistently show higher rates of enteric diseases among children living in slums than those in formally planned neighborhoods, even when controlling for household income. This disparity highlights the role of the surrounding environment in shaping health outcomes.

Access to safe drinking water is another central issue. While some households rely on municipal taps, these are frequently intermittent or located far from homes, forcing residents to store water in open containers. Others purchase water from private vendors or collect it from rivers and shallow wells, many of which are contaminated. Storage practices, including the use of

uncovered buckets and non-sterile utensils, create further opportunities for microbial contamination. In the absence of routine water treatment at the household level, the consumption of contaminated water becomes a primary route for infection.

Health services in these communities are usually insufficient to manage the high disease burden. Clinics are few and far between, medications may be unavailable, and diagnostics are often rudimentary. Residents with symptoms of gastrointestinal illness frequently self-treat with antibiotics purchased from informal pharmacies, contributing to rising antimicrobial resistance. When symptoms worsen, it is not uncommon for patients to delay care due to cost, distance, or previous negative experiences with health providers. These delays can result in complications, including severe dehydration, hospitalization, or death in extreme cases.

Improving conditions in these settlements requires a combination of policy attention and community involvement. Investment in infrastructure such as piped water, functional drainage, and decentralized waste systems is necessary. However, large-scale upgrades must be accompanied by efforts to ensure that solutions are affordable, maintainable, and designed with input from local residents. Pilot projects in several African and South Asian cities have demonstrated that community-managed sanitation facilities can be effective when properly supported, both financially and technically.

CONCLUSION

Waste management systems are equally underdeveloped. Household garbage is commonly dumped into streets, drains, or nearby water bodies. Organic waste mixes with fecal matter during rains, attracting flies and rodents that contribute to disease transmission. The lack of regular garbage collection stems from both municipal neglect and logistical challenges, as narrow lanes and informal layouts prevent truck access. Community-led clean-up efforts have shown some success, but these initiatives are often underfunded and lack long-term support.

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Received: 26-May-2025, Manuscript No. JTD-25-29794; **Editor assigned:** 28-May-2025, Pre QC No. JTD-25-29794 (PQ); **Reviewed:** 11-Jun-2025, QC No. JTD-25-29794; **Revised:** 18-Jun-2025, Manuscript No. JTD-25-29794 (R); **Published:** 25-Jun-2025, DOI: 10.35241/2329-891X.25.13.465

Citation: Menon D (2025). Sanitation Challenges and Enteric Disease Prevalence in Informal Tropical Settlements. J Trop Dis. 13:465.

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