Global Rotavirus Information and Surveillance Bulletin  
Reporting Period: January through December 2008  
Volume 1: December 2009

Comments on this Bulletin are Welcome.  
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This is the first twice-yearly WHO Global Rotavirus Surveillance Bulletin to describe sentinel surveillance for rotavirus infection among hospitalized children under five years of age and to summarize collated surveillance data for 2008. This Bulletin is the culmination of years of effort by many partners to provide such routine and standardized information.

**Rotavirus Disease Burden on Children and Rotavirus Vaccination**

Diarrhoeal diseases account for 17% of the 10.4 million deaths among children <5 years of age globally. Among children aged <5 years, rotavirus infection is the leading cause of severe acute diarrhoeal disease, accounting for an estimated 527,000 deaths annually, and is a leading cause of hospitalizations for diarrhoea reflecting a significant cost in health resources. Rotavirus was first isolated in 1973, and vaccine development has been a priority to prevent the large burden of disease. With the licensure of two new rotavirus vaccines in 2006, the global health community now has the tools to prevent a major contributor to childhood death and severe illness.

**The WHO Rotavirus Surveillance Network**

The main purpose of the WHO rotavirus surveillance system is to provide data to decision makers regarding the introduction of rotavirus vaccine and to monitor the impact of vaccination. The system focuses on hospitalized children and provides information on the proportion of hospitalized diarrhoea caused by rotavirus. Prior to 2008, rotavirus surveillance networks in the WHO regions of the Americas, Europe, Africa and Eastern Mediterranean were coordinated by the respective WHO Regional Offices with funding through the rotaADIP and technical support from the Centers for Disease Control and Prevention, Atlanta (CDC). Surveillance in Asia was conducted by the Asian Rotavirus Surveillance Network (ARSN) supported by CDC. In 2008, the coordination of the ARSN was transitioned to the WHO regional offices in the South-East Asia and Western Pacific Regions. Thus all the regional surveillance networks are now coordinated by WHO Regional Offices, using standard definitions, core dataset and laboratory methods, with financial support provided to Global Alliance for Vaccines and Immunisation (GAVI) eligible countries. In the coming years, global surveillance will continue to be strengthened as more countries join the WHO network. During 2008, 44 WHO Member States were part of the network (Figure 1.)

![Rotavirus Surveillance Countries Participating in the WHO Network, 2008](image)

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The WHO Rotavirus Surveillance Network Continued
Each participating country has at least one “core sentinel” reporting site in a major hospital. Children <5 years of age admitted for treatment of acute gastroenteritis/diarrhoea are enrolled and have stool samples collected that are tested for rotaviruses, usually at a laboratory in the country. It is planned to establish at least one “enhanced population based site” per WHO region that will determine the population incidence of severe rotavirus diarrhoea.

Rotavirus Detection (refer to page 3 for detailed data)
During 2008, over 41,000 children <5 years of age were enrolled in the WHO rotavirus surveillance network. Among these children, the overall annual rotavirus detection in the six WHO regions ranged from 27% in the region of the Americas to 52% in the Western Pacific region. Some regions saw a seasonal variation in rotavirus disease, with a peak in the first quarter of 2008 in the American (AMR) and European regions; seasonal variability was less marked in the African and Eastern Mediterranean regions (Figure 2). Globally, five countries, all within AMR, participating in the surveillance network had introduced rotavirus vaccine prior to or during 2008 (Table 1). Within AMR, countries that had introduced vaccine for more than 2 years before data collection (i.e. in 2006) appeared to have the lowest rotavirus detection rates.

Table 1. Rotavirus Vaccine Use and Percent Rotavirus Detection, by Country, AMR, 2008

<table>
<thead>
<tr>
<th>Country</th>
<th>Rotavirus Vaccine In Use?</th>
<th>Year of Vaccine Introduction</th>
<th>% Rotavirus Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>El Salvador</td>
<td>Yes</td>
<td>2006</td>
<td>11</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>Yes</td>
<td>2006</td>
<td>17</td>
</tr>
<tr>
<td>Panama</td>
<td>Yes</td>
<td>2006</td>
<td>8</td>
</tr>
<tr>
<td>Ecuador</td>
<td>Yes</td>
<td>2007</td>
<td>32</td>
</tr>
<tr>
<td>Bolivia</td>
<td>Yes</td>
<td>2008</td>
<td>48</td>
</tr>
<tr>
<td>Chile</td>
<td>No</td>
<td>-</td>
<td>27</td>
</tr>
<tr>
<td>Guatemala</td>
<td>No</td>
<td>-</td>
<td>33</td>
</tr>
<tr>
<td>Honduras</td>
<td>No</td>
<td>-</td>
<td>36</td>
</tr>
<tr>
<td>Paraguay</td>
<td>No</td>
<td>-</td>
<td>16</td>
</tr>
</tbody>
</table>

Spotlight on WHO Regional Offices
WHO Regional Offices coordinate planning and implementation of the rotavirus surveillance network with Ministries of Health and other public health partners in each country. Regional Offices develop and share feedback bulletins, conduct training, coordinate activities, support laboratories and monitor data quality.
### WHO GLOBAL ROTAVIRUS SURVEILLANCE SYSTEM BULLETIN, REPORTING PERIOD: JANUARY-DECEMBER 2008

**Table 1: Number (No.) and percent (%+ve) of total eligible acute diarrhoea cases (with CRF and stool specimen collected)**

<table>
<thead>
<tr>
<th>Country/Site</th>
<th>2008 Total</th>
<th>2007 Total</th>
<th>Percentage Increase (%)</th>
</tr>
</thead>
</table>

#### Notes:
1. **AFR:** the number of children enrolled is used in calculations to approximate the number of children who were enrolled with samples that were tested.
2. **Ecuador:** data for 2007 used in calculations is approximate.
3. **Viet Nam:** monthly data available from May through December; however, totals are available for the entire year.

**Percent positive breakdown:**
- +40% of tested samples were positive for Rotavirus
- +20% and +40% of tested samples were positive for Rotavirus
- +10% and +20% of tested samples were positive for Rotavirus
- <10% of tested samples were positive for Rotavirus
- No data available