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## Non-typhoid *Salmonella* (NTS) isolated from stool of rural under-5 children presented with moderate-to-severe diarrheal disease in rural Bangladesh

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**Background:** Non-typhoid *Salmonella* (NTS) is responsible for gastroenteritis. It is also associated with invasive disease and bacteremia particularly in immunocompromised patients. There is lack of evidence-based information about NTS infection in under-five children with moderate-to-severe diarrhea (MSD) in rural Bangladesh.

**Objective:** The aim was to describe the characteristics of children with MSD whose stool specimen yielded growth of NTS.

**Methodology:** From December 2007 to December 2010, a total of 1,394 under-5 children were presented with MSD. NTS isolation rate was 2.5% (n=35) after excluding *Shigella, Entameba histolytica,* and ETEC. Two comparison groups (in a ratio of 1:2 and 1:4; case:comparison group ratios) were randomly selected; one group (MSD cases without presence of enteric pathogen in stool) had 70 children while the other contained 140 healthy controls without pathogen in stool.

**Results:** Nearly 80% of the MSD children with NTS had visible or reported blood in stool, fever, abdominal pain, and rectal straining. Children infected with NTS reported to the facility throughout the year but June, August, and October were the three distinct months with higher number of NTS cases. Children aged 0-11 months were more likely to develop diarrhea with NTS than healthy controls without pathogen (67% vs. 41%; p=0.005). Children whose caretakers used only water for cleaning their bottom after defecation were more likely to have NTS infection compared to MSD children whose stool was free from any enteric pathogen (14% vs. 3%; p=0.039). Among MSD children infected with NTS, poor catch-up growth (HAZ) was observed during follow up period [-1.01 $\pm$ 1.18, vs. -1.30 $\pm$ 1.34; p<0.001]. The mean difference of HAZ between enrollment and follow up was observed more often among NTS positive children than the healthy counterpart without pathogen in stool [-0.29 $\pm$ 0.37, vs. -0.14 $\pm$ 0.39; p=0.020].

**Conclusion:** Infants with MSD presenting with NTS infection are not uncommon in rural Bangladesh. These stunted children have been found with poor catch-up growth during follow up. Clinical features of dysentery were common among NTS infected children, and optimal hygienic practices may prevent spread of the disease.

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