

Bloodborne Pathogens

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Bloodborne Pathogens: Objectives

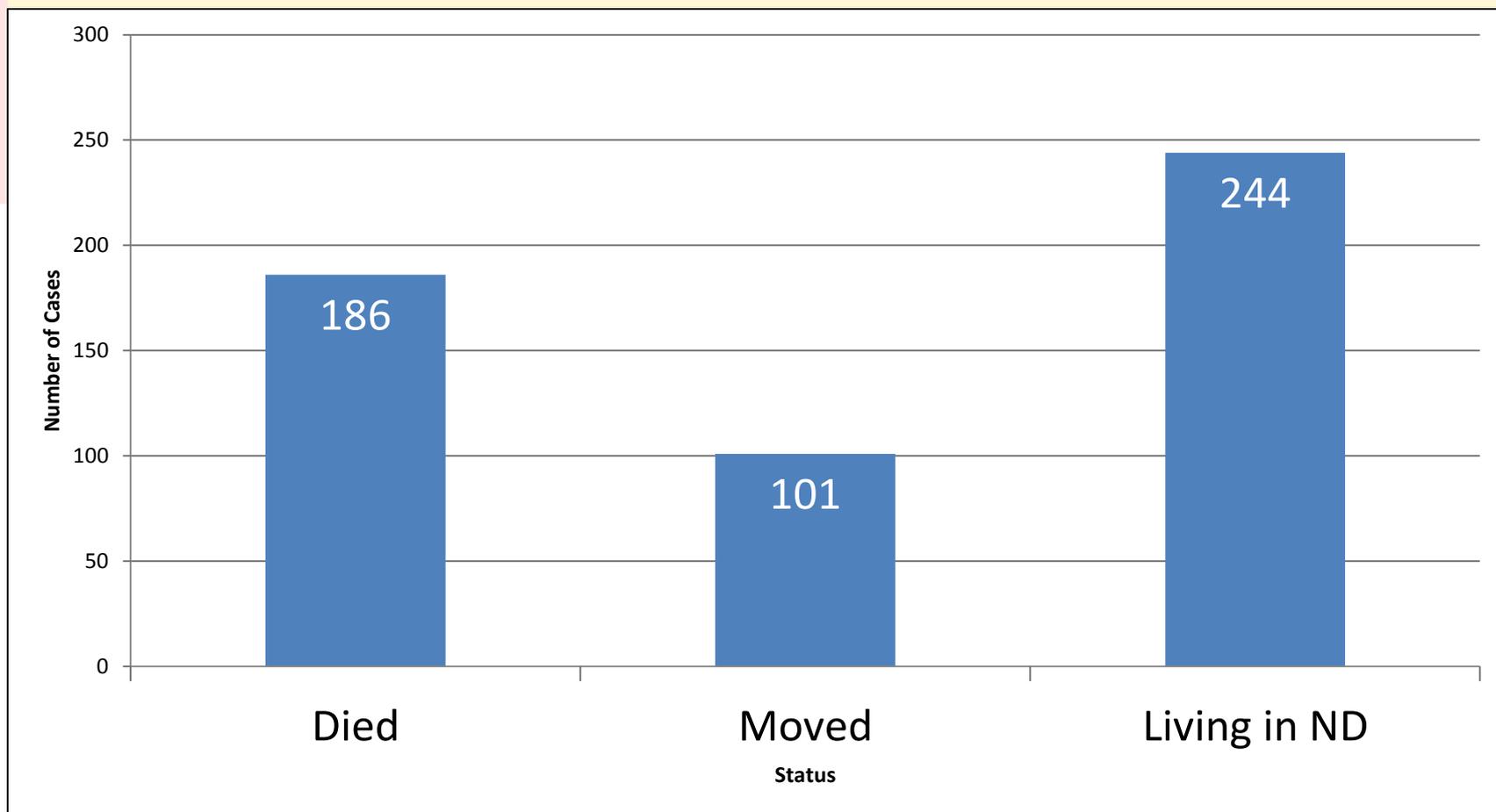
- Describe ND Statistics for HIV, HBV, HCV
- Define Bloodborne Pathogen
- Describe ND Laws Relating to Consent
- List 6 Steps of Postexposure prophylaxis
- Outline OSHA's Bloodborne Pathogens Standard

HIV/AIDS, Hepatitis B and Hepatitis C in North Dakota

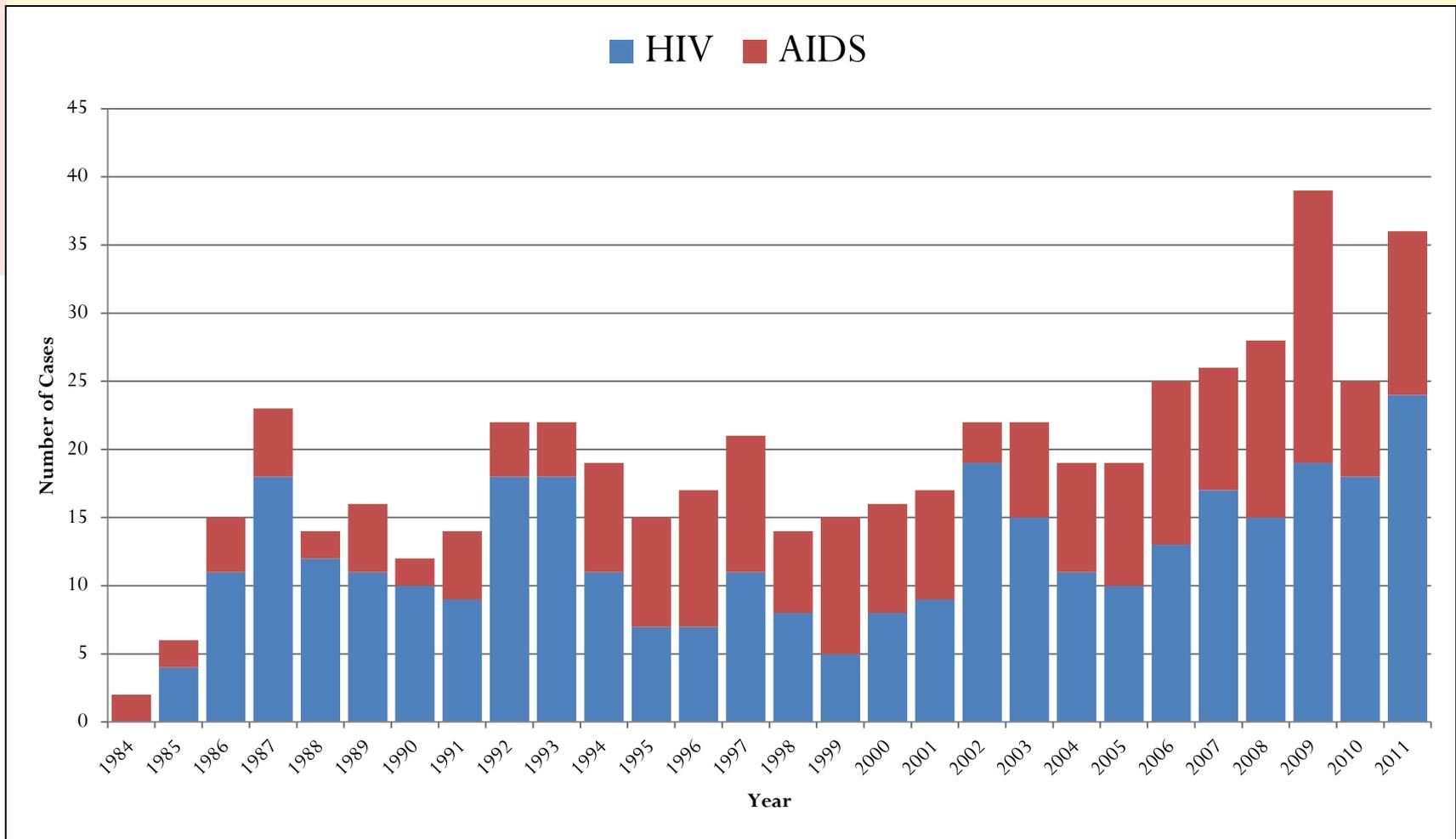


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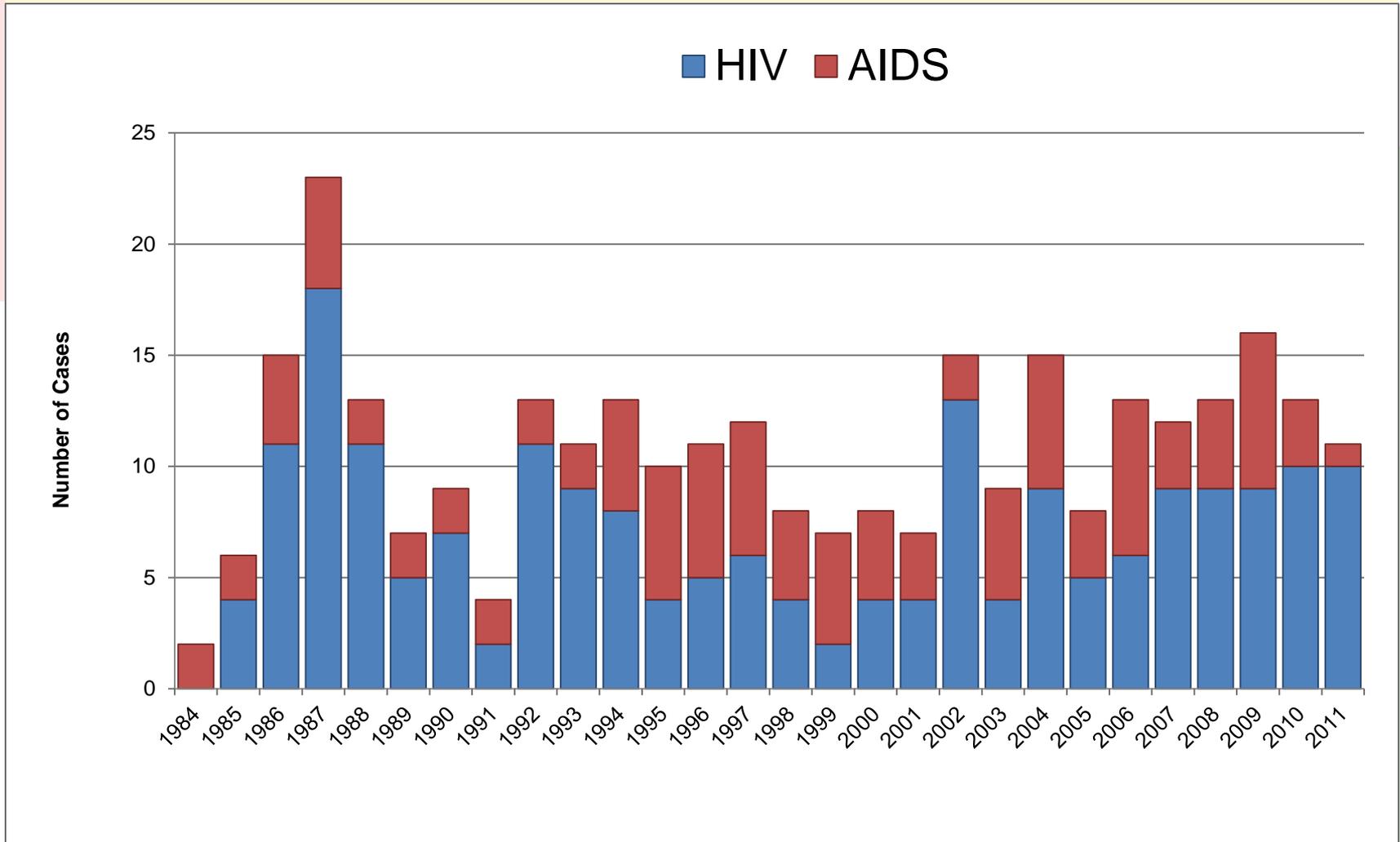
Cumulative HIV/AIDS cases reported in ND as of 12/31/2011, n=531



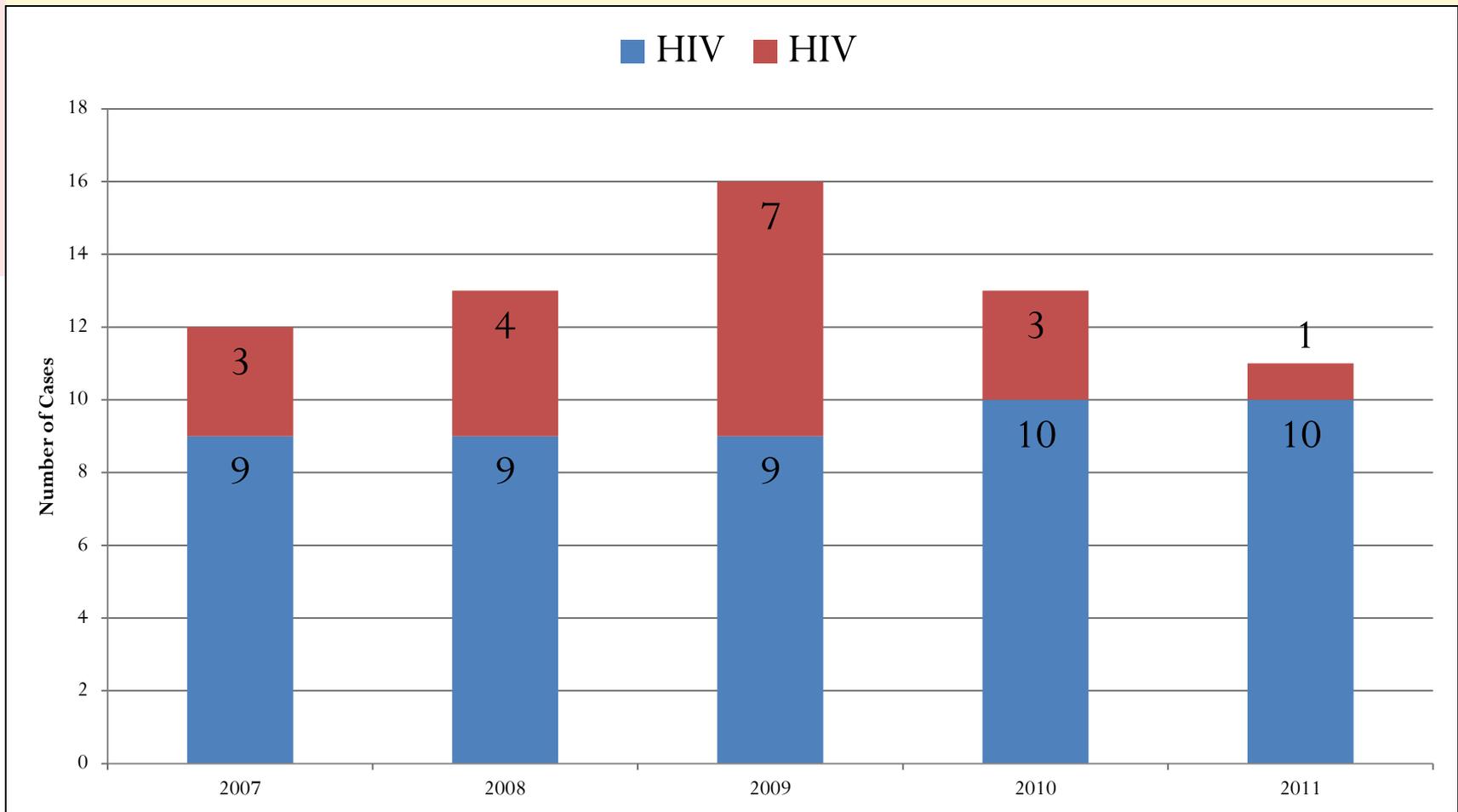
Annual Number of HIV/AIDS Cases Reported in ND, 1984-2011, n=531



New HIV/AIDS diagnosis, 1984-2011, n=304



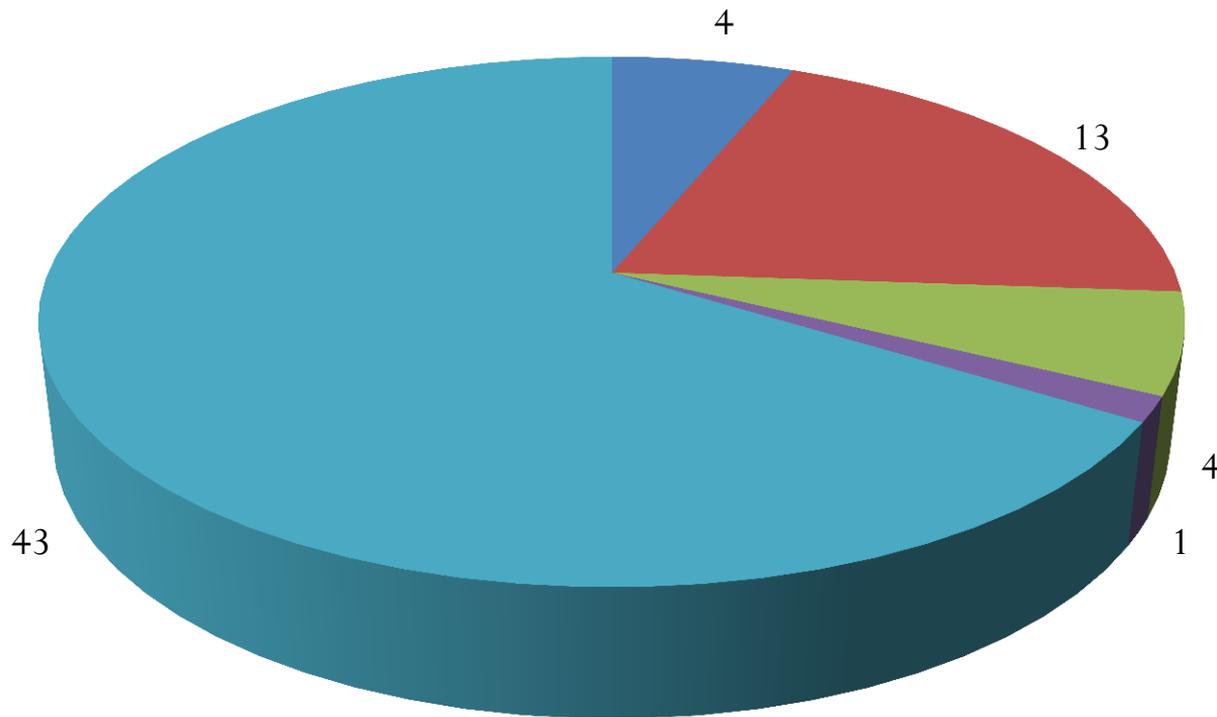
Annual Number of New HIV/AIDS Diagnoses in ND, 2007-2011, n=65



New HIV/AIDS Diagnoses in ND by Gender, 2007-2011, n=65

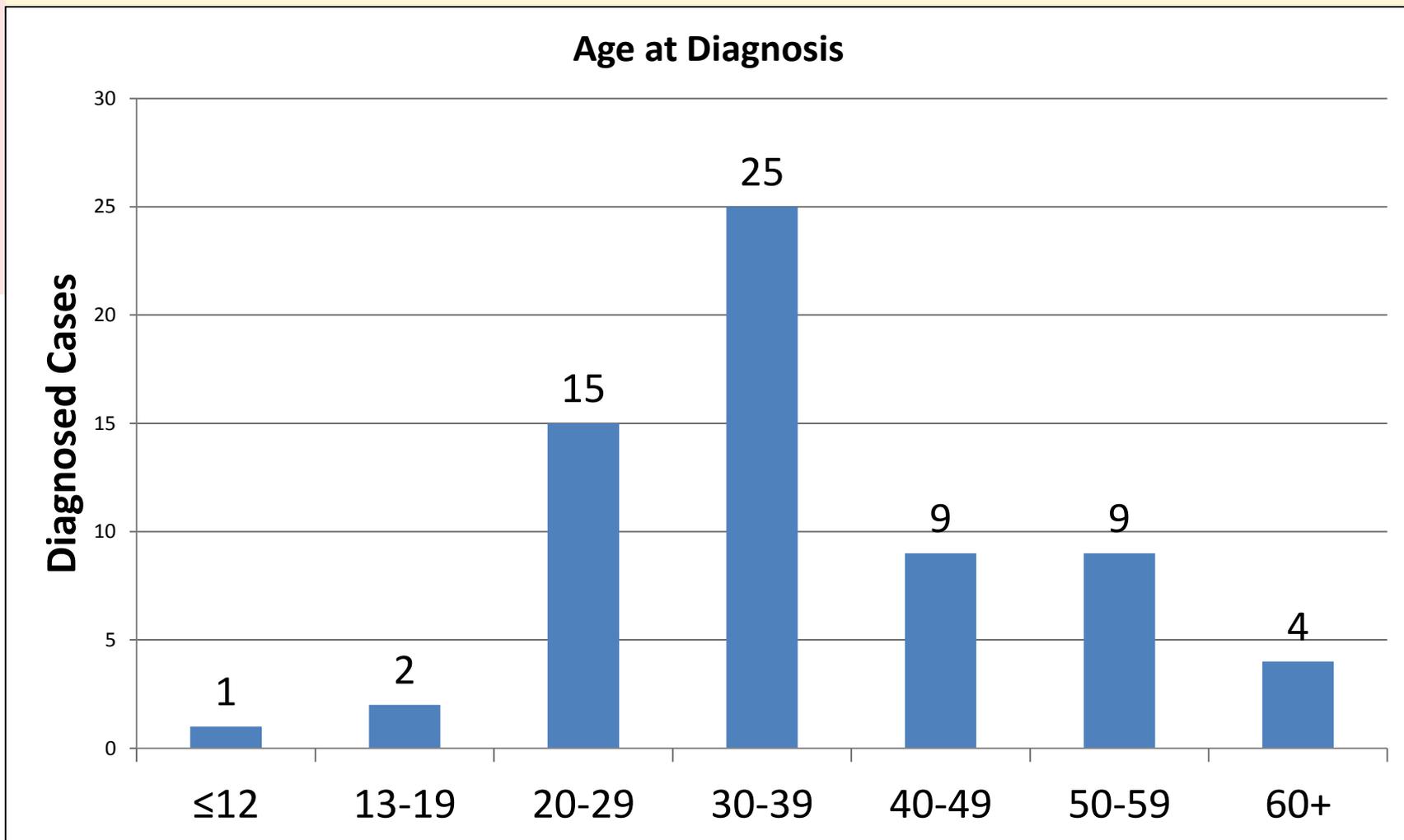


New HIV/AIDS Diagnoses in ND by Race/Ethnicity, 2007-2011, n=65

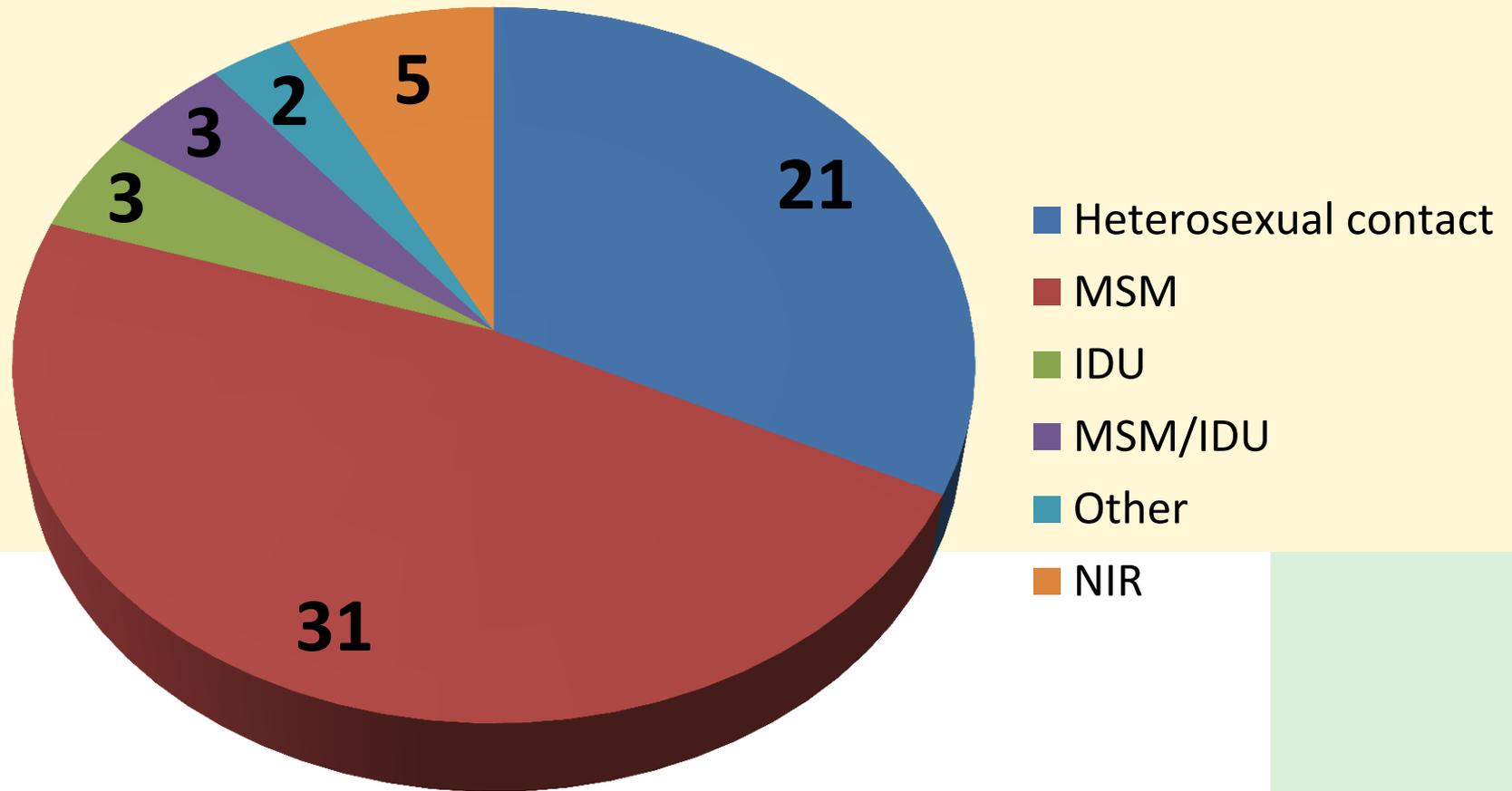


■ AI ■ Black ■ Hispanic ■ Asian/PI ■ White

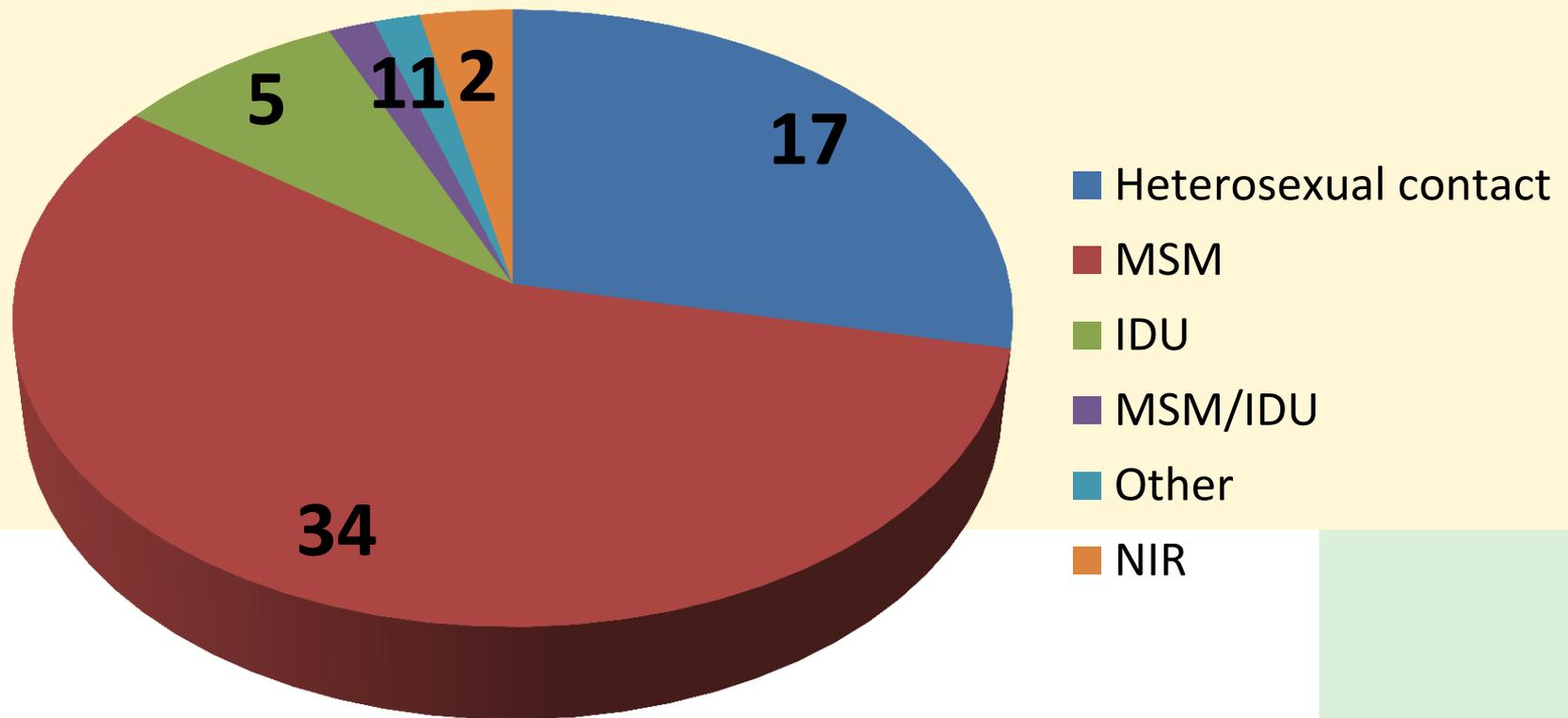
New HIV/AIDS Diagnoses in ND by Age Group, 2007-2011, n=65



Risk Factors Identified by New HIV/AIDS Diagnoses, 2007-2011, n=65



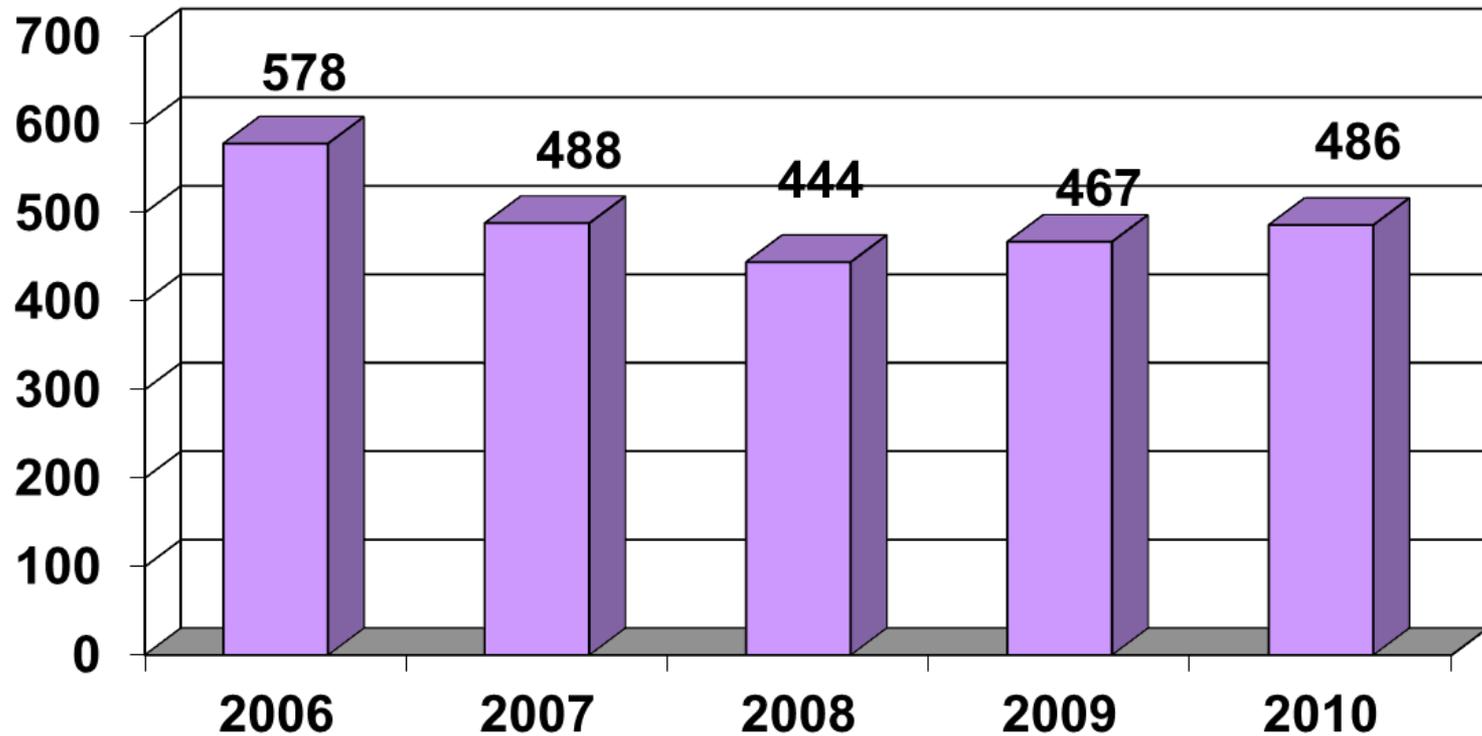
Risk Factors Identified by New HIV/AIDS Diagnoses, 2002-2006, n=60



Cases Reported to ND Department of Health 2010 Morbidity

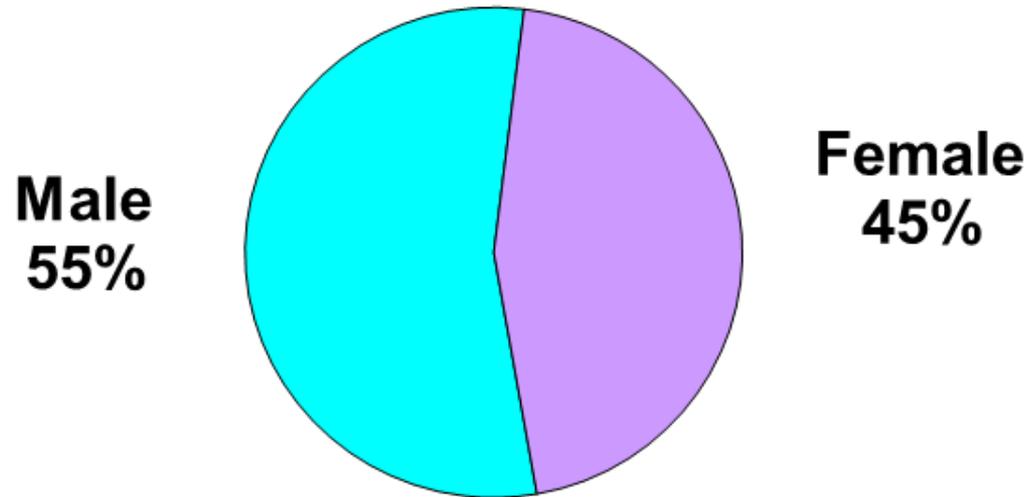
Outcome	HAV	HBV	HCV
Acute infections	4	0	0
Chronic infections	---	54	486

Reported Hepatitis C Cases* by Year North Dakota, 2006-2010



* Includes acute and “past or present” infections

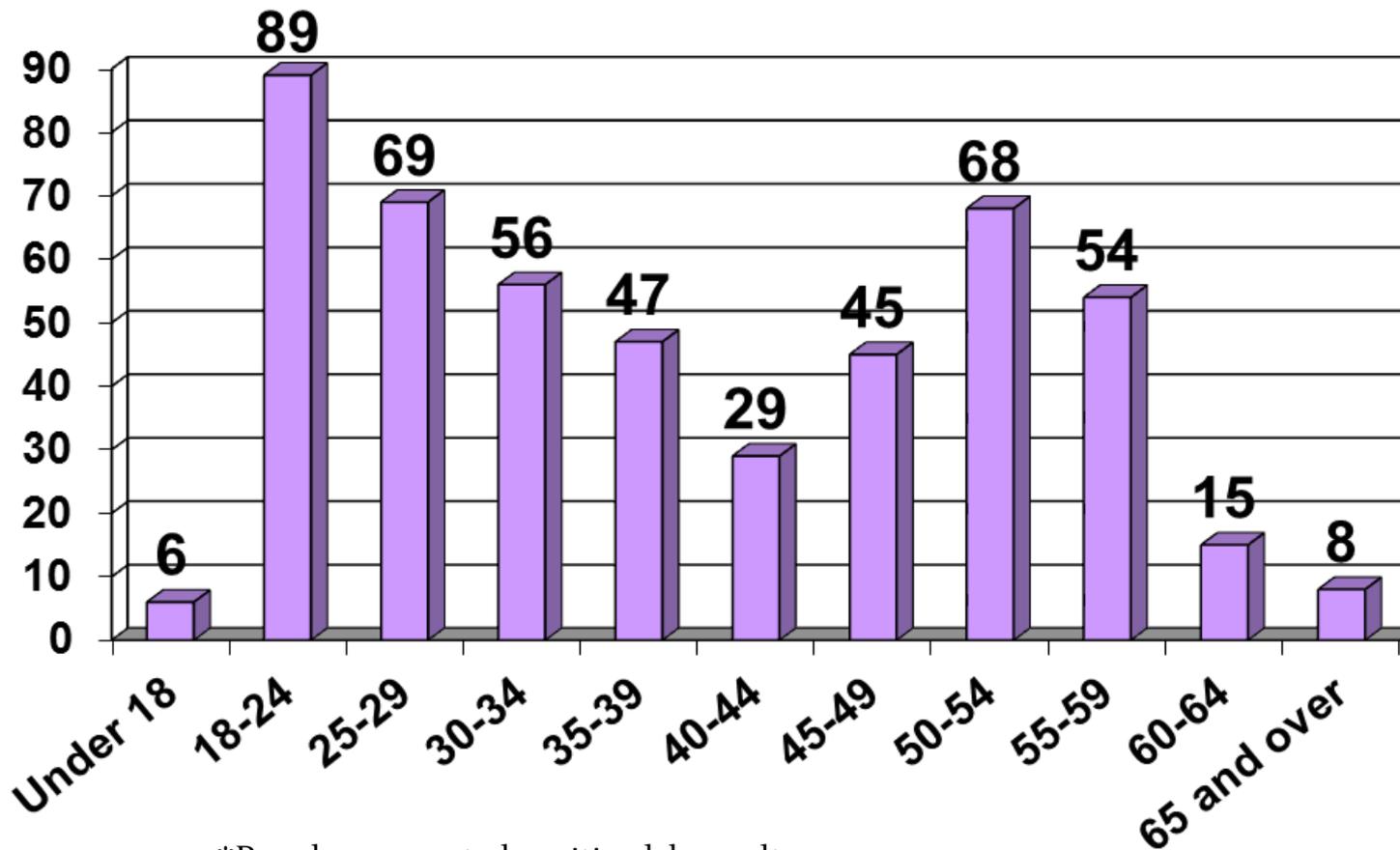
North Dakota Hepatitis C Cases* by Gender, 2010



*Based on reported positive lab result

N=486

North Dakota Hepatitis C Cases* by Age Group 2010

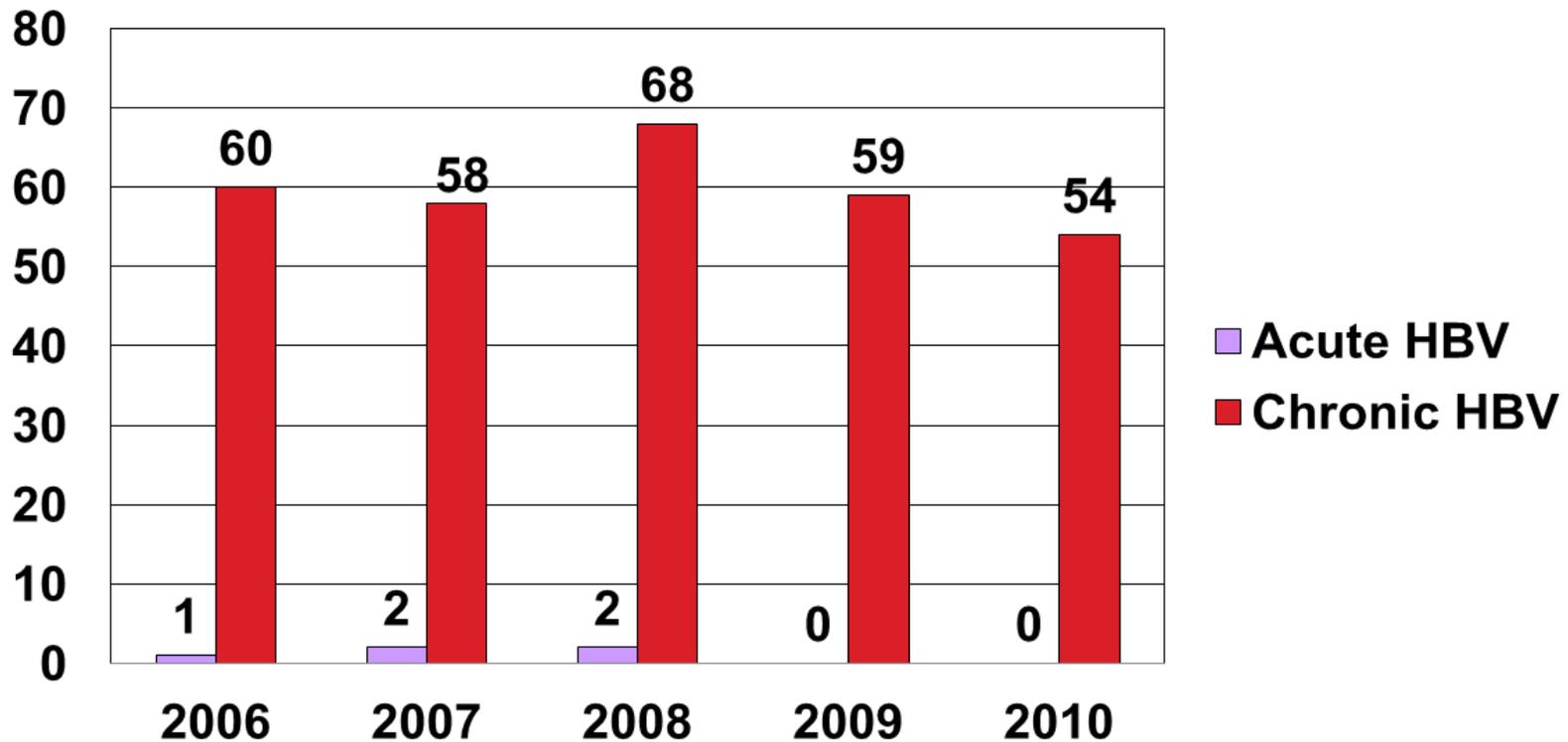


*Based on reported positive lab result

N=48

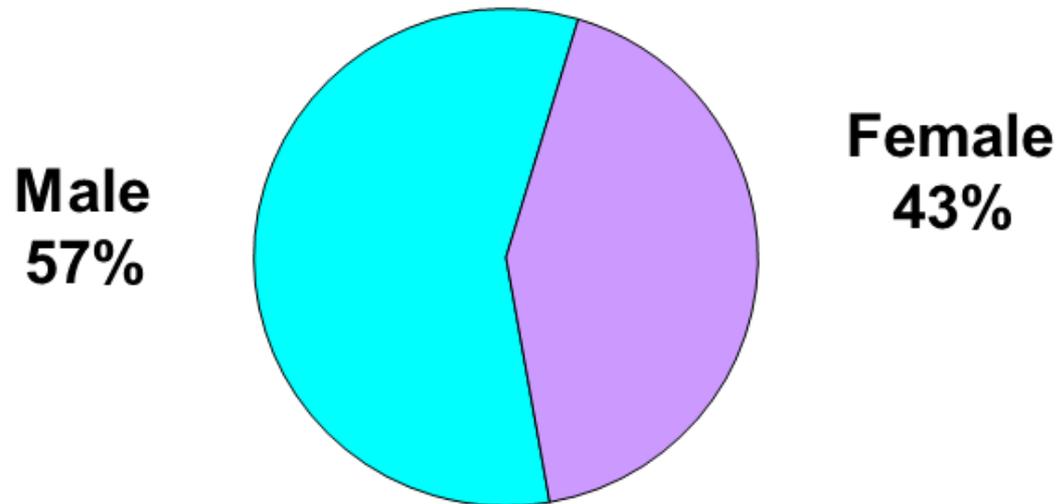
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Reported Hepatitis B Cases* by Year North Dakota, 2006-2010



*Based on reported positive lab result

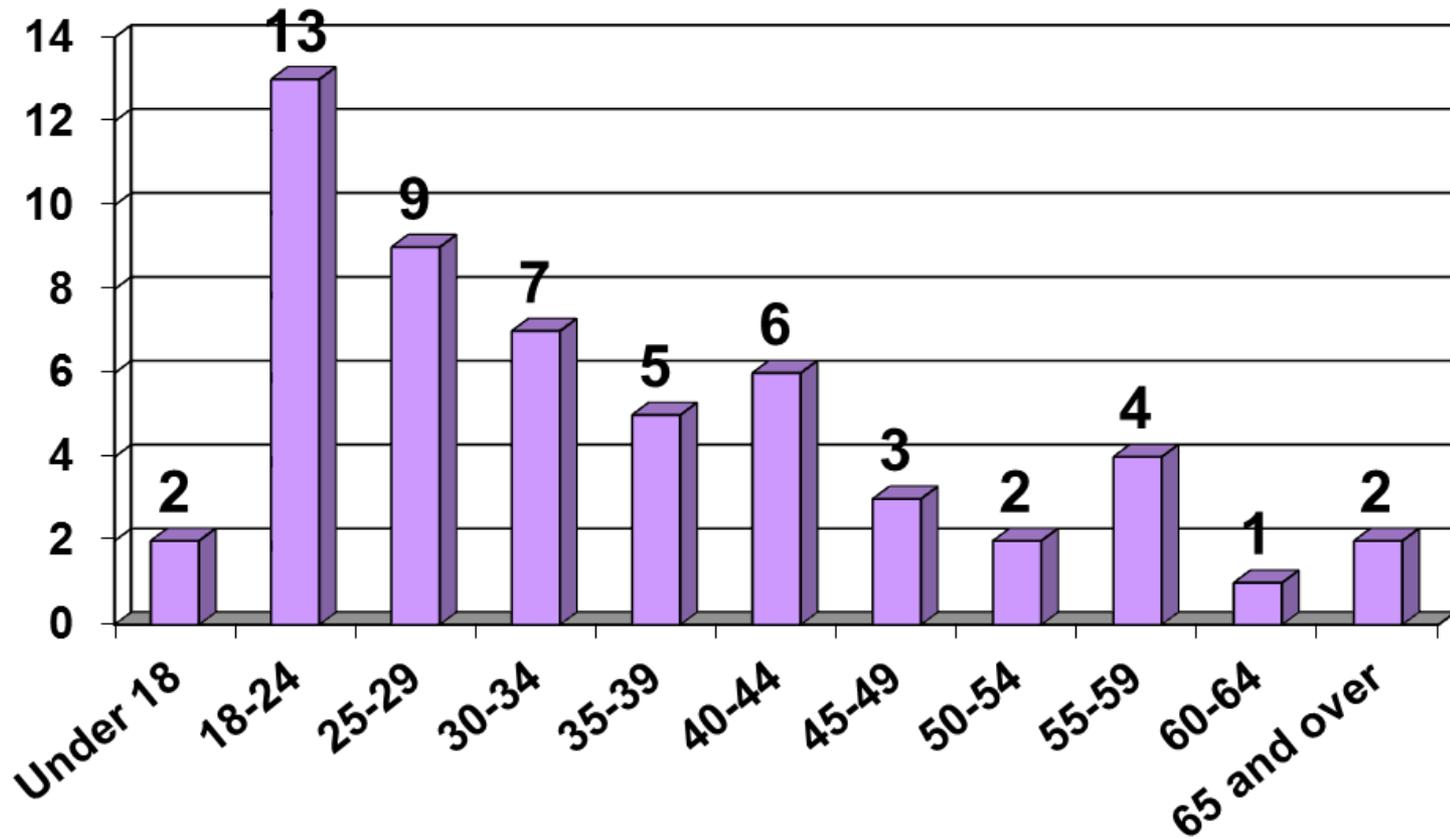
North Dakota Hepatitis B Cases* by Gender, 2010



*Based on reported positive lab result

N=54

North Dakota Hepatitis B Cases* by Age Group, 2010



*Based on reported positive lab result

N=54

Definition Bloodborne Pathogen and Testing Laws



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Bloodborne Pathogen Testing Laws

- Bloodborne Pathogen – means a microorganism that is present in human blood or in other bodily fluid or tissue which can cause disease in humans, including;
 - Hepatitis B virus
 - Hepatitis C virus
 - Human immunodeficiency virus (HIV)

Bloodborne Pathogen Testing Laws

- Informed Consent – means that the individual to be tested for bloodborne pathogens has been informed of the nature of the testing; and has granted permission to be tested.
 - You must have informed consent – written or oral.

Bloodborne Pathogen Testing Laws

- Exceptions to informed consent testing
 - If an individual who is a source of the exposure refuses consent and has had blood drawn already, that blood can be tested without consent.
 - If possible, consent should still be gotten.

Bloodborne Pathogen Testing Laws

- Exceptions to informed consent testing
 - If an individual who is the subject of exposure is incapable of giving informed consent, that consent may be obtained from the individual's personal representative.
 - Court ordered – the district court in the county where the alleged exposure occurred or in which the individual to be tested resides can issue an order directing the individual who was the source to be tested.

Bloodborne Pathogen Testing Laws

- Disclosure of test results
 - The results of bloodborne pathogen testing may be disclosed only to:
 - The individual tested
 - The exposed individual
 - The exposed individual's health care provider.

Bloodborne Pathogen Testing Laws

- Disclosure of test results
 - If the test results are disclosed to a law enforcement officer who was exposed, the officer may disclose the test results to any other law enforcement officer who had physical contact with the test subject.

Bloodborne Pathogen Testing Laws

- Penalty's
 - A person who knowingly discloses the results of a blood test in the violation of this chapter is guilty of a class C felony.
 - A person who knowingly engages in sexual activity and need-sharing activities without using proper precautions or fails to inform any sexual or needle-sharing partners of his or her positive HIV status is guilty of a class A felony which is punishable by 20 years imprisonment and/or a \$10,000 fine.

Bloodborne Pathogen Counseling

- Pre and post test counseling is not a requirement by law. However, it is strongly recommended!
- Test Results – how test results are given to an individual are up to the facility. However, it is strongly recommended results are given in person!

Postexposure Prophylaxis



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Postexposure Prophylaxis

- Step 1: Treat the Exposure Site
 - Use soap and water to wash exposed areas
 - Flush exposed mucous membranes with water
- Step 2: Report and Document
 - Report occupational exposures immediately
 - Document exposure

Postexposure Prophylaxis

- Step 3: Evaluate the Exposure
 - Type of body substance involved, the route, and severity of exposure
- Step 4: Evaluate the Exposure Source
 - Based on whether the source patient is known or unknown
 - Known: Test for HBsAg, HCV Antibody and HIV Antibody
 - Unknown: Evaluate the likelihood of high risk exposure

Postexposure Prophylaxis

- Step 5: Disease Specific PEP Management
- At this point, there are no recommendations for HCV PEP.

Recommended PEP for exposure to HBV

Treatment when source is found to be:				
Exposed Persons		HBsAg +	HBsAg-	Unknown or Not Tested
Unvaccinated		Administer one dose of HBIG and complete hepatitis B vaccine series	May initiate hepatitis B vaccine series	Initiate hepatitis B vaccine
Previously vaccinated	Known Responder (anti-HBs is adequate)	Test exposed person for anti-HBs 1. If adequate, no treatment. 2. If inadequate, administer a booster dose of hepatitis B vaccine.	No treatment	No treatment
	Known Non-Responder (anti-HBs inadequate)	Administer one dose of HBIG in addition to completing the hepatitis B vaccine series	No treatment	If known high-risk source, may treat as if source were HBsAg positive
	Response Unknown	Test exposed person for anti-HBs 1. If adequate, no treatment. 2. If inadequate, complete hepatitis B vaccine series.	No treatment	Test exposed person for anti-HBs 1. If adequate, no treatment. 2. If inadequate, hepatitis B vaccine booster dose

Postexposure Prophylaxis

- Step 5: Disease Specific PEP Management: HIV Exposures
- HIV PEP should be started immediately. If the delay lasts more than 24-36 hours, seek expert consultation. PEP should continue for 28 days.

Typical PEP options:

- A basic 2-drug regimen, appropriate for lower risk exposures.
- An expanded ≥ 3 drug regimen, for exposures that pose an increased risk for transmission.

Postexposure Prophylaxis

- Step 5: Disease Specific PEP Management

HIV PEP for Percutaneous Injuries

Infection Status of Source					
Exposure Type	HIV-Infected Class I (Asymptomatic HIV infection or known low HIV viral load (< 1,500 RNA copies/mL))	HIV-Infected Class 2 (Symptomatic HIV infection, AIDS, acute seroconversion, or known high HIV viral load)	Source of Unknown Status	Unknown Source	HIV-Negative
Less Severe <ul style="list-style-type: none"> • Solid Needle • Superficial injury 	Recommend basic 2-day PEP	Recommend expanded ≥ 3-drug PEP	Generally no PEP warranted; Consider basic 2-drug PEP for source with HIV risk factors	Generally no PEP warranted; Consider basic 2-drug PEP in settings where exposure to HIV-infected persons is likely	NO PEP warranted
More Severe <ul style="list-style-type: none"> • Large-bore, hollow needle • Deep Puncture • Visible blood on device • Needle used in artery or vein 	Recommend expanded ≥ 3-drug PEP	Recommend expanded ≥ 3-drug PEP	Generally no PEP warranted; Consider basic 2-drug PEP for source with HIV risk factors	Generally no PEP warranted; Consider basic 2-drug PEP in settings where exposure to HIV-infected persons is likely	NO PEP warranted

Postexposure Prophylaxis

- Step 5: Disease Specific PEP Management

HIV PEP for Mucous Membrane and Nonintact Skin Exposures

Infection Status of Source					
Exposure Type	HIV-Infected Class I (Asymptomatic HIV infection or known low HIV viral load (< 1,500 RNA copies/mL))	HIV-Infected Class 2 (Symptomatic HIV infection, AIDS, acute seroconversion, or know high HIV viral load)	Source of Unknown Status	Unknown Source	HIV-Negative
Small Volume • A few drops	Consider basic 2-day PEP	Recommend basic 2-drug PEP	Generally no PEP warranted	Generally no PEP warranted	NO PEP warranted
Large Volume • Large Blood Splash	Recommend basic 2-drug PEP	Recommend expanded ≥ 3-drug PEP	Generally no PEP warranted; Consider basic 2-drug PEP for source with HIV risk factors	Generally no PEP warranted; Consider basic 2-drug PEP in settings where exposure to HIV-infected persons is likely	NO PEP warranted

HIV PEP Postexposure Regimens

	Preferred	Alternatives	Agents Not Recommended
Basic Regimen: (2-drug)	<ul style="list-style-type: none"> Zidovudine (AZT) 300 mg twice daily + lamivudine (3TC) 150 mg twice daily or emtricitabine (FTC) 200 mg once daily Tenofovir (TDF) 300 mg once daily + lamivudine (3TC) 300 mg once daily or emtricitabine (FTC) 200 mg once daily 	<ul style="list-style-type: none"> Stavudine (d4T) + lamivudine (3TC) or emtricitabine (FTC) Didanosine (ddI) + lamivudine (3TC) or emtricitabine (FTC) 	<ul style="list-style-type: none"> nevirapine (NVP) delavirdine (DLV) abacavir (ABC) zalcitabine (ddC) Didanosine (ddI) + stavudine (d4T)
Expanded Regimens (3-drug)	<ul style="list-style-type: none"> Basic Regimen + lopinavir-ritonavir (LPV/r) 400/100 mg twice daily 	<ul style="list-style-type: none"> Basic + atazanavir-ritonavir (ATV/RTV) Basic + fosamprenavir-ritonavir (FRV/RTV) Basic + indinavir-ritonavir (IDV/RTV) Basic + saquinavir/ritonavir (SQV/RTV) Basic + nelfinavir (NFV) Basic + efavirenz (EFV) 	

- Side Effects: nausea, anemia, fatigue, increased bilirubin, jaundice, renal stones and more

Postexposure Prophylaxis

Step 6: Follow-Up

- HBV exposure follow-up testing and counseling
 - Test for anti-HBs 1-2 months after last dose of vaccine
 - Refrain from donating blood, plasma, organs, tissue or semen and use risk reduction methods such as late barriers during sex and not sharing injection equipment
- HCV exposure follow-up testing and counseling:
 - Repeat test for anti-HCV at least 4-6 months post exposure
 - Refrain from donating blood, plasma, organs, tissue or semen
- HIV exposure follow-up testing:
 - Repeat HIV-antibody testing at 6 weeks, 3 months and 6 months post exposure
 - If PEP is given, monitor for drug toxicity
 - Refrain from donating blood, plasma, organs, tissue or semen and use risk reduction methods such as late barriers during sex and not sharing injection equipment

Resources

- A Quick Guide to Postexposure Prophylaxis in the Health Care Setting:
<http://www.mpaetc.org/scripts/prodView.asp?idproduct=129>.
- **Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HIV and Recommendations for Postexposure Prophylaxis: September 30, 2005 / 54(RR09);1-17**
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5409a1.htm>
- **Updated U.S. Public Health Service Guidelines for the Management of Occupational Exposures to HBV, HCV, and HIV and Recommendations for Postexposure Prophylaxis, June 29, 2001 / 50(RR11);1-42:**
<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5011a1.htm>
- **National Clinicians' Postexposure Prophylaxis Hotline (PEpline): 888-448-4911, www.nccc.ucsf.edu/about_nccc/pepline**
- NDDoH Percutaneous/Mucous Membrane Exposure Fact Sheet:
www.ndhealth.gov/Disease/Documents/faqs/NeedleStick.pdf
- PEP Pocket Guide:
www.faetc.org/PDF/Pocket_Guides/PEP_Drug_Card_Letter_Size.pdf

Contact Information

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Bloodborne Pathogens



Introduction

- ✎ Approximately 5.6 million workers in health care and other facilities are at risk of exposure to bloodborne pathogens such as human immunodeficiency virus (HIV – the virus that causes AIDS), the hepatitis B virus (HBV), and the hepatitis C virus (HCV)
- ✎ OSHA's Bloodborne Pathogens standard prescribes safeguards to protect workers against the health hazards from exposure to blood and other potentially infectious materials, and to reduce their risk from this exposure

Who is covered by the standard?

-  All employees who could be “reasonably anticipated” as the result of performing their job duties to face contact with blood and other potentially infectious materials
-  “Good Samaritan” acts such as assisting a co-worker with a nosebleed would not be considered occupational exposure

Some Workers Who are at Risk

-  Physicians, nurses and emergency room personnel
-  Orderlies, housekeeping personnel, and laundry workers
-  Dentists and other dental workers
-  Laboratory and blood bank technologists and technicians
-  Medical examiners
-  Morticians
-  Law enforcement personnel
-  Firefighters
-  Paramedics and emergency medical technicians
-  Anyone providing first-response medical care
-  Medical waste treatment employees
-  Home healthcare workers

How does exposure occur?

- ✎ Most common: needlesticks
- ✎ Cuts from other contaminated sharps (scalpels, broken glass, etc.)
- ✎ Contact of mucous membranes (for example, the eye, nose, mouth) or broken (cut or abraded) skin with contaminated blood

Exposure Control Plan

- ✎ Identifies jobs and tasks where occupational exposure to blood or other potentially infectious material occurs
- ✎ Describes how the employer will:
 - 👤 Use engineering and work practice controls
 - 👤 Ensure use of personal protective equipment
 - 👤 Provide training
 - 👤 Provide medical surveillance
 - 👤 Provide hepatitis B vaccinations
 - 👤 Use signs and labels

Exposure Control Plan

-  Written plan required
-  Plan must be reviewed at least annually to reflect changes in:
 -  tasks, procedures, or assignments which affect exposure, and
 -  technology that will eliminate or reduce exposure
-  Annual review must document employer's consideration and implementation of safer medical devices
-  Must solicit input from potentially exposed employees in the identification, evaluation and selection of engineering and work practice controls
-  Plan must be accessible to employees

Universal Precautions

-  Treat all human blood and certain body fluids as if they are infectious
-  Must be observed in all situations where there is a potential for contact with blood or other potentially infectious materials

Engineering and Work Practice Controls

- ✎ These are the primary methods used to control the transmission of HBV and HIV
- ✎ When occupational exposure remains after engineering and work practice controls are put in place, personal protective equipment (PPE) must be used

Engineering Controls

These controls reduce employee exposure by either removing the hazard or isolating the worker.

Examples:

- ✎ Sharps disposal containers
- ✎ Self-sheathing needles
- ✎ Safer medical devices
 - ⊕ Needleless systems
 - ⊕ Sharps with engineered sharps injury protections



Safer Medical Devices

-  *Needless Systems:* a device that does not use needles for the collection or withdrawal of body fluids, or for the administration of medication or fluids
-  *Sharps with Engineered Sharps Injury Protections:* a non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with a built-in safety feature or mechanism that effectively reduces the risk of an exposure incident

Work Practice Controls

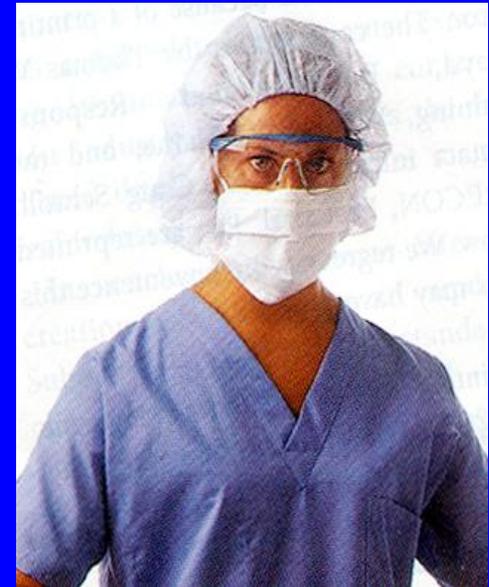
These controls reduce the likelihood of exposure by altering how a task is performed. Examples:

- ✎ Wash hands after removing gloves and as soon as possible after exposure
- ✎ Do not bend or break sharps
- ✎ No food or smoking in work areas



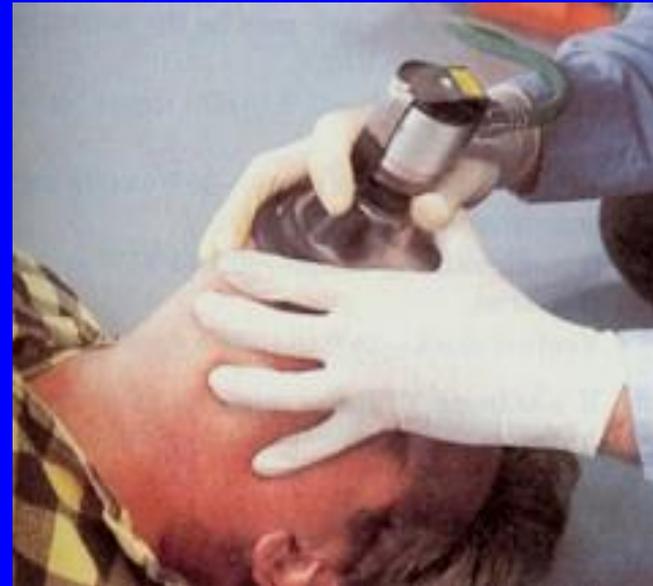
Personal Protective Equipment

- ✎ Specialized clothing or equipment worn by an employee for protection against infectious materials
- ✎ Must be properly cleaned, laundered, repaired, and disposed of at no cost to employees
- ✎ Must be removed when leaving area or upon contamination



Examples of PPE

- ✎ Gloves
- ✎ Gowns
- ✎ Face shields
- ✎ Eye protection
- ✎ Mouthpieces and resuscitation devices



Housekeeping

Must develop a written schedule for cleaning and decontamination at the work site based on the:

-  Location within the facility
-  Type of surface to be cleaned
-  Type of soil present
-  Tasks or procedures being performed

Housekeeping (cont'd)

Work surfaces must be decontaminated with an appropriate disinfectant:

- ✎ After completion of procedures,
- ✎ When surfaces are contaminated, and
- ✎ At the end of the work shift



Regulated Waste

Must be placed in closeable, leak-proof containers built to contain all contents during handling, storing, transporting or shipping and be appropriately labeled or color-coded.



Laundry

- ✎ Handle contaminated laundry as little as possible and use PPE
- ✎ Must be bagged or containerized at location where used
- ✎ No sorting or rinsing at location where used
- ✎ Must be placed and transported in labeled or color-coded containers



Hepatitis B Vaccination Requirements

- ✎ Must make available, free of charge at a reasonable time and place, to all employees at risk of exposure within 10 working days of initial assignment unless:
 - ⊕ employee has had the vaccination
 - ⊕ antibody testing reveals immunity
- ✎ The vaccination must be performed by a licensed healthcare professional



Hepatitis B Vaccination Requirements (cont'd)

- ✎ Must be provided even if employee initially declines but later decides to accept the vaccination
- ✎ Employees who decline the vaccination must sign a declination form
- ✎ Employees are not required to participate in antibody prescreening program to receive vaccination series
- ✎ Vaccination booster doses must be provided if recommended by the U.S. Public Health Service

What to do if an exposure occurs?

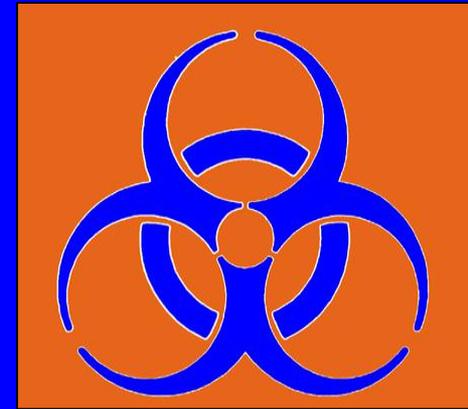
- ✎ Wash exposed area with soap and water
- ✎ Flush splashes to nose, mouth, or skin with water
- ✎ Irrigate eyes with water or saline
- ✎ Report the exposure
- ✎ Direct the worker to a healthcare professional

Post-Exposure Follow-Up

-  Document routes of exposure and how exposure occurred
-  Record injuries from contaminated sharps in a sharps injury log, if required
-  Obtain consent from the source individual and the exposed employee and test blood as soon as possible after the exposure incident
-  Provide risk counseling and offer post-exposure protective treatment for disease when medically indicated in accordance with current U.S. Public Health Service guidelines
-  Provide written opinion of findings to employer and copy to employee within 15 days of the evaluation

Biohazard Warning Labels

- ✎ Warning labels required on:
 - ⊗ Containers of regulated waste
 - ⊗ Refrigerators and freezers containing blood and other potentially infectious materials
 - ⊗ Other containers used to store, transport, or ship blood or other potentially infectious materials
- ✎ Red bags or containers may be substituted for labels



Training Requirements

- ✎ Provide at no cost to employees during working hours
- ✎ Provide at time of initial assignment to a job with occupational exposure and at least annually thereafter
- ✎ Additional training needed when existing tasks are modified or new tasks are required which affect the worker's occupational exposure
- ✎ Maintain training records for 3 years



Training Elements

-  Copy of the standard
-  Modes of transmission
-  Site-specific exposure control plan
-  Hazard recognition
-  Use of engineering controls, work practices and PPE
-  Live question and answer sessions

Medical Recordkeeping Requirements

- ✎ Employee's name and social security number
- ✎ Employee's hepatitis B vaccination status
- ✎ Results of examinations, medical testing, and post-exposure evaluation and follow-up procedures
- ✎ Health care professional's written opinion
- ✎ Information provided to the health care professional
- ✎ Employee medical records must be kept confidential and not disclosed or reported without the employee's written consent (unless required by law)
- ✎ Medical records must be maintained for duration of employment plus 30 years according to OSHA's rule governing access to employee exposure and medical records

Sharps Injury Log

- ✍️ Employers must maintain a sharps injury log for the recording of injuries from contaminated sharps
- ✍️ The log must be maintained in a way that ensures employee privacy and must contain, at a minimum:
 - 📍 Type and brand of device involved in the incident
 - 📍 Location of the incident
 - 📍 Description of the incident

Summary

- ✎ OSHA's Bloodborne Pathogens standard prescribes safeguards to protect workers against the health hazards from exposure to blood and other potentially infectious materials, and to reduce their risk from this exposure
- ✎ Implementation of this standard not only will prevent hepatitis B cases, but also will significantly reduce the risk of workers contracting AIDS, Hepatitis C, or other bloodborne diseases