CDC’s Role in Outbreak Investigations in Dental Settings

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OSAP
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Disclosures

The findings and conclusions of this presentation are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Disclosure: Neither I nor members of my immediate family have any financial relationships with commercial entities that may be relevant to this presentation.
Objectives

• Understand why it is important to investigate outbreaks of bloodborne pathogens in dental health care settings.

• Identify reasons why we may be underestimating the number of transmissions in dental health care settings.

• Describe how CDC becomes involved in these investigations.

• Identify resources available for conducting outbreak investigations.
Why Investigate Outbreaks

- Assist in identifying the source of the outbreak and, hopefully, eliminating it.
- To identify contacts and prevent secondary cases.
- Present an opportunity to evaluate existing prevention strategies and identify gaps.
- Allow us to describe new diseases and to learn more about known diseases.
- Contribute information so that public health departments can address public concerns.
What Are We Missing?

- Asymptomatic infection
- Under-reporting of cases
- Under-recognition of healthcare as risk
- Difficulty identifying single healthcare exposure
- Barriers to investigation
- Resource constraints
Flow of Information for Surveillance

Hospital, Commercial Clinical Laboratories

Health Care Providers

Local Health Departments

State Health Department

CDC

Maintain database
Investigate new cases
Classify
Analyze
**Viral Hepatitis Surveillance Case Report Form**

**During the 2 weeks– 6 months prior to onset of symptoms**

<table>
<thead>
<tr>
<th>Did the patient-</th>
<th>Yes</th>
<th>No</th>
<th>Unk</th>
</tr>
</thead>
<tbody>
<tr>
<td>undergo hemodialysis?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have an accidental stick or puncture with a needle or other object contaminated with blood?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>receive blood or blood products [transfusion]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- if yes, when?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>receive any IV infusions and/or injections in the outpatient setting...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>have other exposure to someone else’s blood</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

specify: ____________________

**During the 2 weeks – 6 months prior to onset of symptoms**

<table>
<thead>
<tr>
<th>Was the patient employed in a medical or dental field involving direct contact with human blood?</th>
<th>Yes</th>
<th>No</th>
<th>Unk</th>
</tr>
</thead>
<tbody>
<tr>
<td>If yes, frequency of direct blood contact?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent (several times weekly)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrequent</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Was the patient employed as a public safety worker (fire fighter, law enforcement or correctional officer) having direct contact with human blood?</th>
<th>Yes</th>
<th>No</th>
<th>Unk</th>
</tr>
</thead>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Did the patient receive a tattoo?</th>
<th>Yes</th>
<th>No</th>
<th>Unk</th>
</tr>
</thead>
</table>

where was the tattooing performed? (select all that apply)

- commercial
- correctional
- other
- parlor / shop

<table>
<thead>
<tr>
<th>Did the patient have any part of their body pierced (other than ear)?</th>
<th>Yes</th>
<th>No</th>
<th>Unk</th>
</tr>
</thead>
<tbody>
<tr>
<td>where was the piercing performed? (select all that apply)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- commercial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- correctional</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- parlor / shop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- facility</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Did the patient have dental work or oral surgery?</th>
<th>Yes</th>
<th>No</th>
<th>Unk</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Did the patient have surgery? (other than oral surgery)</th>
<th>Yes</th>
<th>No</th>
<th>Unk</th>
</tr>
</thead>
</table>

Was the patient- **Check all that apply**

- hospitalized?
- a resident of a long term care facility?
- incarcerated for longer than 24 hours?

if yes, what type of facility (check all that apply)

- prison
- jail
- juvenile facility

During his/her lifetime, was the patient **EVER**

- incarcerated for longer than 6 months?

- If yes,
  
  what year was the most recent incarceration? ____________ YYYYY
  
  for how long? ________________ mos
Consultations with State and Local Health Departments

- Call from local or state health department about a single case
  - Newly diagnosed infection in individual who lacks traditional risk factors (e.g., injection drug use)
    - Doesn’t always meet the case definition for acute disease
  - Multiple healthcare exposures

- Questions posed by health departments
  - Where do we start?
  - How do we prioritize investigation steps?
  - Do we have to follow-up on ALL of the healthcare encounters?
  - What do we do once we get to the healthcare facility?
  - At what point can we stop?
  - Can’t we just wait for the molecular testing?
Patient-to-Patient Transmission of Hepatitis B Virus Associated with Oral Surgery

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(See the editorial commentaries by Hecht et al., on pages 1239–41, and Allos and Schaffner, on pages 1245–7; and the major article by Blick et al., on pages 1250–9.)

mission have been reported since 1987 (Centers for Disease Control and Prevention [CDC], unpublished data). There has been no description in the medical literature of patient-to-patient transmission of a bloodborne pathogen, including HBV, in a dental setting; however, transmission may go unrecognized because many patients with acute infection are asymptomatic.

Patients and methods. The State A Department of Health (DOH) was notified of a case of acute hepatitis B on 1 April 2002. The index patient was a 60-year-old woman who became symptomatic on 11 February 2002. The DOH found none of the traditional hepatitis B risk factors during routine case investigation, but she reported having oral surgery on 10 October 2001. An epidemiologic investigation was therefore begun.
Example of Collaborative Investigation
Patient-to-Patient Transmission

- A case of acute hepatitis B reported to health department

- Investigation found no traditional risk factors
  - hx recent oral surgery

- Investigation of the oral surgery practice
  - same day match with case on surveillance database
  - lab molecular characterization indicated transmission
  - office followed standard infection control practices
  - staff vaccinated and negative for HBV
Example of Collaborative Investigation
Patient-to Patient Transmission

- No infection control breaches were identified
- Theoretically, a lapse in cleanup procedures may have occurred after the source patient, leaving an area contaminated with blood.
- When tested, the source patient was HBeAg positive with a high viral load.
Transmission of Hepatitis B Virus in a Portable Dental Clinic

- In 2009, a cluster of 5 patients with HBV were identified
- All had attended a temporary dental clinic in a gymnasium in West Virginia
  - 3 patients
  - 2 volunteers
- None reported behavioral risk factors for HBV
Transmission of Hepatitis B Virus in a Portable Dental Clinic

- Infection control breaches were identified
  - unable to retrospectively evaluate their link to HBV transmission

- Recommendations for portable clinics:
  - include an infection control coordinator,
  - provide BBP training to volunteers, and
  - ensure HBV vaccination of volunteers who may come into contact with infectious materials
Resources for Investigating Outbreaks

www.cdc.gov/injectionsafety/pntoolkit/index.html

Injection Safety

Patient Notification Toolkit

A Guide to Assist Health Departments and Healthcare Facilities with Conducting a Patient Notification Following Identification of an Infection Control Lapse or Disease Transmission

Introduction

Background
Unsafe injection practices and other lapses in basic infection control put patients at risk of infection. These incidents have occurred in a wide variety of healthcare settings (e.g., hospitals, outpatient clinics, assisted living facilities). When these practices or the resulting infections are discovered, a patient notification process typically ensues. This toolkit is intended to assist state and local health departments or healthcare facilities in conducting a patient notification.

Why a Toolkit?
Although the circumstances surrounding individual incidents may vary, the communication needs that follow are consistent and predictable. Additionally, incidents have the potential to be high profile and sensitive so it is critical to work quickly. This toolkit contains resources and templates to facilitate a swift and effective notification process.

Intended Users
The intended users of this toolkit include personnel at local and state health departments (including

Toolkit Contents
- Developing Documents for a Patient Notification
- Planning Media and Communication Strategies
- Establishing Communication Resources
- Best Practices in Conducting Patient Notifications
- Word on the Scope / Acknowledgement
- Additional Resources
Guide and Checklist for Outpatient Settings

In Outpatient Settings

The transition of healthcare delivery from acute care hospitals to ambulatory care settings, along with ongoing outbreaks and patient notification events, have demonstrated the need for greater understanding and implementation of basic infection prevention guidance. Guide to Infection Prevention in Outpatient Settings: Minimum Expectations for Safe Care distills existing infection prevention guidance from the Centers for Disease Control and Prevention (CDC) and its Healthcare Infection Control Practices Advisory Committee (HICPAC).

Infection Prevention Guide
Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care
This summary guide of infection prevention recommendations for outpatient (ambulatory care) settings.

Infection Prevention Checklist
The Infection Prevention Checklist for Outpatient Settings: Minimum Expectations for Safe Care is a companion to the Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care. The checklist should be used for two purposes:

Summary

- Hepatitis B and C virus transmission in healthcare remain preventable risks
  - Reports from dental settings are rare
- Clusters of transmission are usually detected by a clinician reporting unusual cases
- Control of outbreak events are frequently managed as a collaboration between local/State health departments and CDC
Factors Associated with Implementation of CDC’s 2003 Infection Control Guidelines

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OSAP
June 14, 2013
Advancing infection control in dental care settings

Factors associated with dentists’ implementation of guidelines from the Centers for Disease Control and Prevention

Jennifer L. Cleveland, DDS, MPH; Misty Foster, MS; Laurie Barker, MSPH; G. Gordon Brown, PhD; Nancy Lenfestey, MHA; Linda Lux, MPA; Tammy J. Corley, PhD; Arthur J. Bonito, PhD

A strategic goal of the Division of Oral Health of the Centers for Disease Control and Prevention (CDC), Atlanta, is to promote prevention of disease transmission in dental health care settings by providing evidence-based information and recommendations regarding dental infection control and by maintaining high levels of adoption of the current CDC infection control guidelines in dental practice. CDC published infection control recommendations for dentistry first in 1986 and again in 1993. These guidelines were developed partly in response to published reports regarding nine clusters of nosocomial infections in dental settings.

ABSTRACT

Background and Overview. The authors set out to identify factors associated with implementation by U.S. dentists of four practices first recommended in the Centers for Disease Control and Prevention's Guidelines for Infection Control in Dental Health-Care Settings—2003.

Methods. In 2008, the authors surveyed a stratified random sample of 6,825 U.S. dentists. The response rate was 49 percent. The authors gathered data regarding dentists' demographic and practice characteristics, attitudes toward infection control, sources of instruction regarding the guidelines and knowledge about the need to use sterile water for surgical procedures. Then they assessed the impact of those factors on the implementation of four recommendations: having an infection control coordinator, maintaining dental unit water quality, documenting percutaneous injuries and using safer medical devices, such as safer syringes and scalpels. The authors
Objective

To estimate the percentage of U.S. dentists using four new CDC infection control recommendations and to identify factors associated with their adoption
Methods

- Surveyed a random sample of 6825 U.S. dentists (response rate 49%)
- Assessed implementation of 4 new IC recommendations
  - Having an IC coordinator
  - Referring persons with sharps injuries
  - Trying/adopting safety devices
  - Maintaining and monitoring dental water quality
- Other variables included KAPs, demographics, and professional and practice characteristics
Results

- **Implementation of practices**
  - 34%, none or one
  - 40%, two
  - 26% three or four

- **The likelihood of implementation was higher among dentists who:**
  - acknowledged the importance of infection control,
  - had practiced dentistry for less than 30 years,
  - had received more continuing dental education credits in infection control
  - Had received multiple modes of training
Conclusions

- Implementation of infection control recommendations varied among U.S. dentists.

- Strategies targeted at raising awareness of the importance of infection control and increasing continuing education requirements may increase implementation.