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

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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._