

**Molecular Epidemiology and Risk Factors of *Rotavirus* Infection in  
Children Under Five Years Old Hospitalized with Acute  
Gastroenteritis at Garissa Provincial General Hospital, North Eastern  
Kenya, 2012**

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**A Thesis Submitted in Partial Fulfillment of the Award of the Degree  
of Master of Science in Laboratory Management and Epidemiology of  
the Jomo Kenyatta University of Agriculture and Technology**

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**2014**

## ABSTRACT

Rotavirus is a leading cause of morbidity and mortality among children under five years old worldwide. Annually in Kenya, rotavirus infection results in 4471 deaths, 8781 hospitalizations, and 1,443,883 clinic visits among children under five years old. This study aimed to determine the molecular epidemiology and risk factors of rotavirus infection in children under five years old hospitalized with acute gastroenteritis in Garissa, Kenya before rotavirus vaccine introduction into the national immunization programme. Socio-demographic, clinical and risk factor information of each respondent was collected using a standard questionnaire. Stool specimens were obtained from each respondent and tested for the presence of rotavirus antigens using Prospect ELISA test kit following the manufacturer's instruction. Phenotypic and genotypic analysis of the detected rotaviruses was undertaken using PAGE and RT-PCR respectively. In total, 237 children with acute gastroenteritis were enrolled into the study. Overall rotavirus prevalence was 17% (n=41). Phenotypically, long RNA electropherotypes were the predominant rotavirus electropherotypes and genotypically, G3, G9 and P4 were the predominant rotavirus genotypes. Of the risk factors that were evaluated, under 2 years old, use of unboiled tap water for drinking, underweight, history of low birth weight and lack of maternal formal education were identified as independent risk factors of rotavirus infection. In conclusion, rotavirus is an important aetiology in children under five years old hospitalized with acute gastroenteritis. Preventable risk factors and genotypes protectable by Rotarix and Rotateq rotavirus vaccines are found to be responsible for infection in this region. This study recommends the fastracking of rotavirus vaccine introduction into the national immunization programme coupled with supplementary feeding of malnourished infants, safe water supply and public health education to mothers on hand hygiene during infant feeding. The study also recommends continuous surveillance of rotavirus disease burden and changes in rotavirus strain distribution that might impact on the effectiveness of rotavirus vaccines after its introduction.