Health Care Worker
Health and Safety:
Preventing Needlestick Injury
and Occupational Exposure to
Bloodborne Pathogens
WHO-ICN Project
Preventing Needlestick Injury and HIV among Health Care Workers

- One year project extended for 3 years
- Funded by the US CDC National Institute for Occupational Safety & Health (NIOSH) to reduce occupational exposure and transmission of HIV and other bloodborne pathogens
- Pilot projects in 3 countries: So Africa, Tanzania, & Vietnam will be carried out in collaboration with WHO (hq + regional), MOH, national nurses associations, and WHO Occupational Health Collaborating Centers. Scaling up in southern Africa SADC region to implement successes of the pilot project.
Occupational Hazards are the same . . .

- Biological (SARS, TB, Anthrax, HIV, Hepatitis)
- Chemical (drugs, disinfectants, sterilants)
- Ergonomic (lifting, transfers)
- Stress/Violence (staffing shortages, shift rotation)
- Physical Hazards (radiation, heat, noise)
But work environments are different
Occupational Exposure to Bloodborne Pathogens

2 million exposures per year

In Healthcare workers:

- 40% of Hepatitis B
- 40% of Hepatitis C
- 4.4% of HIV

Are due to needlestick injuries (50% of hospitalized patients in sub-Saharan Africa are HIV +)

WHO Environmental Burden of Diseases Series No. 3
# Risk of Virus Transmission Following Percutaneous Injury

<table>
<thead>
<tr>
<th>Virus</th>
<th>Chance of HCW Infection</th>
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<tbody>
<tr>
<td>HBV</td>
<td>6 – 30 out of 100 people</td>
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<tr>
<td>HCV</td>
<td>3 – 10 out of 100 people</td>
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<tr>
<td>HIV</td>
<td>1 out of 300 people</td>
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Risk Factors that Increase the Likelihood of HIV Transmission Following a Needlestick

#1 Deep injury
#2 High viral titer in patient
#3 Visible blood on device
#4 Device in artery/vein

***Treatment of healthcare workers with AZT following needlesticks involving an HIV positive source patient have been shown to decrease the risk of HIV transmission by 80%.

CDC, MMWR 6/98
Of the 55 CDC documented cases of occupational transmission of HIV, 90% were from contaminated hollow-bore needles that pierced the skin.
Devices Associated with Percutaneous Injuries, 1999

N = 4951 injuries; Source: CDC NaSH data 1995-1999
Circumstances Associated with Hollow-Bore Needle Injuries (US CDC NaSH 6/95-12/01)

*(n = 8,225)*

- Handle/pass equipment (5%)
- Manipulate needle in patient (26%)
- During sharps disposal (13%)
- In transit to disposal (4%)
- Improper disposal (10%)
- During clean-up (10%)
- Collision w/worker or sharp (10%)
- Other (4%)
- Recap needle (6%)
- Transfer/process specimens (5%)
- Access IV line (6%)

*435 records are missing how the injury occurred.*
Behaviors Associated with Recent Needle Stick Injury
Health Care Worker Survey 2001 (Egypt)

- Two Hand recapping
- Bending needle
- Collection of Garbage
- Suturing
- Patient causes
- Unknown
## Occupational Exposures

<table>
<thead>
<tr>
<th></th>
<th>% of hcw with 1 or &gt; nsi/year</th>
<th>2-handed recap</th>
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<tbody>
<tr>
<td><strong>Kenya</strong></td>
<td>75% (2-3 nsi/yr)</td>
<td>57%</td>
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<tr>
<td><strong>Uganda</strong></td>
<td>44%</td>
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<tr>
<td><strong>Burkina Faso</strong></td>
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<tr>
<td>2000</td>
<td>55 %</td>
<td></td>
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<tr>
<td>2003</td>
<td>17 %</td>
<td>71%</td>
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<tr>
<td><strong>EMRO</strong></td>
<td>50% mean of 4 nsi/yr</td>
<td>60%</td>
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<tr>
<td>(9 of 23 countries surveyed)</td>
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<tr>
<td><strong>Egypt</strong></td>
<td>4.9 nsi/yr</td>
<td></td>
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<tr>
<td><strong>South Africa Jr Doctors</strong></td>
<td>91% (55% to HIV)</td>
<td></td>
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<tr>
<td>(Cotton, Stellenbach U)</td>
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<tr>
<td><strong>Cambodia</strong></td>
<td>47%</td>
<td>57%</td>
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</table>
Occupational Health Hierarchy of Controls
In Order From Most to Least Effective

• Elimination or substitution of sharp (eliminate unnecessary injections, jet injectors, needleless IV systems,)
• Engineering Controls (A-D syringes, safer needle devices)
• Administrative and Work Practice Controls (Universal Precautions, no recapping, provision & placement & removal of sharps containers)
• Personal Protective Equipment (gloves, masks, gowns, etc)
Decline in HBV Cases Among Healthcare Workers Following Vaccination

This regulation had the greatest impact in eliminating HBV transmission among healthcare workers.

But . . . Over 80% of Healthcare Workers Remain Unimmunized in many parts of the world

Despite 95% Efficacy of HBV Immunization
A safe injection does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous for other people.
Project Goals

Preventing Needlestick Injury and HIV among Health Care Workers

- Reduce exposure to HIV and other sharps-related infections (Hepatitis B and C) in healthcare workers
- Raise awareness on the risks of sharps-related HIV and hepatitis B & C transmission
- Implement programmes in 3 countries using existing systems and guidelines (ICN, ILO, WHO)
  - Assess & address policy gaps
  - Develop nsi surveillance system
  - Train healthcare workers
  - Implement and evaluate the injection safety tool kit
Key Elements of Project Plans

1. Planning Meeting: management commitment and worker involvement
2. Initial assessment: infection prevention and control
3. Set up surveillance system
4. Exposure control program including post-exposure follow-up and prophylaxis
5. Information, Education, Communication
6. Materials: sharps containers, PEP, HBV Immun
7. Supportive supervision and monitoring
8. Feedback to site, stakeholders, and MOH on progress
Exposure control planning

- Management Commitment and Worker Involvement
- Determination of Exposure: case definition
- Hepatitis B immunization
- Post-exposure evaluation and follow-up
- Communication of hazards to employees and training
- Recordkeeping (sharps injury log, surveillance system) and use of info/data for prevention
- Procedure for evaluating circumstances surrounding an exposure.
- Implementation of methods of exposure control (apply hierarchy of controls)
REPORTING IS IMPORTANT  
(but 40 -70 % of injuries go unreported)

Reporting Ensures

- Proper treatment & follow-up
- Financial compensation, if necessary
- Engineering or procedure changes
Barriers To Reporting

- Fear of being punished or fired
- Lack of awareness of risk of infection
- Lack of assurance of confidentiality
- Emphasis on patient care (unable to leave patient care area for follow-up)
- No employee training on reporting procedures
- No post-exposure treatment/prophylaxis available
Reporting Recommendations

The “SHARPS INJURY LOG” should include:

- Date, time, and location (work area and site on body of injured) of injury
- Case report # of injured
- Source patient status (if known)
- Type of exposure: blood-filled device, splash, or body fluid exposure
- The device involved (type and brand, if known)
- A description of the events that resulted in the injury
- Post-exposure follow-up: when PEP started if given
THANK YOU!

For Caring for those who Care!