Hepatitis B Outbreaks in Long-term Care Facilities

- Increasing problem
- 30 HBV outbreaks in long-term care settings reported to CDC during 1996–2011
- >90% linked to assisted monitoring of blood glucose (AMBG)

Practices Associated with HBV Transmission During Assisted Monitoring of Blood Glucose

- Use of fingerstick devices or insulin pens on multiple persons
- Failure to clean and disinfect blood glucose testing meters between each use
- Failure to change or use gloves, or perform hand hygiene between procedures

References:
- Patel et al. ICHE 2009; 30:209-14
- Thompson et al. JAGS 2010
Tuesday, October 12, 2010

- County health department notified by infection preventionist at local hospital
- 4 cases of acute hepatitis
- Residents of the same assisted living facility

Acute HBV Cases

<table>
<thead>
<tr>
<th>Cases identified</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age</td>
<td>70.6 years</td>
</tr>
<tr>
<td>Hospitalized</td>
<td>8 (100%)</td>
</tr>
<tr>
<td>Died</td>
<td>6 (75%)</td>
</tr>
</tbody>
</table>

Health Care Exposures

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Attack rate (%)</th>
<th>Exposed</th>
<th>Not exposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assisted BGM</td>
<td>8/15 (53)</td>
<td>0/25 (0)</td>
<td></td>
</tr>
<tr>
<td>Injected medication</td>
<td>4/16 (25)</td>
<td>4/22 (18)</td>
<td></td>
</tr>
<tr>
<td>Phlebotomy</td>
<td>4/25 (16)</td>
<td>4/15 (27)</td>
<td></td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>0/1 (0)</td>
<td>8/38 (21)</td>
<td></td>
</tr>
<tr>
<td>Wound care</td>
<td>1/8 (13)</td>
<td>6/28 (21)</td>
<td></td>
</tr>
</tbody>
</table>

Infection Control Observations

- Glucose meters used for more than one resident; not disinfected between uses
- Adjustable lancing devices used for more than one resident
Outcome

- 8 acute HBV infections and 6 deaths occurred due to infection control lapses during assisted blood glucose monitoring

Media Attention

Attention on Adult Care Homes – What is an Adult Care Home?

- Assisted living residence
- Management provides 24-hour personal care services directly or through home care or hospice agencies.
- Medication may be administered by designated, trained staff
- Adult care homes shall not care for individuals requiring continuous licensed nursing care

Legislative Attention

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2011

SESSION LAW 2011-99
HOUSE BILL 474

AN ACT TO PROTECT ADULT CARE HOME RESIDENTS BY INCREASING MINIMUM CONTINUING EDUCATION, TRAINING, AND COMPETENCY EVALUATION REQUIREMENTS FOR ADULT CARE HOME MEDICATION AIDES, STRENGTHENING ADULT CARE HOME INFECTION CONTROL REQUIREMENTS, AND REQUIRING THE DEPARTMENT OF HEALTH AND HUMAN SERVICES, DIVISION OF HEALTH SERVICE REGULATION, TO ANNUALLY INSPECT ADULT CARE HOMES FOR COMPLIANCE WITH SAFE INFECTION CONTROL STANDARDS.
“Act to Protect Adult Care Home Residents”

- Signed into law May 31st, 2011
- Requires
  - Increased infection prevention training and competency evaluation
  - Stronger infection prevention policies
  - Reporting of suspected outbreaks
  - Annual inspection for compliance with safe infection control practices

Training Requirements

- State Approved Infection Prevention Course
  - Supervisors
  - Medication Staff
  - Nonsupervisory staff designated to direct facility’s infection prevention activities
  - Website: [http://www.ncdhhs.gov/dhsr](http://www.ncdhhs.gov/dhsr)

DHSR Response to Infection Prevention Breaches

- Type A2 or Type B Violations may be cited
- Plan of Protection may be required
- Penalties may result from non-compliance
- Reported to the Department of Public Health

Identification and Reporting of Infection Prevention Breaches

Surveyors conduct inspections → Breaches reported to central office → Central office notifies NC DPH → NC DPH notifies local health department → Local health department reports findings
Public Health Response to Infection Control Breach

- Primary objective: Determine whether transmission has occurred
- Secondary objective: Provide/reinforce education regarding safe practices

Methods

- Reviewed all infection prevention breaches reported from adult care homes during first 12 months after HB 474 enacted
- Describe investigation findings and public health actions

Identification of Breaches: July 1, 2011–June 30, 2012

- Routine surveys conducted in 876 adult care homes
- Breaches relating to diabetes care identified in 51 (6%)

Frequency of Specific Infection Prevention Breaches

<table>
<thead>
<tr>
<th>Breach</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sharing glucose meters without cleaning and disinfection</td>
<td>49</td>
</tr>
<tr>
<td>Sharing of lancing devices</td>
<td>7</td>
</tr>
<tr>
<td>Sharing of insulin pens</td>
<td>1</td>
</tr>
</tbody>
</table>
Public Health Response

- Local Health Department reports completed for 27 (54%) of 50 adult care homes with breaches

<table>
<thead>
<tr>
<th>Action Taken</th>
<th>N</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education regarding best practices</td>
<td>27</td>
<td>(100)</td>
</tr>
<tr>
<td>Visits to adult care home</td>
<td>22</td>
<td>(81)</td>
</tr>
<tr>
<td>Assessing for evidence of acute hepatitis among exposed residents</td>
<td>19</td>
<td>(70)</td>
</tr>
<tr>
<td>Searching surveillance database for reported HBV among exposed residents</td>
<td>17</td>
<td>(63)</td>
</tr>
<tr>
<td>Laboratory testing of exposed residents</td>
<td>3</td>
<td>(11)</td>
</tr>
</tbody>
</table>

Opportunities for bloodborne pathogen transmission were found during routine assessment of diabetes care in adult care homes:
- No transmission events identified

Collaboration between regulatory and public health agencies provides opportunity to improve practices

Conclusions

- Opportunities for bloodborne pathogen transmission were found during routine assessment of diabetes care in adult care homes
  - No transmission events identified
- Collaboration between regulatory and public health agencies provides opportunity to improve practices

Limitations

- New program – expectations and protocols changed during the 12–month period
- High proportion of missing Local Health Department reports, due to
  - Unclear expectations
  - Lack of resources
  - Delayed or no notification from DPH
- High degree of variability in frequency of breach notifications from surveyors
Discussion

- North Carolina DPH and DHSR refining protocols and supporting materials
- Excellent chance for interagency collaboration
- Need to expand to other facility types

Extra Slides

Protocol

- NC DSHB will provide initial infection prevention breach information to the IVN staff at DPH
- IVN staff at DPH will provide information to the UC
- UC will apply the following guidelines:
  - Sharing of glucose meters for multiple residents without cleaning and disinfection between uses
  - Speak directly with the administrator/director of the adult care home to Oklahoma if
  - any of the potentially exposed residents are known to be hepatitis B positive or
  - any of the potentially exposed residents have shown clinical or laboratory evidence suggestive of acute hepatitis in the past 12 months
  - If one or more of the above, contact a member of the UC staff at 331-733-3412 for further guidance
  - Recommended glucose meter that was shared be disposed of immediately and a replacement purchased. NOTE: Glucose meters that are shared must have directions for disinfection from the manufacturer and specific directions must be followed by the facility
  - Sharing of lancet devices or other shared equipment, e.g., insulin pens, insulin syringes
  - Contact UC staff at 331-733-3412 to discuss additional follow-up steps

- Additional best practice guidelines
  - Ensure facility has a copy of Handout titled “Diabetes and viral hepatitis: important information for all staff”
  - Administer that each resident should have their own glucose meter and lancet device.
Follow Up Report of Infection Control Breach Notification

County: 
Date of report to LIDH: 
Notified by: 
Facility name: 
Facility contact: 

Breach identified: (check all that apply)
- Sharing of blood glucose meters without cleaning and disinfection between residents
- Sharing of fingerstick devices
- Sharing of injection equipment (e.g., insulin pens, needles, or syringes)
- Other: 
  Specific information (e.g., timeline, number of residents exposed) 

Actions taken: (check all that apply)
- *Note: Appropriate actions will vary depending on the nature of the breach and setting: not all actions listed are required in all cases:
  - Visit to facility
  - Surveillance for evidence of diathesis or lab findings suggestive of acute hepatitis among exposed residents
  - Search for evidence of HBV among exposed residents
  - Lab testing of exposed residents for bloodborne pathogens
  - Education re: best practices for reduced blood glucose monitoring & insulin administration
  - Education re: infection prevention requirements for ambulatory care (see https://www.cdc.gov/infectiousdisease/pdf/ambulatory-care.pdf)
  - Other: 
  Specific information 

Findings:
- Is there clinical and/or laboratory evidence that transmission has occurred? 
  - Yes 
  - No 
  - Not found identified? 
  - Yes 
  - No 

Additional notes:

Three Simple Rules for Assisted Blood Glucose Monitoring and Insulin Administration

1. Fingerstick devices should never be used for more than one person
   - Restrict use of fingerstick devices to a single person. They should never be used for more than one person.
   - Select single-use lancets that permanently retract upon puncture. This adds an extra layer of safety for the patient and the provider.
   - Dispose of used lancets at the point of use in an approved sharps container. Never reuse lancets.
   - Always practice proper hand hygiene and change gloves between each person.

2. Blood glucose meters should be assigned to only one person and not be shared
   - Whenever possible, assign blood glucose meters to a single person.
   - If blood glucose meters must be shared, they should be cleaned and disinfected after every use, per manufacturer’s instructions, to prevent cross contamination of blood between infectious agents.
   - If the manufacturer does not specify how the device should be cleaned and disinfected then it should not be shared.

3. Injection equipment should never be used for more than one person
   - Insulin pens should be assigned to only one person and labeled appropriately. They should never be used for more than one person.
   - Multiple-dose vials of insulin should be dedicated to a single person, whenever possible.
   - Medication vials should always be removed from a pen needle and new syringe. Never re-use needles or syringes.
   - For information and materials about safe insulin practice, visit www.ONEInsulinPen.org

BE AWARE
DON’T SHARE

Insulin pens that contain more than one dose of insulin are only meant for one person. They should never be used for more than one person, even when the needle is changed.

The One & Only Campaign is a public health campaign aimed at raising awareness among the general public and healthcare providers about safe injection practices.

For more information, please visit: www.ONEInsulinPen.org