

Estimated global impact of rotavirus vaccines on hospitalizations from rotavirus diarrhea among children <5 years of age

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Background

Since rotavirus vaccine was introduced in 2006, 98 countries have incorporated rotavirus vaccine into their national immunization programs. We systematically reviewed manuscripts published between January 2000 and August 2018 and conducted a meta-analysis to estimate the incidence of hospitalizations attributed to rotavirus infection and to estimate the global impact of rotavirus vaccine on rotavirus hospitalizations.

Methods

Our initial search identified 4062 eligible articles, of which 369 met our preliminary inclusion criteria for full text review. Studies were included if they provided a rotavirus-specific diarrhea hospitalization rate among children <5 years of age before rotavirus vaccine introduction. Published region-specific vaccine effectiveness estimates, vaccine coverage estimates from the World Health Organization, and United Nations population data were used to estimate the number of hospitalizations averted due to rotavirus vaccination globally, by region, and by country. Estimates were also generated show the additional number of hospitalizations that could be prevented with the introduction of rotavirus vaccine in all countries globally.

Results

Substantial reductions in rotavirus hospitalizations were observed in countries using rotavirus vaccine.

Conclusion

These results will provide further evidence that rotavirus vaccines are effective in reducing the number of hospitalizations attributed to rotavirus globally, and can be used to advocate for introduction in countries that have yet to introduce rotavirus vaccine.