Gateway Immunization Coalition
“Lickety Split”
Update on Rotavirus and Tetanus

February 18, 2016
Saralou Hendrickson and Jessica Anderson
Rotavirus Facts

Rotavirus Epidemiology

- Reservoir
  - Human — GI tract and stool
- Transmission
  - Fecal-oral, fomites
- Temporal pattern
  - Fall and winter (temperate areas)
- Communicability
  - 2 days before to 10 days after onset of symptoms

- 48 Hour Incubation
- Gastrointestinal symptoms resolve in 3-7 days
- First infection after 3 months of age generally most severe
- Sever diarrhea, fever, and vomiting
Rotavirus Disease in the United States

- Estimated 3 million cases per year*
- 95% of children infected by 5 years of age
- Annually* responsible for:
  - more than 400,000 physician visits
  - more than 200,000 emergency dept visits
  - 55,000 to 70,000 hospitalizations
  - 20 to 60 deaths
- Annual direct and indirect costs are estimated at approximately $1 billion
- Highest incidence among children 3 to 35 months of age

*Prevaccine era
Rotavirus Vaccine

Rotavirus Vaccines

- RV5 (RotaTeq)
  - contains five reassortant rotaviruses developed from human and bovine parent rotavirus strains
  - vaccine viruses suspended in a buffer solution
  - contains no preservatives or thimerosal

- RV1 (Rotarix)
  - contains one strain of live attenuated human rotavirus (type G1PA[8])
  - provided as a lyophilized powder that is reconstituted before administration
  - contains no preservatives or thimerosal

Manufacturers: Merck & Co, Inc
Rotavirus Vaccine Recommendations

- Similar estimates of efficacy and safety between RV1 and RV5
- No preference for one vaccine over the other
- Routine vaccination of all infants without a contraindication
- 2 (RV1) or 3 (RV5) oral doses beginning at 2 months of age
  - may be started as early as 6 weeks of age

For both rotavirus vaccines
- maximum age for first dose is 14 weeks 6 days*
- minimum interval between doses is 4 weeks
- maximum age for any dose is 8 months 0 days
Tetanus Facts

**Tetanus Epidemiology**

- **Reservoir**
  - soil and intestine of animals and humans

- **Transmission**
  - contaminated wounds
  - tissue injury

- **Temporal pattern**
  - peak in summer or wet season

- **Communicability**
  - not contagious
Tetanus Facts Continued

Tetanus Clinical Features
- Incubation period: 8 days (range, 3-21 days)
- Three clinical forms: local (uncommon), cephalic (rare), generalized (most common)
- Generalized tetanus: descending pattern of trismus (lockjaw), stiffness of the neck, difficulty swallowing, rigidity of abdominal muscles
- Spasms continue for 3-4 weeks
- Complete recovery may take months

Neonatal Tetanus
- Generalized tetanus in newborn infant
- Infant born without protective passive immunity
- 58,000 neonates died in 2010 worldwide
Tdap and Dtap Vaccines

**DTaP, DT, Td, and Tdap**

<table>
<thead>
<tr>
<th>Type</th>
<th>Diphtheria</th>
<th>Tetanus</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTaP, DT</td>
<td>6.7-25 Lf units</td>
<td>5-10 Lf units</td>
</tr>
<tr>
<td>Td, Tdap (adults)</td>
<td>2-2.5 Lf units</td>
<td>2-5 Lf units</td>
</tr>
</tbody>
</table>

**Tetanus Toxoid**
- Formalin-inactivated tetanus toxin
- Schedule
  - three or four doses plus booster
  - booster every 10 years
- Efficacy
  - approximately 100%
- Duration
  - approximately 10 years
- Should be administered with diphtheria toxoid as DTaP, DT, Td, or Tdap

Manufacturers: Sanofi Pasteur, GlaxoSmithKline Biologicals,
Tetanus Vaccines Continued

### Routine DTaP Primary Vaccination Schedule

<table>
<thead>
<tr>
<th>Dose</th>
<th>Age</th>
<th>Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary 1</td>
<td>2 months</td>
<td>---</td>
</tr>
<tr>
<td>Primary 2</td>
<td>4 months</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Primary 3</td>
<td>6 months</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Primary 4</td>
<td>15-18 months</td>
<td>6 months</td>
</tr>
</tbody>
</table>

### Tetanus, Diphtheria and Pertussis Booster Doses

- 4 through 6 years of age, before entering school (DTaP)
- 11 or 12 years of age (Tdap)
- Every 10 years thereafter (Td)
Resources

  - Centers for Disease Control and Prevention

- Vaccine Information Statement
  - (4/15/15 & 2/14/15)
  - http://www.cdc.gov/vaccines/hcp/vis/