Hepatitis A and Hepatitis A Vaccine

Epidemiology and Prevention of Vaccine-Preventable Diseases
National Immunization Program
Centers for Disease Control and Prevention
Revised January 2006

Hepatitis A
• Epidemic jaundice described by Hippocrates
• Differentiated from hepatitis B in 1940s
• Serologic tests developed in 1970s
• Vaccines licensed in 1995 and 1996

Hepatitis A Virus
• Picornavirus (RNA)
• Humans are only natural host
• Stable at low pH
• Inactivated by high temperature (≥185°F), formalin, chlorine

Hepatitis A Pathogenesis
• Entry into mouth
• Viral replication in the liver
• Virus present in blood and feces 10-12 days after infection
• Virus excretion may continue for up to 3 weeks after onset of symptoms

Hepatitis A Clinical Features
• Incubation period 28 days (range 15-50 days)
• Illness not specific for hepatitis A
• Likelihood of symptomatic illness directly related to age
• Children generally asymptomatic, adults symptomatic

Note to presenters:
Images of vaccine-preventable diseases are available from the Immunization Action Coalition website at http://www.vaccineinformation.org/photos/index.asp
**Hepatitis A Epidemiology**

- **Reservoir**: Human
- **Transmission**: Fecal-oral
- **Temporal pattern**: None
- **Communicability**: 2 weeks before to 1 week after onset

**Hepatitis A—United States, 1990-2000 Risk Factors**

- Unknown: 45%
- Sexual/household: 14%
- CC contact: 6%
- Int'l travel: 5%
- CC contact: 6%
- MSM: 10%
- IDU: 6%
- Other: 8%
- Child care: 2%
- Outbreak: 4%
- Influenza: 5%

**Hepatitis A—United States, 1966-2005**


**Hepatitis A Incidence By Age Group, 1990-2004**

- <2 yr
- 2 - 18
- 19+ yrs

**Hepatitis A Vaccines**

- Inactivated whole virus
- HAVRIX (GlaxoSmithKline)
- VAQTA (Merck)
- Pediatric and adult formulations
- Licensed for persons >12 months of age
Hepatitis A Vaccines

**Formulation**

<table>
<thead>
<tr>
<th>Pediatric</th>
<th>HAVRIX</th>
<th>VAQTA</th>
</tr>
</thead>
<tbody>
<tr>
<td>age</td>
<td>1-18 yrs</td>
<td>1-18 yrs</td>
</tr>
<tr>
<td>dose</td>
<td>0.5 ml</td>
<td>0.5 ml</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Adult</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>age</td>
<td>&gt;18 yrs</td>
<td>&gt;18 yrs</td>
</tr>
<tr>
<td>dose</td>
<td>1.0 ml</td>
<td>1.0 ml</td>
</tr>
</tbody>
</table>

Hepatitis A Vaccine Immunogenicity

**Adults**
- >95% seropositive after one dose
- 100% seropositive after two doses

**Children (>12 months) and Adolescents**
- >97% seropositive after one
- 100% seropositive after 2 doses

Hepatitis A Vaccine Efficacy

**HAVRIX**
- 40,000 Thai children 1-16 years of age
- Vaccine efficacy 94%

**VAQTA**
- 1,000 New York children 2-16 years of age
- Vaccine efficacy 100%

ACIP Recommendation for Routine Hepatitis A Vaccination of Children*

- All children should receive hepatitis A vaccine at 12-23 months of age
- Vaccination should be integrated into the routine childhood vaccination schedule
- Children who are not vaccinated by 2 years of age can be vaccinated at subsequent visits

*endorsed by ACIP October 2005; unpublished as of January 2006

ACIP Recommendation for Routine Hepatitis A Vaccination of Children*

- States, counties, and communities with existing hepatitis A vaccination programs for children 2 through 18 years of age should maintain these programs
- New efforts focused on routine vaccination of children 12 months of age should enhance, not replace ongoing vaccination programs for older children

*endorsed by ACIP October 2005; unpublished as of January 2006
ACIP Recommendation for Routine Hepatitis A Vaccination of Children*

- In areas with or without an existing hepatitis A vaccination program, catch-up vaccination of unvaccinated children 2 through 18 years of age can be considered.

*endorsed by ACIP October 2005; unpublished as of January 2006

Hepatitis A Vaccine Recommendations

- Travelers to high- or intermediate-risk countries
- Protected by 4 weeks after dose
- Give concurrent IG for travel in <4 weeks

Hepatitis A Vaccine Recommendations

- International travelers
- Men who have sex with men
- Persons who use illegal drugs
- Persons who have clotting-factor disorders
- Persons with occupational risk
- Persons with chronic liver disease

Twinrix

- Combination hepatitis A vaccine (pediatric dose) and hepatitis B (adult dose)
- Schedule: 0, 1, 6 months
- Approved for persons >18 years

Schedules That Include Both Twinrix and Hepatitis A Vaccine

- Adult formulation single antigen hepatitis A vaccine may be used to complete a schedule begun with Twinrix and vice versa
- Acceptable schedules
  - 2 Twinrix and 1 hepatitis A (adult formulation)
  - 1 Twinrix and 2 hepatitis A (adult formulation)
- Maintain spacing recommended for Twinrix
Hepatitis A Serologic Testing

Prevaccination
- not indicated for children
- may be considered for some adults and older adolescents

Postvaccination
- not indicated

Hepatitis A Vaccine Adverse Reactions

- Pain at injection site
- Systemic reactions not common
- No serious adverse reactions reported

Hepatitis A Vaccine Contraindications and Precautions

- Severe allergic reaction to a vaccine component or following a prior dose
- Moderate or severe acute illness

National Immunization Program Contact Information

- Telephone 800.CDC.INFO
- Email nipinfo@cdc.gov
- Website www.cdc.gov/nip