Hepatitis B immunization: where do we go from here?

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WHO Geneva
Where have we come from?

- 1965: Hepatitis B virus discovered
- 1982: Hepatitis B vaccine first became available
- 1992: WHA resolution 45.17 called for member states, "...to integrate cost-effective new vaccines, such as HepB, into national immunization programs in countries where it is feasible..."
- 1992: WHO recommended that all countries integrate hepatitis B (HepB) vaccine into national immunization programs by 1997
- 1998: WHO Conference Regarding Disease Elimination and Eradication as Public Health Strategies concludes hepatitis B "a primary candidate for elimination or eradication"
- 2000: GAVI support for introduction of hepatitis B vaccine
- 2005: WPR sets goal of reducing chronic HBV infection rates to less than 2% among 5-year-old children by 2012
Where are we now?

- 2007: Over 88% of member states have introduced HepB, HepB-birth dose global coverage 27%, and HepB3 coverage 65%

- 2008: SAGE Hepatitis Working Group formed under chairmanship of Dr. Liang Xiaofeng

- 2008: SAGE strongly recommends "all regions and associated countries develop goals for hepatitis B control appropriate to their epidemiologic situations"

- 2008: EMR TAG recommends regional goal be established for prevention of HBV infection
Countries Using HepB Vaccine in National Immunization Schedule, 2007

Source: WHO/IVB database, 193 WHO Member States. Data as of August 2008

Date of slide: 30 September 2008

No (22 countries [of which 3 given at adolescence] or 11%)

Yes (169 countries or 88%)

Yes(P) (2 country or 1%)

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21 Countries Where HepB NOT fully Included in Routine Infant Immunization Schedule, 2007

Data source: IVB Database
Last update: September 2008

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Global Immunization 1989-2007, 3rd dose of Hepatitis B coverage in infants
global coverage at 65% in 2007

Where do we go from here?
1. Increase HepB3 coverage

- In 2007, >44 million infants not immunized with 3 doses HepB

- More than 75% of the unvaccinated children are from 10 countries (in millions):

<table>
<thead>
<tr>
<th>Country</th>
<th>Number (in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>24.1</td>
</tr>
<tr>
<td>Nigeria</td>
<td>3.1</td>
</tr>
<tr>
<td>China</td>
<td>1.36</td>
</tr>
<tr>
<td>Indonesia</td>
<td>1.11</td>
</tr>
<tr>
<td>Japan</td>
<td>1.07</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>0.79</td>
</tr>
<tr>
<td>United Kingdom of Great Britain &amp; Northern Ireland</td>
<td>0.72</td>
</tr>
<tr>
<td>Pakistan</td>
<td>0.7</td>
</tr>
<tr>
<td>Niger</td>
<td>0.62</td>
</tr>
<tr>
<td>France</td>
<td>0.54</td>
</tr>
</tbody>
</table>

2. Prevent perinatal transmission

- Increase HepB Birth Dose coverage

- Re-examine scientific basis of birth dose within 24 hours
  - Hepatitis Working Group report to SAGE April 2009
  - Gather new evidence

- Consider policy options
  - Current recommendation for BD is in countries with historically high prevalence (≥ 8% HBsAg)—needs to be implemented
  - Consider universal birth dose policy—missed opportunity

- Collaborate with MCH to implement *Standards for Maternal and Neonatal Care: Integrated Management of Pregnancy and Childbirth (IMPAC)*
Global HBV-Related Deaths By Age at Acquisition of Infection (future deaths, without vaccination)

**Perinatal Period (21%)**
- children >5
- adolescents
- adults

**Late Period (31%)**
- children >5
- adolescents
- adults

**Early Childhood Period (48%)**
- children ≤5
## Countries that Provide HepB Birth Dose by Prevalence Chronic HBV, 2006

<table>
<thead>
<tr>
<th>Region</th>
<th>Countries</th>
<th>Countries providing birth dose (%)</th>
<th>Countries with historically high prevalence chronic HBV (%)</th>
<th>Estimated birth dose coverage countries with high prevalence chronic HBV</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFR</td>
<td>46</td>
<td>5 (15)</td>
<td>45 (98)</td>
<td>1%</td>
</tr>
<tr>
<td>AMR</td>
<td>35</td>
<td>12 (35)</td>
<td>0 (0)</td>
<td>N.A.</td>
</tr>
<tr>
<td>EMR</td>
<td>21</td>
<td>11 (58)</td>
<td>4* (19)</td>
<td>25%</td>
</tr>
<tr>
<td>EUR</td>
<td>53</td>
<td>27 (66)</td>
<td>10 (19)</td>
<td>92%</td>
</tr>
<tr>
<td>SEAR</td>
<td>11</td>
<td>3 (30)</td>
<td>5 (45)</td>
<td>46%</td>
</tr>
<tr>
<td>WPR</td>
<td>27</td>
<td>23 (88)</td>
<td>23 (85)</td>
<td>75%</td>
</tr>
<tr>
<td>Global</td>
<td>193</td>
<td>81 (49)</td>
<td>87 (45)</td>
<td>36%</td>
</tr>
</tbody>
</table>

Excludes 4 countries with special schedule for birth dose
Reduction in HBV-Related Deaths with Increasing Birth Dose Coverage

**United States**
- 0 birth dose: 70%
- 50% birth dose: 78%
- 90% birth dose: 84%

**Taiwan**
- 0 birth dose: 50%
- 50% birth dose: 68%
- 90% birth dose: 82%

1 Administration of birth dose to 50% and 90% of the vaccinated cohort
3. Increase protection later in life

- Consider vaccination of cohorts born after introduction ("catch-up")

- Immunize health care workers—WHA60.26

- Immunize adults at high risk
  - Utilize current outreach programs (HIV, STI, etc)

- Re-examine scientific basis of long-term protection (need for booster dose)
  - Hepatitis Working Group report to SAGE 2009
4. Set and achieve regional goals

- November 2009 SAGE strongly recommended all regions/associated countries develop goals for HBV control appropriate to their epidemiologic situations.

- Control goals are essential for regions and countries with intermediate or high endemicity of HBV infection or subpopulations with these levels of infection.

- Process indicators continue to be based on HepB3 coverage and HepB birth dose (with improved birth dose definition and monitoring).

- However, use of outcome measures are critical to verification of achievement of such goals.

- Serologic surveys of HBsAg prevalence, representative of the target population, will serve as the primary tool to measure the impact of immunization and achievement of the control goals, supplemented by acute disease surveillance and mortality data.
Status of Regional Goals

- **WPRO (2005)**
  - Reduce hepatitis B surface antigen (HBsAg) prevalence to <2% among five year old children, by 2012 (interim goal, <1% final)

- **EMRO**
  - TAG recommendation for a hepatitis B prevention goal
  - Regional review in progress
  - Regional committee to consider HBV/HCV goal 2009

- **SEARO**
  - Regional review conducted 2007
  - RTAG working group being formed

- **AFRO**
  - 2006-2009 EPI Strategic Plan: HepB introduction in all countries
5. Prevent more

- Consider global goal for elimination of hepatitis B virus transmission

- Resources for care of those already infected
  - Over 350,000,000 persons have chronic HBV infections
  - Over 7 drugs approved Rx chronic HBV infection and shown to delay progression of cirrhosis and improve long term survival
  - Several professional organizations have guidelines for treatment of chronic HBV infection
  - Diagnostic methods limited in resource constrained settings
  - Treatment not readily accessible in these settings
  - Need to work across programmes
6. Other Issues

- Hepatitis on World Health Assembly agenda—May 2009
  - Brazil intervention at EB

- World Hepatitis Day—19 May 2009
  - WHO reviewing one-time endorsement
  - WHA may consider standing endorsement

- Increased advocacy
  - World Hepatitis Alliance
  - Asia & Pacific Alliance to Eliminate Viral Hepatitis (APAVH)

- Hepatitis A vaccine—increased role?
  - New national and sub-national introductions

- Hepatitis E vaccine—options for development?