Innovative Strategy to Increase Identification of Infants Born to Chronic Hepatitis B Mothers

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Learning Objectives

At the end of the session, participants will learn about and have opportunity to discuss….

- challenges to the identification of HBsAg-positive women and their infants
- promising practices to increase identification of HBsAg-positive women and their infants
- lessons learned and next steps
Part 1: Overview of Perinatal Hepatitis B Prevention Program
~ 25,000 infants are born to women chronically infected with hepatitis B every year

~ 10,000 of these infants would become chronically infected without timely PEP

~ 2,500 would die of liver failure or liver cancer as early as age 10

~1,000 newborns are infected annually

Healthy People 2020 target (among infants and children aged 1 to 24 months) : 400 cases

2007 baseline: 799

Acute HBV must be reported within 1 week

Chronic HBV is NOT reportable except:
- Prenatal & Delivery, reportable within 1 week
- Perinatal (<24 months), reportable within 1 work day

Not all hospitals report electronically
Six Responsibilities of the Perinatal Hepatitis B Prevention Program

1. Identify ALL HBsAg positive pregnant women and their infants.

2. Identify and vaccinate susceptible household contacts ≤ 24 months of age; household contacts > 24 months of age and sexual contacts are referred out.

3. Assure administration of postexposure prophylaxis within 12 hours of birth to exposed infants.

4. Universal hepatitis B vaccine birth dose administration.

5. Assure completion of hepatitis B vaccine series and postvaccination serologic testing (PVST) of exposed infants.

6. Conduct active surveillance, quality assurance, outreach, and education to improve the PHBPP program.

Part 2:  
City of Houston 2016 Program Evaluation
Funded by CDC since 1991
- City of Houston residents only

CDC Estimates:
- 255 - 422 infants born to HBsAg-positive mothers in 2015
- 90% of the estimated births to HBsAg-positive pregnant mothers should be identified.

State of COH program

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>COH</td>
<td>37</td>
<td>51</td>
<td>76</td>
</tr>
</tbody>
</table>

Table 1. Number of Identified Infants Prior to 2016 Audit
- Under-reporting of HBsAg-positive mothers is a threat
- 4 out of 10 infants were not reported in 2014 & 2015

Figure 1: Observed Discrepancy Between Cases Reported and Not Reported
Part 3:
City of Houston 2018 Program Evaluation
Houston PHBPP has been conducting hospital audit every year.

- December 31, 2015: 51 infants born in 2014 were identified Vs. 301/412
- 2016 audit: 71 additional infants
- December 31, 2015: 76 infants born in 2015 were identified Vs. 255/422

- U.S. 11,157 infants Vs. 18,945/26,444
- **Note:** excluded out of jurisdiction cases

### Table 2. Number of Infants Identified Before and After 2016 Audit

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>37</td>
<td>51</td>
<td>76</td>
</tr>
<tr>
<td>After</td>
<td>----</td>
<td>122</td>
<td>158</td>
</tr>
</tbody>
</table>

Note: excluded out of jurisdiction cases.
2016 Methodology:
- 24 Labor and Delivery hospitals in Harris County
- Old Methodology
  - CDC Policy Survey
  - Record Review: Hepatitis B birth dose administration & HBsAg screening with CDC developed tool
- 2016 Methodology
  - Old methodology &
  - Review of ALL HBsAg positive mother-baby records (list provided by the hospitals)
  - Compare positive records with cases managed by the assessment date

2018 Methodology:
- 25 L & D
- Evaluation Period: 2016-2017
- Previous Method: 2016
- New Method:
  - 2016 methodology
  - Pharmacy/HBIG log
2016-2017 Record Review Results

Table 3. Positive HBSAg and Administration of HBIG

<table>
<thead>
<tr>
<th>Hospital Code</th>
<th>Positive HBSAg Records</th>
<th>HBIG Given</th>
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<tbody>
<tr>
<td></td>
<td>2016</td>
<td>2017</td>
</tr>
<tr>
<td>19</td>
<td>1/56</td>
<td>4/57</td>
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<tr>
<td>13</td>
<td>15/71</td>
<td>15/70</td>
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<tr>
<td>10</td>
<td>4/57</td>
<td>4/53</td>
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<tr>
<td>3</td>
<td>9/65</td>
<td>10/68</td>
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<tr>
<td>9</td>
<td>10/68</td>
<td>9/58</td>
</tr>
<tr>
<td>5</td>
<td>1/50</td>
<td>4/61</td>
</tr>
<tr>
<td>6</td>
<td>Xxx</td>
<td>0/51</td>
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<tr>
<td>17</td>
<td>2/57</td>
<td>3/60</td>
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<tr>
<td>25</td>
<td>12/69</td>
<td>4/57</td>
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<td>20</td>
<td>8/65</td>
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<td>44/100</td>
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<td>254/1557</td>
<td>246/1612</td>
<td>275/281</td>
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</tbody>
</table>

60 additional infants identified from HBIG/pharmacy log: 27 (~10%) in 2016 & 33 (~12%) in 2017

Out of jurisdiction cases excluded, 2 out of 10 infants were not reported.
Other Findings

- Policy issues (reporting to LHD not specified…)
- Mother’s HBsAg status documentation
- Infant’s records
- Vaccine & HBIG administration documentation
Houston Program

- Policy and Procedures survey during record review
- Poor communication between program staff and hospitals
- Reporting Process is an issue
- Pregnancy status is not force field (usually not reported on the laboratory reports)
- Post audit feedback to the hospitals was very helpful to the hospitals

Hospitals

- Poor quality in data reported by hospitals
- Laboratory report Vs. L&D logs
- Pharmacy logs of HBIG administration Vs. Nursery logs Vs EMR data
- Inconsistency in reporting process
- Turn-over effect
- Shift/schedule effect
- Hospitals where delivery nurse is required to report +HBsAg mother, have low underreporting rates
Low and late identification of HBsAg-positive mothers is a challenge nationwide

- U.S. 11,157 infants Vs. 18,945/26,444

Pregnancy status on laboratory reports remains a big problem

All laboratories are not reporting electronically

Serving transient populations

Tourism effect = high number of HBsAg-positive mothers move out of the country within 1-3 months after delivery (Growing problem)

Policies focusing on Infants not mothers

Chronic HBV surveillance

Underfunded

Providers’ Knowledge & behaviors
• Develop Perinatal HBV toolkit for clinicians (completed)
• Implementing quarterly reporting of HBsAg-positive mothers
• Working with internal surveillance team to recruit more laboratories (in progress)
• Continue to review HBsAg-positive mothers during program evaluation:
  • Nursery log
  • Pharmacy log
  • Laboratory annual report
  • EMR data
• Plan to collaborate with surrounding counties for next audit
Recommendations

- Resource and labor intensive
- Consider partnership with colleges/universities
- Consider alternative audit schedule: one hospital every other month/quarter
- Conduct post-audit session with the hospitals
- Provide incentives: certificates
Thank You!