



Preventing Employee Infections

Basics of Infection Prevention 2-Day Mini Course May 2018



OBJECTIVES

At the conclusion of this presentation, participants will be able to:

- Discuss vaccines offered to healthcare workers in long-term care
- Describe the relationship between Infection Prevention and Employee Health
- Understand the implications of drug diversion with regard to infection transmission and outbreaks
- Discuss two risks associated with unsafe injection practices
- List three safe injection practices
- List two bloodborne pathogens and two ways to protect healthcare workers
- Discuss two risk strategies to prevent the spread of aerosol transmissible diseases



EMPLOYEE HEALTH

EMPLOYEE WELLNESS



HEALTHCARE WORKERS

Carrier of Infection to Residents

Recipient of Infection from Residents



INFECTION PREVENTION AND EMPLOYEE HEALTH









EMPLOYEE HEALTH RESPONSIBILITIES





EMPLOYEE HEALTH RESPONSIBILITIES





IMMUNIZATIONS





HEALTHCARE WORKER (HCW)* IMMUNIZATION *ALSO REFERRED TO AS HEALTH CARE PERSONNEL (HCP)



Morbidity and Mortality Weekly Report November 25, 2011

Immunization of Health-Care Personnel

Recommendations of the Advisory Committee on Immunization Practices (ACIP)



Continuing Education Examination available at http://www.cdc.gov/mmwr/cme/conted.html



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



VACCINATIONS FOR EMPLOYEES

According to Section 5199 of Title 8³:

- All employees with potential occupational exposure to ATDs will be offered appropriate vaccinations at no cost to the employee upon hire or 10 working days prior to performing tasks determined to be at risk
 - Vaccinations are to be given to employee at a time and place convenient to the employee
 - Facilities to cover the cost of employee vaccinations



HEALTHCARE WORKER (HCW) IMMUNIZATION

VACCINE	Indications	Schedule
Hepatitis B	No documented evidence of a complete Hep B vaccine series, or no up-to-date blood test demonstrating immunity to Hepatitis B (i.e., no serologic evidence of immunity or prior vaccination	 3-dose series #1 now #2 in 1 month #3 approximately 5 months after #2 Anti-HBs serologic test 1-2 months after dose #3
Influenza	All employees	1 dose annually
MMR (Measles, Mumps, Rubella)	Employees born in 1957 or later and have not had the MMR vaccine or who don't have an up-to-date blood test indicating immunity to Rubella	• 1 dose
Varicella (Chickenpox)	Employees who have not had Varicella, Varicella vaccine, or who don't have an up-to-date blood test that shows immunity to Varicella (i.e., no serologic evidence of immunity or prior vaccination)	 2 doses, 4 weeks apart
Tdap (Tetanus, Diphtheria, Pertussis)	Employees who have not received Tdap previously (regardless of when previous dose of Td was received	 1 dose Td boosters every 10 years thereafter Pregnant HCWs – 1 dose during each pregnancy
Meningococcal	Employees who are routinely exposed to isolates of <i>N. meningitidis</i>	• 1 dose

https://www.cdc.gov/vaccines/adults/rec-vac/hcw.html



HEALTHCARE WORKER (HCW) IMMUNIZATION: HEPATITIS B



Hepatitis B

Hepatitis B

- Serious disease
- Caused by Hepatitis B virus (HBV)
- Attacks the liver
- Can cause chronic illness, cirrhosis of liver, liver cancer, liver failure, death
- Spread by blood-to-blood contact
- Symptoms:
 - Jaundice
 - Yellowing of eyes
 - Dark urine
 - Abdominal pain, nausea
- Fatigue

Prevention

- Hepatitis B vaccine
 - 3 doses



HEALTHCARE WORKER (HCW) IMMUNIZATION: INFLUENZA



Influenza

Influenza (flu)

- Very contagious respiratory illness
- Caused by Influenza viruses
 - Infect nose, throat, lungs
 - Cause mild to severe illness, sometimes death
- Spread by droplets
- Symptoms:
 - Fever
 - Chills
 - Cough
 - Sore throat
 - Runny or stuffy nose
 - Headache
 - Muscle or body aches
- Tiredness

• Vomiting and/or diarrhea Prevention

- Annual flu vaccine
- Safe; minimal side effects



HEALTHCARE WORKER (HCW) IMMUNIZATION: MEASLES, MUMPS, RUBELLA (MMR)



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Measles

Measles

- Very contagious disease
- Caused by Measles virus
- Spread by aerosols from coughing, sneezing
- Symptoms:
 - Fever
 - Cough
 - Runny nose
 - Red eyes
 - Rash (starts at head)

Prevention

- MMR vaccine (Measles, Mumps, Rubella)
- Safe and effective
- 2 doses 97% effective
- 1 dose 93% effective



HEALTHCARE WORKER (HCW) IMMUNIZATION: VARICELLA (CHICKENPOX)



Varicella

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Varicella

- Very contagious disease
- Caused by Varicella-zoster virus
- Spread by aerosols from coughing, sneezing
- Symptoms:
 - Blister-like rash
 - Itching
 - Tiredness
 - Fever
- Serious complications Prevention
- Varicella vaccine
 - Varivax
 - ProQuad (MMRV)
 - Children only



HEALTHCARE WORKER (HCW) IMMUNIZATION: TETANUS, DIPHTHERIA, PERTUSSIS (TDAP)



Tetanus

- Caused by *Clostridium tetani* bacteria
- Spread by spores entering body through broken skin (e.g., needlestick)
- Symptoms:
 - Jaw cramping
 - Muscle spasms, often in stomach
 - Trouble swallowing
 - Seizures
 - Headache
- Fever and sweating Prevention
- Tdap vaccine (Tetanus, Diphtheria, Pertussis)



HEALTHCARE WORKER (HCW) IMMUNIZATION: MENINGOCOCCAL



Meningococcal

Meningococcal

- Caused by *Neisseria meningitidis* bacteria
- Spread by exchange of respiratory and throat secretions
- Illnesses are often severe and deadly
- Infections of
 - Lining of the brain and spinal cord
- Bloodstream
 Prevention
- Meningococcal vaccine
 - Meningococcal conjugate
 - Serogroup B meningococcal



EMPLOYEE EXPOSURE INVESTIGATIONS

Warranted when staff are exposed to infectious diseases

- Unprotected inadvertent exposure
- Evaluate type of exposure and risk of transmission
- Contact list of exposed staff
- Evaluate need for post-exposure management dependent on infection or disease
 - Prophylaxis
 - Vaccination
 - TB skin testing
- Determine if local public health or state should be notified





WHAT IS DRUG DIVERSION?

DRUG DIVERSION IN HOSPITALS BY Professionals

the illegal distribution or abuse of prescription drugs or their use for unintended purposes

kription Medical EVE TABLET BY ITH EVERY DAY Refills 4 times

rugrehablorg

Drug Diversion is a Multi-Victim Crime

Employee Risks:

- Health morbidity and death Progression to illicit substances
- **Risky** behaviors
- Incarceration
- Loss of employment Revocation of license

Patient Risks:

- Lack of pain control
- Infection risk
- Care by an impaired employee

Health System Risks:

- Patient harm -- CDC estimates ~30,000 people exposed to Hep C in last decade by infected hospital workers using narcotics intended for patients.
- Civil and regulatory liability Reputation and brand at risk

DRUG DIVERSION AND INFECTION

DRUG DIVERSION* SPREADS INFECTION FROM HEALTHCARE PROVIDERS TO PATIENTS

present in the patient care environment

EXPOSURE OF PATIENT

results from use of contaminated drug or equipment for patient injection or infusion

*Drug diversion occurs when prescription medicines are obtained or used illegally by healthcare providers. FOR MORE INFORMATION, VISIT CDC.GOV/INJECTIONSAFETY/DRUGDIVERSION

HEALTHCARE PROVIDER

with Hepatitis C or other

bloodborne infection

tampers with injectable drug

U.S. OUTBREAKS ASSOCIATED WITH DRUG DIVERSION BY HEALTHCARE PROVIDERS, 1983-2013

https://www.cdc.gov/injectionsafety/drugdiversion/drug-diversion-2013.html

THREE STORIES

Nursing home worker accused of drug theft Suspect diverted painkilling medications from patients, Altoona police say

An astute nurse-trainee ultimately reported healthcare provider drug diversion.

The nurse trainee said when she worked with the nurse, residents complained of pain even after she gave them their medication.

But when training with other nurses, the trainee said the same residents were not complaining of pain after receiving pain medication.

An investigation showed that instead of giving residents scheduled doses of hydrocodone or Percocet, the nurse was giving them Tylenol.

She was charged with 11 felony and misdemeanor charges. If convicted of the felony charges, she could be sentenced to up to 16 years in prison.

THREE STORIES

ROAD TO RUIN: A NURSE'S STORY OF ADDICTION

"It just happened. But once it did, it was full-blown. There's no other way to describe it," he said of his addiction."

To extract the drugs, he stole syringes from the hospital, and filled them from drug vials. To cover up his theft, he smeared Krazy Glue over the hole in the container's packaging, according to court testimony. He said he didn't get high at work — that came later, in private.

Court testimony revealed that he would use his personal password to gain access to the machine, take the drugs, and replace them with saline solution using a syringe.

Most of his friends didn't know he'd become addicted, nor did his wife, even when he suffered withdrawals as he attempted to become sober shortly before he was found out.

THREE STORIES

My Story: How one Percocet Prescription Triggered my Addiction

"It all started with a Percocet prescription 4 years ago" following a lumbar puncture.

He was an experienced nurse and was not questioned when asking another nurse to witness a narcotic waste in Pyxis – after which he pocketed the excess medication.

Eventually he moved to stronger oral opioids as the Percocet was not longer giving the same feeling, and when those no longer helped then eventually to injectable narcotics. He needed greater amounts and became reckless with his diverting. **"I became preoccupied with obtaining opioids, and patient care took a back burner."**

He became even more reckless knowing he would soon be found out – and he was. He was called into his manager's office; his lies and excuses were not believed and he was terminated and reported to the state board of nursing.

"It was at this point that the slippery slope became a lot steeper. I was crippled with fear of losing my nursing license, family, friends, and girlfriend."

He got another job – before the board caught up with him – and began diverting opioids, moving from Morphine to Dilaudid in quantities he knew would be discovered but without caution, and he was caught.

The self-deception includes thinking his patients were not harmed, either by his impaired behavior at work, lack of receiving the pain medication they needed or contamination of the medication.

STRATEGIES TO PREVENT DRUG DIVERSION

Drug diversion monitoring program

- Include a narcotic log
- Monthly statistical comparison
- Anomalous number of onetime orders for a particular drug recorded by single user

Train staff

- Requirements to report misconduct
- What constitutes "significant loss" of medication

Establish environmental controls

- Medication storage
- Who has access
- How to handle unused medications

Do not turn a blind-eye

- Staff don't want to get a colleague in trouble
- Remember the consequences: Inaction can lead to permanent harm or death

STRATEGIES TO PREVENT DRUG DIVERSION – EARLY DETECTION

Look for the red flags before the narcotics counts are "Off"

- Train staff to know the signs and behaviors of impairment
 - Unusual behavior by colleagues
 - Forgetful, unpredictable behavior
 - Lack of concentration
 - Frequent illness or physical complaints
 - Elaborate excuses for things
 - Picking up extra on-call shifts
 - Labile mood with unexplained anger and overreaction to criticism
 - Increase in unexplained tardiness or absenteeism
 - Reports of items, e.g., sharps containers, being out of place
 - Large numbers of rejected verbal orders
 - Complaints of unrelieved pain by residents

If you see something, say something!

Preventing Drug Diversion: Best Practices

Staff Prevention Strategies:

- Only remove medications for your assigned patients
- Only remove current dose of medication for your patient
- Properly document medication administration and pain scores
- · All wastes of medications must have a documented witness
- · Don't be a "virtual witness" to medication wasting
- Don't loan your ID badge or pass-codes to anyone
- Return unused medications according to procedure
- Report medication discrepancies promptly to pharmacy (on-line reporting available)
- Report attempted inappropriate access to medications to pharmacy
- · Report witnessed or suspected medication diversion to pharmacy

RESPONSE TO DRUG DIVERSION EVENTS

Assess harm to residents

- Consult with public health officials when tampering with injectable medication is suspected
- Promptly report event to law and other enforcement agencies (DEA, FDA)

SAFE INJECTION PRACTICES

DISCUSSION QUESTIONS

- What do you think "safe injection practices" means?
- What would you describe as an unsafe injection practice?
- What do you think could be the result of unsafe injection practices?
- What unsafe practices have you seen in your workplace that could cause infection?
- What should you do if you observe an unsafe injection practice at work?

HEPATITIS B AND C OUTBREAKS DUE TO UNSAFE INJECTION PRACTICES

- 44 hepatitis outbreaks reported to CDC
 - From 2008-2014
 - Non-hospital settings
- Six of the outbreaks were in California
 - Two skilled nursing facilities
 - Two assisted living facilities
 - Pain clinic
 - Dialysis clinic
 - 2678 people sent notices and tested
 - 27 new cases of hepatitis B or C

CAUSE OF CALIFORNIA HEPATITIS OUTBREAKS

- California outbreaks occurred because of injection safety breaches
 - Reuse of syringes on more than one patient
 - Contaminated medication vials used for more than one patient
 - Use of single-dose vials for more than one patient

EVELYN MCKNIGHT'S STORY

Dr. Evelyn McKnight, mother of three, was battling breast cancer and was infected with Hepatitis C during treatment because of syringe reuse to access saline flush solution.

Along with Evelyn, a total of 99 cancer patients were infected in what was one of the largest outbreaks of Hepatitis C in American healthcare history.

Evelyn cofounded HONOReform, a foundation dedicated to improving America's injection safety practices, and was the catalyst of the formation of the Safe Injection Practices Coalition. APIC TRI-VALLEY

APIC TRI-VAL

LAS VEGAS, NEVADA OUTBREAK, 2008

- Cluster of three acute Hepatitis C Virus (HCV) infections identified in Las Vegas
- All three patients underwent procedures at the same endoscopy clinic during the incubation period
 - Two breaches contributed to transmission:
 - Re-entering vials with used syringes
 - Using contents from these single-dose vials on more than one patient

UNSAFE INJECTION PRACTICES IN THE U.S.

Common causes of hepatitis outbreaks

- Not properly disinfecting equipment between patients
- Using the same finger stick device on more than one patient
- Reusing a syringe on more than one patient
- Using single-dose vials for more than one patient
- Using a single saline bag for more than one patient

COMMON REASONS FOR UNSAFE INJECTION PRACTICES

- Lack of safe injection policies at healthcare facility
- Staff are poorly trained or unaware of safe injection practices
- Healthcare provider is rushed and takes a shortcut
- Healthcare provider learned safe injection practices at one time but has forgotten

UNSAFE PRACTICES THAT LEAD TO INFECTION

- Using the same needle on multiple patients
- Switching the needle in between patients but using the same syringe
- Reusing cartridges or reusing insulin pens
- Attempting to disinfect a needle with alcohol in between patients

WHAT ARE SAFE INJECTION PRACTICES?

Resident to Provider

Provider to Resident

Resident to Resident

A set of measures to perform injections in an optimally safe manner for residents, healthcare providers, and others

RI-VALLE

SAFE INJECTION PRACTICES ARE PART OF STANDARD PRECAUTIONS

"SAFE INJECTION = NO INFECTION"

ASEPTIC TECHNIQUE FOR PREPARING INJECTED MEDICATIONS

- Perform hand hygiene
- Draw up medications in a clean medication area
 - The designated medication area should <u>not</u> be near areas where contaminated items are placed

NEEDLES AND SYRINGES: ONE TIME USE ONLY

- Use needles for only one resident/patient
- Use syringes only one time
 - Including manufactured prefilled syringes
- Use cartridge devices for only one resident/patient
- Use insulin pens for only one resident/patient

SPECIAL CONSIDERATIONS FOR DIABETIC RESIDENTS

- Diabetic residents use needles frequently in the care and management of their disease
- Never allow reuse of insulin pens on more than one resident
 - It is <u>not safe</u> to change the needle on insulin pens for use on more than one resident
- Lancets used for blood glucose testing are designed for one resident only
 - Using lancets on multiple residents can lead to infections

INJECTION SAFETY FOR DIABETIC RESIDENTS

Insulin pens that contain more than one dose of insulin are meant for only one person

For glucose testing, clean the <u>glucometer</u> after every use

MEDICATION VIALS

- Always cleanse the diaphragm (tops) of medication vials using friction with 70% alcohol before entry
- Allow the alcohol to dry before inserting a needle or device into the vial
- Note: Clean even if the vial comes with a hard lid or cap
 - Manufacturers guarantee medications and solutions are sterile
 - But they do not guarantee the outside of the container or medication vial is sterile

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APIC TRI-VAL

SINGLE-DOSE VIALS: ONE RESIDENT & ONLY ONCE

- Use single-dose medications for only one resident
- Read the label on medication vials carefully! Determine if single use
- Never enter a medication vial with a used syringe or needle
- If the vial says single-dose, throw it away after it has been accessed
- Do not store single use medications for future use
- Discard unused single-dose medications when expired

When in doubt throw it out!

MULTI-DOSE (MULTIPLE-DOSE) VIALS

A multi-dose vial is recognized by its FDA-approved label

MULTI-DOSE (MULTIPLE-DOSE) VIALS

Limit the use of multi-dose vials

• When possible, dedicate multi-dose vials to a single resident

For multi-dose vials used for more than one resident

- Keep in a medication area
- Never take into a resident treatment area, resident room or cubicle

Date the multi-dose vial when first opened

- Discard within 28 days
 - Unless the manufacturer recommends a shorter expiration period

Any time the sterility of the vial is in question, throw it out

BAGS OF INTRAVENOUS (IV) SOLUTIONS SHOULD BE USED FOR ONE RESIDENT ONLY

Do not use bags of IV solution as a common source of supply for more than one resident

Everything from the medication bag to the resident's IV catheter is a single interconnected unit

DANGEROUS MISPERCEPTIONS

Here are some examples of dangerous misperceptions about safe injection practices.

Myth

Changing the needle makes

Syringes can be reused as long as

If you don't see blood in the IV

tubing or syringe, it means that

those supplies are safe for reuse.

It's okay to use leftover medicine

vials for more than one patient.

from use single-dose or single-use

an injection is administered through

a syringe safe for reuse.

IV tubing.

Truth

Once they are used, both the needle and syringe are contaminated and must be discarded. A new sterile needle and a new sterile syringe should be used for each injection and each entry into a medication vial.

Syringes and needles should never be reused. The IV tubing, syringe, and other components represent a single, interconnected unit. Distance from the patient, gravity, or infusion pressure do not ensure that small amounts of blood won't contaminate the syringe once it has been connected to the unit.

Germs such as hepatitis C virus and staph or MRSA are invisible to the naked eye, but can easily infect patients even when present in microscopic quantities. Do not reuse syringes, needles, or IV tubing.

Single-dose or single-use vials should not be used for more than one patient regardless of how much medicine is remaining.

Injection Safety is Every Provider's Responsibility!

The One & Only Campaign is a public health effort to eliminate unsafe medical injections. To learn more about safe injection practices, please visit OneandOnlyCampaign.org.

 For the latest news and updates,
 follow us on Twitter @injectionsafety and Facebook/OneandOnlyCampaign.

COUNTY OF LOS ANGELES Public Health

KEY COMPONENTS TO SAFE INJECTION PRACTICES

SAFE INJECTION PRACTICES HOW TO DO IT RIGHT VIDEO

THE INJECTION SAFETY CHECKLIST

- Used to assess your facility's injection safety practices
- Download and share the Injection Safety Checklist

www.cdc.gov/injectionsafety/ PDF/SIPC_Checklist.pdf

INJECTION SAFETY CHECKLIST

The following Injection Safety checklist items are a subset of items that can be found in the CDC Infection Prevention Checklist for Outpatient Settings: Minimum Expectations for Safe Care.

The checklist, which is appropriate for both inpatient and outpatient settings, should be used to systematically assess adherence of healthcare personnel to safe injection practices. (Assessment of adherence should be conducted by direct observation of healthcare personnel during the performance of their duties.)

Injection Safety	Practice Performed?	If answer is No, document plan for remediation	
Injections are prepared using aseptic technique in a clean area free from contamination or contact with blood, body fluids or contaminated equipment.	Yes No		
Needles and syringes are used for only one patient (this includes manufactured prefilled syringes and cartridge devices such as insulin pens).	Yes No		
The rubber septum on a medication vial is disinfected with alcohol prior to piercing	Yes No		
Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for the same patient.	Yes No		
Single dose (single-use) medication vials, ampules, and bags or bottles of intravenous solution are used for only one patient.	Yes No		
Medication administration tubing and connectors are used for only one patient.	Yes No		
Multi-dose vials are dated by HCP when they are first opened and discarded within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial. Note: This is different from the expiration date printed on the vial.	Yes No		
Multi-dose vials are dedicated to individual patients whenever possible.	Yes No		
Multi-dose vials to be used for more than one patient are kept in a centralized medication area and do not enter the immediate patient treatment area (e.g., operating room, patient room/cubicle). Note: If multi-dose vials enter the immediate patient treatment area they should be dedicated for single-patient use and discarded immediately after use.	Yes No		
RESOURCES			

Checklist: http://www.cdc.gov/HAI/pdfs/guidelines/ambulatory-care-checklist-07-2011.pdf Guide to Infection Prevention for Outpatient Settings: Minimum Expectations for Safe Care: http://www.cdc.gov/HAI/pdfs/guidelines/standatds-of-ambulatory-care-7-2011.pdf

www.oneandonlycampaign.org

SUMMARY

- Infection Prevention and Employee Health working together
- Healthcare workers are at risk of
 - Acquiring infections from residents
 - Transmitting infections to residents
- Appropriate screening and vaccinations help protect HCWs
- Drug diversion has caused serious harm to many patients/residents
 - Including transmission of organisms resulting in illness and death
- Safe injection practices reduce the risk of infections
 - They protect both residents and healthcare providers
- Evaluate your facility's injection safety practices
 - Use the injection safety checklist
- Always follow Standard Precautions
 - Every time
 - With every resident