Efficacy of Control Measures Used to Prevent Needlestick Injuries

The Hierarchy of Controls
Objectives:

• Define the Hierarchy of Controls
• Describe the 5 main components in the Hierarchy and give an example of each
• Identify the efficacy of individual types of controls
Hierarchy of Controls:

*Most effective*

- Elimination of hazards
- Engineering Controls
- Administrative Controls
- Work Practice Controls
- Personal Protective Equipment

*Least Effective*
Elimination of Hazard

- Use of needle-less IV systems
- Removal of sharps and needles
- Elimination of unnecessary injections
Elimination of Hazard

• “Efficacy and Cost-Effectiveness of a Needleless IV Access System.” Yassi et al. 1995
  – Compared NSI for year before/after introduction
  – 78.7% effective in reducing IV line-related NSI
  – Overall reduction of 43.4% in total NSI from all procedures
  – Also used universal precautions and education
Engineering Controls

• Needles that retract, sheathe, or blunt immediately after use
  – Active
  – Passive

• Sharps container styles
Engineering Controls
Percent reduction in needlestick injuries for major safety device categories

- Up to 88% reduction with IV Needleless Systems
- 76% reduction with Self-blunting phlebotomy needle
- 66% reduction with Phlebotomy needle with add-on safety feature
- 23% reduction with Winged steel blood collection needle with sliding sheath

EPINet  Centers for Disease Control and Prevention
Engineering Controls

• “A Review of Sharps Injuries and Preventive Strategies.” Trim et al. 2003
  – Review of 7 studies of needle protective devices
  – “results…demonstrate that needle protective devices reduced associated sharps injuries by 23-100%, with a mean of 71% compared with conventional products.”
Administrative Controls

• Policies limiting exposure to hazard: Universal Precautions
• Allocation of resources demonstrating commitment to HCW safety
• Needlestick prevention committee
• Consistent training on use of safe devices
Work Practice Controls

• No re-capping
• Placing sharps containers at eye-level and at arms reach
• Emptying sharps containers before they are full
Personal Protective Equipment

• Barriers and filters between the worker and the hazard
• Gloves
• Gowns
Useful Websites

• [http://www.cdc.gov/sharpssafety/](http://www.cdc.gov/sharpssafety/)
  Workbook for Designing, Implementing, and Evaluating a Sharps Injury Prevention Program

  The International Health Care Worker Safety Center at the University of Virginia

• [http://www.cdc.gov/niosh/topics/bbp/safer/](http://www.cdc.gov/niosh/topics/bbp/safer/)
  Safer Medical Device Implementation in Health Care Facilities

  NIOSH Alert: Preventing Needlestick Injuries in Health Care Settings