CDC
Dental Infection Prevention Update 2015

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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

• Discuss CDC’s primary roles in infection prevention

• Reinforce the effectiveness of the Guidelines for Infection Control in Dental Health-Care Settings—2003

• Review upcoming CDC products
  – Manuscript summarizing transmission of bloodborne pathogens since 2002 and the possible breaches in infection prevention
  – Guide to Infection Prevention for Dental Settings: Basic Expectations for Safe Care
CDC Develops Guidelines


Guideline for Infection Control in Dental Health-Care Settings — 2003


Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings, 2005

Guidelines for Environmental Infection Control in Health-Care Facilities

1Hospital Epidemiology
University of North Carolina Health Care System
Chapel Hill, NC: 27514
CDC Recommendations

• Improve effectiveness and impact of public health interventions

• Inform clinicians, public health practitioners, and the public

• Developed from best available science (evidenced-based)

• Set the minimum standard of practice but are non-regulatory
CDC Investigations

- Assist in identifying the source of the transmission and, hopefully, eliminating it
- Present an opportunity to evaluate existing prevention strategies and identify gaps
- Allow us to describe new diseases and to learn more about known diseases
- Identifying breaches in infection prevention allows us to determine the risk of transmission
  - Patient notification and testing
In summary, CDC estimates the risk of disease transmission and develops prevention strategies.
Transmission of Bloodborne Pathogens in Dental Settings, 2002-2014

- Since the release of the 2003 guidelines, DOH has continued to review the scientific literature.
- Literature review to identify documented reports of BBP transmission in dental settings since 2002.
- Reviewed summaries reports from state and local health departments of suspected health care-associated HIV or hepatitis transmissions since 2002.
Transmission of Bloodborne Pathogens in Dental Settings, 2002-2014

- No confirmed reports of HIV transmission in dental settings or transmission of a BBP b/w a patient and DHCP

<table>
<thead>
<tr>
<th>Setting</th>
<th>Year</th>
<th>Pathogen</th>
<th>No. Infected</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMS Practice</td>
<td>2002</td>
<td>HBV</td>
<td>1</td>
<td>• Pt-to-Pt</td>
</tr>
<tr>
<td>Portable Dental clinic in school gymnasium</td>
<td>2009</td>
<td>HBV</td>
<td>5</td>
<td>• Multiple procedural &amp; infection control breaches</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Of the 5 cases, 3 were patients &amp; 2 were non-professional volunteers</td>
</tr>
<tr>
<td>OMS Practice</td>
<td>2013</td>
<td>HCV</td>
<td>1</td>
<td>• Pt-to-Pt</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Multiple breaches in injection safety documented</td>
</tr>
</tbody>
</table>
Patient-to Patient Transmission of HBV, 2002

- A case of acute hepatitis B reported to health department
- Investigation found no traditional risk factors
  - History of recent oral surgery
- Investigation of the oral surgery practice
  - Same day match with case on surveillance database
  - Molecular techniques indicated transmission
  - When tested, the source patient was HBeAg positive with a high viral load
Patient-to Patient Transmission of HBV, 2002

• No infection prevention and control breaches were identified

• Staff was vaccinated and negative for HBV

• Theoretically, a lapse in cleanup procedures may have occurred after the source patient, leaving an area contaminated with blood
Transmission of Hepatitis B Virus in a Portable Dental Clinic

• In 2009, a cluster of 5 individuals with HBV were identified

• All had attended a temporary dental clinic in a gymnasium in West Virginia
  • 3 patients
  • 2 non-health care professional staff volunteers

• None reported behavioral risk factors for HBV

Transmission of Hepatitis B Virus in a Portable Dental Clinic

• Infection prevention & 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
  • Ensure HBV vaccination of volunteers who may come into contact with infectious materials
Site Assessment and Checklist for Dental Settings That Use Portable Dental Equipment

www.osap.org/?page=PortableMobile
First Documented Transmission of Patient to Patient HCV in the US

Investigation of Dental Surgery Practice in Oklahoma, 2013

- Reported to state health dept: new HCV infection in a long-time routine blood donor with oral surgery during the exposure period between donations
- Strains of specimens from the index patient and an HCV infected clinic patient who had a dental extraction the same day were identical

Oklahoma State Department of Health. Public health investigation of Tulsa dental practice
Investigation of Dental Surgery Practice in OK

- State public health evaluated facility infection control practices using CDC's *Infection Prevention Checklist for Outpatient Settings*, reviewed patient records and controlled drug inventory log.
- Found unsafe injection practices, improper dating and storage of multi-dose vials of controlled drugs, and lack of autoclave monitoring and maintenance.
  - 4,208 persons were screened for HBV, HCV and HIV at public clinics – no other cases of BBP transmission.
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:

www.cdc.gov/HAI/settings/outpatient/outpatient-settings.html
Environmental Stability of HBV & HCV

• HBV can survive in dried blood on environmental surfaces for at least one week
• In vitro studies have shown the HCV can remain infective on dry surfaces for up to 6 weeks
• HBV and HCV transmission via contact with environmental surfaces has been demonstrated in investigations of outbreaks among patients and staff of hemodialysis units

Viral Hepatitis Outbreaks

Healthcare-Associated Hepatitis B and C Outbreaks† Reported to the Centers for Disease Control and Prevention (CDC) 2008-2014

The tables below summarize healthcare-associated outbreaks of hepatitis B virus (HBV) and hepatitis C virus (HCV) infection reported in the United States during 2008-2014. Outbreaks previously reported in 1998-2008 can be found in Thompson, et al and Redd, et al. Because of the long incubation period (up to 6 months) and typically asymptomatic course of acute hepatitis B and C infection, it is likely that only a fraction of such outbreaks that occurred have been detected, and reporting of outbreaks detected and investigated by state and local health departments is not required. Therefore, the numbers reported here may greatly underestimate the number of outbreak-associated cases and the number of at-risk persons notified for screening.

Practical guidance on detecting and investigating such outbreaks may be found here.

Resources for prevention include updated hepatitis B immunization guidelines, and infection control guidelines and resources.

Note: this page is available in printable form [PDF - 16 pages].

Summary

44 outbreaks (two or more cases) of viral hepatitis related to healthcare reported to CDC during 2008-2014; of these, 42 (95%) occurred in non-hospital settings.

Hepatitis B (total 23 outbreaks, 175 outbreak-associated cases, >10,700 persons notified for screening):

- 17 outbreaks occurred in long-term care facilities, with at least 129 outbreak-associated cases of HBV and approximately 1,600 at-risk persons notified for screening
- 82% (14/17) of the outbreaks were associated with infection control breaks during assisted monitoring of blood glucose (AMBG)
Patient-to-Patient Transmission of Hepatitis B Virus Associated with Oral Surgery

Hepatitis B virus (HBV) is a highly infectious and environmentally stable blood-borne pathogen that can lead to serious long-term liver disease in people who develop chronic infection. Improving the early identification of patient-to-patient transmission of hepatitis B virus is crucial in preventing oral surgery patients from being infected.

Abstract

Background. Although hepatitis B virus (HBV) transmission in dental settings is rare, in 2009 a cluster of acute HBV infections was reported among attendees of a two-day portable dental clinic in Virginia, USA. This outbreak was associated with oral surgery procedures and highlighted the importance of improving infection control practices in dental settings.

Methods. We conducted a case-control study to identify risk factors for transmission of HBV during the dental procedure. We interviewed all patients who attended the clinic and collected data on demographic characteristics, clinical procedures performed, and infection control practices.

Results. We identified 10 cases of acute hepatitis B virus infection among the attendees of the dental clinic. The rate of infection was highest among patients who underwent oral surgery procedures, particularly those who had teeth extracted.

Conclusion. Our findings suggest that improving infection control practices in dental settings, particularly those involving oral surgery, can significantly reduce the risk of transmission of hepatitis B virus. Enhanced staff training and the implementation of stringent infection control measures are essential to prevent future outbreaks.

Oklahoma State Department of Health

Public Health Investigation of Tulsa Dental Practice

Health Officials Announce New Results of Harrington Investigation

(Oct. 17, 2013) The Oklahoma State Department of Health and Tulsa Health Department announced today that findings from genetic testing of HIV specimens from former patients of the W. Scott Harrington dental surgical practice have been deemed inconclusive for potential connection to the practice, according to the Centers for Disease Control and Prevention (CDC). Specimens from three of four Harrington patients testing positive for HIV were submitted to CDC for genetic analysis in an effort to determine if the source of infections was related to the clinic.
Summary

• Transmissions of BBPs in dental settings is rare
  • Reported breakdowns in infection prevention procedures

• Infection prevention must be a priority in all dental settings
  • Standard Precautions and other CDC infection prevention & control recommendations
Guidelines for Infection Control in Dental Health-Care Settings—2003

- No evidence to support changes to 2003 dental guidelines
  - Principles of infection prevention have not changed
  - Compliance issues, not the ineffectiveness of current recommendations

www.cdc.gov/mmwr/PDF/rr/rr5217.pdf
Guide to Infection Prevention for Dental Settings:
Basic Expectations for Safe Care

• Summary of basic infection prevention expectations for safe care in all dental settings
• Based on Standard Precautions
• Supplements existing CDC recommendations (**not** a replacement)
• Links to references & additional resources
Guide to Infection Prevention for Dental Settings: Basic Expectations for Safe Care

- Includes a checklist to evaluate compliance with infection prevention practices
  - Administrative policies
  - Observation of personnel and patient-care
Conclusions

• A variety of infectious agents can be transmitted in dental settings
• Hepatitis B and C virus transmission in healthcare remain preventable risks
  • Reports from dental settings are rare
• Transmissions occurred from lack of compliance
• Standard precautions remain the major infection prevention strategy to prevent transmissions
QUESTIONS

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www.cdc.gov/mmwr/PDF/rr/rr5217.pdf