

Impact of pentavalent rotavirus vaccine against severe rotavirus diarrhoea in The Gambia

Bakary Sanneh^{a,†}, Alhagie Papa Sey^a, Minesh Shah^b, Jacqueline Tate^b, Mariama Sonko^c, Sheriffo Jagne^{a,d}, ModouLamin Jarju^a, Dawda Sowe^e, Makie Taal^f, Adam Cohen^h, Umesh Parashar^b, Jason M. Mwenda^g ^a National Public Health Laboratories, Ministry of Health and Social Welfare, Kotu Layout, Kotu, Gambia ^b Division of Viral Diseases, Centers for Disease Control and Prevention, Atlanta, GA, United States ^c Edward Francis Small Teaching Hospital, Ministry of Health and Social Welfare, Banjul, Gambia ^d University of Noguchi, Ghana ^e Expanded Programmes in Immunization, Ministry of Health and Social Welfare, Kotu Layout, Kotu, Gambia ^f Ministry of Health and Social Welfare, Banjul, Gambia ^g World Health Organization, Regional Office for Africa, Immunization, Vaccines and Emergencies (IVE) Cluster, Brazzaville, Congo ^h World Health Organization, Geneva, Switzerland

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Introduction

Rotavirus vaccines protect against the leading cause of severe childhood diarrhoea, and have been introduced in many low-income African countries. The Gambia introduced Rotateq_® (RV5) into their national immunization program in 2013. We reviewed data from an active rotavirus sentinel surveillance site for early evidence of vaccine impact.

Methods

We compared rotavirus prevalence in diarrhoeal stool in children < 5 years of age admitted at the Edward Francis Small Teaching Hospital sentinel surveillance site before (2013) and after RV5 introduction (2015–2016) in the Gambia. The rotavirus-percent positive was separately compared for all diarrhoeal hospitalizations and for hospitalizations with severe symptoms. Rotavirus prevalence was compared annually for the pre-vaccine year of 2013 with post-vaccine years of 2015 and 2016 using chi-square or Fisher's exact tests and the p-value to establish significant relationship was set at $p < 0.05$. All analyses were completed in SAS 9.3 (SAS Analytics, North Carolina).

Results

Rotavirus prevalence among all diarrhoeal hospitalizations decreased from 22% in 2013 to 11% in 2015 ($p = 0.04$), while remaining unchanged in 2016 (18%, $p = 0.56$). For hospitalizations that were clinically severe and/or treated with intravenous fluids (mean of 46 per year), the rotavirus prevalence decreased from 33% in 2013 to 8% in 2015 ($p = 0.04$), and to 15% in 2016 ($p = 0.08$). The children with age < 1 year accounted for 45% the population infected with rotavirus in both pre and post rotavirus vaccination periods.

Conclusions

Rotavirus vaccine introduction in the Gambia could be among factors resulting in decreased diarrhea hospitalizations among children at the Edward Francis Small Teaching Hospital, particularly those with severe disease. These results support the continuation of rotavirus vaccine and additional monitoring of rotavirus hospitalization trends in the country. _