

Prevalence and Drug Resistance Patterns of *Salmonella* Concord among Children in Selected Orphanages and Visiting Health Institutions in Addis Ababa, Ethiopia

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ABSTRACT

Background: A few studies conducted in Ethiopia and abroad reported the emergence of multiple drug resistance *S. Concord*, member of group C₁ *Salmonella*, in Ethiopian children. However all previous studies did not attempt to identify potential source and risk factors.

Objectives: To determine the prevalence and drug resistance patterns of *S. Concord* among children in Addis Ababa and identifying possible source(s) of infection

Materials and method: This cross-sectional study was conducted from March, 2010 to July 2011. Fecal specimens and also epidemiological information were collected from children (n: 420), parents (n: 50) and caretakers (n: 50) in selected 4 health facilities and 3 orphanages in Addis Ababa, Ethiopia. In addition fecal specimens from adult diarrheal patients (n: 52) visiting the selected health facilities and also different types of food samples (n: 209) were collected. All the samples were then processed using standard methods and for all salmonella isolated drug susceptibility tests were done using standard disk diffusion method. Data entry and analysis were carried out using SPSS version 12.0. In addition to descriptive statistics Chi-square, Fisher exact tests and logistic regression analysis were carried out to see any association between variables and a difference was considered statistically significant with a P value of less than 0.05.

Result: the prevalence of *S. Concord* in children in this study was found to be 6.9 % (29/420). No *S. Concord* was isolated from adult study subjects and the food sample examined. In general the isolated *S. Concord* showed significantly high level of resistance to clinically important drugs including third generation cephalosporin. The significant risk factor identified was cessation of breast feeding before six months of age. The probability of infection by *S. Concord* among children who cease breast feeding after the age of six months was 0.23 times less likely than those cease before six months [Adjusted Odds Ratio, 0.23 (P-value is 0.03 at 95% C.I of 0.061-0.868)]

Conclusion and recommendation: the high prevalence of MDR *S. Concord* isolates in this study that showed resistance to the commonly prescribed drugs and also to the extended-spectrum cephalosporins is a major public health concern since this will have a major adverse impact on child mortality rate in Ethiopia. Thus we recommend further larger scale studies and urgent priority in Ethiopia to initiate active salmonella surveillance system. In addition developing effective preventive measures in particular in orphanages should be given priority since promoting breast feeding would not be possible in orphanages.