Rotavirus Surveillance News

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A quarterly newsletter edited by Centers for Disease Control and Prevention, Atlanta, GA, USA

Upcoming Meetings

- Regional Training Course for new EMRO countries, Cairo, Egypt, December 10-12, 2006
- Post-Marketing Surveillance Meeting, WHO Geneva, December 12-13, 2006

In Upcoming Issues…

- Update – African Regional Office of WHO (AFRO) network

Links to Partners

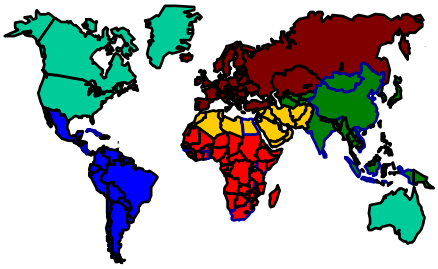
www.cdc.gov – U.S. Centers for Disease Control and Prevention

www.who.int/en/ - World Health Organization

www.rotavirusvaccine.org – PATH's rotavirus vaccine program

www.ivi.org – International Vaccine Institute

www.cdcfoundation.org – CDC Foundation



Welcome

Welcome to the fourth edition of Rotavirus Surveillance News. The newsletter is a product of the Rotavirus Vaccine Program, a collaboration between the World Health Organization (WHO), the Program for Appropriate Technology in Health (PATH), and the U.S. Centers for Disease Control and Prevention (CDC) that is funded by the Global Alliance for Vaccines and Immunizations (GAVI). The Disease Burden and Surveillance Program, based at CDC, was established to support surveillance activities and studies that would help define the disease and economic burden of rotavirus disease in countries and regions around the world. We intend for this quarterly newsletter to provide you with timely, helpful updates on the latest news related to rotavirus surveillance activities worldwide. Each issue will focus on one region or a type of activity, as well as provide updates on recent meetings, publications, and other news of interest. In this edition, Dr. Jon Gentsch, Dr. Jim Gray, Dr. Carl Kirkwood, Dr. George Armah, Dr. Nicola Page, and Dr. Duncan Steele provide an update of the activities of the global rotavirus reference laboratory network.

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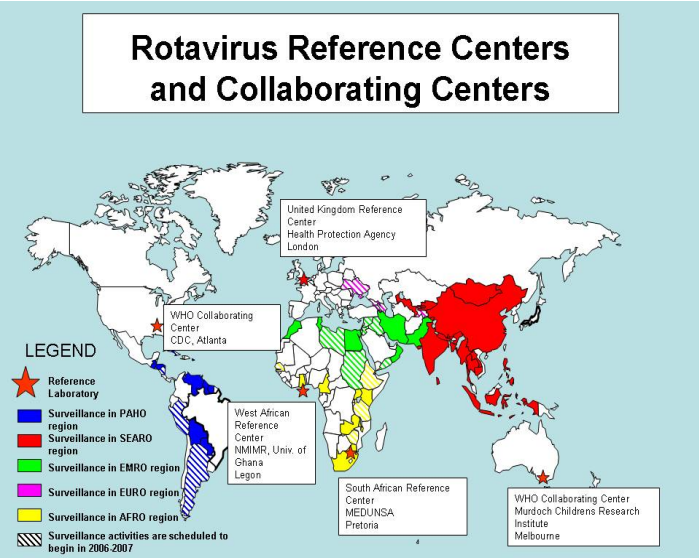
Update – Global Rotavirus Laboratory Network

Rotavirus surveillance networks have been set up by RVP for obtaining current disease burden data in individual countries and to aid health officials in making informed decisions on rotavirus vaccine implementation. A secondary goal is to obtain current serotype incidence data to determine the main strains against which vaccines will need to protect, to help plan for future generations of rotavirus vaccines and to subsequently assess the impact of new vaccines on circulating strains. Laboratory surveillance has been facilitated by the provision of ELISA kits by Oxoid (Ely) Limited at a discounted price for these public sector surveillance activities. While diagnosis of rotavirus infection relies on standard commercial immunoassays, determination of rotavirus serotypes utilizes more sophisticated methods such as monoclonal antibody based enzyme immunoassay (EIA), reverse transcription polymerase chain reaction (RT-PCR) and nucleotide sequencing. Setting up these assays requires personnel trained in molecular characterization methods as well as expensive equipment and special reagents. While some laboratories participating in surveillance studies may already have the infrastructure and trained personnel to set up rotavirus typing assays, others may require additional training of their personnel or assistance with rotavirus strain characterization if it is not feasible to set up the assays. To provide the needed laboratory support and assistance for surveillance networks, RVP has set up Rotavirus Collaborating Centers and Reference Centers.
(Continued on page 2)

Figure 1



Presently, five of these Centers have been set up in Melbourne, Australia; London, United Kingdom; Accra, Ghana; Pretoria, South Africa and Atlanta, USA (Figure 1). The main functions of these laboratories are to provide training, strain characterization assistance, selected reagents, standard procedures and consultation and collaboration to sites engaged in surveillance or vaccine development. The laboratories have been assigned primary responsibilities for surveillance sites in the region where they are located. For example, the Australian Collaborating Center is primarily responsible for assisting surveillance sites in the SEARO region while the West African and South African Reference Centers assist sites in the AFRO and EMRO regions.

Progress

To assist laboratories that want to develop the capability to characterize rotavirus serotypes and genotypes, each center has developed written standard procedures for the main methods used. In addition, the Centers are in the final stages of preparing a unified laboratory manual that will be posted on websites and made available to laboratories conducting rotavirus surveillance.

The Centers can also provide selected reagents and controls to help new laboratories initiate characterization work and to conduct Quality Control assessments. To facilitate the adoption of rotavirus characterization procedures RVP supports training visits to Centers to conduct hands on experiments in these methods. Depending on resource availability, it may be possible to arrange training or obtain procedures or reagents by writing to Center personnel. In the last year or so the five Centers have received 46 scientists from 28 countries in their laboratories for training in methods to diagnose rotavirus infections, characterize rotavirus serotypes and genotypes and study the immune response. During the training visits >3600 rotavirus strains were characterized for G and P type. The Centers provided assistance to 8 additional countries by typing a total of more than 600 strains. The results of these studies, which will be published in the future by scientists from the individual countries, continue to reinforce the importance of the globally common rotavirus types (G1P[8], G2P[4], G3P[8], G4P[8], G9P[8]) but also demonstrate the presence of new types such as G10P[6] and G12P[8] and others that may emerge to become important strains as time goes on.

Future Plans

Since the development of RT-PCR methods for genotyping rotaviruses in about 1990, genetic variation in strains has reduced the effectiveness of these methods so that an increased amount of nucleotide sequencing needs to be done to fully type strains. Center personnel are conducting work to improve primers for genotyping rotaviruses. Once these studies are complete, the primer sequences will be made available by posting on websites or by electronic mailings to surveillance sites.

The availability of strain incidence data in real-time may provide important insights for the rotavirus vaccine program. In that regard, Center personnel have set up a website where strain data can be entered and shared with other sites. In the future, Center personnel will explore with surveillance sites possible approaches to reporting this data online as it is being generated without compromising the ability to publish it.

Reference Laboratory Directors

- **Jon Gentsch, CDC, USA**
- **Jim Gray, Health Protection Agency, UK**
- **George Armah, Noguchi Memorial Institute, Ghana**
- **Carl Kirkwood, Murdoch Childrens Research Institute, Australia**
- **Nicola Page, Medunsa, South Africa**
- **Duncan Steele, WHO, Switzerland**

Questions or comments?

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