


Infection Prevention and Control

A Foundation Course

SAFE INJECTION PRACTICES AND SHARPS MANAGEMENT

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2014

A TRADITION OF INDEPENDENT THINKING

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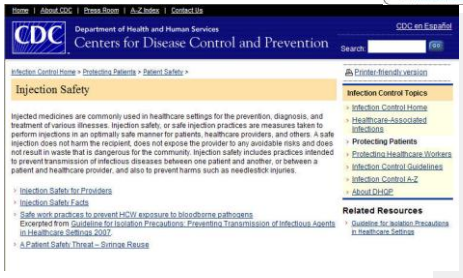
Coláiste na hOllscoile Corcaigh

Links to CDC Materials

http://www.youtube.com/watch%3Fv%3D6D0stMoz8



http://www.cdc.gov/ncidod/dhqp/injectionsafety.html

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What is Injection Safety?

- Injection safety **includes practices intended to <u>prevent transmission of infectious diseases</u> between one patient and another, or between a patient and healthcare provider, and also to prevent harms such as needlestick injuries**
- **http://www.youtube.com/watch%3Fv%3D6D0stMoz80k**

A safe injection does not harm the recipient, does not expose the provider to any avoidable risks and does not result in waste that is dangerous for the community

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Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings 2007

Suggested citation: Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee, 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, ***June 2007***
http://www.cdc.gov/ncidod/dhqp/pdf/isolation2007.pdf

IV.H. Safe injection practices
The following recommendations apply to the use of needles, cannulas that replace needles, and, where applicable intravenous delivery systems [454]

IV.H.1. Use aseptic technique to avoid contamination of sterile injection equipment [1002, 1003]. *Category IA*

IV.H.2. Do not administer medications from a syringe to multiple patients, even if the needle or cannula on the syringe is changed. Needles, cannulae and syringes are sterile, single-use items; they should not be reused for another patient nor to access a medication or solution that might be used for a subsequent patient [453, 919, 1004, 1005]. *Category IA*

IV.H.3. Use fluid infusion and administration sets (i.e., intravenous bags, tubing and connectors) for one patient only and dispose appropriately after use. Consider a syringe or needle/cannula contaminated once it has been used to enter or connect to a patient's intravenous infusion bag or administration set [453]. *Category IB*

IV.H.4. Use single-dose vials for parenteral medications whenever possible [453]. *Category IA*

IV.H.5. Do not administer medications from single-dose vials or ampules to multiple patients or combine leftover contents for later use [389, 453, 1005]. *Category IA*

IV.H.6. If multidose vials must be used, both the needle or cannula and syringe used to access the multidose vial must be sterile [453, 1002]. *Category IA*

IV.H.7. Do not keep multidose vials in the immediate patient treatment area and store in accordance with the manufacturer's recommendations; discard if sterility is compromised or questionable [453, 1003]. *Category IA*

IV.H.8. Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients [453, 1006]. *Category IB*

Standard Precautions
Examples of Safe Injection Practices

- **Use aseptic technique to avoid contamination of sterile injection equipment**
- **Use single-dose vials for parenteral medications whenever possible**
- **Needles, cannulae and syringes are sterile, single-use items; they should not be reused for another patient nor to access a medication or solution that might be used for a subsequent patient**
- **Do not use bags or bottles of intravenous solution as a common source of supply for multiple patients**

http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/Isolation2007.pdf

What are some of the incorrect practices that have resulted in transmission of pathogens?

- **Using the same syringe to administer medication to more than one patient, even if the needle was changed**
- **Using a common bag of saline or other IV fluid for more than one patient, and**
  - **Leaving an IV set in place for dispensing fluid**
  - **Accessing the bag with a syringe that has already been used to flush a patient's IV or catheter**
- **Accessing a shared medication vial with a syringe that has already been used to administer medication to a patient**

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Q: How can healthcare providers ensure that injections are performed correctly?

A:

To help ensure that staff understand and adhere to safe injection practices, consider the following:

- Designate someone to provide ongoing oversight for infection control issues

- Develop written infection control policies

- Provide training

- Conduct quality assurance assessments

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Improper use of syringes, needles, and medication vials can result in:

- Transmission of life-threatening infections to patients
- Notification of patients of possible exposure to bloodborne pathogens and recommendation that they be tested for hepatitis C virus, hepatitis B virus, and human immunodeficiency virus (HIV)
- Referral of providers to licensing boards for disciplinary action
- Malpractice suits filed by patients

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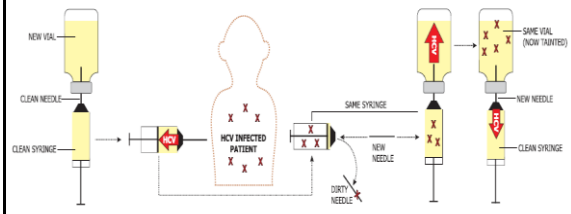
Unsafe Injection Practices and Disease Transmission

Reuse of syringes combined with the use of single-dose vials for multiple patients undergoing anesthesia can transmit infectious diseases. The syringe does not have to be used on multiple patients for this to occur.



1. A clean syringe and needle are used to draw the sedative from a new vial.

2. It is then administered to a patient who has been previously infected with hepatitis C virus (HCV). Backflow into the syringe contaminates the syringe with HCV.

3. The needle is replaced, but the syringe is reused to draw additional sedative from the same vial for the same patient, contaminating the vial with HCV.

4. A clean needle and syringe are used for a second patient, but the contaminated vial is reused. Subsequent patients are now at risk for infection.

Source: www.**southernnevadahealthdistrict**.org

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Some Key Take-Home Messages

All healthcare providers are urged to carefully review their infection control practices and the practices of all staff under their supervision

In particular, providers should:

- **<u>Never</u> administer medications from the same syringe to more than one patient, even if the needle is changed**
- **<u>Never</u> enter a vial with a syringe or needle that has been used for a patient if the same medication vial might be used for another patient**

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Sharps Management

- The risk of a sharps injury begins at the moment a sharp is first exposed and ends once the sharp is permanently removed from exposure in the work environment.
- **Staff need to have an awareness of the risk of injury throughout the time a sharp is exposed and use a combination of strategies to protect themselves and their co-workers.**

Source: CDC 2004

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The Problem

- CDC estimates ~385,000 sharps injuries annually among hospital-based healthcare personnel (>1,000 injuries/day)
  - Many more in other healthcare settings (e.g., emergency services, home care, nursing homes)
- Increased risk for blood-borne virus transmission
- Costly to personnel and healthcare system

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Risks of Seroconversion due to Sharps Injury
from a known positive source

Virus	Risk (Range)
HBV	6-30%*
HCV	~ 2%
HIV	0.3%

(*Risk for HBV applies if not HB vaccinated)

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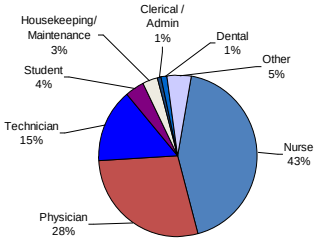
Sharps injuries - Who gets injured?

Occupational Groups of Healthcare Personnel Exposed to Blood/Body Fluids,

NaSH June 1995 — December 2003 (n=23,197)



http://www.cdc.gov/sharpssafety/PPT/2PreventingNeedlesticksPartI.ppt#291,12,Who Gets Injured

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When are injuries most likely to occur?

- During use of a sharps device on a patient - 41%
- After use and before disposal of a sharp device - 40%
- During or after appropriate or inappropriate disposal of sharps device - 15%

CDC 2008

When Do Sharps Injuries Occur?

- During use 41%
- After use/before disposal 40%
- During and after disposal 15%
- Other 4%

Source: NaSH, June 1995—December 2003

Risks of Seroconversion due to Sharps Injury

from a known positive source

Virus	Risk (Range)
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HIV	0.3%

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Safe Use of Sharps

- ***You are personally responsible for the safe use of your own sharps***
- Before undertaking any procedure, assess the risks of exposure
- Be prepared to use the device the moment the sharps are first exposed
  - Locate a sharps container/bring tray with integral bin
  - Assess patient' ability to cooperate
  - Get help if needed
  - Ask the patient to avoid sudden movement
- Needles must not be recapped
- Needles must not be bent, broken or removed from the syringe after use
- Sharps must not be passed from hand to hand & handling should be kept to a minimum

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Safe Disposal of Sharps

- ***You are personally responsible for the safe disposal of your own sharps***
  - Used sharps must be discarded immediately at the point of use into an approved sharps bin by the user
  - Use temporary closure on sharps bin when carrying a bin
- **While disposing**
  - Inspect container
  - Keep hands behind sharps
  - Never put fingers/hands into container
- **If you are disposing sharps with attached tubing**
  - Be aware that tubing attached to sharps can recoil and lead to injury
  - Maintain control of both tubing and the device during disposal

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Sharps containers

Keep sharps bin in a safe place
- Out of reach of children
- At a height that allows safe disposal
- Secure position to avoid spillage

Fill sharps container to 3/4 fill line

Close & Remove from use once fill line is reached

Complete sharps bin label with
- Date of assembly & signature
- Date of Closure & signature
- Location

After an injury or exposure

1. Local policy.
2. Key points:
   - First aid
   - Place under running water
   - Flush splashes to nose, mouth with water
   - Irrigate eyes with clean water or saline
   - Report to occupational health
   - Know your Hepatitis B vaccination status.
   - Prompt reporting is important in all cases to determine whether post exposure prophylaxis is required (this needs to be started as soon as possible)

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Prevention of Sharps injuries in hospital & healthcare – EU Legislation

Objective

"To achieve safest possible working environment by preventing injuries to workers caused by medical sharps (including needle-sticks) & protecting workers at risk in the hospital & healthcare sector"

EU Council Directive 2010/32/EU of 10th May 2010 implementing the Framework agreement n prevention from sharps injuries in hospital and healthcare sector

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O'Malley, et. al.
Costs of Management of Occupational Exposure to Blood and Body Fluids.

ICHE, July 2007, v 28, No. 7.

- Baseline and follow-up laboratory testing
- Treatment of exposed personnel
  - $71-~$5,000 depending on treatment provided
- Lost productivity
- Time to complete paperwork
- Loss of income / loss of career
- Emotional costs
- Societal costs

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Summary of key risk management strategies for safer practice

Most effective

Least effective

Source: WHO 2005

Hierarchy of Controls

- Elimination or substitution of sharp (eliminate unnecessary injections)
- Engineering controls (auto disable syringes, safer needle devices)
- Administrative and work practice controls (standard precautions; no recapping; provision and placement of sharps containers.
- Personal protective equipment (e.g. gloves)

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THE SHARPS SAFETY CONTINUUM (CDC)

- Prepare to use the device ***the moment the sharps are first exposed***
- Take precautions ***while using sharps***
- Take precautions ***during cleanup***
- Take precautions ***during disposal***

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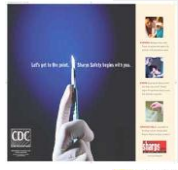
Have a Safe Day!



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- The European Forum for protection of Healthcare Professionals in a safer working environment http://www.needlestickforum.net
- NHS Purchasing and Supplies Agency product related information relating to sharps safety: www.pasa.nhs.uk/medicalconsumables/sharps/
- WHO (2005) Protecting Healthcare Workers, Preventing Needlestick Injuries Toolkit, Occupational and Environmental Health Unit http://www.who.int/occupational_health
- CDC Workbook for designing, implementing and evaluating a sharps injury prevention programme (2004): http://www.cdc.gov/sharpssafety/