

# Norovirus infection in children less than 5 years of age attending the Dr George Mukhari Academic Hospital before and after rotavirus vaccine introduction into the Expanded Programme on Immunisation of South Africa

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## Background

The introduction of rotavirus vaccine into South Africa expanded programme of immunization (EPI-SA) has resulted in a reduction of rotavirus diarrhoea and all diarrhoeal related hospital admissions and mortality. Noroviruses has been regarded as the leading cause of acute gastroenteritis (AGE) across all age groups, and the second cause of AGE in children <5 years of age. Nonetheless, there is limited data supporting this speculation in Africa. A retrospective approach was taken to estimate the burden of norovirus infection and molecular characterisation of strains circulating in South African children ≤5 years old previously admitted at Dr George Mukhari Academic Hospital (DGMAH) before and after vaccine introduction into the EPI-SA.

## Methods

Archived stool samples (n=200) from children ≤5 years old, presenting with gastroenteritis at DGMAH during 2009-2010 were retrieved and analysed. Viral RNA was extracted from the samples using QIAmp Viral RNA extraction kit (Qiagen, Hilden, Germany) and the RealStar<sup>®</sup> Norovirus RT-PCR assay (Altona diagnostics kit) was used for detection of norovirus genogroup 1 (GI) and 2 (GII). Statistical analysis was conducted using SPSS.

## Results

Higher detection rate of norovirus 18/ 100 (18%) was seen during post- vaccine era (2010) compared to 13/100 (13%) the pre-vaccine era (2009). Partial genotyping showed all samples were GII norovirus strains. Norovirus infection was predominant amongst 0-12 months old children, showing the prevalence of 14/18 (77.8%) and 10/13 (76.9%) in 2010 and 2009, respectively. More males were infected with norovirus than females.

## Conclusions

Our results showed an increase of 5% in norovirus detection rate from 13% in 2009 to 18% in 2010. Indeed, the need for norovirus surveillance in South Africa is emphasized by the study. Thus, determination of the burden of the disease and epidemiology associated with norovirus is critical for future infection control efforts