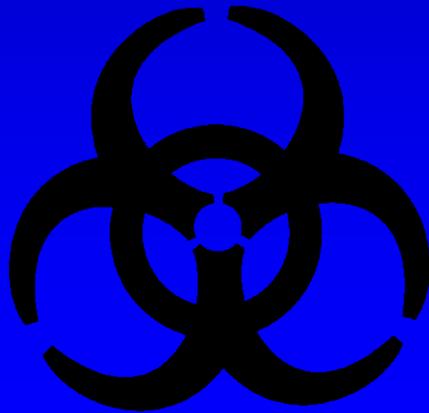


# **Bloodborne Pathogens Review**

in Collaboration with  
Al-Essa Medical & Scientific Equipment Co. W.L.L



**Kuwait University**  
**Health Science Center**  
**10 January – 14 January, 2016**

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# Abbreviations Used in This Briefing

- **AIDS**—Acquired Immune Deficiency Syndrome
- **BBP**—Bloodborne Pathogens
- **CDC**—Centers for Disease Control & Prevention
- **DHCP**—Dental Health-Care Personnel
- **HBV**—Hepatitis B Virus
- **HCV**—Hepatitis C Virus
- **HIV**—Human Immunodeficiency Virus
- **OPIM**—Other Potentially Infectious Material
- **OSHA**—Occupational Safety & Health Administration
- **PPE**—Personal Protective Equipment

# INFECTION CONTROL GUIDELINES IN DENTAL PRACTICE

**2012**  
2<sup>nd</sup> Edition

Prepared by:  
Superintendent of Infection Control  
& Quality in Dental Services



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## References:

1. Guidelines for infection control in Dental health care settings (ADA-Continuing Education research program)-Crest 2009
2. Guidelines for infection control (ADA) – 2008
3. CDC. Infection Control Guidelines. Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings - 2007
4. Organization for Safety, Asepsis and Prevention ([www.osap.org](http://www.osap.org))
5. Occupational safety and health administration ([www.osha.gov](http://www.osha.gov))
6. Infection control guidelines in dental practice, Ministry of health,Kuwait-2004
7. Practical guidelines for Infection Control in health care facilities(WHO) – 2003
8. Guidelines for infection control in dental healthcare settings (MMWR – 2003)
9. Infection Control for the Dental Team (Clinical Practice 3) by Michael Martin, Martin Fulford, Tony Preston – Quint Essentials (2009)
10. Basic Guide To Infection Control In Dentistry (2009) Caroline L. Pankhurst and Wilson A. Coulter.



### Safety and Health Topics

## Dentistry

### Safety and Health Topics

#### Dentistry

- [OSHA Standards](#)
- [Hazard Recognition](#)
- [Control and Prevention](#)
- [Additional Information](#)
- [Credits](#)

Content Reviewed  
03/29/2007

Dental professionals may be at risk for exposure to numerous biological, chemical, environmental, physical, and psychological workplace hazards. These hazards include but are not limited to the spectrum of bloodborne pathogens, pharmaceuticals and other chemical agents, human factors, ergonomic hazards, noise, vibration, and workplace violence.

#### In Focus

- [Hot Topics](#)
- [Alliances](#)
- [eTools](#)

The following questions link to information relevant to Dentistry in the workplace.



#### [What OSHA standards apply?](#)

[Standards](#) | [Directives](#) | [Standard Interpretations](#)



#### [How can workplace hazards be recognized?](#)

[Beryllium](#) | [Bloodborne Pathogens and Infection Control](#) | [More](#)



#### [How can exposures to workplace hazards be controlled and prevented?](#)

[Anesthetic Gases \(Nitrous Oxide\)](#) | [Beryllium Controls](#) | [More](#)



#### [What additional information is available?](#)

[Related Safety and Health Topic Pages](#) | [Training](#) | [Other Resources](#)

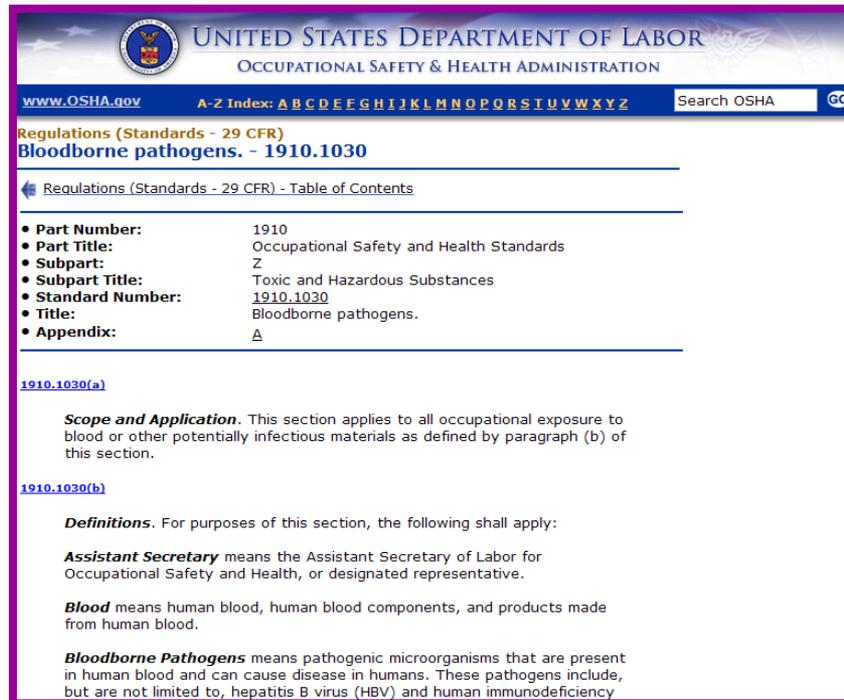
# OSHA BBP Standard

- **Protects health-care personnel from exposure to blood & OPIM**
  - **Dentists**
  - **Dental Assistants**
  - **Dental Hygienists**
  - **Laboratory Technicians**
  - **Any individual who may have occupational exposure to BBP**
- **Provide appropriate care if an occupational exposure incident occurs**



# OSHA BBP Standard

- Employer responsibilities
  - Review & explain the content
  - Ensure access to a copy of the regulatory text



The screenshot displays the OSHA website interface. At the top, it features the United States Department of Labor logo and the text "UNITED STATES DEPARTMENT OF LABOR OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION". Below this is a navigation bar with "www.OSHA.gov", an "A-Z Index" (A-Z), and a search box labeled "Search OSHA" with a "GO" button. The main content area is titled "Regulations (Standards - 29 CFR) Bloodborne pathogens. - 1910.1030". A breadcrumb trail shows "Regulations (Standards - 29 CFR) - Table of Contents". A list of metadata is provided: Part Number: 1910; Part Title: Occupational Safety and Health Standards; Subpart: Z; Subpart Title: Toxic and Hazardous Substances; Standard Number: 1910.1030; Title: Bloodborne pathogens; Appendix: A. Below this, the section "1910.1030(a)" is shown, containing the "Scope and Application" text: "This section applies to all occupational exposure to blood or other potentially infectious materials as defined by paragraph (b) of this section." The section "1910.1030(b)" follows, containing "Definitions" for "Assistant Secretary", "Blood", and "Bloodborne Pathogens".

www.OSHA.gov A-Z Index: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Search OSHA GO

Regulations (Standards - 29 CFR)  
Bloodborne pathogens. - 1910.1030

Regulations (Standards - 29 CFR) - Table of Contents

- Part Number: 1910
- Part Title: Occupational Safety and Health Standards
- Subpart: Z
- Subpart Title: Toxic and Hazardous Substances
- Standard Number: 1910.1030
- Title: Bloodborne pathogens.
- Appendix: A

[1910.1030\(a\)](#)

**Scope and Application.** This section applies to all occupational exposure to blood or other potentially infectious materials as defined by paragraph (b) of this section.

[1910.1030\(b\)](#)

**Definitions.** For purposes of this section, the following shall apply:

**Assistant Secretary** means the Assistant Secretary of Labor for Occupational Safety and Health, or designated representative.

**Blood** means human blood, human blood components, and products made from human blood.

**Bloodborne Pathogens** means pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency

# Standard Precautions

- ◉ **Most important measure to control transmission**
- ◉ **Treat all human blood/OPIM as infectious**
- ◉ **Saliva is considered a potentially infectious material**

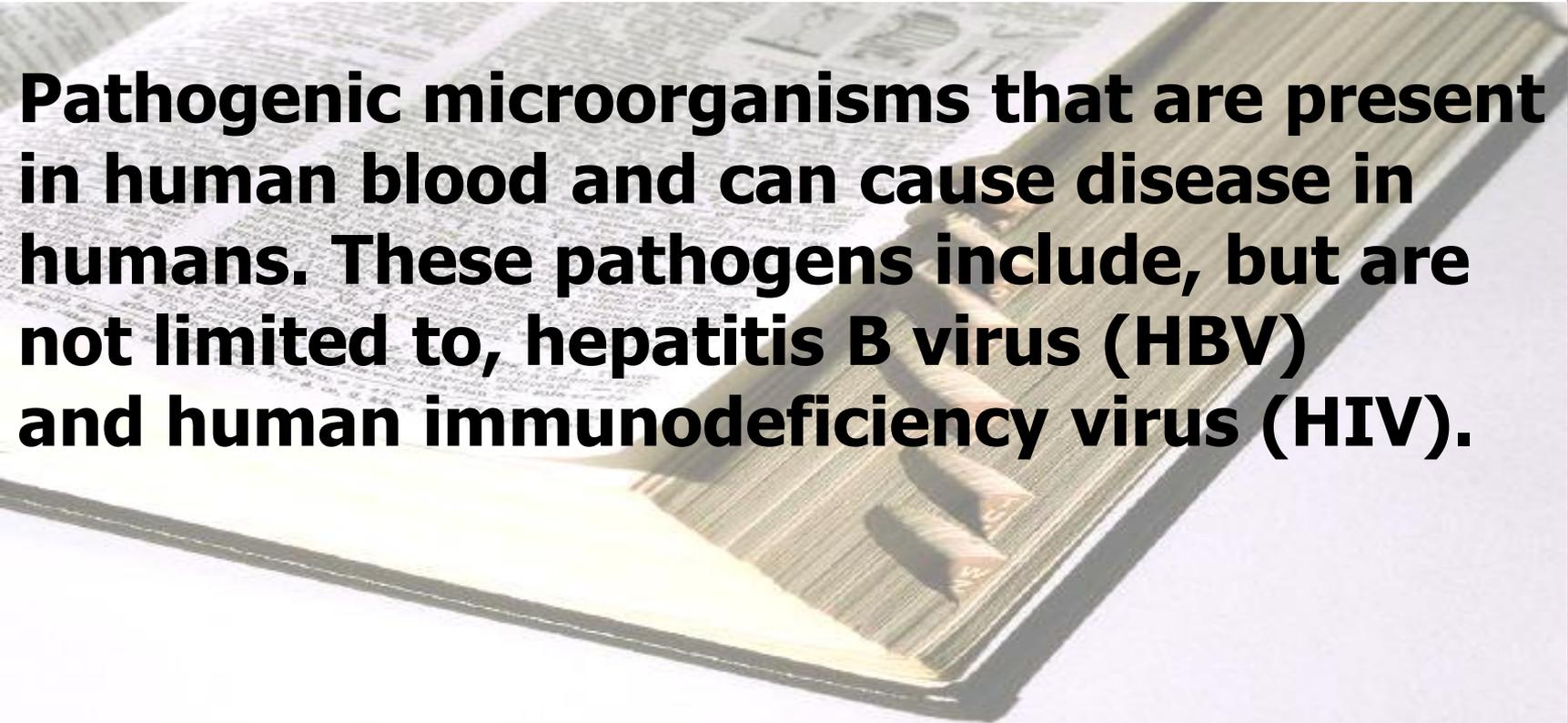
•**Note:** OSHA's Bloodborne Pathogen Standard still uses the term Universal Precautions (UP), however in 1996, the CDC expanded the concept of UP & changed the term to Standard Precautions. Since saliva has always been considered a potentially infectious material in dentistry, no operational difference exists in clinical dental practice between UP & Standard Precautions.

# Other Potentially Infectious Materials (OPIM)

- **Human body fluids**
  - **Saliva, semen, vaginal secretions, cerebral spinal fluid, unfixed tissues, any body fluid visibly contaminated with blood**

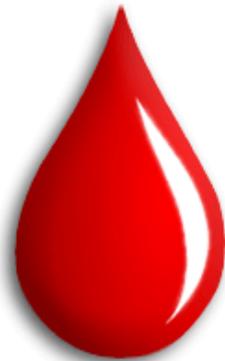
# Bloodborne Pathogens

**Pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens include, but are not limited to, hepatitis B virus (HBV) and human immunodeficiency virus (HIV).**



# Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), & Human Immunodeficiency Virus (HIV)

- ⦿ **Bloodborne viruses**
- ⦿ **Can produce chronic infection**
- ⦿ **Transmissible in health-care settings**
- ⦿ **Are often carried by persons unaware of their infection**



# BBP Transmission Overview

- ◉ **Sexual contact**
- ◉ **Sharing needles or syringes**
- ◉ **From infected mother to baby**
- ◉ **Blood transfusion**
- ◉ **Organ transplant**
- ◉ **Not transmitted through casual contact**

# BBP Transmission Overview

- **Dental setting**
  - **Needlestick or puncture wound (parenteral)**
  - **Blood (HBV/HIV) or saliva (HBV) contact with mucous membrane, or non-intact skin**
- **HBV more concentrated in blood than HIV**
  - **Higher potential for transmission**
- **HCV inefficiently transmitted by occupational exposures**

# Viral Hepatitis—Overview

## Types of Hepatitis

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>Source of virus</b>	feces	blood/ blood-derived body fluids	blood/ blood-derived body fluids	blood/ blood- derived body fluids	feces
<b>Route of transmission</b>	fecal-oral	percutaneous permucosal	percutaneous permucosal	percutaneous permucosal	fecal-oral
<b>Chronic infection</b>	no	yes	yes	yes	no
<b>Prevention</b>	pre/post- exposure immunization	pre/post- exposure immunization	blood donor screening; risk behavior modification	pre/post- exposure immunization; risk behavior modification	ensure safe drinking water

# HBV Symptoms

- ◉ **About 30% of persons have no signs or symptoms**
- ◉ **Signs & symptoms are less common in children than adults**
- ◉ **Incubation period: 45-160 days (avg: 120 days)**
- **Jaundice**
- **Fatigue**
- **Abdominal pain**
- **Loss of appetite**
- **Nausea, vomiting**
- **Joint pain**

# HBV Transmission

- **Occurs when blood or body fluids from an infected person enters the body of a person who is not immune**
- **HBV is spread**
  - **through sexual contact with an infected person**
  - **by sharing needles/syringes**
  - **by needlesticks or sharps exposures on the job**
  - **from an infected mother to her baby during birth**

# HBV Trends/Statistics

- ◉ **Estimated 43,000 new infections in 2007**
- ◉ **The rate of new HBV infections has declined by approximately 82% since 1991, when a national strategy to eliminate HBV infection was implemented in the US**
- ◉ **Estimated 800,000 - 1.4 million persons in the US have chronic HBV infection**
- ◉ **4% prevalence rate in Kuwait**

[www.cdc.gov/ncidod/diseases/hepatitis/b/fact.htm](http://www.cdc.gov/ncidod/diseases/hepatitis/b/fact.htm)

[www.cdc.gov/mmwr/PDF/ss/ss5803.pdf](http://www.cdc.gov/mmwr/PDF/ss/ss5803.pdf)

# HCV Symptoms

- ◉ **70 - 80% of persons have no signs or symptoms**
- ◉ **Incubation period: 14-180 days (avg: 45 days)**
- **Jaundice**
- **Fatigue**
- **Dark urine**
- **Abdominal pain**
- **Loss of appetite**
- **Nausea**

# HCV Transmission

- **Occurs when blood or body fluids from an infected person enters the body of a person who is not infected**
- **HCV is spread**
  - **by sharing needles/syringes**
  - **by needlesticks or sharps exposures on the job**
  - **from an infected mother to her baby during birth**

# HCV Trends/Statistics

- ⊙ **Estimated 17,000 new infections in 2007**
- ⊙ **Most infections are due to illegal injection drug use**
- ⊙ **Estimated 3.2 million people with chronic HCV infection**

[www.cdc.gov/ncidod/diseases/hepatitis/c/fact.htm](http://www.cdc.gov/ncidod/diseases/hepatitis/c/fact.htm)  
[www.cdc.gov/mmwr/PDF/ss/ss5803.pdf](http://www.cdc.gov/mmwr/PDF/ss/ss5803.pdf)

*Review Article*

## **Hepatitis C Virus in Arab World: A State of Concern**

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Copyright © 2012 M. A. Daw and A. A. Dau. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Hepatitis C virus has been considered to be one of the most potential pathogens that have hindered the medical community all over the world. Indeed, since its discovery in 1989, hepatitis C virus (HCV) has been recognized as a major cause of chronic liver disease worldwide and due to the surpassing hepatitis B virus [1]. The data reported by WHO estimated that the prevalence of HCV infection is 2.2%, and more than one million new cases were reported annually. Furthermore, an estimated 27% of cirrhosis and 25% of hepato-cellular carcinomas (HCC) worldwide occur in HCV-infected people [2]. Such infection increases tremendously among the developing countries particularly at those categories that were considered to be at a potential risk of acquiring hepatitis C virus.

TABLE 1: Prevalence of hepatitis C virus and its common genotypes among Arab countries.

Region/country	Prevalence (%) of HCV among		Genotypes/subtype	
	Population [M]	Haemodialysis	More frequent	Less frequent
Arabian peninsula region				
Saudi Arabia [Sa]	23.513 (1.7)	55.7	4	1a 1b 3a
Yemen [Ye]	23,701 (2.1)	62.7	4	NA
Oman [Om]	3.2 (1.2)	26.5	4	NA
Bahrain [Bh]	0.656397 (1.7)	29.24	4	1a, 1b
Qatar [Qr]	0.793341 (6.3)	44.6	4	2, 3, 4
UAE	1,496 (2.3)	37	1	3a
Kuwait [Kt]	3.442 (0.8)	71.0	4	1
Sham region				
Iraq [Irq]	23 (3.2)	35.9	4	1a, 1b, 3a
Syria [Sy]	20.056 (1)	48.9	4	1b, 1a, 3a, 5*
Lebanon [Lb],	3.678 (0.7–1)	27	4	1a, 1b, 2, 3
Jordan [Jr]	5.307 (0.65–6.25)	34.6	1a	1b, 4
Gaza Strip	1.5 (2.2)	31.3	4	1, 3a
Nile river region				
Egypt [Eg]	80 (13–22)	40	4	1a 1b 2a
Sudan [Sud]	40.219 (3)	23.7	4	4e, 4c, 4d
North African region				
Libya [Ly]	6,037 (1.2)	20.5	4/1	2a, 2b, 2c, 3a
Tunis [Tu]	10.102 (0.4–0.7)	51	1b	2a 2c 1a
Algeria [Alg]	35.100 (1.8)	63	NA	NA
Morocco [Mo]	35.757 (7.7)	76	1b	2a 2c 1a
Mauritania [Mu]	3.365 (1.8)	68	NA	NA

NA: no data available, \*less frequent type.

TABLE 2: Categorization of Arab countries according to the prevalence hepatitis C virus.

Category	Prevalence	Country
Low	1–1.9	Libya, Tunis, Oman, Saudi Arabia, Kuwait, Bahrain, Syria, Lebanon
Moderate	2.0–2.9	Algeria, Mauritania, Yemen, Gaza Strip
High	3–3.9	UAE, Iraq, Sudan
Very high	>4	Egypt, Morocco, Qatar, Jordan

TABLE 3: Factors associated with the Transmission of HCV among Arab countries.

Risk factor	Extent of Exposure among each country		
	Low	Moderate	High
Blood transfusion	[NO]	[All in this range]	[NO]
Haemodialysis	[NO]	[NO]	[All in this range]
Nosocomial transmission	[NO]	[NO]	[All in this range]
Health care workers	[NO]	[All in this range]	[NO]
Invasive Medical procedures	[NO]	[All in this range]	[NO]
Dentistry Practice	[NO]	[Lb, Ly, Tu, Sa, UAE, Om, Bh, Qr, Jr, Kt]	[Eg, Ye, Sud, Mo, Mu, Alg, Irq, Sy]
Laboratory services	[NO]	[Lb, Tu, Ly, Jr, Sy, Sa, Bh, Kt, Qr, Om, UAE]	[Mu, Mo, Alg, Sud, Irq, Ye, Eg]
Hospital Waste Handling	[NO]	[Lb, UAE, Sa, Ly, Lb, Bh, Qr, Om, Tu, Jr, Sy, Kt]	[Alg, Mo, Sud, Eg, Ye, Irq, Mu]
IVDA	[NO]	[NO]	[All in this range]
Habitual	[Ly, Tu, Lb, Sa, Jr, Sy]	[Alg, Irq, UAE, Qr, Bh, Kt, Om]	[Eg, Mr, Mo, Ye, Sud]
High risk behavior	[Ly, Sa, Ye, Sud, Mu, Om, Kt]	[Alg, Tu, Eg, Jr, Sy, Lb]	[Mo, Bh, Irq, UAE, Qr,]

Low: <5%, Moderate: 5–20%, High: > 20%, NO: No country in this category.

# **COUNTRY PROGRESS REPORT**

## **STATE OF KUWAIT**

[http://www.unaids.org/sites/default/files/country/documents/KWT\\_narrative\\_report\\_2015.pdf](http://www.unaids.org/sites/default/files/country/documents/KWT_narrative_report_2015.pdf)

**Table 1. Number of reported Kuwaiti HIV cases, 2009-2014**

	2009	2010	2011	2012	2013	2014
<b>MALE</b>	8	7	21	11	24	<b>21</b>
<b>FEMALE</b>	4	4	4	1	10	<b>1</b>
<b>TOTAL</b>	<b>12</b>	<b>11</b>	<b>25</b>	<b>12</b>	<b>34</b>	<b>22</b>

**Table 2: Numbers of Kuwaiti & Non-Kuwaitis tested for HIV and number of HIV-positive cases, 2014**

	HIV TESTING CATEGORIES	# Kuwaiti tested	# Non-Kuwaiti tested	TOTAL No. tested	# HIV+ Kuwaiti	HIV+ Non-Kuwaiti	TOTAL No. HIV+	Overall HIV %
1	Expatriates	0	423.600	423.600	0	368	368	0,087%
2	Blood bank	36.991	40.149	77.140	4	2	6	0,008%
3	Premarital	23.479	2.546	26.025	3	0	3	0,012%
4	Pre Employment	15.566	7.368	22.934	1	0	1	0,004%
5	Food handlers	1.654	307.930	309.584	0	20	20	0,006%
6	Drug users	419	902	1.321	0	0	0	0,000%
7	Hospitals	1.605	2.409	4.014	10	30	40	0,997%
9	Army & Police	6.180	3.454	9.634	3	0	3	0,031%
10	Prisons	562	1.078	1.640	1	5	6	0,366%
11	Other	6.514	1.844	8.358	0	0	0	0,000%
	<b>TOTAL</b>	<b>92.970</b>	<b>791.280</b>	<b>884.250</b>	<b>22</b>	<b>425</b>	<b>447</b>	<b>0,051%</b>

# HIV/AIDS Symptoms

- **Varying symptoms—no symptoms to flu-like**
  - **Many people do not have any symptoms when they first become infected with HIV**
  - **Some people, however, have a flu-like illness within a month or two after exposure to the virus**
    - **Fever, lymph node swelling, rash, fatigue, diarrhea, joint pain**

# HIV/AIDS Symptoms

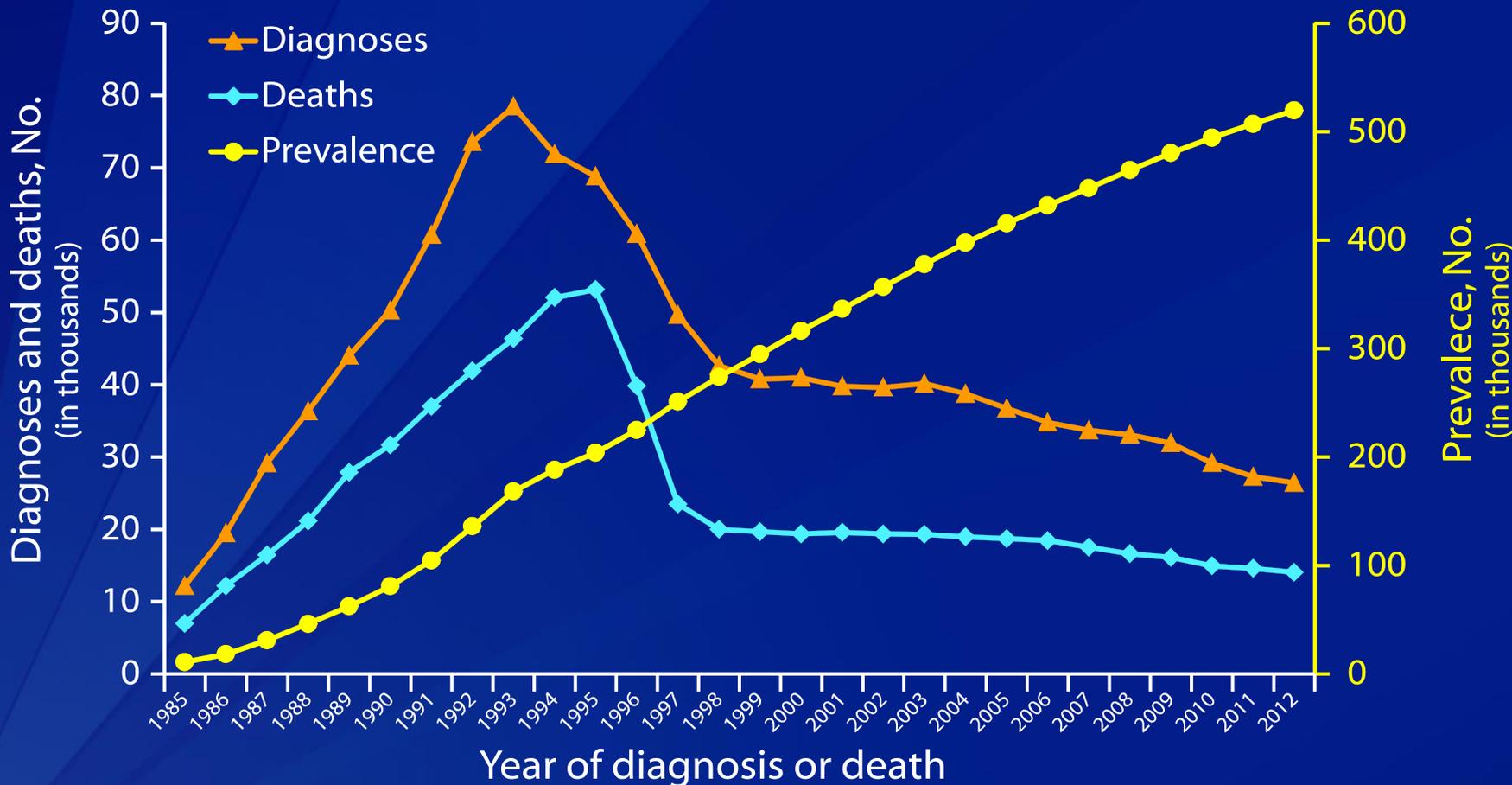
- **These symptoms usually disappear within a week to a month & are often mistaken for those of another viral infection**
  - **During this period, people are very infectious, & HIV is present in large quantities in genital fluids**
- **Many people who are infected with HIV do not have any symptoms at all for many years**
- **Will develop AIDS**
  - **Weight loss, night sweats, diarrhea, loss of appetite, rash, lymph node swelling**
  - **Lack of resistance to disease**

# HIV Transmission

- **HIV is spread by**
  - **sexual contact with an infected person**
  - **sharing needles/syringes**
  - **needlesticks or sharps exposures on the job**
- **HIV is spread less commonly (& now very rarely in countries where blood is screened for HIV antibodies) through transfusions of infected blood or blood clotting factors**
- **Babies born to HIV-infected women may become infected before or during birth or through breast-feeding after birth**

# Stage 3 (AIDS) Classifications, Deaths, and Persons Living with HIV Infection Ever Classified as Stage 3 (AIDS)

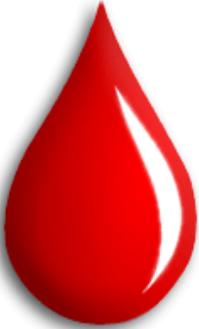
## 1985–2012—United States and 6 Dependent Areas



Note. All displayed data have been statistically adjusted to account for reporting delays, but not for incomplete reporting. Deaths of persons with HIV infection, stage 3 (AIDS) may be due to any cause.



# Average Risk of Transmission After Percutaneous Injury

<u>Source</u>		<u>Risk (%)</u>
HIV		0.3
Hepatitis C		1.8
Hepatitis B (only HBeAg+)		30.0

Portsmouth Hospital, Dominica, West Indies



# Sharps Injuries Classification

During Procedure	After Procedure		
	Before Disposal	During & After Disposal	
		Container Related	Other
50%	30%	10%	10%

# OSHA Bloodborne Pathogen Standard

[www.osha.gov](http://www.osha.gov)

 UNITED STATES DEPARTMENT OF LABOR  
OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

[www.OSHA.gov](http://www.OSHA.gov) A-Z Index: [A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#) [N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#) Search OSHA

**Regulations (Standards - 29 CFR)**  
**Bloodborne pathogens. - 1910.1030**

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[Regulations \(Standards - 29 CFR\) - Table of Contents](#)

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- **Part Number:** 1910
- **Part Title:** Occupational Safety and Health Standards
- **Subpart:** Z
- **Subpart Title:** Toxic and Hazardous Substances
- **Standard Number:** [1910.1030](#)
- **Title:** Bloodborne pathogens.
- **Appendix:** [A](#)

---

[1910.1030\(a\)](#)

**Scope and Application.** This section applies to all occupational exposure to blood or other potentially infectious materials as defined by paragraph (b) of this section.

[1910.1030\(b\)](#)

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# Exposure Control Plan

*Key element of the BBP Standard*

- ◉ **Designed to identify & eliminate or minimize bloodborne infection risks resulting from exposures associated with performance of employee duties**



# Exposure Control Plan

*Key element of the BBP Standard*

- ◉ **Written document required by OSHA**
- ◉ **Accessible to all DHCP**
- ◉ **Update at least annually & when changes in procedures create new occupational hazards**



# Exposure Control Plan

## ◎ **KEY ELEMENTS**

- **Determination of employee exposure to blood/OPIM**
- **Implementation of various methods of exposure control**
  - **Standard precautions**
  - **Engineering/work practice controls**
  - **Personal Protective Equipment**
  - **Housekeeping**

# Exposure Control Plan

## ◎ **KEY ELEMENTS (cont'd)**

- **Hepatitis B vaccination**
- **Post-exposure evaluation & follow-up**
- **Communication of hazards to employees & training**
- **Recordkeeping**
- **Procedures for evaluating circumstances surrounding exposure incidents**

# Standard Precautions

## THE SAME IC PROCEDURES ARE USED FOR ALL PATIENTS

- **Assume all patients are potentially infectious**
- **Infection control policies are determined by the procedure, not the patient**

# Engineering & Work Practice Controls

- **Engineering & work practice controls**
  - **Primary methods used to control transmission of HBV/HCV/HIV**

Do not pass  
unsheathed needles



Do not use two  
hands to recap

Use a mechanical  
recapping device



Use a one-handed  
scoop technique



# Engineering Controls

- ◉ **Primary strategy for protection of DHCP & patients**
- ◉ **Eliminates or isolates the hazard**
- ◉ **Commonly used in combination with work practice controls & PPE to prevent exposure**
- ◉ **Must be examined, maintained or replaced on scheduled basis**

# Engineering Controls

## Examples

- Puncture resistant sharps container
- Safer medical devices
  - Sharps with engineered sharps injury protection & needleless systems (e.g., non-needle devices, devices with built-in safety features)



Examples of Safety Devices



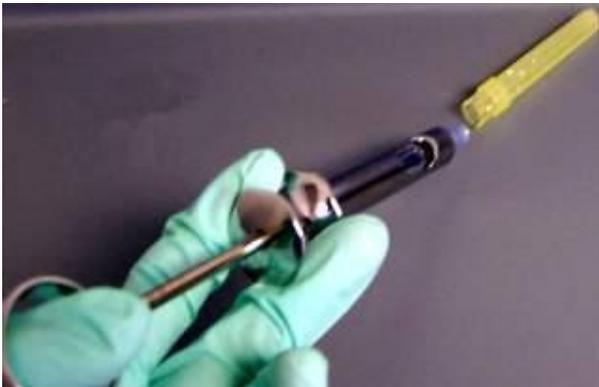
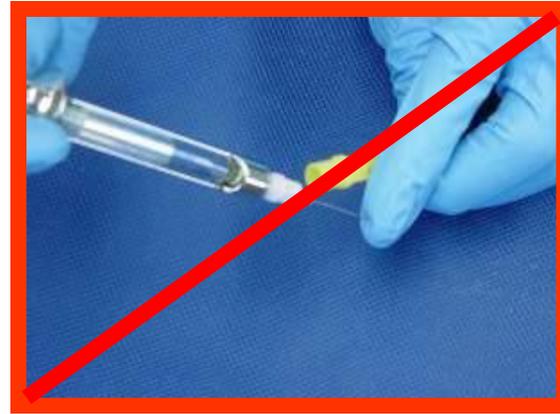
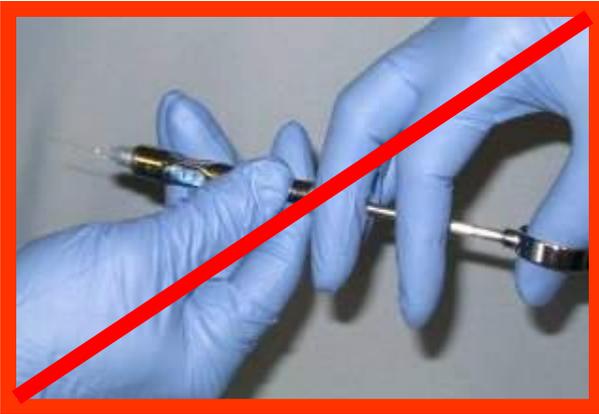
# Engineering Controls

- **2001 OSHA revised the BBP Standard**
  - **Employers should identify, evaluate, & select safer medical devices as they become available & at least annually & involve employees directly responsible for patient care (e.g., dentists, hygienists, & dental assistants) in identifying & choosing such devices**



# Work Practice Controls

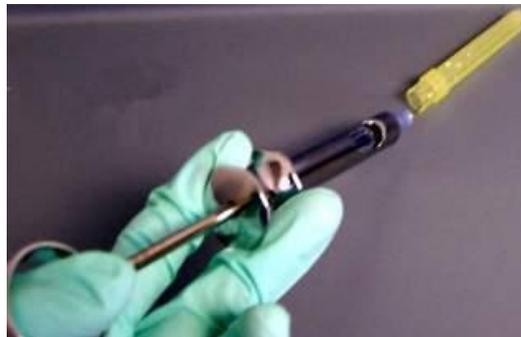
- ◉ Reduce likelihood of exposure by altering the manner in which task is performed



# Work Practice Controls

## Examples

- **Placing used disposable syringes & needles, scalpel blades & other sharp items in puncture-resistant containers located as close as practical to the point of use**
- **Using a one-handed "scoop" technique or a mechanical device to facilitate needle recapping**
- **Not passing unsheathed needles**
- **Using engineered sharps injury protection devices during use or disposal**

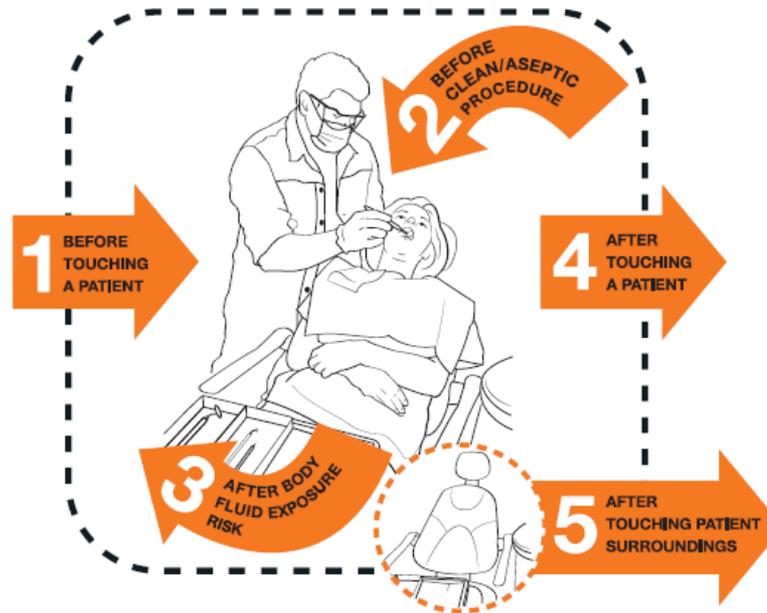


# Work Practice Requirements

- ◉ **Wash hands immediately after skin contact with blood/OPIM, & after removing gloves or other PPE**
- ◉ **Flush mucous membranes immediately if splashed with blood/OPIM**
- ◉ **Do not bend or break needles before disposal**
- ◉ **Do not pass needles unsheathed**
- ◉ **Recap needles with a one-handed technique before removal from non-disposable aspirating syringes**

# Your 5 Moments for Hand Hygiene

## Dental Care



<b>1</b>	<b>BEFORE TOUCHING A PATIENT</b>	<b>WHEN?</b> Clean your hands before touching a patient. <b>WHY?</b> To protect the patient against harmful germs carried on your hands.
<b>2</b>	<b>BEFORE CLEAN/ASEPTIC PROCEDURE</b>	<b>WHEN?</b> Clean your hands immediately before performing a clean/aseptic procedure. <b>WHY?</b> To protect the patient against harmful germs, including the patient's own, from entering his/her body.
<b>3</b>	<b>AFTER BODY FLUID EXPOSURE RISK</b>	<b>WHEN?</b> Clean your hands immediately after a procedure involving exposure risk to body fluids (and after glove removal). <b>WHY?</b> To protect yourself and the environment from harmful patient germs.
<b>4</b>	<b>AFTER TOUCHING A PATIENT</b>	<b>WHEN?</b> Clean your hands after touching the patient at the end of the encounter or when the encounter is interrupted. <b>WHY?</b> To protect yourself and the environment from harmful patient germs.
<b>5</b>	<b>AFTER TOUCHING PATIENT SURROUNDINGS</b>	<b>WHEN?</b> Clean your hands after touching any object or furniture in the patient surroundings when a specific zone is temporarily and exclusively dedicated to a patient - even if the patient has not been touched. <b>WHY?</b> To protect yourself and the environment from harmful patient germs.



World Health  
Organization

**SAVE LIVES**  
Clean Your Hands



KEEP  
CALM  
AND  
WASH  
YOUR  
HANDS



U.S. Department of  
Health and Human Services  
Centers for Disease  
Control and Prevention

CC0 2014-18

# Work Practice Requirements

- **Discard disposable sharps (e.g., endo files, orthodontic wires, anesthetic/suture needles) in designated sharps container**
  - **Closable, puncture resistant, leakproof, colored red or labeled with biohazard symbol**



# Work Practice Requirements

- ◉ **Place contaminated, reusable sharp instruments in containers that are puncture-resistant, leakproof, colored red or labeled with biohazard symbol until reprocessed**
- ◉ **Do not store or process instruments in a way that would require DHCP to reach by hand into the container to retrieve instruments**



# Work Practice Requirements

- ◉ **Do not eat, drink, smoke, apply cosmetics or handle contact lenses in areas where there is risk for occupational exposure**
- ◉ **Do not store food/drinks in refrigerators, cabinets, shelves or countertops where blood/OPIM are present**





# Work Practice Requirements

- ◉ **Store, transport or ship blood/OPIM materials (e.g., extracted teeth, tissues, contaminated impressions) in puncture-resistant biohazard containers**
- ◉ **Close containers immediately prior to removal or replacement to prevent spillage or protrusion of contents during handling, storage, or transport**



# Personal Protective Equipment (PPE)

- **Specialized clothing or equipment to protect the skin, mucous membranes of the eyes, nose, & mouth of DHCP from exposure to infectious or potentially infectious materials**
- **Must not allow blood/OPIM to pass through clothing, skin or mucous membrane**



# PPE

- ⦿ **Based on degree of anticipated exposure & procedure performed**
- ⦿ **Remove PPE before leaving the work area & immediately if penetrated by blood/OPIM**



# PPE

- **Gloves**
- **Surgical mask**
- **Long-sleeved protective clothing (e.g., long-sleeved lab coat, gown)**
- **Protective eyewear with solid side shields**
- **Chin-length face shield worn with a surgical mask**



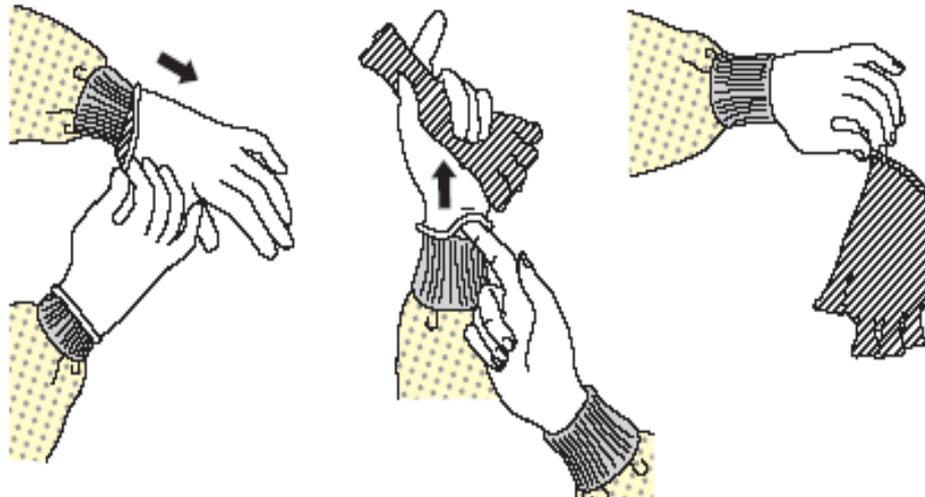
# Gloves

- ◉ **Wear gloves when contact with blood or OPIM is possible**
- ◉ **Remove gloves after caring for a patient**
- ◉ **Do not wear the same pair of gloves for the care of more than one patient**
- ◉ **Do not wash or disinfect patient-care gloves**



# Gloves

- Do not use petroleum-based hand lotions with latex gloves (causes deterioration of the glove material)
- Removal: grasp at wrist & strip off “inside-out”



# Utility Gloves

- ◉ **Used for cleaning instruments, surfaces, handling laundry, or housekeeping**
- ◉ **May be washed, autoclaved, or disinfected & reused as long as integrity is not compromised**
- ◉ **After washing with soap, pull off by finger tips**



# Surgical Masks

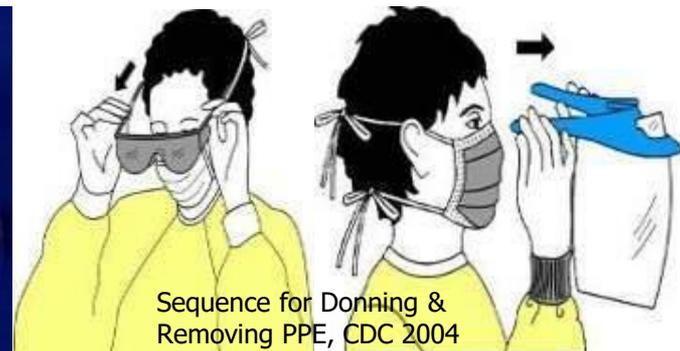
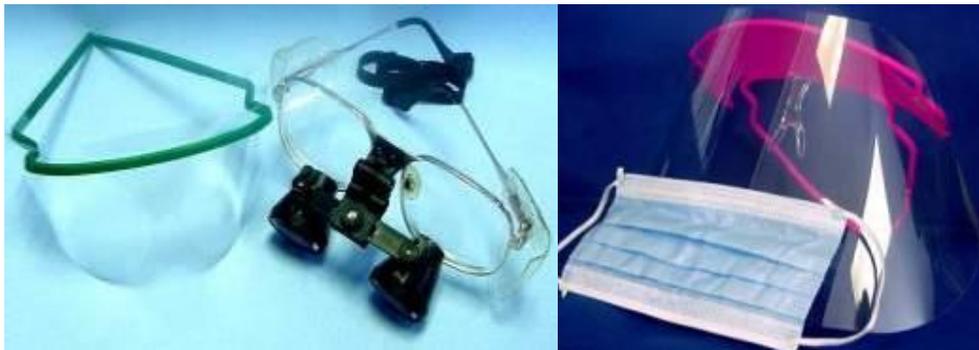
- **Adjust so fits snugly**
- **Change between patients or during treatment if it becomes wet**
- **Removal:**
  - **Remove by elastic or tie strings**
  - **Do not touch mask**



Sequence for Donning &  
Removing PPE, CDC 2004

# Protective Eyewear

- **Wear when splash, spray, or spatter is anticipated**
- **Eyewear must have solid side shields**
- **A chin-length face shield may be worn with a mask if additional protection is desired**
- **Remove by headband or side arms**
  - **Do not touch shield or lens area**
- **If reusable, may be decontaminated & reused**



Sequence for Donning & Removing PPE, CDC 2004

Removing PPE, CDC 2004

# Protective Clothing

- Long sleeves required by OSHA if worn as PPE
- Wear when splash, spray, or spatter is anticipated
- Remove immediately if penetrated by blood/OPIM
  - Use tie strings to remove & peel off
  - Minimize contact during removal
- If reusable, place in marked laundry container



Sequence for Donning & Removing PPE, CDC/2004

# PPE

- **Employer responsibility**
  - **Will provide, maintain, & replace**
  - **Ensure accessibility in appropriate sizes**
  - **Provide alternative products (e.g., latex-free gloves, powderless gloves)**
  - **Will ensure employee use**
  - **Laundry or discard if appropriate**

# Contaminated Laundry

- **Placed in bags or containers that are red or marked with biohazard symbol**
- **If clinic uses Standard Precautions for handling soiled laundry**
  - **Alternative labeling is permitted**
  - **Ensure all employees are trained & recognize bags containing contaminated laundry**



# Contaminated Laundry

- **Laundry sent off-site**
  - **Placed in bags or containers that are clearly marked with biohazard symbol, unless laundry facility uses Standard Precautions**
- **If wet, bags or containers must prevent leakage & soak-through**
- **Use appropriate PPE when handling**

# Housekeeping

- ◉ **Employer must ensure clean/sanitary workplace**
- ◉ **Work surfaces, equipment, & other reusable items must be decontaminated upon completion of procedure when contaminated with blood/OPIM**
- ◉ **Barriers protecting surfaces/equipment must be replaced between patients**

# Housekeeping

- **Reusable receptacles (bins, pails, cans)**
  - **Must be inspected/decontaminated on a regular basis & when visibly soiled**
- **Broken glass that may be contaminated**
  - **May be cleaned up with brush/tongs**
  - **Never picked up with hands, even if gloves are worn**
- **Contaminated equipment must be decontaminated before servicing or labeled as biohazard**

# Blood Spill

- Don PPE
  - Gloves, mask, eyewear, protective apparel
- Use designated spill kit to clean & disinfect area



# Regulated Waste

- ◉ **Liquid or semi-liquid blood or OPIM**
- ◉ **Items contaminated with blood/OPIM that would release these substances in a liquid or semi-liquid state if squeezed**
- ◉ **Items caked with dried blood/OPIM & capable of releasing these materials during handling**
- ◉ **Contaminated sharps**
- ◉ **Pathological /microbiological waste containing blood/OPIM (e.g., extracted teeth)**



# Regulated Waste Disposal

## ○ Sharps

- Place in container that is closable, puncture-resistant, leakproof, & colored red or labeled with the biohazard symbol

## ○ Other regulated waste

- Must be contained in closable bags or containers that prevent leakage & colored red or labeled with the biohazard symbol
- If contaminated on outside, use secondary container with same features





# Biohazard Label

- Symbol accompanied by the word ***BIOHAZARD***
- Must be **fluorescent orange** or **orange/red** with lettering & symbols in contrasting colors
- Red or orange/red bags or containers may substitute for labels
- Decontaminated regulated waste does not need to be labeled or placed in red bags



# Biohazard Label



- ◉ **Sharps container**
- ◉ **Regulated waste container**
- ◉ **Contaminated laundry bags**
- ◉ **Refrigerators/freezers containing blood or OPIM**
- ◉ **Containers used to ship blood/OPIM**
- ◉ **Contaminated equipment**
- ◉ **Note: Red or orange/red bags or containers may substitute for labels**

# Hepatitis B Vaccination

- ◉ **Effective in preventing hepatitis B**
- ◉ **3-dose vaccination series**
- ◉ **Test for antibodies to HBsAg 1 to 2 months after 3-dose vaccination series completed**
- ◉ **Revaccinate DHCP who do not develop adequate antibody response**



# Hepatitis B Vaccination

- ◉ **Safe, effective, & long-lasting**
- ◉ **Booster doses of vaccine & periodic serologic testing to monitor antibody concentrations after completion of the vaccine series are not necessary for vaccine responders**



# Occupational Exposure Incident

- **Specific eye, mouth, other mucous membrane, non-intact skin or parenteral contact with blood/OPIM resulting from performance duties**
  - **PERCUTANEOUS INJURY**
    - Needlestick, puncture wound, or cut
  - **SPLASH OF BLOOD OR BODY FLUID ON**
    - Mucous membranes (eye, nose, or mouth)
    - Nonintact skin (chapped, abraded, dermatitis)
- **Employer**
  - **Responsible for establishing procedure for evaluating exposure incident**
  - **Thorough assessment & confidentiality are critical**

# Postexposure Management

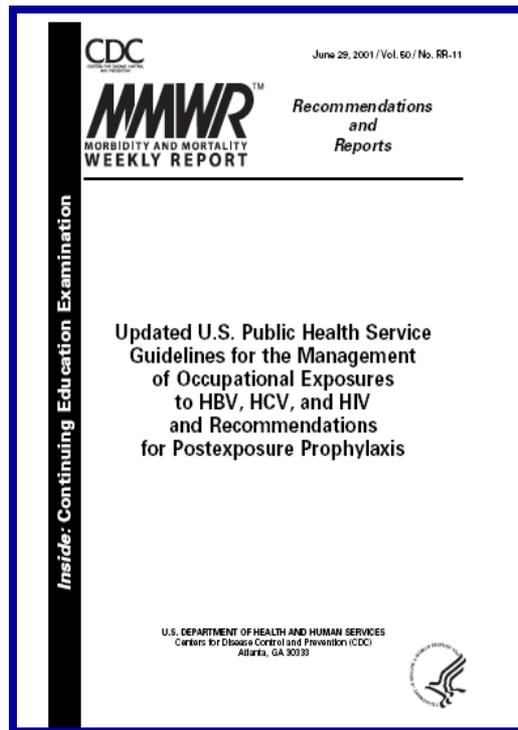
- ◉ **Goal:** prevent infection after an occupational exposure incident to blood
- ◉ A qualified health-care professional should evaluate any occupational exposure to blood or OPIM including saliva, regardless of whether blood is visible, in dental settings

**Prevention is Primary**

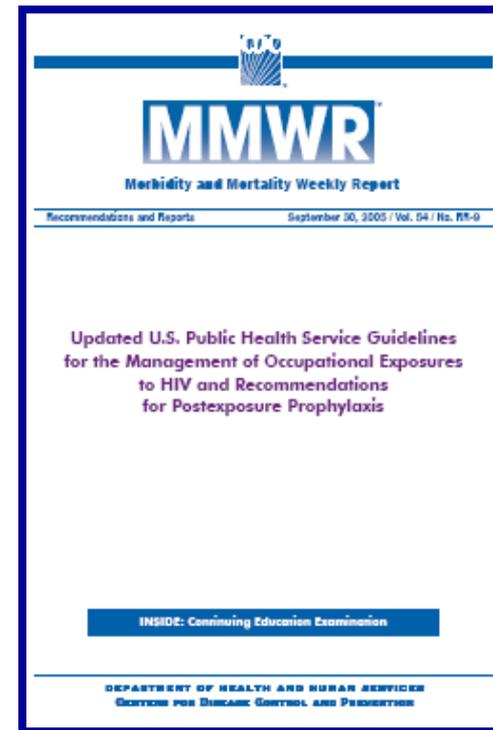
# Postexposure Management

- Follow current CDC recommendations for postexposure management & prophylaxis

2001



2005

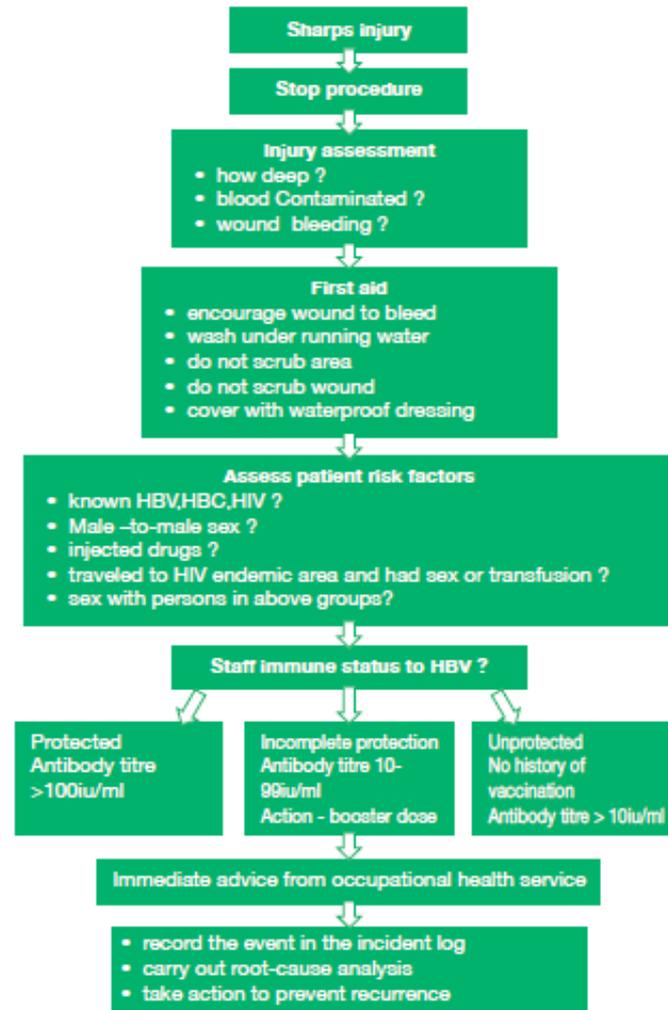


[www.cdc.gov/ncidod/dhqp/index.html](http://www.cdc.gov/ncidod/dhqp/index.html)



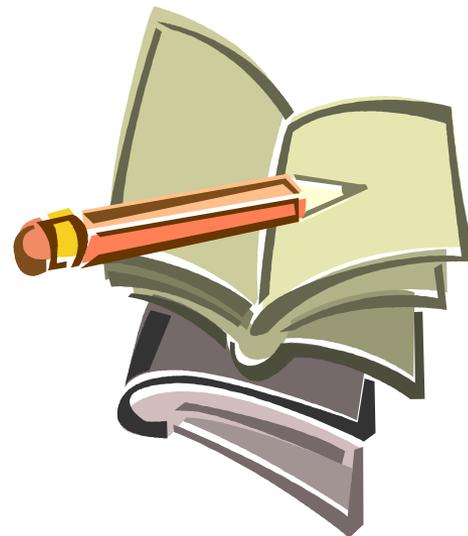
## Appendix 6

### Sharps injury protocol:



# Recordkeeping—Training

- **Document each training session**
  - **Date of training**
  - **Content outline**
  - **Trainer's name & qualifications**
  - **Names & job titles of attendees**



# Recordkeeping—Sharps Injury Log

- ◉ **Type/brand of device involved in incident**
- ◉ **Work area where incident occurred**
- ◉ **Explanation of how incident occurred**

# References

- ◉ **CDC. Updated US Public Health Service guidelines for the management of occupational exposures to HBV, HCV, and HIV and recommendations for postexposure prophylaxis. MMWR 2001;50(No. RR-11).**
- ◉ **CDC. Updated U.S. Public Health Service guidelines for the management of occupational exposures to HIV and recommendations for postexposure prophylaxis. MMWR 2005;54(No. RR-9):1–17.**
- ◉ **US Department of Labor, Occupational Safety and Health Administration. 29 CFR Part 1910.1030. Occupational exposure to bloodborne pathogens; needlesticks and other sharps injuries; final rule. Federal Register 2001;66:5317–25. As amended from and includes 29 CFR Part 1910.1030. Occupational exposure to bloodborne pathogens; final rule. Federal Register 1991;56:64174–82. Available at [www.osha.gov/SLTC/dentistry/index.html](http://www.osha.gov/SLTC/dentistry/index.html).**

# References

- ◉ ***Occupational injury and illness recording and reporting requirements; Final Rule.*** Title 29 CFR Parts 1904 and 1952, Federal Register 66 (13): 5916-6135, January 19, 2001.
- ◉ ***OSHA Directive CPL 2-2.44D-Enforcement Procedures for the Occupational Exposure to Bloodborne Pathogens,*** November 5, 1999.
- ◉ ***OSHA Brochure, Medical and Dental Offices: A Guide to Compliance with OSHA Standards,*** 2003.

Table 1. Topics to be addressed for Guidelines for Infection Control in Dental Health-Care Settings, 2015

Topic	Current Infection Prevention Problem or Concern	Discussed in 2003	Recommended in 2003	What is planned
<b>Surgical Smoke</b>	Risk of occupational infection from smoke created during laser or electrosurgical procedures	Some viruses and bacteria detected in laser plumes	No recommendation—unresolved issue	Literature review and update
<b>Prions and Creutzfeldt-Jakob Disease</b>	Risk of disease transmission due to: -Pulpal tissue -Contaminated instruments	Special Consideration: Resistant to standard sterilization procedures	No recommendation—unresolved issue	Review and update of literature
<b>Burs and Endodontic Files</b>	Overarching issue: -Single vs. Repeated use -Risk of disease transmission	Special Consideration: Difficult to clean	No recommendation	Continue discussions with FDA Update Review of literature
<b>Methicillin-Resistant Staphylococcus Aureus (MRSA)</b>	Risk of disease transmission	Not covered in 2003 Guidelines	CDC Review published in 2008 <sup>3</sup> -Strict adherence to standard precautions	Review and update literature
<b>Clostridium difficile (C. diff)</b>	Risk of disease transmission	Not covered in 2003 Guidelines	Not addressed	Review guidelines and literature
<b>Double Gloving (for oral surgical procedures)</b>	Effectiveness in preventing disease transmission	-Perforation studies suggested additional protection from blood contact -Effectiveness in preventing disease transmission not demonstrated	No recommendation—unresolved issue	Review of literature
<b>Dental Unit Water Lines</b>	Frequency of monitoring	-Clinical monitoring of water quality can ensure that procedures are correctly performed and that devices are working in accordance with manufacturer's previously validated protocol -Lack of information to determine optimal frequency for each type of water maintenance system	Consult with manufacturer to determine best method for maintaining acceptable water quality ( $\leq 500$ CFU/mL) and recommended frequency of monitoring.	Review and update of literature Discussion with FDA and EPA
<b>Sterilizers</b>	Since 2003: -Guidelines and standards made additional recommendations (i.e. daily monitoring when processing multiple loads) -New classes of chemical indicators since 2003		Monitor at least weekly using biological indicators -Monitor each load with mechanical and chemical indicators	Review literature Review 2008 CDC guidelines Review ANSI/AAMI standards Consult with FDA



Thank you!!!