DID YOU KNOW...

- Rotavirus is the leading cause of severe acute gastroenteritis (vomiting and diarrhea) among children worldwide.
- Rotaviruses are non-enveloped, double-shelled viruses composed of 11 segments of double-stranded RNA, which code for six structural and five non-structural proteins.
- The virus is stable in the environment but undergoes genetic reassortment with rotaviruses in pigs, cattle, rabbits, primates, and other mammals.
- The primary mode of transmission is fecal-oral, although some have reported low titers of virus in respiratory tract secretions and other body fluids.
- The highest rates of illness occur among infants and young children, and most children in the United States are infected by 2 years of age. Adults can also be infected, though disease tends to be mild.
- For the latest information, including news regarding circovirus found in the vaccines, go to: www.cdc.gov/rotavirus

VACCINE SURVEILLANCE

Subsequent to the introduction of a vaccine candidate, not only is monitoring of circulating strains recommended, but also surveillance of potential reassortment with animal rotavirus strains is important.

Conventional methods used in the characterization of rotavirus strains, such as enzyme immunoassay serotyping and RT-PCR genotyping, often fail to identify uncommon and newly appearing strains. The application of newer molecular approaches are required to characterize such strains.

APHL TRAINING

Web-Archived Teleconference:

"Laboratory Testing Methods for the Control of Rotavirus Gastroenteritis"

Available Until April 27, 2011

Register online at www.aphl.org/courses/Pages/590-940-10.aspx

For more information contact: travis.jobe@aphl.org

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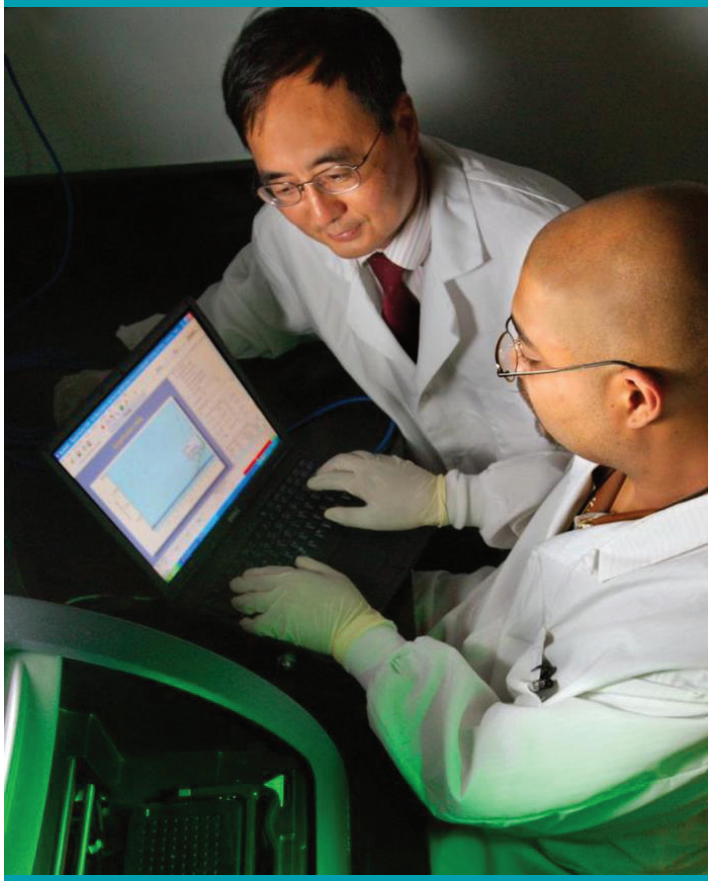
The Importance of Public Health Laboratory Testing for Rotavirus

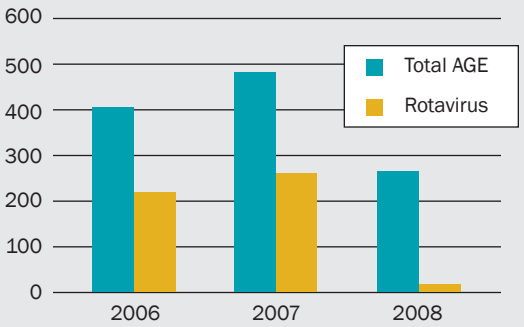


APHL ASSOCIATION OF PUBLIC HEALTH LABORATORIES

SURVEILLANCE

Surveillance for rotavirus vaccine effectiveness is a current public health activity because rotavirus vaccines have been available in the US since 2006.

Rotavirus strain surveillance is a high priority in the control of this disease to assess the impact of vaccination on the prevalence of common serotypes and to determine if currently rare strains which escape vaccine immunity are selected for and replace common strains.



Above is the total number of acute gastroenteritis (AGE) and rotavirus AGE cases in the New Vaccine Surveillance Network, January—April 2006-2008.

IMPORTANCE

Surveillance for the rotavirus vaccine program is important for the following reasons:

- To assess the impact vaccination has on rotavirus disease
- To determine the long term impact a vaccinated population has on circulating strains
- To evaluate the impact on prevalent serotypes
- To detect the emergence of rare serotypes
- To develop improved vaccines

DIAGNOSTICS

The main methods used to conduct rotavirus surveillance, including diagnosis, are antigen enzyme immunoassay (EIA), RT-PCR, real-time PCR, genotyping through multiplex RT-PCR, and nucleotide sequencing.

Real-time PCR is used as a diagnostic method when very low amounts of virus are present in the sample

Genotyping is performed by RT-PCR, followed by agarose gel electrophoresis and ethidium bromide staining.