The Impact of Regulations for Bloodborne & Biological Hazards in the USA

Progress & Lessons Learned

Amber Hogan Mitchell, DrPH, MPH, CPH

INTERNATIONAL SAFETY CENTER

Disclosure

- International Safety Center is funded through charitable contributions from medical device and PPE manufacturers, institutions, and societies so that EPINet can be offered to healthcare facilities around the world for free.

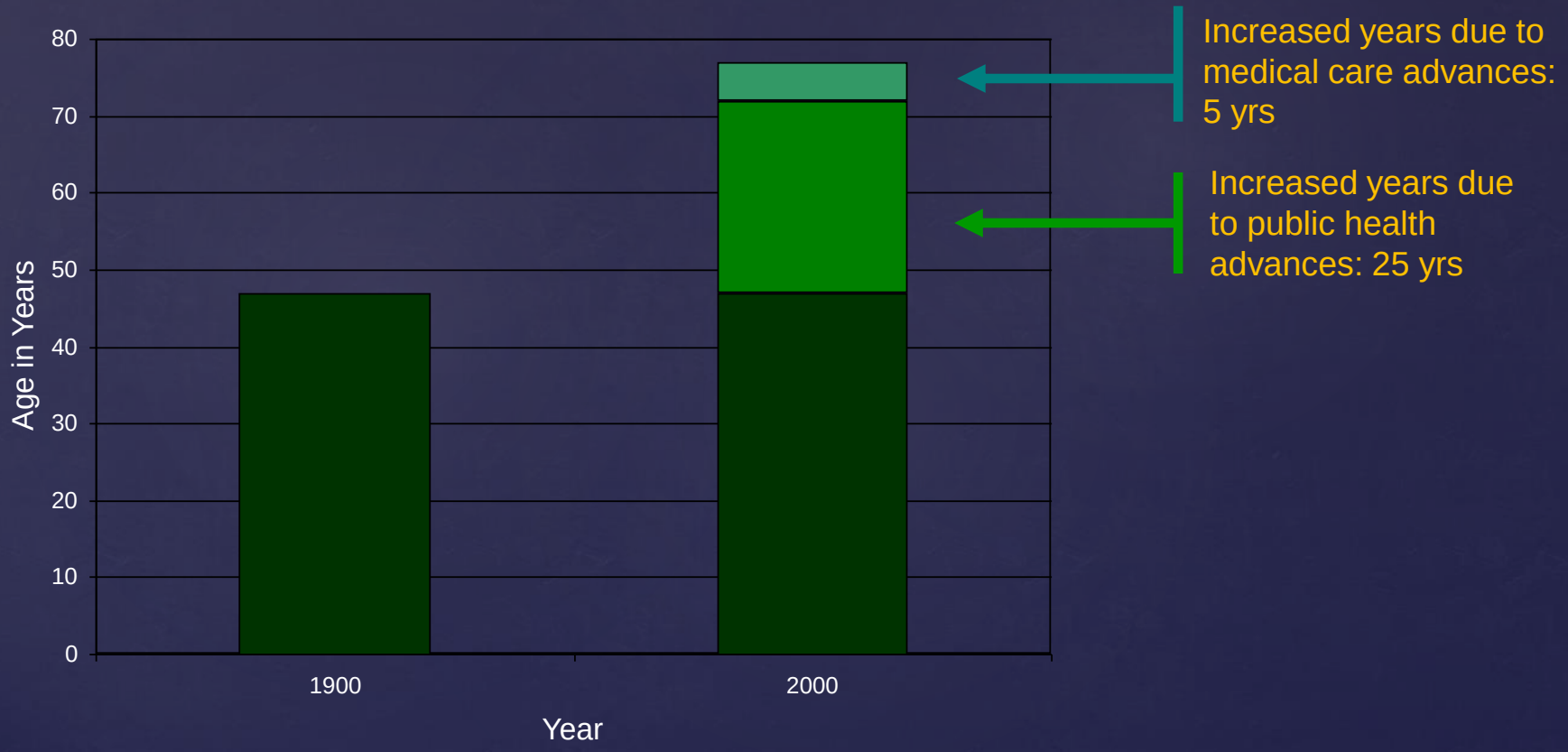
Overview

- Background:
  - Bloodborne & Biological Hazard Risk
  - US Policy Experience; OSHA Regulations and the Needlestick Safety & Prevention Act
  - Global Expansion
- Today:
  - International Safety Center & EPINet Summary Data
  - Interesting Incident Comparison Data
- Tomorrow:
  - Lessons Learned
  - New Global Focus

Occupational Bloodborne & Biological Pathogen Risks

The Significance of Public Health in America:

64% Increase in Average Life Expectancy Over 100 Year Period



Courtesy Dr. S Patlovich

Source: Ten Great Public Health Achievements -- United States, 1900-1999 MMWR, April 02, 1999 / 48(12);241-243
http://www.cdc.gov/mmwr/preview/mmwrhtml/00056796.htm

Ten Great Public Health Achievements in the United States, 1900 to 1999

1. Vaccinations
2. Motor-vehicle safety
3. Safer workplaces
4. Control of infectious disease
5. Decline in deaths from coronary heart diseases and stroke
6. Safer and healthier foods
7. Healthier mothers and babies
8. Family planning
9. Fluoridation of drinking water
10. Recognition of tobacco use as a health hazard

Source: Ten Great Public Health Achievements -- United States, 1900-1999 MMWR, April 02, 1999 / 48(12);241-243
http://www.cdc.gov/mmwr/preview/mmwrhtml/00056796.htm

Courtesy Dr. S Patlovich

Key Resource Across All Professions

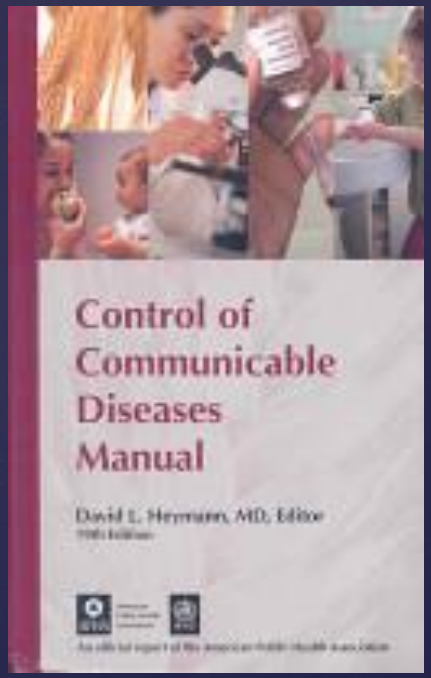
"Preventing the transmission of infectious diseases has never been more challenging than today in a world that is characterized by tremendous globalization, connectivity, and speed. I can think of no other resources more vital than the APHA's Control of Communicable Diseases Manual for health professionals to meet these challenges head-on"

- **Dr. Julie Gerberding, former Director, CDC**

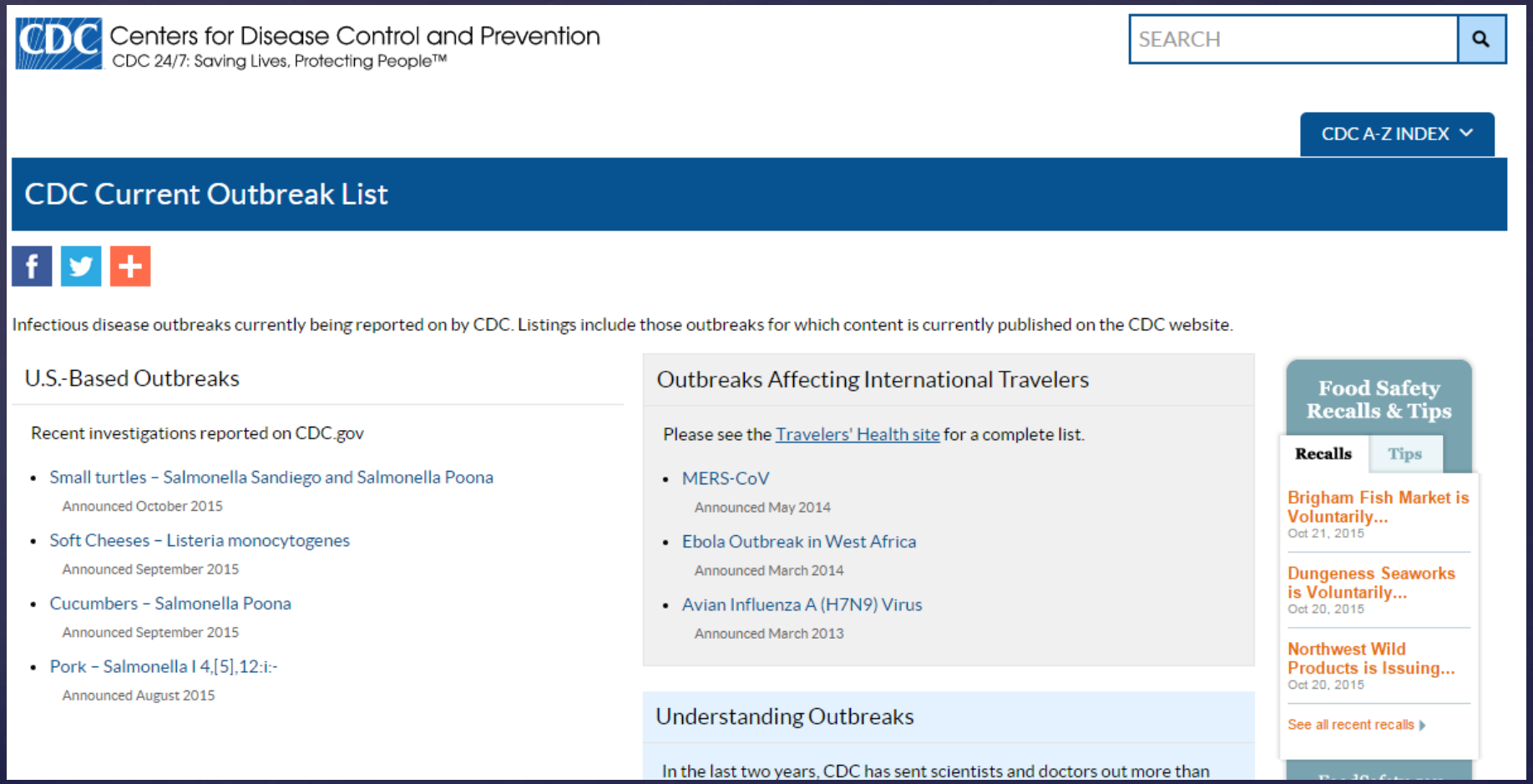
APHA
AMERICAN PUBLIC HEALTH ASSOCIATION
For science. For action. For health.

APHA Control of Communicable Disease Manual Consistent Format

- Identification
- Infectious agent
- Occurrence
- Reservoir
- Modes of transmission
- Incubation period
- Period of communicability
- Susceptibility
- Methods of control



CDC Current Outbreak List



Infectious & Biological Threats are More Prevalent than Ever… and More People are Accessing Healthcare Systems Around the World

PATHOGENS TRANSMITTED THROUGH OCCUPATIONAL EXPOSURE

- Blastomycosis dermatitidis
- Brucellosis abortus
- Corynebacterium diphteriae
- Creutzfeldt-Jakob disease
- Cryptococcosis neoformans
- Dengue virus
- Ebola
- Hepatitis B
- Hepatitis C
- Hepatitis G
- Herpes Simplex virus
- Herpes Zoster virus
- HIV
- Leptospira ictérohaemorrhaglae
- Malaria
- Mycobacterioum marinum
- Mycobacterium tuberculosis
- Mycoplasma caviae
- Necrotizing casciitis
- Plasmodium falciparum
- Rickettsia rickettsii
- Sporotrichum schenkii
- Streptococcus pyogenes
- Staphylococcus aureus
- Syphilis
- Treponema pallidum
- Toxoplasma gondii
- Tuberculosis

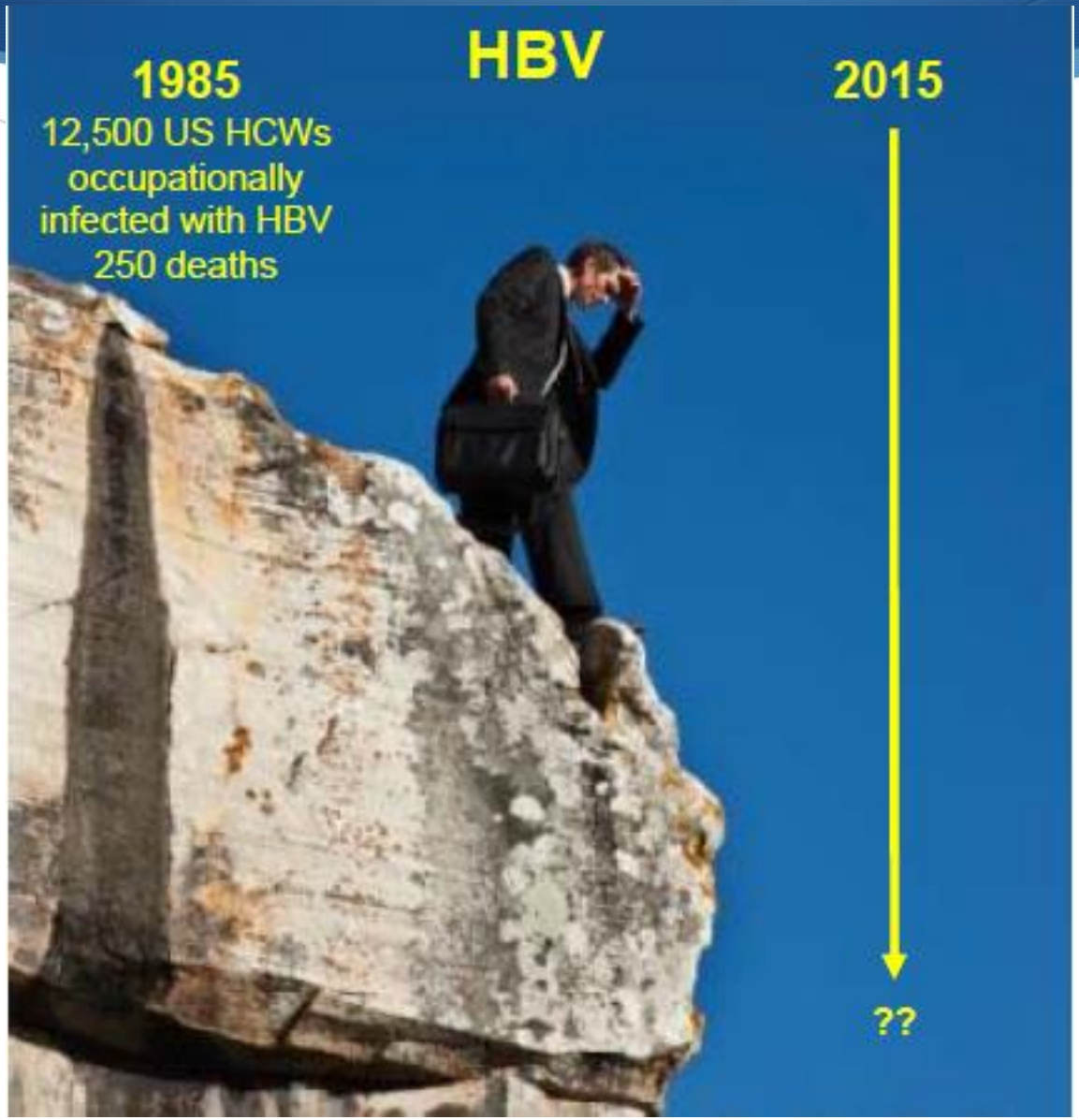
Hepatitis B

Globally:

2 BILLION People

3 MILLION Refugees

Thanks for Slides from Elise Handelman & Elayne Phillips. BD & McKesson



Courtesy Dr. J Jagger

Hepatitis C

"CDC Warns on Rising Cases of Hepatitis C"

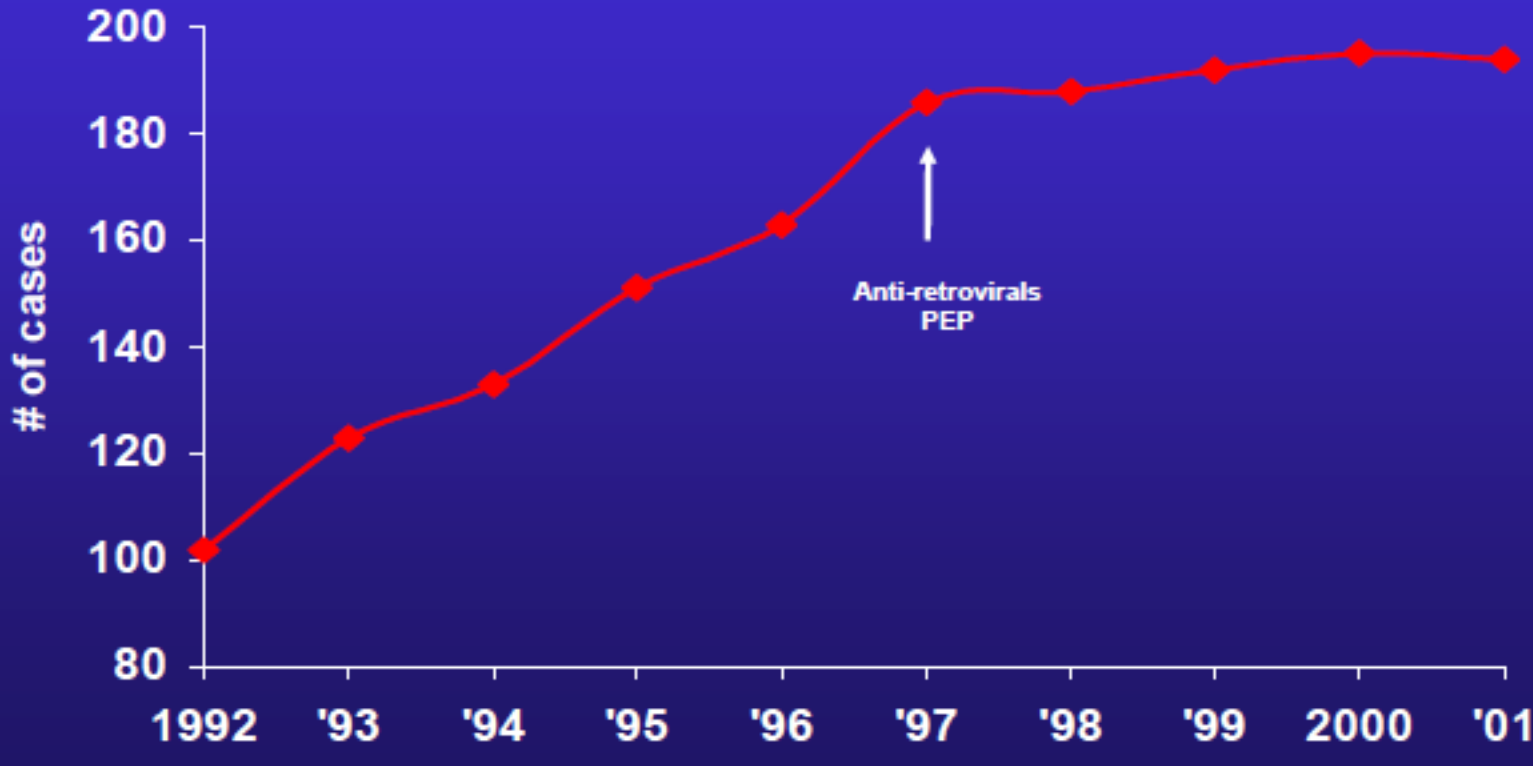
WSJ, May 8, 2015

"Hepatitis C killed almost 20,000 Americans in 2013. More of us died from hepatitis C than from 60 other infectious diseases combined, including HIV and TB, with 'baby boomers' at greatest risk."

Summary source: Preidt, R. Hepatitis C Now Leading Infectious Disease Killer in U.S. HealthDay; 2016 May 4
Available from: https://www.nlm.nih.gov/medlineplus/news/fullstory_158651.html

U.S. Health Care Workers with Occupationally Acquired HIV/AIDS

Cumulative Cases*, 1992-2001



Documented and possible. Source: U.S. Centers for Disease Control and Prevention. For years 1992 through 1999: *HIV/AIDS Surveillance Report*, year-end reports. For 2000-2001: *Fact Sheet: Health Care Workers with HIV/AIDS*, pub'd on-line at: www.cdc.gov/hiv/pubs/facts/hcwsurv.htm.

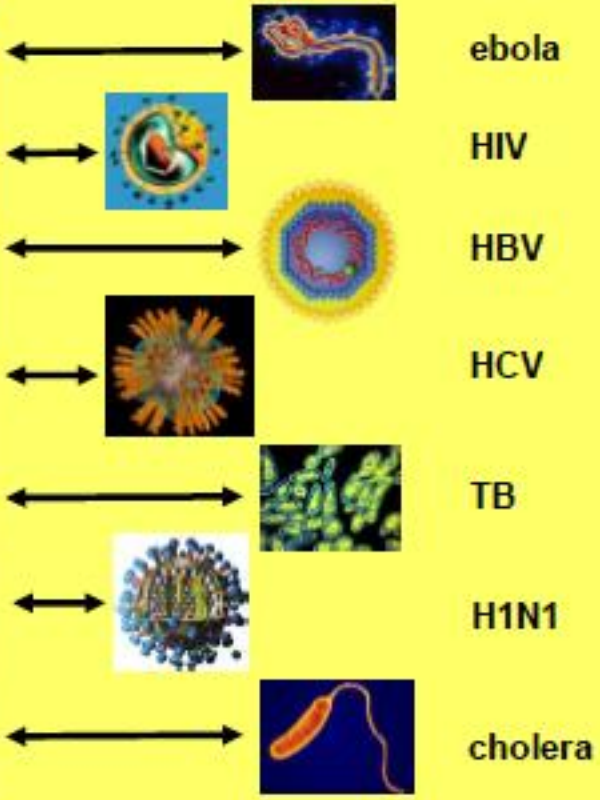
Courtesy Dr. J Jagger

HIV

- Today, 1.2 Million People in the US are living with HIV.
- 1 in 5 don't know they are infected and can pass the virus to others.

CDC 2011

Healthcare Workers
frontline engagement with human pathogens



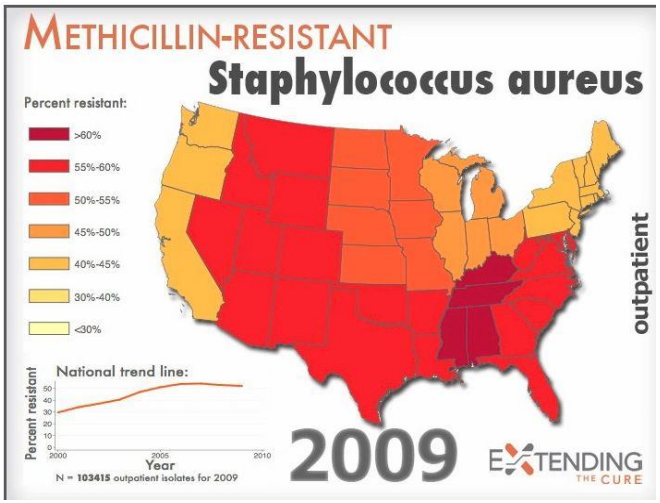
Emerging and Re-emerging Pathogens

- Ebola
- Zika
- Diseases in Conflict Countries
- Measles
  - New occupational cases depending on level of immunity
- Co-Morbidities with Multidrug Resistant Organisms like MRSA
  - Patients with now chronic disease like HCV, HIV with increased prevalence of MRSA
  - Healthcare worker colonization

MRSA Colonization

- *S.aureus* carriage has been known to be one of the most strongly associated risk factors for subsequent infection
- Presence of MRSA nasal colonization can provide an indication of higher risk for subsequent infection

Prevalence for Nasal Carriage		
General Population: 0.8%- <2%	**First Responders:** EMS personnel[1]: 4.6% Firefighters[2]: 22.5%	**Healthcare Workers:** Hospital: 4.6% Non-hospital: 3.4%
Source: Mainous *et al.*, 2006,Gorwitz RJ *et al.*, 2008	Sources: 1. Stevenson *et al.* 2010 2. Roberts et al., 2011	Source: Albrich & Harabarth, 2008



THE UNIVERSITY OF ARIZONA | MEL AND ENID ZUCKERMAN COLLEGE OF PUBLIC HEALTH

Thank you, Dr. K Reynolds

Exposure Prevention

Is like a universal vaccine which prevents the transmission of all pathogens, known and unknown.

Courtesy Dr. J Jagger

The US Policy Experience

No Data. No Problem.

Without recording and measuring incidents over time, it is not possible to connect potential negative health hazards to an occupational exposure (acute or continuous).

Efforts and Awareness Began Locally…

Early History - University of Virginia, 1986

MECHANISM \ DEVICE	SYRINGE	VACUTAINER	BUTTERFLY	I.V. TUBING/ NEEDLE ASSEMBLY	I.V. CATHETER SPECIAL PROCEDURE	SPINAL TAP NEEDLE	TUBEX SYRINGE	LANCET	SCALPEL	SUTURE NEEDLE
RECAPPING, MISSED CAP	30	5		10			7	3		
I.V. REMOVAL				1						
CONTACTED ITEM ON EXPOSED SURFACE	10	1	1	7			2	3	4	4
HANDING ITEM, ONE PERSON TO ANOTHER									1	4
IN TRANSIT TO TRASH	2	1	3	6			1	1		1
PATIENT JARRED ITEM	7	4	2	5			1	1		
ASSEMBLY/DISASSEMBLY/ CLEANING DEVICE	5		1	7	1		7	6	8	2
STUCK BY COLLEAGUE DURING PROCEDURE	2									2
STUCK BY COLLEAGUE AFTER PROCEDURE	1		2	2						1
BY ITEM AREADY IN CMC	1			3						
BY ITEM ALREADY IN MONOJECT RED BOX			1							

Courtesy Dr. J Jagger

Device Specific Injury Rates per 100,000 devices 1986 University of Virginia

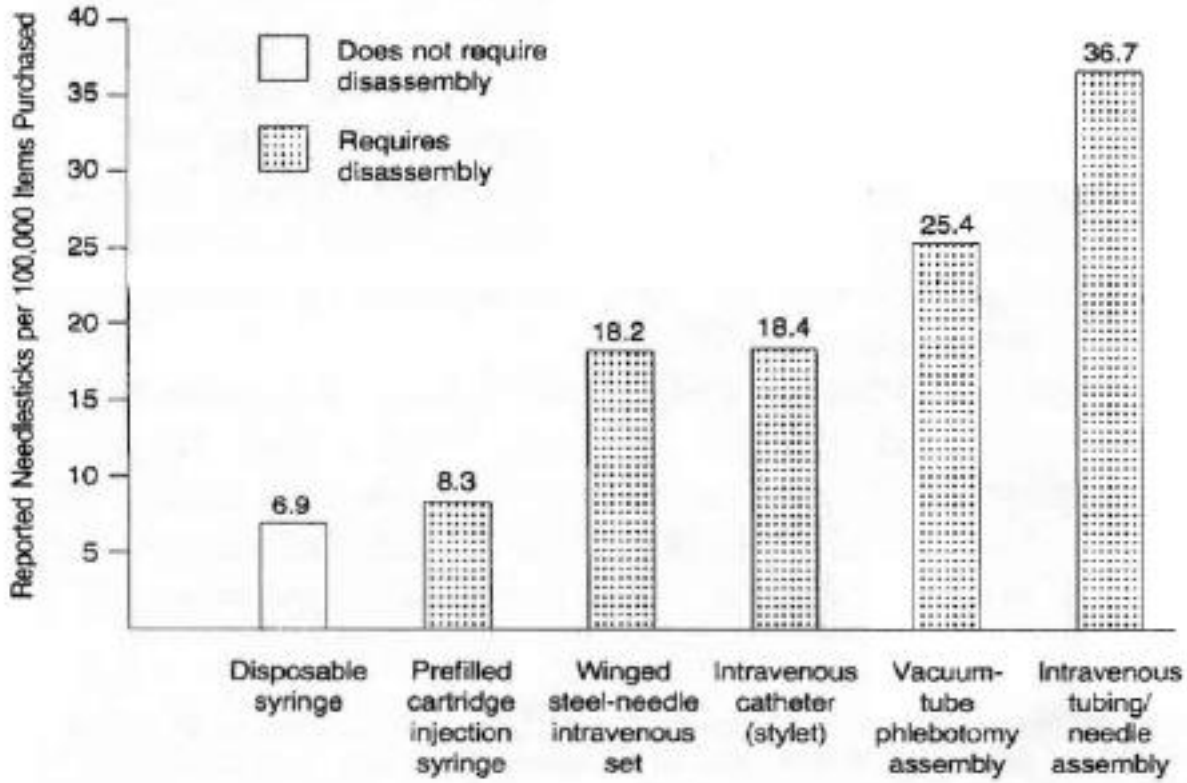


Figure 1. Needle-Stick–Injury Rates per 100,000 Items Purchased, for Six Devices with Needles.

Courtesy Dr. J Jagger

SPECIAL ARTICLE

Guideline for infection control in health care personnel, 1998

Elizabeth A. Bolyard, RN, MPH,[a] Ofelia C. Tablan, MD,[a] Walter W. Williams, MD,[b] Michele L. Pearson, MD,[a] Craig N. Shapiro, MD,[a] Scott D. Deitchman, MD,[c] and The Hospital Infection Control Practices Advisory Committee

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

Hospital Infection Control Practices Advisory Committee
Membership List, June 1997

Chairman
Walter J. Hierholzer, Jr., MD
Yale-New Haven Hospital
New Haven, Connecticut

Montefiore Medical Center
Bronx, New York

Mary J. Gilchrist, PhD
University of Iowa
Iowa City, Iowa

Elaine L. Larson, RN, PhD
Georgetown University
Washington, D.C.

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Search Archive

Medical Devices

Glass Capillary Tubes: Joint Safety Advisory About Potential Risks

SHARE | TWEET | LINKEDIN | PIN IT | EMAIL | PRINT

February 22, 1999

Dear Colleague:

The Food and Drug Administration (FDA), the National Institute for Occupational Safety and Health (NIOSH) of the Centers for Disease Control and Prevention (CDC), and the Occupational Safety and Health Administration

Providing National and World Leadership
to Prevent Workplace Illnesses and Injuries NIOSH

STOP STICKS CAMPAIGN

Sharps Injuries

STOP STICKS

The Centers for Disease Control and Prevention (CDC) estimates that about 385,000 sharps-related injuries occur annually among health care workers in hospitals. More recent data from the Exposure Prevention Information Network (EPINet) suggest these injuries can be reduced, as sharps-related injuries in nonsurgical hospital settings decreased 31.6% during 2001–2006 (following the Needlestick Safety and Prevention Act of 2000). However, injuries in surgical settings increased 6.5% in the same period, where adoption of safety devices was limited compared to nonsurgical settings. It has been estimated about half or more of sharps injuries go unreported. Most reported sharps injuries involve nursing staff, but laboratory staff, physicians, housekeepers, and other health care workers are also injured.

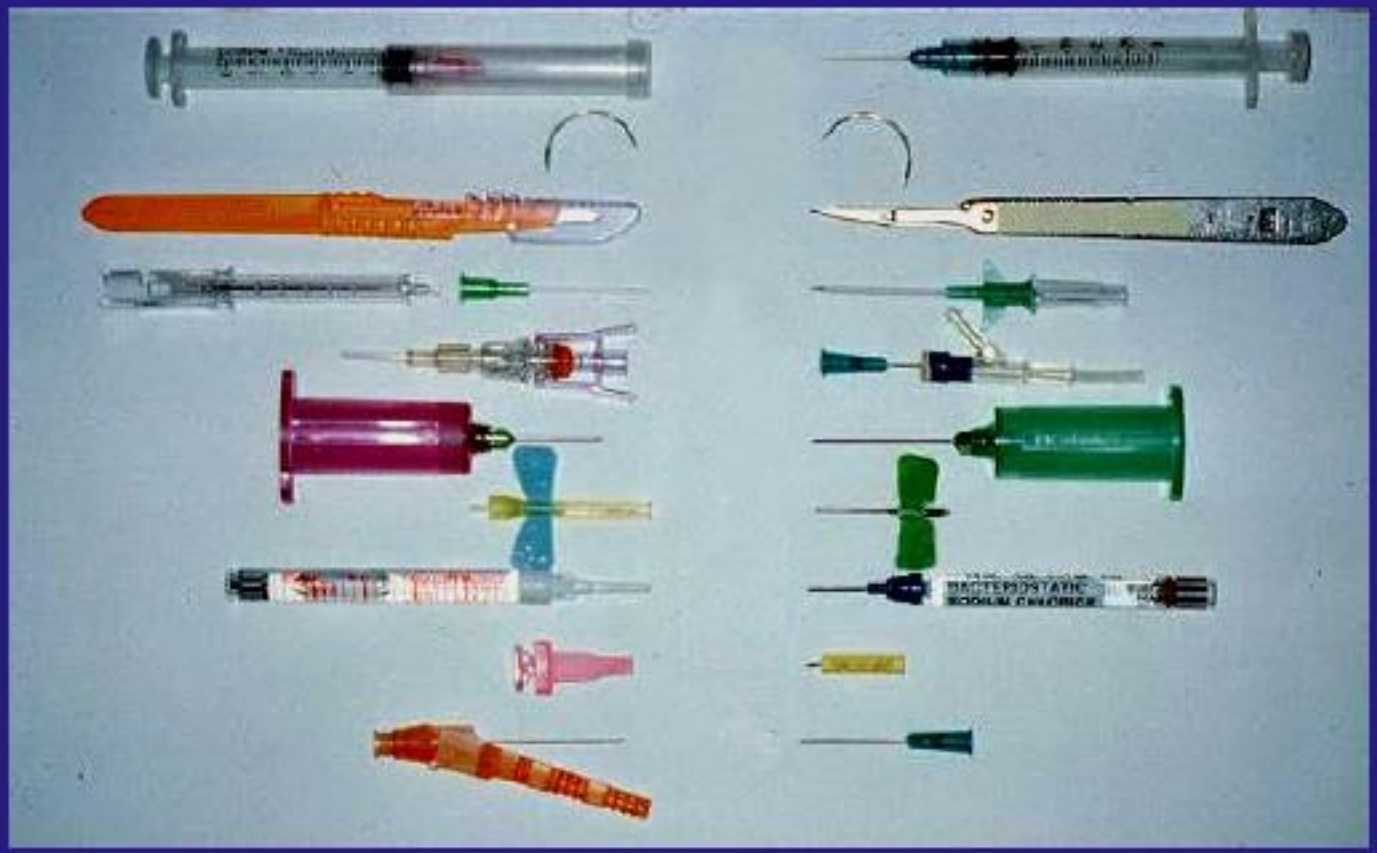
Sharps injuries overview

A sharps injury is a penetrating stab wound from a needle, scalpel, or other sharp object that may result in exposure to blood or other body fluids. Sharps injuries are typically the result of using dangerous equipment in a fast-paced, stressful, and understaffed environment. These strenuous demands often produce feelings of fatigue, frustration, and occasionally anger.

Progress: The Emergence of Engineering Controls, Safer Medical Devices

A New Generation of Protective Devices

safety-engineered devices conventional devices



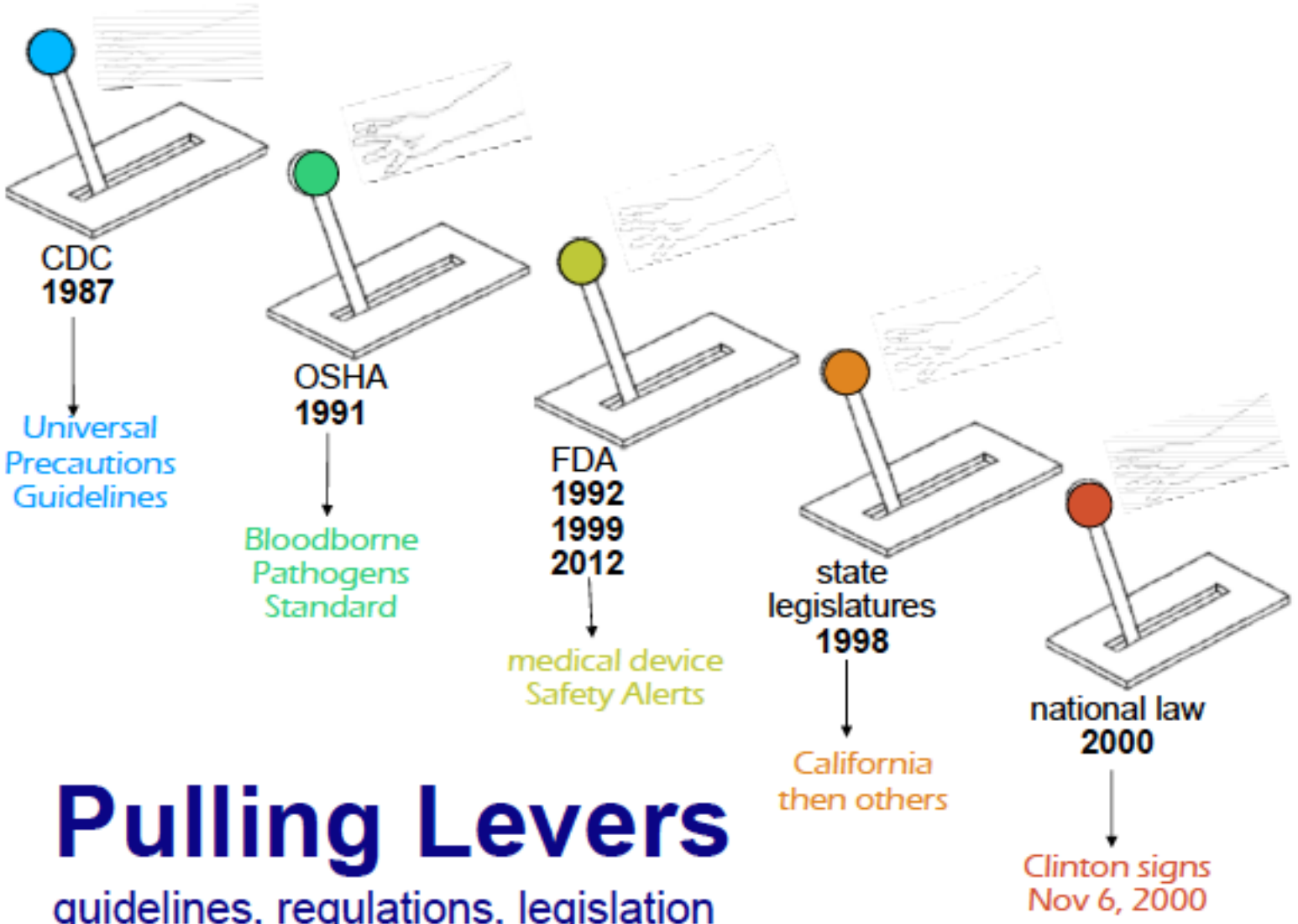
Courtesy Dr. J Jagger

Safer Medical Devices

Efforts Grew Nationally…

Shared Data & National Collaborations

- Localized Data
- Statewide Data, Reportable Disease (HIV, HBV, HCV)
- National Data; CDC
- Academic Researchers
  - UVA
  - TDICT
- Healthcare Organizations
- Professional Associations
- Organized Labor, Unions
- Regulatory Bodies
- State Legislature

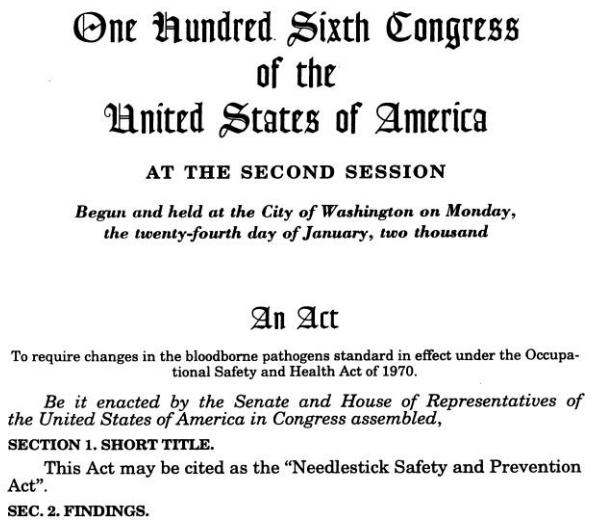


Courtesy Dr. J Jagger

The Needlestick Safety and Prevention Act

November 6, 2000

Needlestick Safety & Prevention Act



One Hundred Sixth Congress
of the
United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Monday, the twenty-fourth day of January, two thousand

An Act

To require changes in the bloodborne pathogens standard in effect under the Occupational Safety and Health Act of 1970.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Needlestick Safety and Prevention Act".

SEC. 2. FINDINGS.

- Passed Unanimously by Congress, 2000
- Amended the 1992 OSHA Bloodborne Pathogens Standard
- Set Forth Additional Requirements Based on New Knowledge, Technologies
- Enforceable by Law / Regulation in all 50 States
- Impacted Overall Reduction of Injuries and Exposures

Additions from Needlestick Safety & Prevention Act

- Exposure Control Plan
- Methods of Control
  - Engineering Controls: Safety Engineered Devices
  - PPE
  - Regulated Waste
- Frontline Non-Managerial Employee Evaluation
- Hazard Identification & Labelling
- Recordkeeping
  - Sharps Injury Log
- Training; initial and annual
- HBV Vaccine
- Post-Exposure Follow-up and Prophylaxis

SAFETY FEATURE EVALUATION FORM

VACUUM TUBE BLOOD COLLECTION SYSTEMS

Date: _____ Department: _____ Occupation: _____

Product: _____ Number of times used: _____

Please **circle** the most appropriate answer for each question. Not applicable (N/A) may be used if the question does not apply to this particular product.

agree.....disagree

1. The safety feature can be activated using a one-handed technique..... 1 2 3 4 5 N/A
2. The safety feature **does not** interfere with normal use of this product.....1 2 3 4 5 N/A
3. Use of this product requires you to use the safety feature..... 1 2 3 4 5 N/A

Establishment/Facility Name: _____

Sample Sharps Injury Log Year 2____

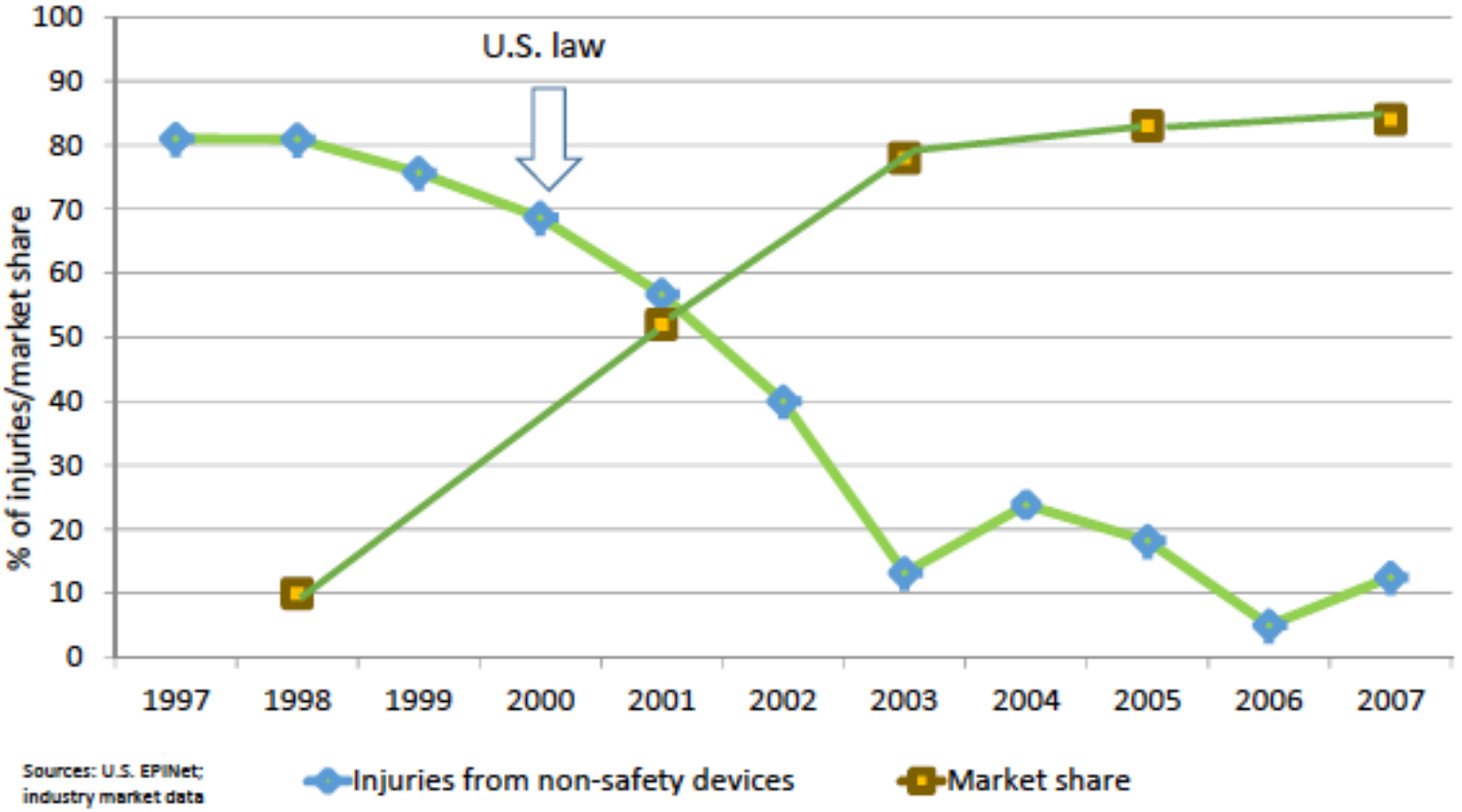
Date	Case/ Report No.	Type of Device (e.g., syringe, suture needle)	Brand Name of Device	Work Area where injury occurred [e.g., Geriatrics, Lab]	Brief description of how the incident occurred [i.e., procedure being done, action being performed (disposal, injection, etc.), body part injured]

29 CFR 1910.1030, OSHA's Bloodborne Pathogens Standard, in paragraph (h)(5), requires an employer to establish and maintain a Sharps Injury Log for recording all percutaneous injuries in a facility occurring from *contaminated* sharps. The purpose of the Log is to aid in the evaluation of devices being used in healthcare and other facilities and to identify problem devices or procedures requiring additional attention or review. This log must be kept in addition to the injury and illness log required by 29 CFR 1904. The Sharps Injury Log should include all sharps injuries occurring in a calendar

US Impact of National Regulations

Figure 2. United States, 1997-2007: National Market Share of Safety Phlebotomy Needles Compared to Decreasing Proportion of Needlesticks from Conventional (Non-Safety) Phlebotomy Needles

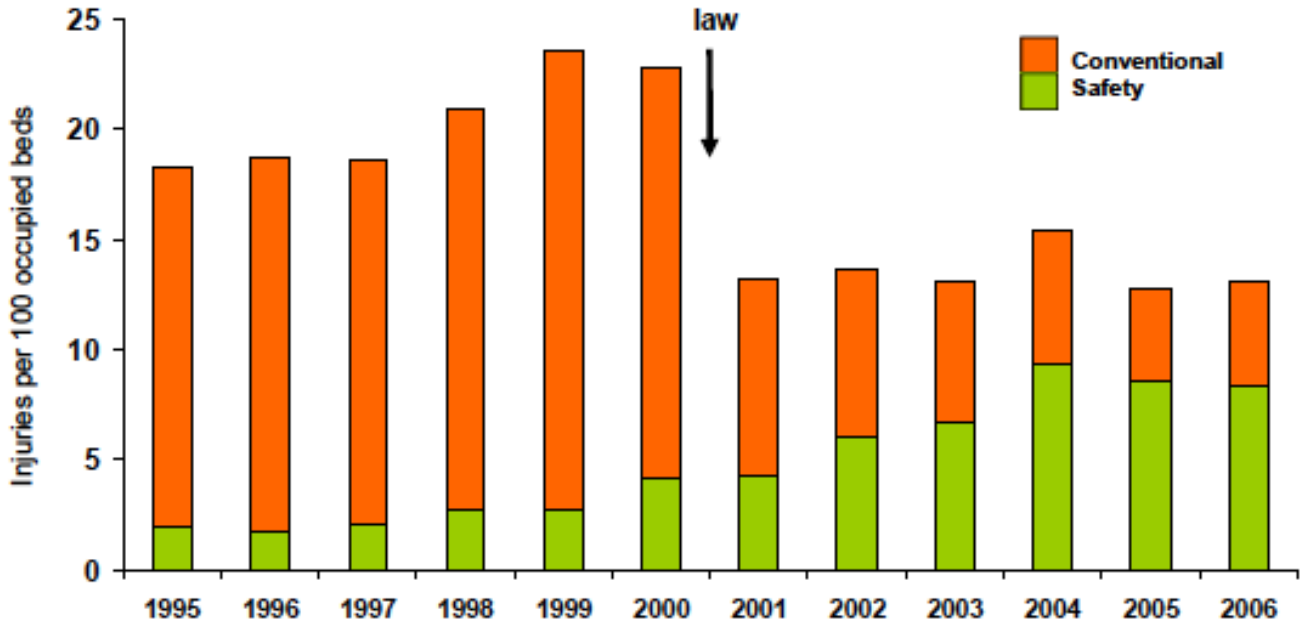
Total injuries from phlebotomy needles = 678; injuries from non-safety (conventional) phlebotomy needles = 425



Sources: U.S. EPINet; industry market data

Injury Rates from Hollow-bore Needles: Safety versus Conventional, U.S. EPINet 1995-2006

87 hospitals; total injuries = 24,440 (excludes injuries occurring before use of device)

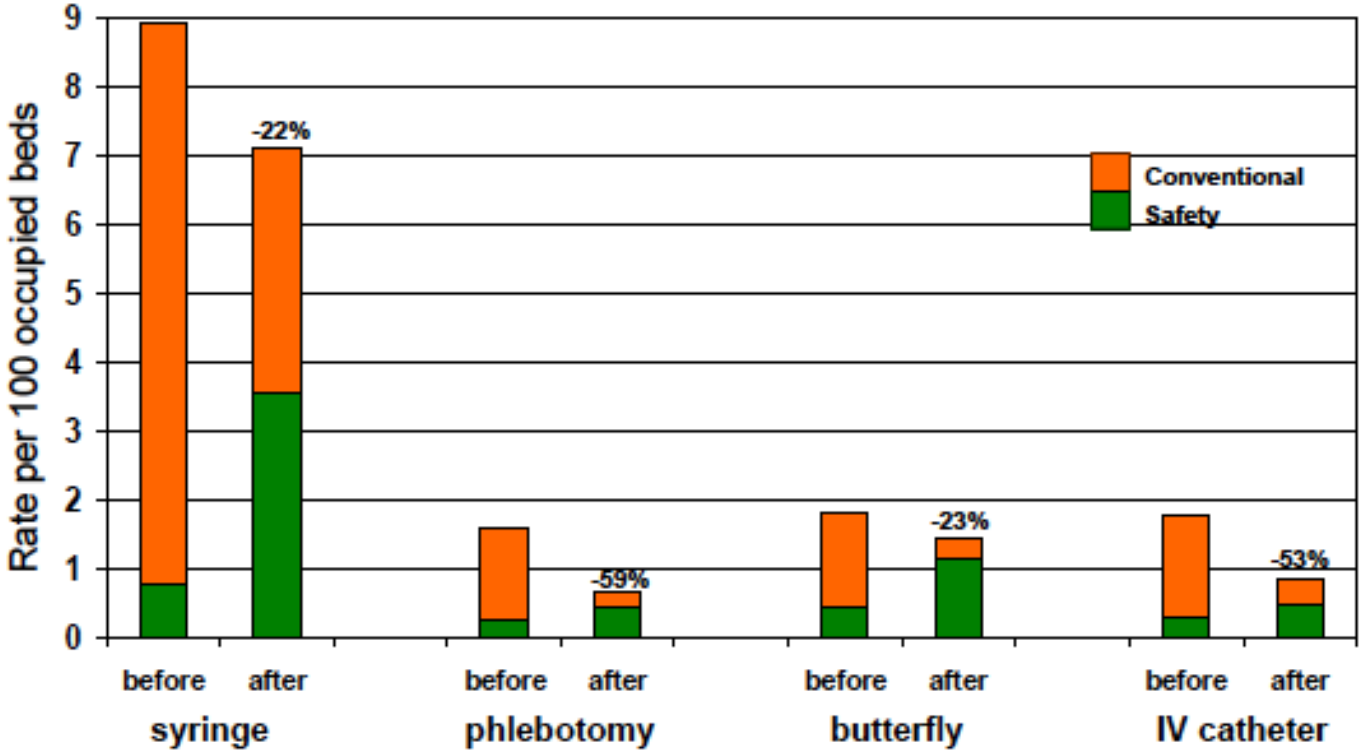


International Healthcare Worker Safety Center, University of Virginia

Figure 3

Device Specific Injury Rates Before (1993-2000) versus After (2001-2004)

US EPINet 1993-2004: 87 hospitals; total injuries = 10,778. Excludes injuries occurring before use of device



International Healthcare Worker Safety Center, University of Virginia

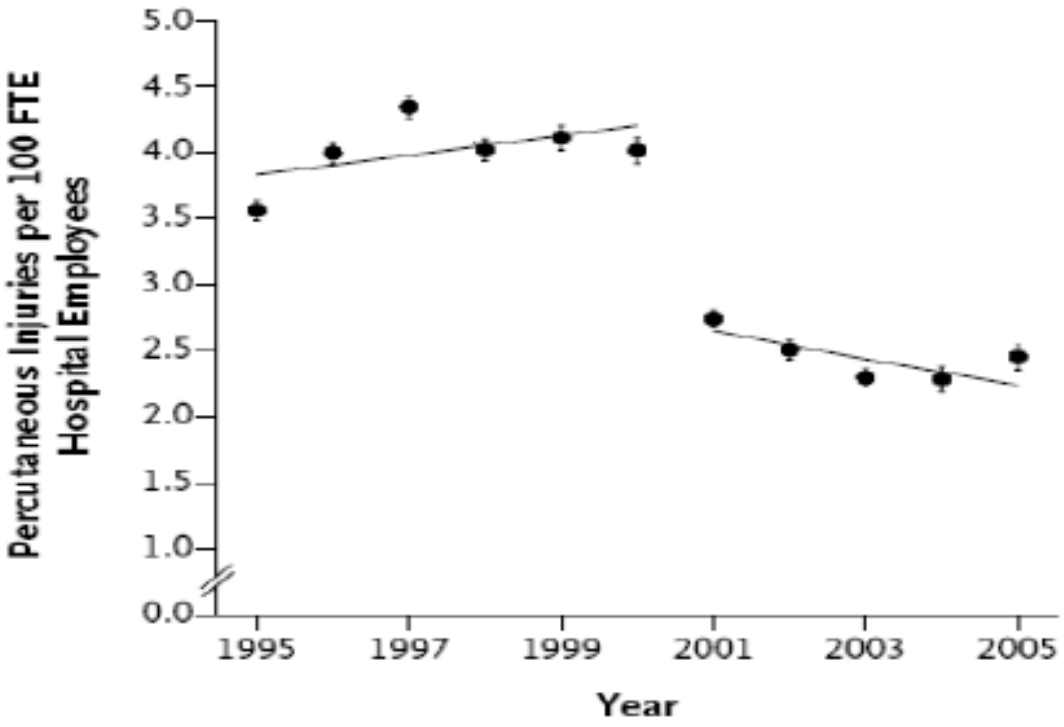
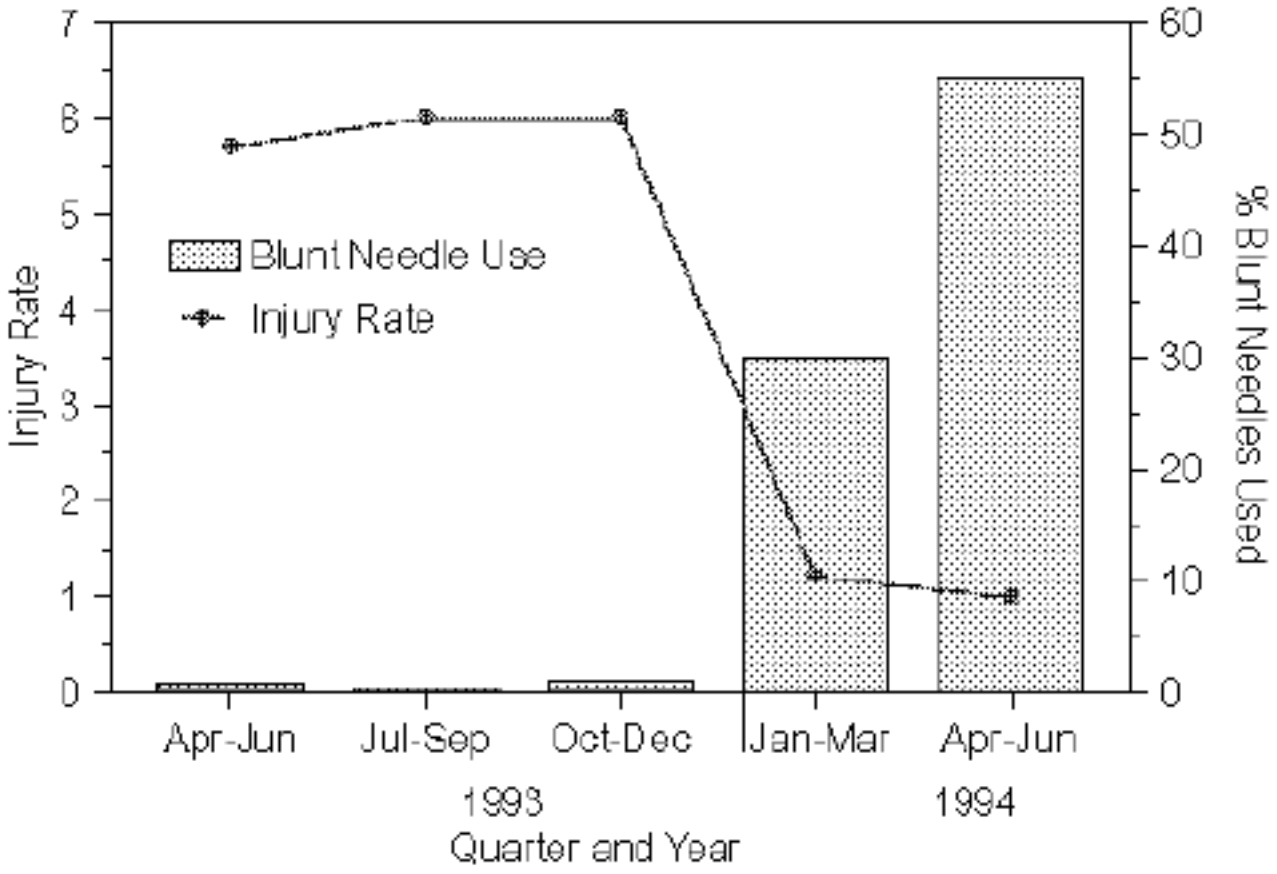


Figure 1. Annual Rates of Percutaneous Injuries per 100 Full-Time–Equivalent (FTE) Hospital Employees.

The mean (±SE) rates of percutaneous injuries obtained from 85 selected hospitals are plotted for each year during an 11-year period (1995 through 2005). After enactment of the Needlestick Safety and Prevention Act in 2001, the rates have steadily declined.

N ENGL J MED 366;7 NEJM.ORG FEBRUARY 16, 2012

FIGURE 1. Rate* of injury associated with use of curved suture needles during gynecologic surgical procedures and percentage of suture needles used that were blunt, by quarter — three hospitals, New York City, April 1993–June 1994



*Per 100 procedures.

U.S. Food and Drug Administration
Protecting and Promoting Your Health

Blunt-Tip Surgical Suture Needles Reduce Needlestick Injuries and the Risk of Subsequent Bloodborne Pathogen Transmission to Surgical Personnel: FDA, NIOSH and OSHA Joint Safety Communication

Date Issued: May 30, 2012

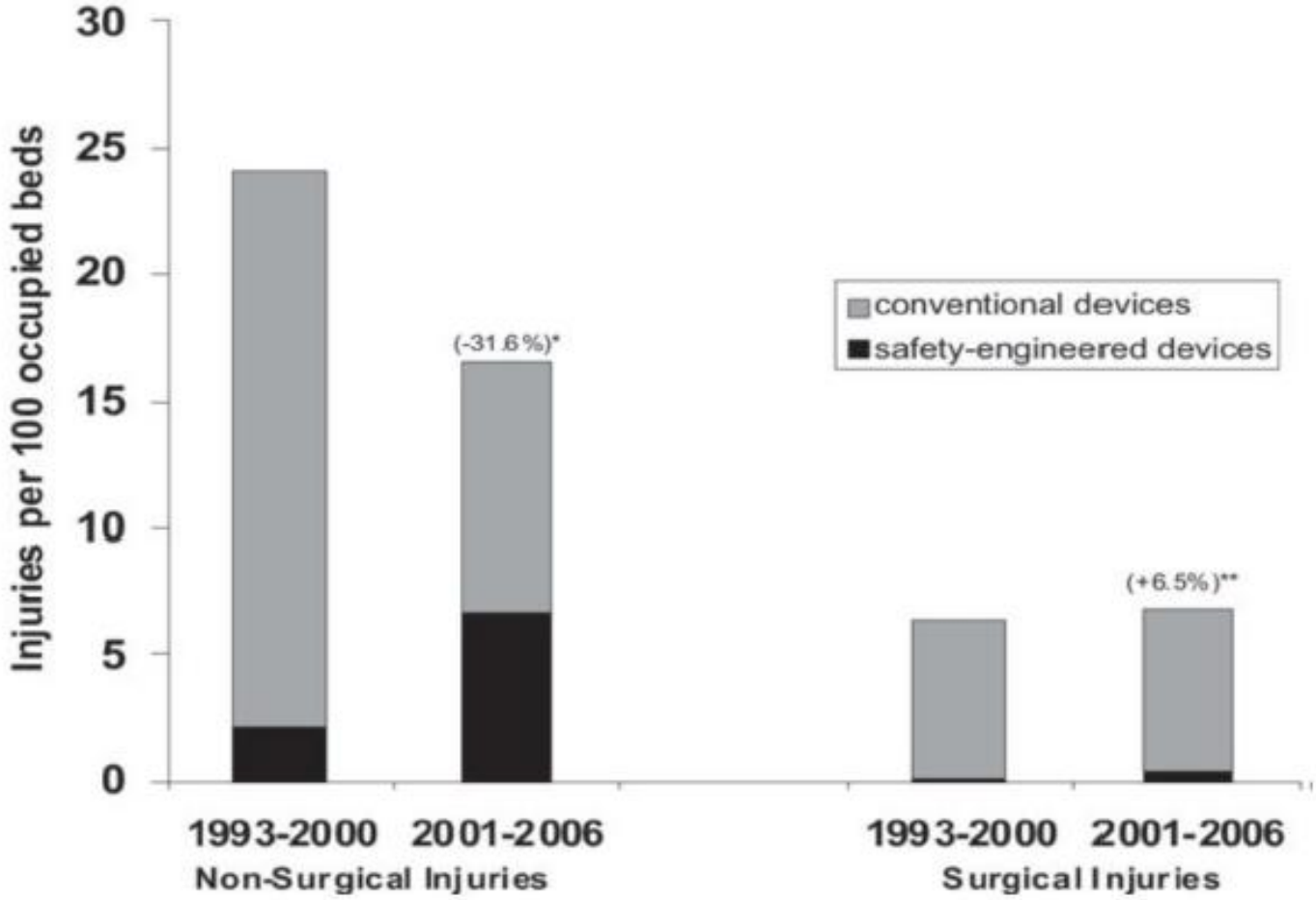
Audience: Surgeons, Operating Room Supervisors, Perioperative Nurses, Hospital Administrators, Hospital Risk Managers, Occupational Health & Safety Managers, Infection Preventionists, Surgeon Educators, Surgical Residents, Medical School Administrators/Faculty, and other Personnel

Medical Specialties: General Surgery, Urology, Obstetrics/Gynecology, Orthopedics, Anesthesiology, Surgical Technology, and any specialty that includes surgery of the muscle or fascia

Purpose: The Food and Drug Administration (FDA), the Centers for Disease Control and Prevention's (CDC) National Institute for Occupational Safety and Health (NIOSH), and the Occupational Safety and Health Administration (OSHA) strongly encourage health care professionals to use blunt-tip suture needles as an alternative to standard suture needles when suturing fascia and muscle to decrease the risk of needlestick injury.

Blunt-Tip Suture Needles:
Blunt-tip suture needles (Figure 1), which are not as sharp as standard (sharp-tip) suture needles, are designed to penetrate muscle and fascia and reduce the risk of needlesticks. Blunt-tip suture needles are regulated by the FDA and have been marketed in the U.S. for more than 25 years.

Summary of Problem and Scope:
Needlestick injuries continue to occur in surgical settings when suturing muscle and fascia, despite the availability of safety-engineered devices, such as blunt-tip suture needles, and the endorsement of their use by professional organizations.



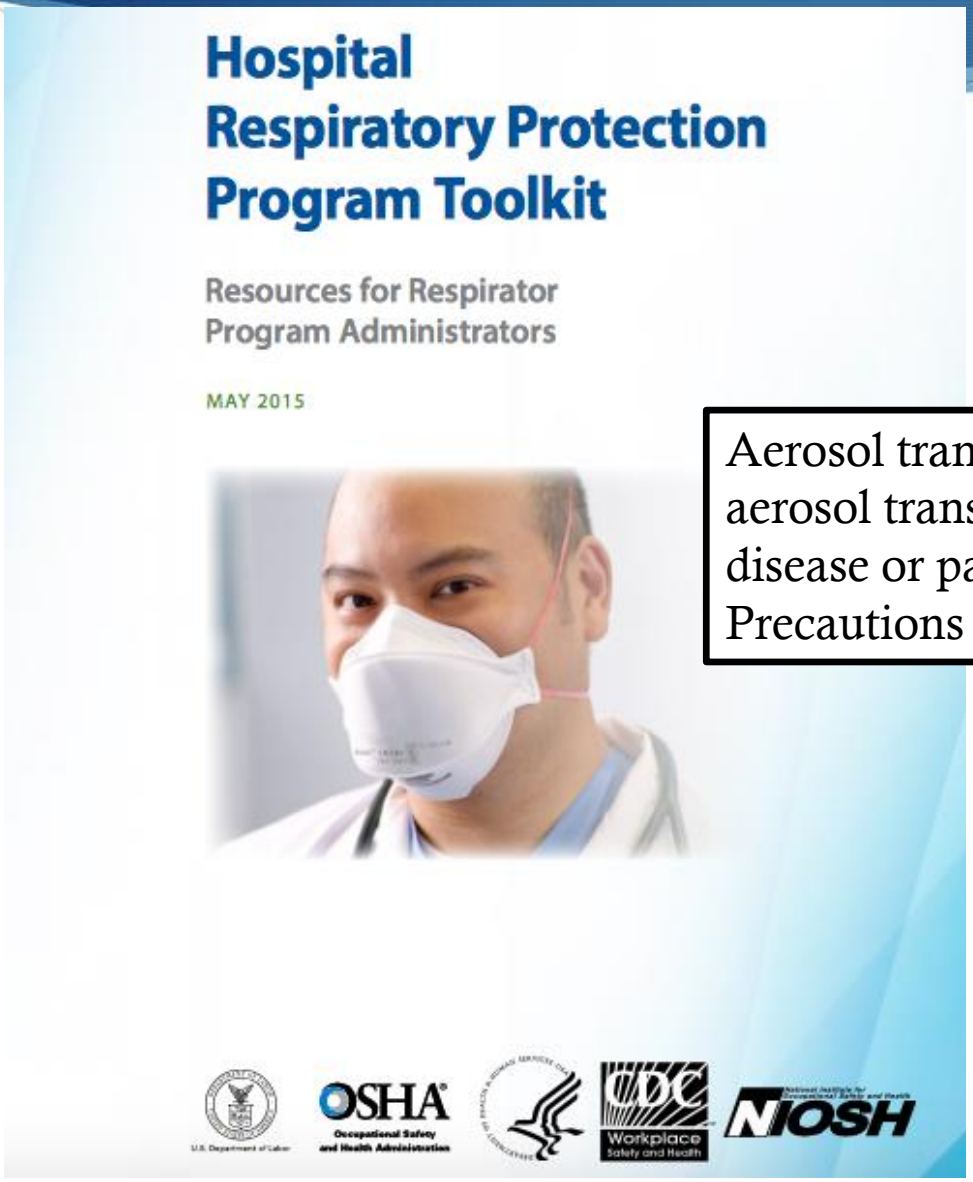
J AmColl Surg 2010;210:496–502.

Additional Standards for Biological Hazards

OSHA Infectious Disease Standard

- For non-Bloodborne Pathogens
- CalOSHA Aerosol Transmissible Disease Standard
- Occupational exposure during "direct patient care"
- Worker Infection Control Plan
  - Infectious Agent Hazard Analysis

Respiratory Protection Standard



Aerosol transmissible disease (ATD) or aerosol transmissible disease pathogen—Any disease or pathogen requiring Airborne Precautions and/ or Droplet Precautions.

Includes Fit Testing for Biological Hazards like TB, Flu

Available online: https://www.osha.gov/Publications/OSHA3767.pdf

OSHA Personal Protective Equipment Standard

UNITED STATES DEPARTMENT OF LABOR

Find it in OSHA

Occupational Safety & Health Administration

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For Workers | For Employers | Law & Regulations | Data & Statistics | Enforcement | Training & Education | News & Publications

En Español

SAFETY AND HEALTH TOPICS

Personal Protective Equipment

Standards | Hazards and Solutions | Payment for Personal Protective Equipment | Construction | Safety and Health Topics

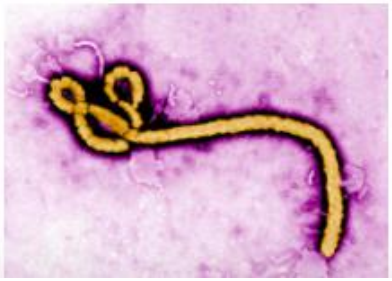
What is personal protective equipment?

Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. Personal protective equipment may include items such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, or coveralls, vests and full body suits.

What can be done to ensure proper use of personal protective equipment?

All personal protective equipment should be safely designed and constructed, and should be maintained in a clean and reliable fashion. It should fit comfortably, encouraging worker use. If the personal protective equipment does not fit properly, it can make the difference between being safely covered or dangerously exposed. When engineering, work practice, and administrative controls are not feasible or do not provide sufficient protection, employers must provide personal protective equipment to their workers and ensure its proper use. Employers are also required to train each worker required to use personal protective equipment to know:

In Focus: Ebola



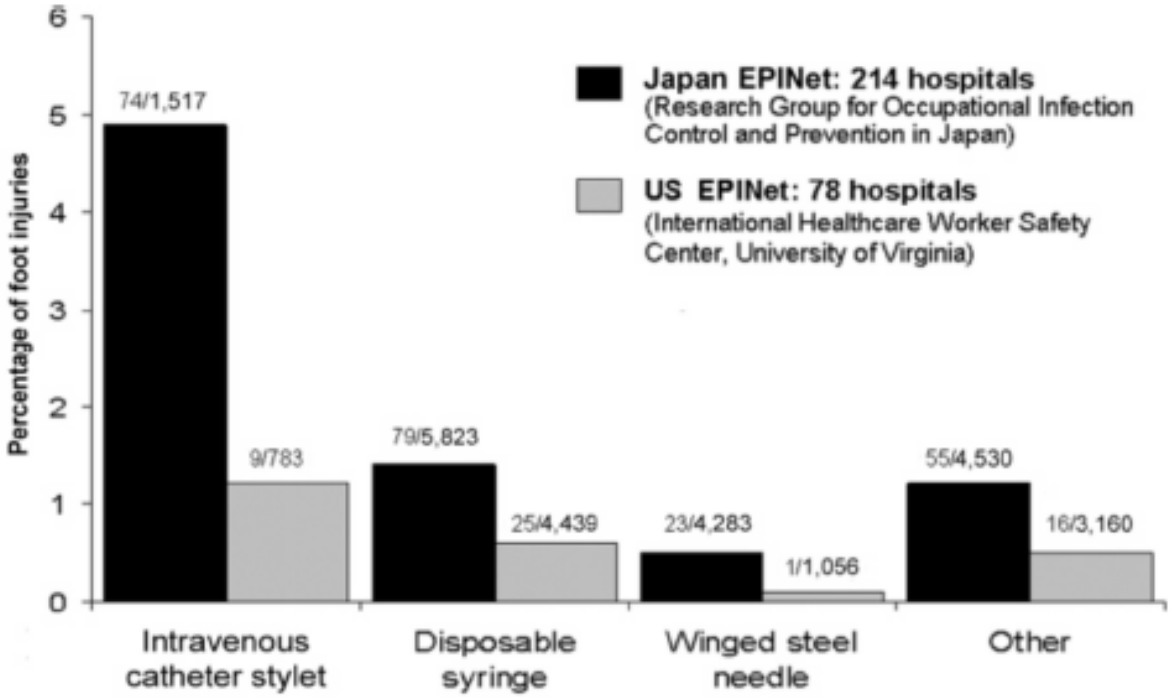
https://www.osha.gov/SLTC/personalprotectiveequipment/

Expanded Internationally… Collaborations from Around the Globe

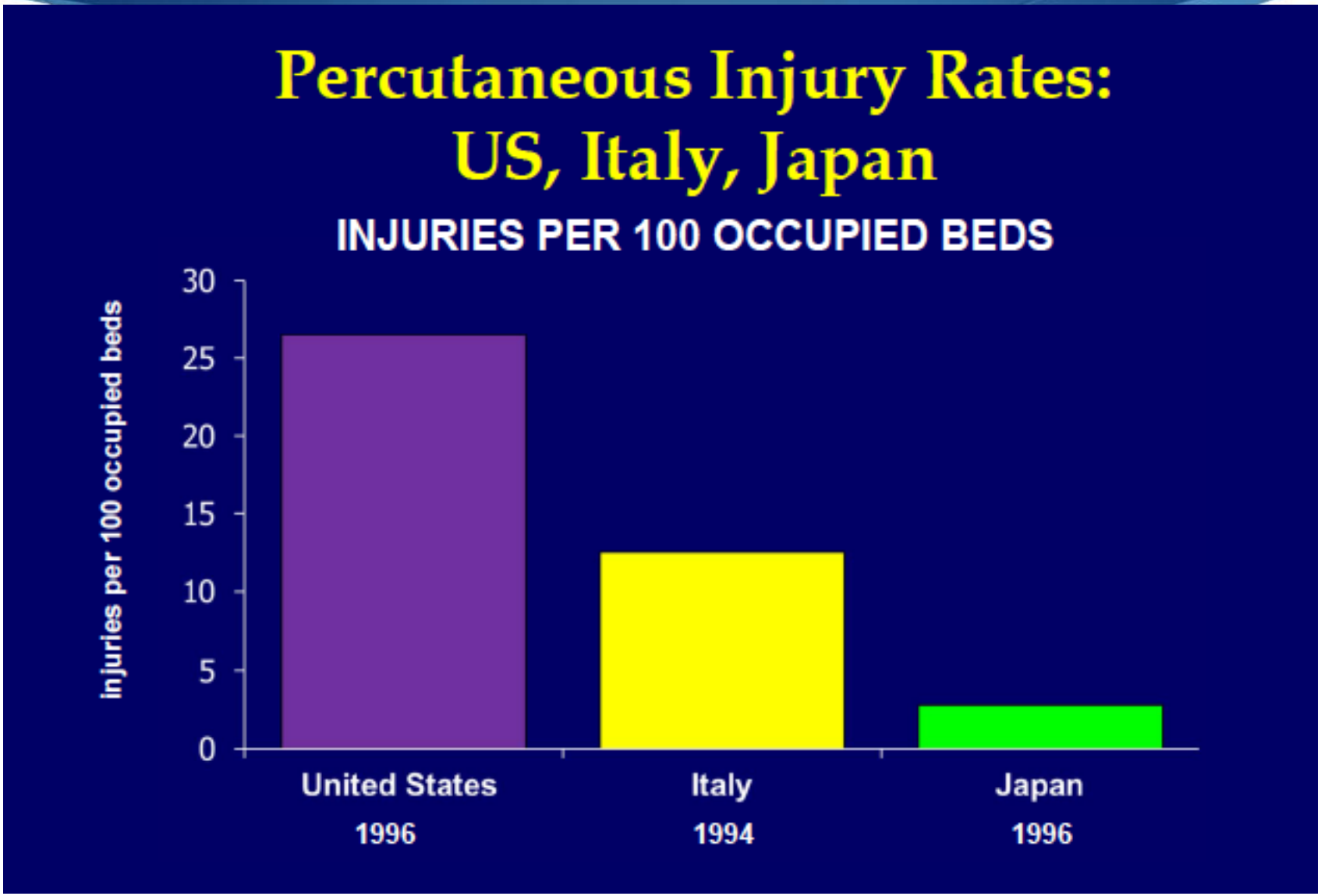
INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY FEBRUARY 2007, VOL. 28, NO. 2

Needlestick Injuries to the Feet of Japanese Healthcare Workers: A Culture-Specific Exposure Risk

Toru Yoshikawa, MD; Kiyoshi Kidouchi, MD, PhD; Satoshi Kimura, MD, PhD; Takashi Okubo, MD, PhD; Jane Perry, MA; Janine Jagger, MPH, PhD



Percutaneous Injury Rates: US, Italy, Japan



American Journal of Infection Control
Volume 39, Issue 7, September 2011, Pages 580–585

Benchmarking of percutaneous injuries at a teaching tertiary care center in Saudi Arabia relative to United States hospitals participating in the Exposure Prevention Information Network

Hanan H. Balkhy, MD, MMed, FAAP, CIC[a, b], Kamel E. El Beltagy, MD, PhD[a], Aiman El-Saed, MD, PhD[a, b], Mahmoud Salliah, MD[a], Janine Jagger, MPH, PhD[c]

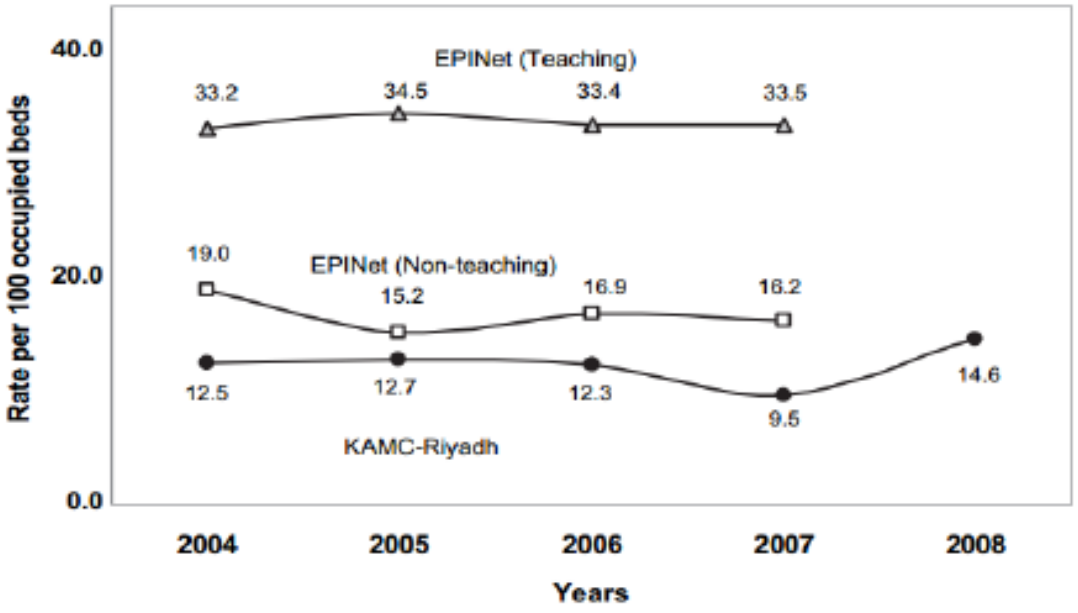


Fig 1. Annual percutaneous injuries rates per 100 daily occupied beds in KAMC-R (2004-2008) and US EPINet teaching and nonteaching hospitals (2004-2007).

Zambia versus US

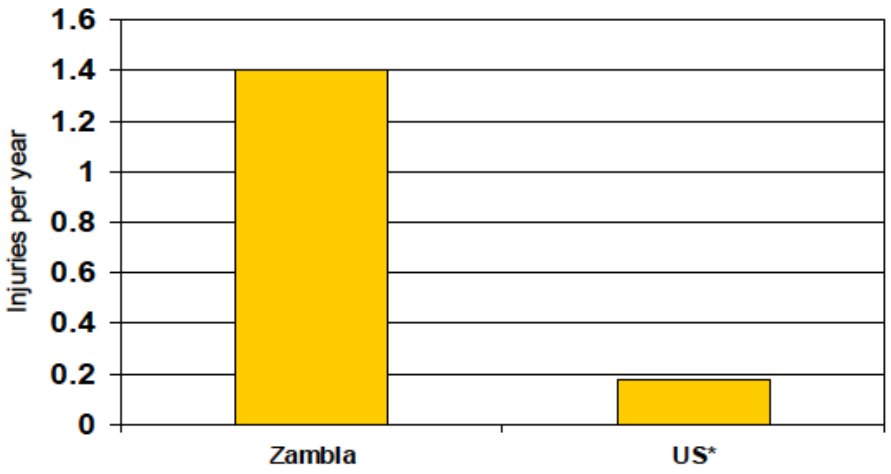
Population prevalence of:

	HIV	HBV	HCV
Zambia	17%	30%	10%
US	0.3%	5%	1.8%

J Jagger, O Simwale, International Healthcare Worker Safety Center, University of Virginia, 2007

J Jagger, O Simwale, International Healthcare Worker Safety Center, University of Virginia, 2007

Average Number of Injuries per HCW per Year Zambia versus the US



*Jagger J, De Carli G, Perry J, Puro V, Ippolito G. Occupational exposure to bloodborne pathogens: epidemiology and prevention. In: Wenzel RP, editor. Prevention and Control of Nosocomial Infections. 4 ed. Lippincott Williams & Wilkins; 2003 p. 430-465.

Surveillance Today: International Safety Center & EPINet

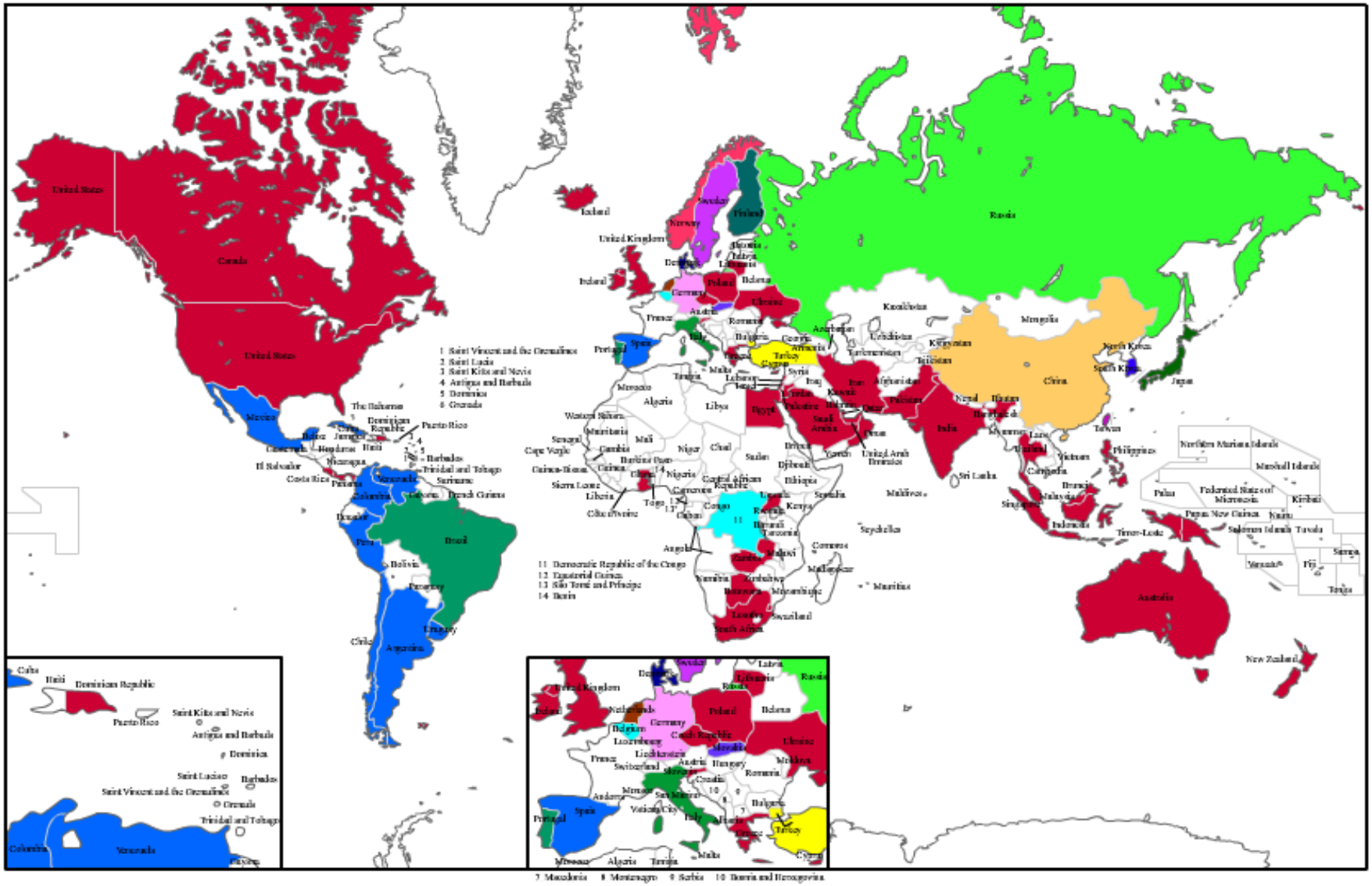
Safety Center Overview

- Free Standing 501c3 Non-Profit Research and Education Center
- Originally at University of Virginia, led by Dr. Janine Jagger
- Since 1992
- Network of US Hospitals, Contributing Aggregate Data
- Summary Data Reported Annually
- Reports Used to Drive Policy and Practice

Global Distribution Model

EPINet Distribution Around the World Color-Coded by Language

96 Countries, 24 Languages



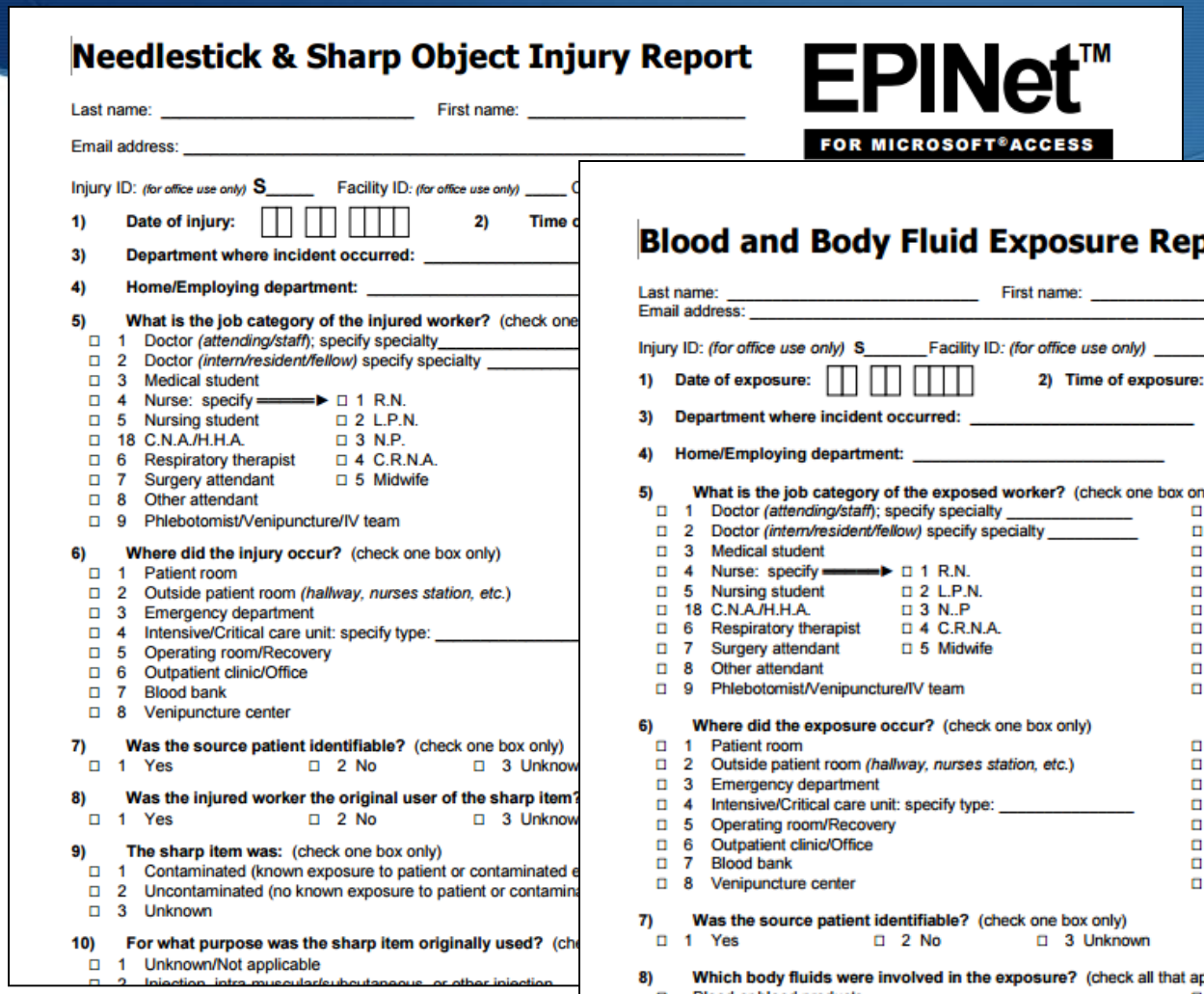
US Distribution Model & Hospital Network

~30 U.S. Hospitals & Health Systems

Many Reporting to Aggregate since mid-1990s; Needlestick Safety & Prevention Act / OSHA BPS Champion Hospitals

2012-2014 EPINet Contributing Hospitals

St. Vincent Health Care (Erie, PA)
St. Joseph Hospital (Omaha, NE)
Abbeville County Memorial Hospital (Abbeville, SC)
AnMed Health Foundation (Anderson, SC)
Beaufort Memorial Hospital (Beaufort, SC)
Cannon Memorial Hospital (Pickens SC)
Conway Medical Center and Kingston Nursing Center and Conway Hospital Community
Fairfield Memorial Hospital (Winnsboro, SC)
Greenville Memorial Medical Campus (Greenville, SC)
Greer Memorial Hospital and Practice Groups (formerly Allen Bennett) (Greer, SC)
Greer Memorial Cottages at Bushy Creek (formerly Roger Huntington) (Greer, SC)
Hillcrest Memorial Hospital (Simpsonville, SC)
Laurens County Health System (Clinton, SC)
Lexington-Richland Alcohol and Drug Abuse Council (Columbia, SC)
Marshall I. Pickens Hospital (Greenville, SC)
Newberry County Memorial Hospital (Newberry, SC)
North Greenville Campus Long Term Acute Care, ER, and other Outpatient Services (Greenville, SC)
Patewood Hospital and Ambulatory Services (Greenville, SC)
Roger C. Peace Rehabilitation Hospital (Greenville, SC)
Self Regional Healthcare (Greenwood, SC)
Spartanburg Regional Healthcare (Spartanburg, SC)
Spartanburg Regional Healthcare System Village Hospital (Greer, SC)
Spartanburg Hospital for Restorative Care (Spartanburg, SC)
The Regional Medical Center of Orangeburg & Calhoun Counties (Orangeburg, SC)
Tuomey Regional Medical Center and Tuomey Medical Professionals (Sumter, SC)
Union Hospital District and Ellen Sager Nursing Home (Union, SC) and
Wallace Thomson Hospital and Carolina Health Associates (Union, SC)
Services (Conway, SC)



Needlestick & Sharp Object Injury Report

EPINet™ FOR MICROSOFT® ACCESS

Last name: _____ First name: _____

Email address: _____

Injury ID: *(for office use only)* S_____ Facility ID: *(for office use only)* _____ C

1) Date of injury: ☐☐ ☐☐ ☐☐☐☐ **2) Time o**

3) Department where incident occurred: _____

4) Home/Employing department: _____

5) What is the job category of the injured worker? (check one

- ☐ 1 Doctor *(attending/staff)*; specify specialty_____
- ☐ 2 Doctor *(intern/resident/fellow)* specify specialty _____
- ☐ 3 Medical student
- ☐ 4 Nurse: specify ⟹ ☐ 1 R.N.
- ☐ 5 Nursing student ☐ 2 L.P.N.
- ☐ 18 C.N.A./H.H.A. ☐ 3 N.P.
- ☐ 6 Respiratory therapist ☐ 4 C.R.N.A.
- ☐ 7 Surgery attendant ☐ 5 Midwife
- ☐ 8 Other attendant
- ☐ 9 Phlebotomist/Venipuncture/IV team

6) Where did the injury occur? (check one box only)

- ☐ 1 Patient room
- ☐ 2 Outside patient room *(hallway, nurses station, etc.)*
- ☐ 3 Emergency department
- ☐ 4 Intensive/Critical care unit: specify type: _____
- ☐ 5 Operating room/Recovery
- ☐ 6 Outpatient clinic/Office
- ☐ 7 Blood bank
- ☐ 8 Venipuncture center

7) Was the source patient identifiable? (check one box only)

☐ 1 Yes ☐ 2 No ☐ 3 Unknow

8) Was the injured worker the original user of the sharp item?

☐ 1 Yes ☐ 2 No ☐ 3 Unknow

9) The sharp item was: (check one box only)

- ☐ 1 Contaminated (known exposure to patient or contaminated e
- ☐ 2 Uncontaminated (no known exposure to patient or contamin
- ☐ 3 Unknown

10) For what purpose was the sharp item originally used? (ch

- ☐ 1 Unknown/Not applicable
- ☐ 2 Injection, intra-muscular/subcutaneous, or other injection

Blood and Body Fluid Exposure Report

EPINet™ FOR MICROSOFT® ACCESS
EXPOSURE PREVENTION ▸ INFORMATION NETWORK ▸

EPINet is a trademark of the University of Virginia.
Windows is a registered trademark of Microsoft Corporation in the United States and/or other countries.
Operates in Windows XP, Windows Vista, Windows 7, and Windows 8 Environments.
© 2000 Becton, Dickinson and Company.
Access 2010 US 4/2014

Last name: _____ First name: _____

Email address: _____

Injury ID: *(for office use only)* S_____ Facility ID: *(for office use only)* _____ Completed by: ___

1) Date of exposure: ☐☐ ☐☐ ☐☐☐☐ **2) Time of exposure:** ☐☐ ☐☐

3) Department where incident occurred: _____

4) Home/Employing department: _____

5) What is the job category of the exposed worker? (check one box only)

- ☐ 1 Doctor *(attending/staff)*; specify specialty _____
- ☐ 2 Doctor *(intern/resident/fellow)* specify specialty _____
- ☐ 3 Medical student
- ☐ 4 Nurse: specify ⟹ ☐ 1 R.N.
- ☐ 5 Nursing student ☐ 2 L.P.N.
- ☐ 18 C.N.A./H.H.A. ☐ 3 N..P
- ☐ 6 Respiratory therapist ☐ 4 C.R.N.A.
- ☐ 7 Surgery attendant ☐ 5 Midwife
- ☐ 8 Other attendant
- ☐ 9 Phlebotomist/Venipuncture/IV team
- ☐ 10 Clinical laboratory worker
- ☐ 11 Technologist *(non-lab)*
- ☐ 12 Dentist
- ☐ 13 Dental hygienist
- ☐ 14 Housekeeper
- ☐ 19 Laundry worker
- ☐ 20 Security
- ☐ 16 Paramedic
- ☐ 17 Other student
- ☐ 15 Other, describe: _____

6) Where did the exposure occur? (check one box only)

- ☐ 1 Patient room
- ☐ 2 Outside patient room *(hallway, nurses station, etc.)*
- ☐ 3 Emergency department
- ☐ 4 Intensive/Critical care unit: specify type: _____
- ☐ 5 Operating room/Recovery
- ☐ 6 Outpatient clinic/Office
- ☐ 7 Blood bank
- ☐ 8 Venipuncture center
- ☐ 9 Dialysis facility *(hemodialysis and peritoneal dialysis)*
- ☐ 10 Procedure room *(x-ray, EKG,etc)*
- ☐ 11 Clinical laboratories
- ☐ 12 Autopsy/Pathology
- ☐ 13 Service/Utility *(laundry,central supply,loading dock,etc)*
- ☐ 16 Labor and delivery room
- ☐ 17 Home-care
- ☐ 14 Other, describe: _____

7) Was the source patient identifiable? (check one box only)

☐ 1 Yes ☐ 2 No ☐ 3 Unknown ☐ 4 Not applicable

8) Which body fluids were involved in the exposure? (check all that apply)

- ☐ Blood or blood products
- ☐ Vomit
- ☐ Sputum
- ☐ Saliva
- ☐ CSF
- ☐ Peritoneal fluid
- ☐ Pleural fluid
- ☐ Amniotic fluid
- ☐ Urine
- ☐ Other, describe: _____

8a) Was the body fluid visibly contaminated with blood? ☐ Yes ☐ No ☐ Unknown

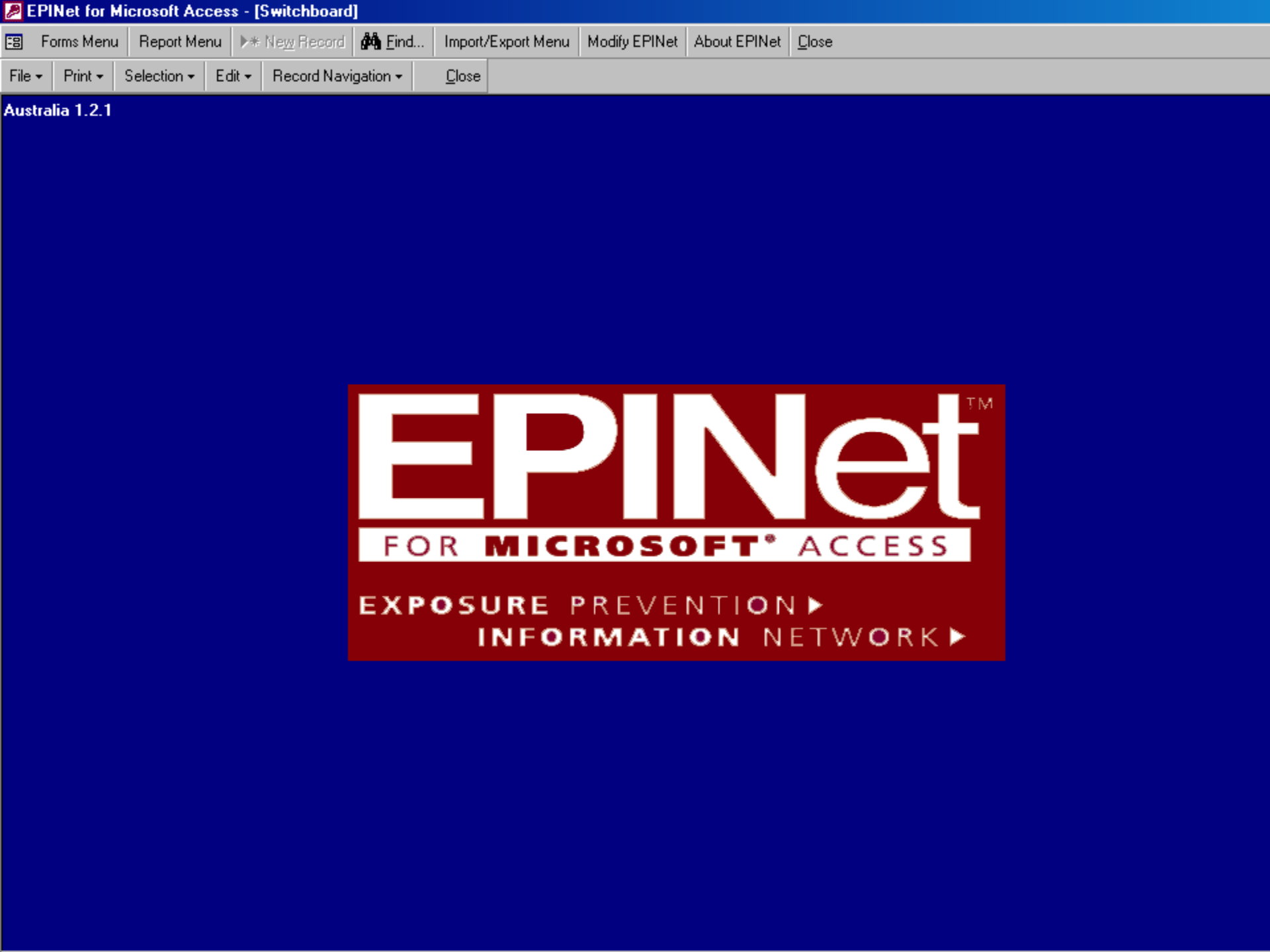
9) Was the exposed part? (check all that apply)

- ☐ Intact skin
- ☐ Non-intact skin
- ☐ Eyes *(conjunctiva)*
- ☐ Nose *(mucosa)*
- ☐ Mouth *(mucosa)*
- ☐ Other, describe: _____

10) Did the blood or body fluid? (check all that apply)

- ☐ Touch unprotected skin
- ☐ Touch skin between gap in protective garments
- ☐ Soak through barrier garment or protective garment
- ☐ Soak through clothing

Since 1992, acquired for 1,500 U.S. Hospitals and 96 countries!


EPINet for Microsoft Access - [Switchboard]
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Report Menu
New Record
Find...
Import/Export Menu
Modify EPINet
About EPINet
Close
File
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Edit
Record Navigation
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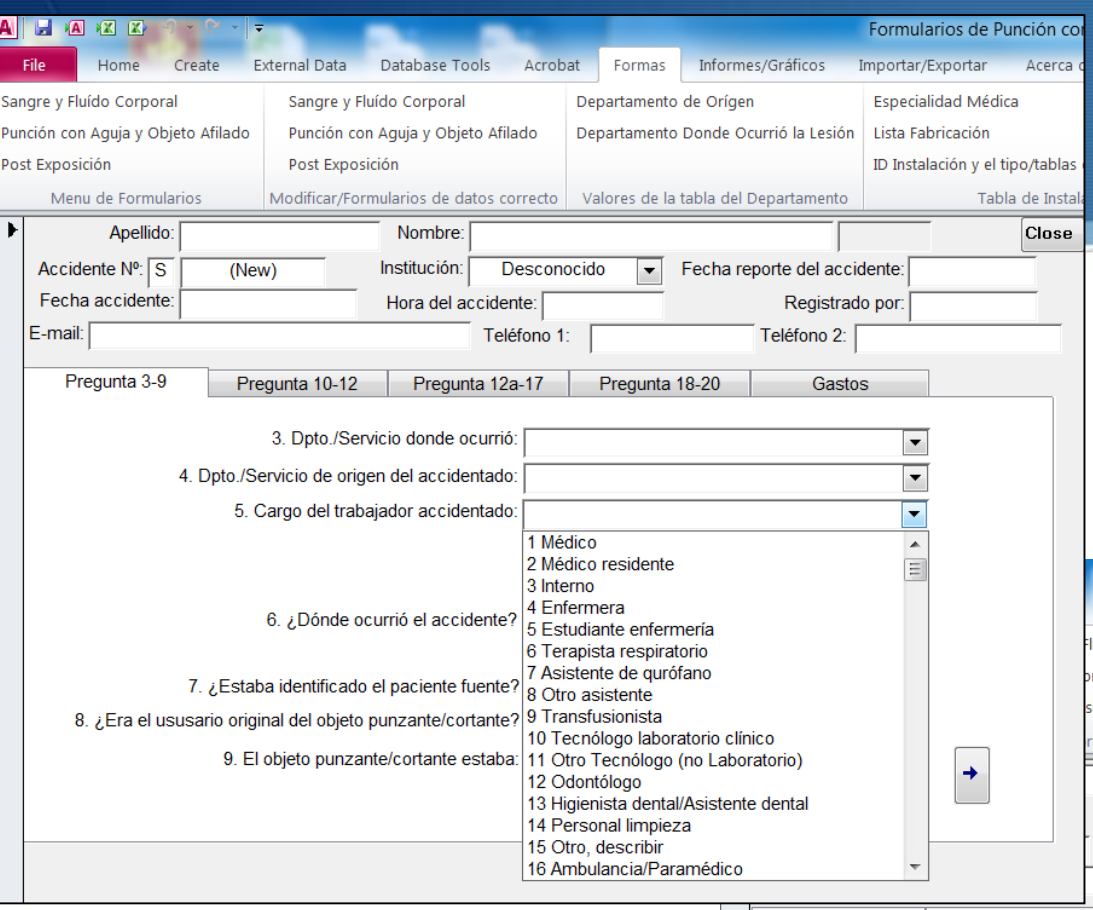
EPINet™
FOR MICROSOFT® ACCESS
EXPOSURE PREVENTION
INFORMATION NETWORK


Formularios de Punción co
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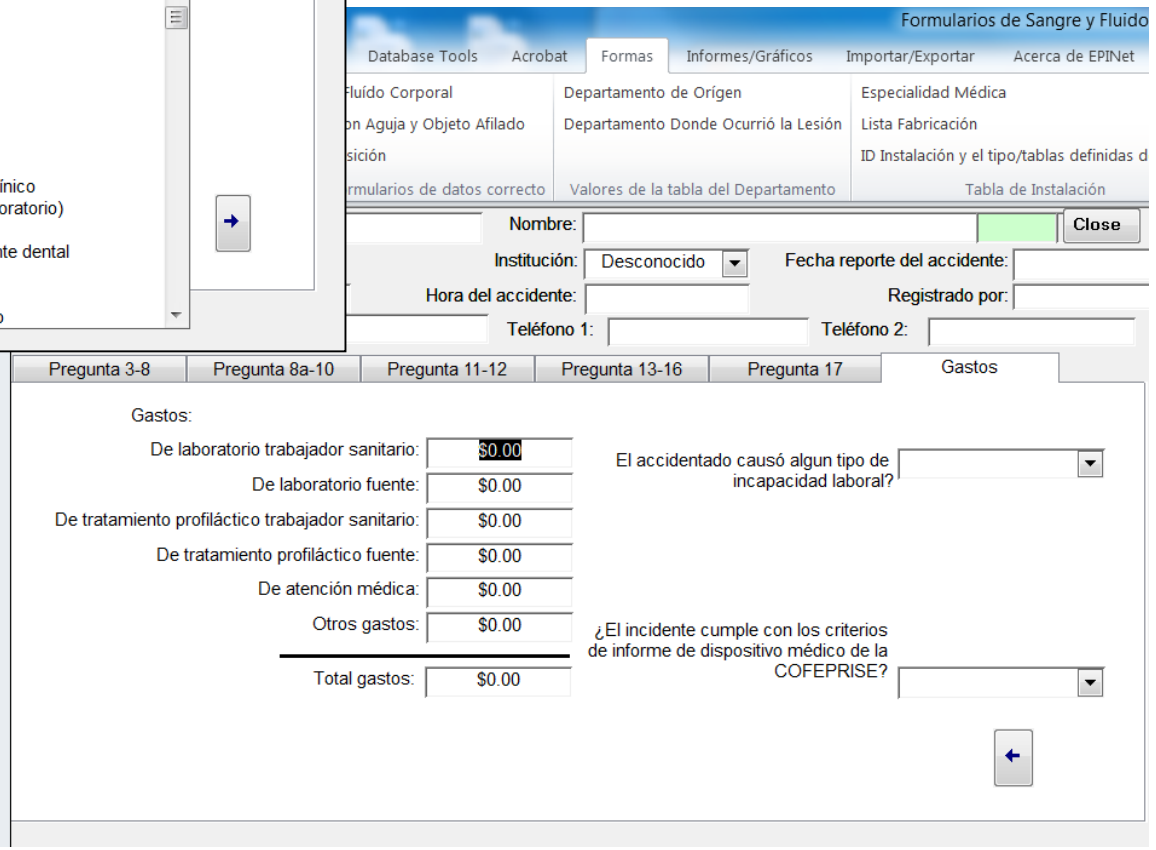
Sangre y Fluído Corporal
Punción con Aguja y Objeto Afilado
Post Exposición
Menu de Formularios
Sangre y Fluído Corporal
Punción con Aguja y Objeto Afilado
Post Exposición
Modificar/Formularios de datos correcto
Departamento de Orígen
Departamento Donde Ocurrió la Lesión
Valores de la tabla del Departamento
Especialidad Médica
Lista Fabricación
ID Instalación y el tipo/tablas
Apellido:
Nombre:
Close
Accidente Nº:
S
(New)
Institución:
Desconocido
Fecha reporte del accidente:
Fecha accidente:
Hora del accidente:
Registrado por:
E-mail:
Teléfono 1:
Teléfono 2:
Pregunta 3-9
Pregunta 10-12
Pregunta 12a-17
Pregunta 18-20
Gastos
3. Dpto./Servicio donde ocurrió:
4. Dpto./Servicio de origen del accidentado:
5. Cargo del trabajador accidentado:
6. ¿Dónde ocurrió el accidente?
7. ¿Estaba identificado el paciente fuente?
8. ¿Era el ususario original del objeto punzante/cortante?
9. El objeto punzante/cortante estaba:
1 Médico
2 Médico residente
3 Interno
4 Enfermera
5 Estudiante enfermería
6 Terapista respiratorio
7 Asistente de quirófano
8 Otro asistente
9 Transfusionista
10 Tecnólogo laboratorio clínico
11 Otro Tecnólogo (no Laboratorio)
12 Odontólogo
13 Higienista dental/Asistente dental
14 Personal limpieza
15 Otro, describir
16 Ambulancia/Paramédico


Formularios de Sangre y Fluido
Database Tools
Acrobat
Formas
Informes/Gráficos
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Acerca de EPINet
Departamento de Orígen
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Valores de la tabla del Departamento
Especialidad Médica
Lista Fabricación
ID Instalación y el tipo/tablas definidas d
Tabla de Instalación
Nombre:
Close
Institución:
Desconocido
Fecha reporte del accidente:
Hora del accidente:
Registrado por:
Teléfono 1:
Teléfono 2:
Pregunta 3-8
Pregunta 8a-10
Pregunta 11-12
Pregunta 13-16
Pregunta 17
Gastos
Gastos:
De laboratorio trabajador sanitario:
$0.00
De laboratorio fuente:
$0.00
De tratamiento profiláctico trabajador sanitario:
$0.00
De tratamiento profiláctico fuente:
$0.00
De atención médica:
$0.00
Otros gastos:
$0.00
Total gastos:
$0.00
El accidentado causó algun tipo de incapacidad laboral?
¿El incidente cumple con los criterios de informe de dispositivo médico de la COFEPRISE?

2014 EPINet Summary Data

EPINet Incident Reports

- Contaminated Needlesticks and Sharps Injuries
- Blood and Body Fluid Splashes and Splatters
- Incidents Reported to Employee/Occupational Health
- Recorded
- De-identified, Aggregate Data Shared with Safety Center
- Analyzed Annually, Ratio Created Using Average Daily Census (ADC)

2014 Summary Sharp Object Injuries (SOIs)

- 24.7 Injury Incident Reports / 100 Average Daily Census (ADC)
- 27.2 / 100 ADC; Teaching Facilities
- 20.4 / 100 ADC; Non-Teaching Facilities

5. What is the job category of the injured worker?

1	Doctor (attending.staff) specialty	100	16.8%
2	Doctor (intern/resident/fellow) specialty	39	6.6%
3	Medical student	6	1.0%
4	Nurse	243	40.8%
5	Nursing student	2	0.3%
6	Respiratory therapist	8	1.3%
7	Surgery attendant	49	8.2%
8	Other attendant	5	0.8%
9	Phlebotomist/ Venipuncture/ IV team	31	5.2%
10	Clinical laboratory worker	5	0.8%
11	Technologist (non lab)	33	5.5%
14	Housekeeper	12	2.0%
15	Other, describe	55	9.2%
16	Paramedic	1	0.2%
18	C.N.A./H.H.A.	5	0.8%
20	Security	1	0.2%

Total records: 595

10. For what purpose was the sharp item originally used?

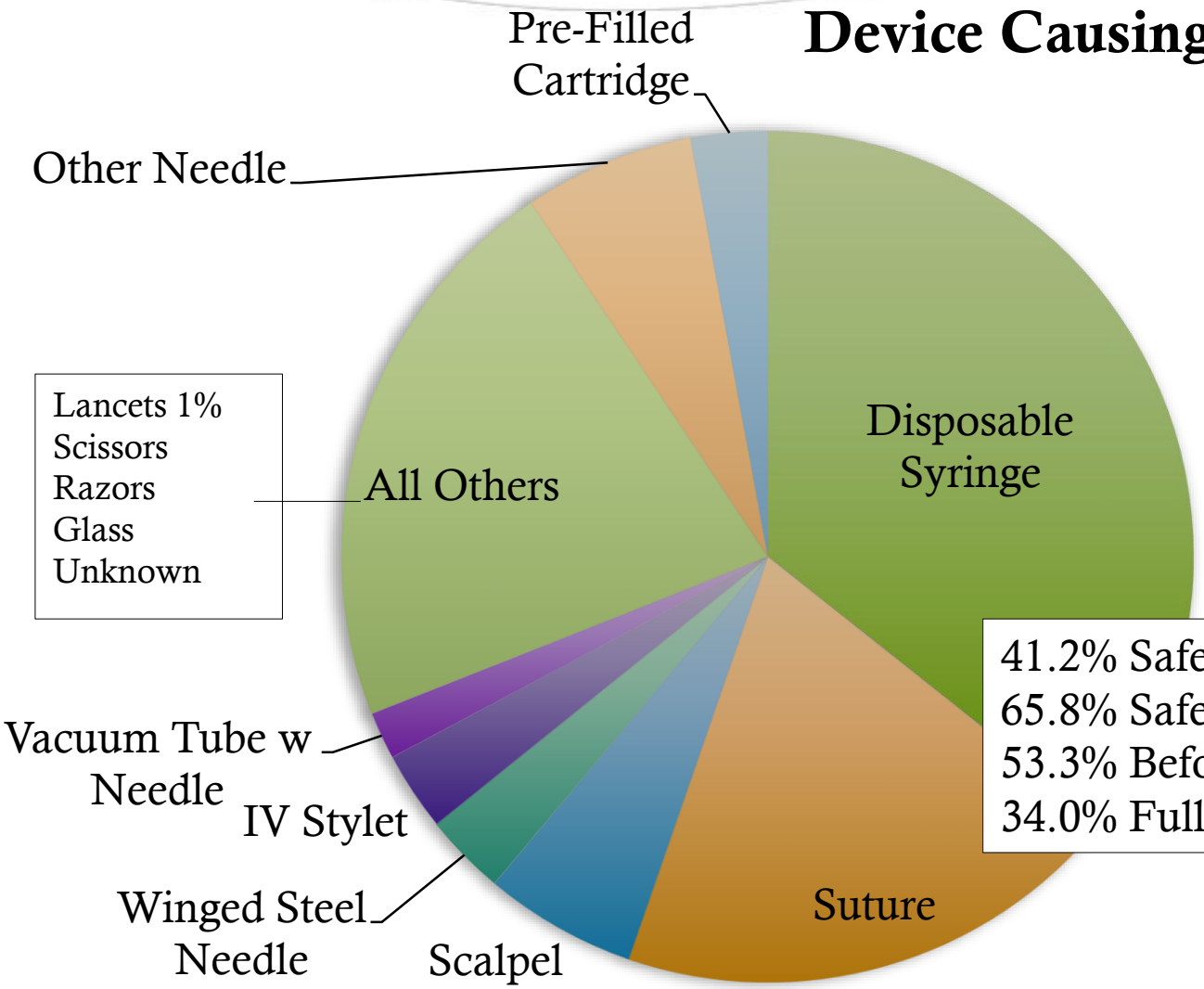
1 Unknown/not applicable	21	3.5%
2 Injection, intramuscular/subcutaneous	191	32.3%
4 Other injection into IV injection site or port	7	1.2%
5 To connect IV line	2	0.3%
6 To start IV or setup heparin lock	25	4.2%
7 To draw a venous blood sample	55	9.3%
8 To draw an arterial blood sample	14	2.4%
9 To obtain a body fluid or tissue sample	6	1.0%
10 Fingerstick/heel stick	6	1.0%
11 Suturing	124	20.9%
12 Cutting	45	7.6%
13 Electrocautery	3	0.5%
15 Other, describe	79	13.3%
16 To place an arterial/central line	5	0.8%
17 Drilling	9	1.5%

Total records: 592

Sharp Object Injury Incidents

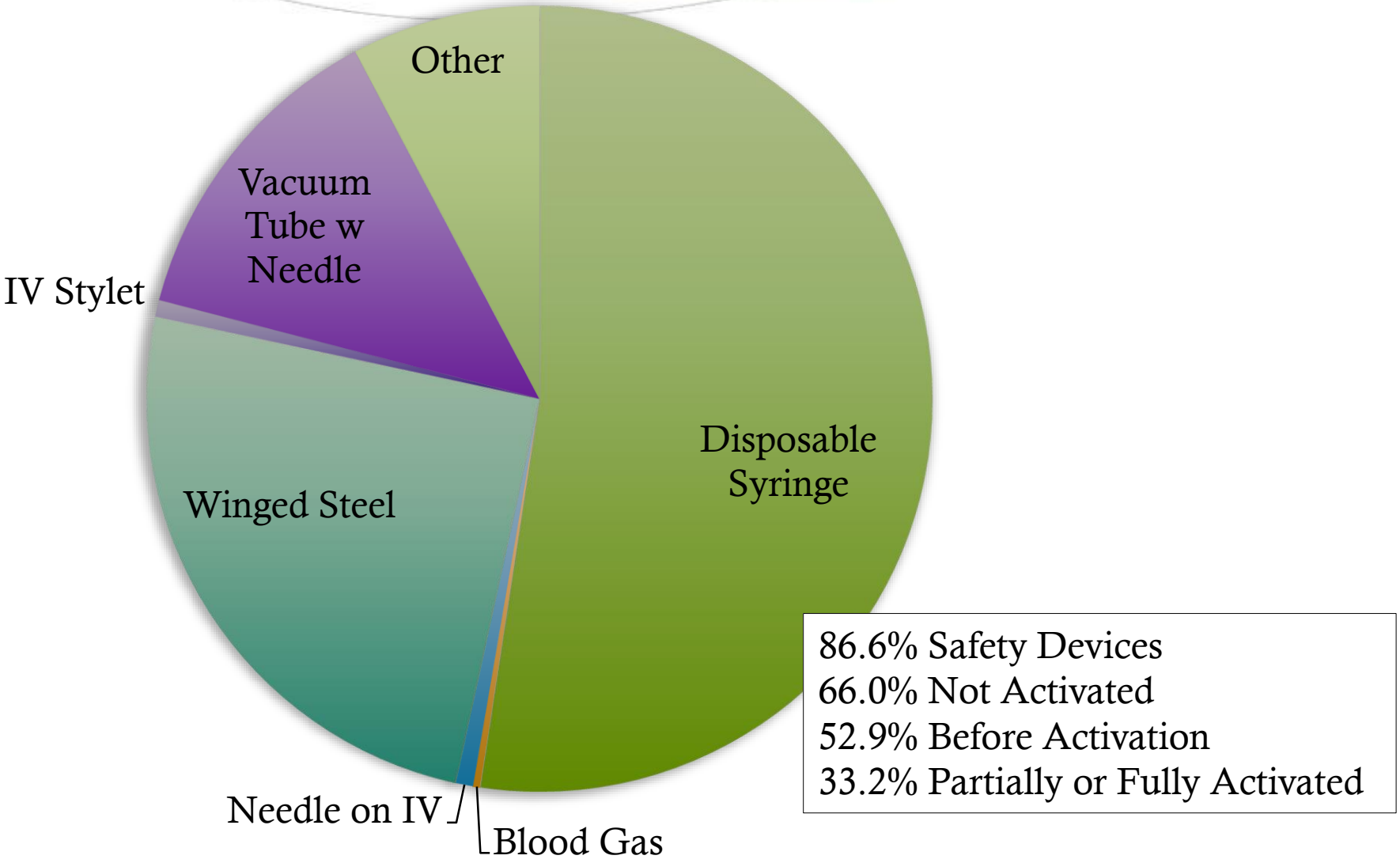
EPINet Surveillance Data 2012-2014

Device Causing Injury for All

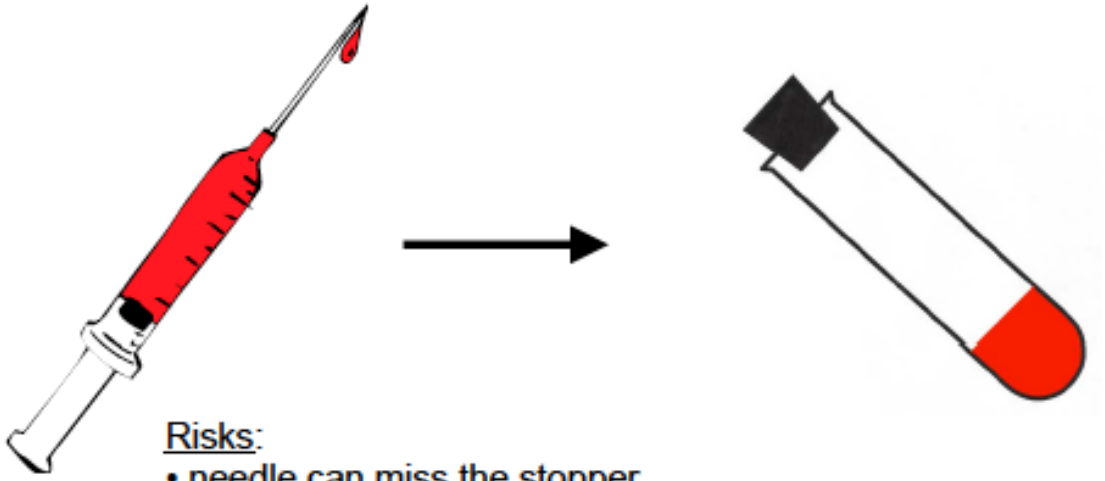


41.2% Safety Device Used
65.8% Safety Feature Not Activated
53.3% Before Activation
34.0% Fully, Partially Activated

Device Causing Injury from Blood Collection



Drawing blood into a conventional syringe and injecting through the stopper of a vacuum tube is very hazardous



Risks:

- needle can miss the stopper
- needle can release suddenly when pulling needle out
- injection can overcome vacuum and blow off stopper

8. Was the injured worker the original user of the sharp item?

1	Yes	405	73.8%
2	No	136	24.8%
3	Unknown	3	0.5%
4	N/A	5	0.9%

Total records: 549

1/4 of all injuries occurring downstream, outside of the control of the user! Injuries to EVS/housekeeping/hygiene, waste haulers, laboratorians, team members.

Sharp Injuries Year Comparison

	2012	2013	2014
Total Injuries	597	508	559
Doctor	28.6%	24.8	23.4
Nurse	36.2	36.2	43.3
Patient Room	24.6	28.5	34.2
OR	39.3	36.8	34.6
Disposable Syringe	35.7	31.7	35.2
Safety Mechanism? Yes	36.7	41.6	42.1
Safety Activated? NO	65.7	70.9	64.6

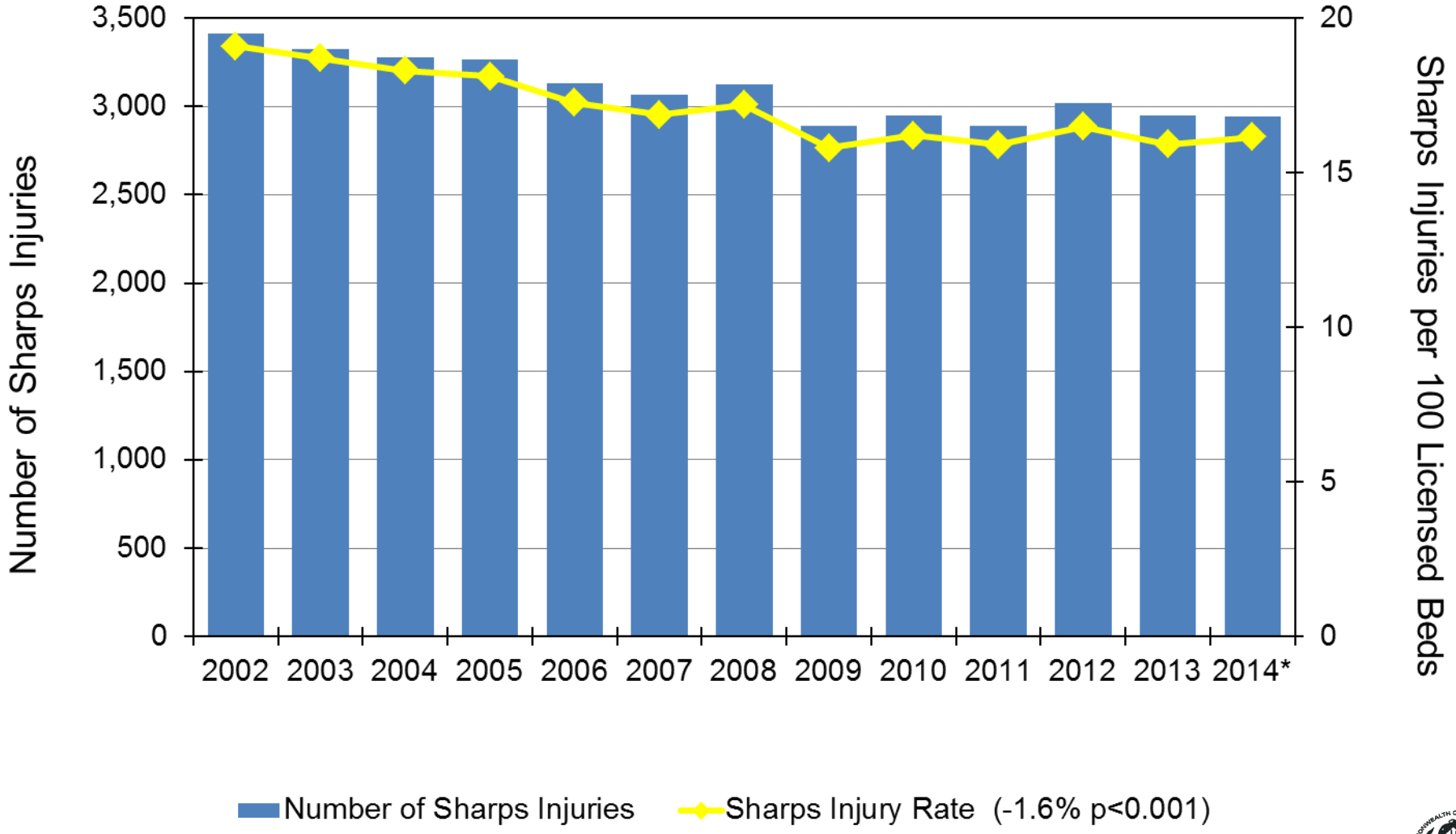
Still Work to Be Done

Massachusetts Sharps Injury Surveillance Data

2002-2014

Compliments of Angela Laramie, MPH
angela.laramie@state.ma.us

Sharps Injuries among Massachusetts Hospital Workers, 2002-2014, N=40,251



Data source: Massachusetts Sharps Injury Surveillance System, 2002-2014*
*2014 data is provisional

Blood & Body Fluid Exposure Incidents

EPINet Surveillance Data 2012-2014

2014 Exposure Rate / Ratios

- 8.9 incidents reported per 100 Average Daily Census
- 9.4 / 100 ADC Teaching Facilities
- 8.1 / 100 ADC Non-Teaching Facilities

Job Category

What is the job category of the exposed worker?

1	Doctor (attending.staff) specialty	19	8.9%
2	Doctor (intern/resident/fellow) specialty	9	4.2%
3	Medical student	4	1.9%
4	Nurse	115	54.0%
6	Respiratory therapist	5	2.3%
7	Surgery attendant	4	1.9%
8	Other attendant	2	0.9%
9	Phlebotomist/ Venipuncture/ IV team	2	0.9%
10	Clinical laboratory worker	3	1.4%
11	Technologist (non lab)	9	4.2%
15	Other, describe	26	12.2%
16	Paramedic	3	1.4%
18	C.N.A./H.H.A.	10	4.7%
20	Security	2	0.9%

l records: 213

INTERNATIONAL SAFETY CENTER

Location of Incident

6. Where did the exposure occur?

1	Patient room/ward	86	40.4%
2	Outside patient room	4	1.9%
3	Emergency department	16	7.5%
4	Intensive/Critical care unit	19	8.9%
5	Operating room/Recovery	36	16.9%
6	Outpatient clinic/Office	11	5.2%
10	Procedure room	6	2.8%
11	Clinical laboratories	4	1.9%
14	Other, describe	20	9.4%
16	Labor and delivery room	10	4.7%
17	Home-care	1	0.5%

Total records: 213

52.6% from Direct Patient Contact
22.4% "Other"
- wound irrigation, vent tube, trach tube, syringe / blood collection splash

Exposed Part

9. Was the exposed part?

Intact skin	50	23.1%
Non-intact skin	29	13.4%
Eyes (conjunctiva)	142	65.7%
Nose (mucosa)	8	3.7%
Mouth (mucosa)	17	7.9%
Other exposed parts	22	10.2%

Total records: 216

77.3% Face/Mucotaneous

10. Did the blood or body fluid?

Touch unprotected skin	176	81.5%
Touch skin between gap in protective garment	12	5.6%
Soaked through protective garment	4	1.9%
Soaked through clothing	3	1.4%

Total records: 216

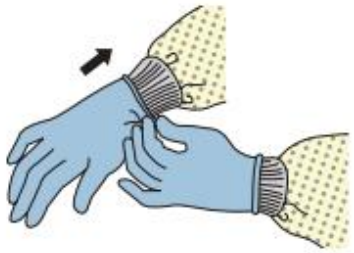
Total PPE & Barrier Garment Worn

11. Which barrier garments were worn at the time of exposure?

Single pair of gloves	145	67.1%
Double pair of gloves	20	9.3%
Goggles	3	1.4%
Eyeglasses, (not protective)	8	3.7%
Eyeglasses with sideshields	0	0.0%
Faceshield	3	1.4%
Surgical mask	24	11.1%
Surgical gown	32	14.8%
Plastic apron	1	0.5%
Labcoat, cloth, (not protective)	4	1.9%
Labcoat, other	2	0.9%
Other	36	16.7%

Total records: 216

2.8% wearing appropriate eye protection

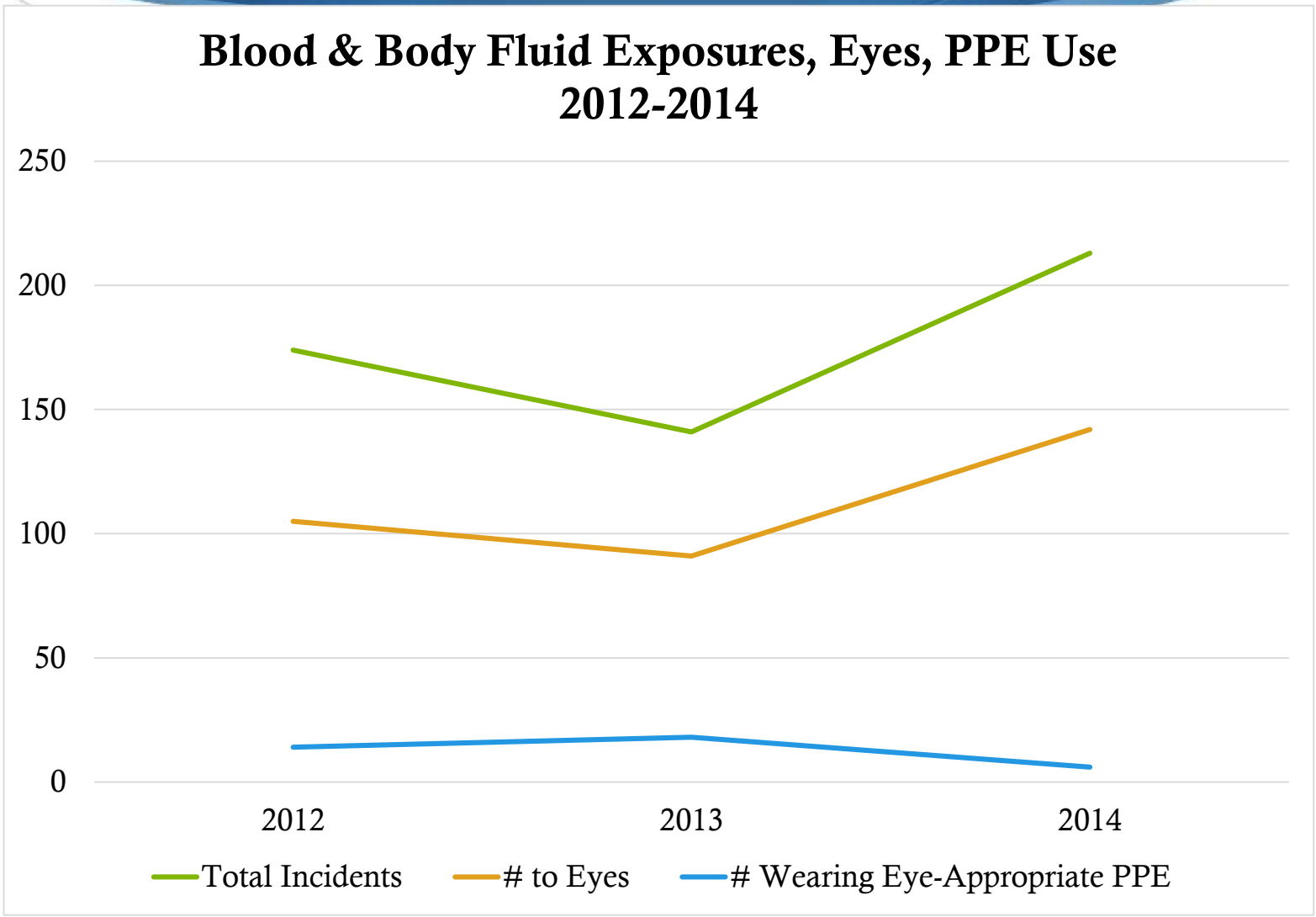


47% indicated only wearing uniform / scrubs

Splash/Splatter Year Comparison

	2012	2013	2014
Total Incidents	174	141	213
Doctor	13.8%	14.9%	13.1%
Nurse	47.7	49.6	54
Eyes (Conjunctiva)	60.0	64.5	65.7
Goggles/Faceshield	7.4	8.5	2.8
Patient Room	33.7	28.1	40.4
OR	20.0	20.9	16.9
ED	18.3	14.4	7.5

Increasing Risk for Bedside Nurses


Blood & Body Fluid Exposures, Eyes, PPE Use
2012-2014
250
200
150
100
50
0
2012
2013
2014
Total Incidents
to Eyes
Wearing Eye-Appropriate PPE

Critical Reflections & Recommendations for Future Efforts

Progress

- Enormous progress has been made in the US relative to occupational exposures to blood, body fluids, and biological risks
- National policy has been the result of cross-collaboration between groups, sectors, and disciplines
- Key factor in monitoring progress and ongoing challenge areas is to measure, survey exposure incidents and compliance
- Other countries like Mexico may benefit from lessons learned from US

US Healthcare Workers Still Unprepared

- No nationalized surveillance system in place, therefore EPINet serves only benchmark
- In "low risk" departments (non-OR, non-ED), PPE is only worn 25% of the time during exposure incident
- Face PPE is worn *only* 2-3% of the time when mucotaneous exposure incidents occur
- ~25% sharps injuries occurring downstream
- Notable number sharps injuries still 100% preventable
- Less than 50% with safety mechanism, more than 60% not activated
  - "Safer" medical devices?

Recommendations for Future Efforts

Recommendations

- Partner with Champion Organizations to Build Awareness and Advocacy
- Improve Surveillance of Worker Incidents, Exposures & Near Hits
- Mind the Hierarchy
  - Substitution & Engineering Controls First
- Frontline Employee Feedback of Devices
- Begin Campaigns on Preventable Sharps Injuries
  - Ditch the Pinch, Recapping, Leaving on Surface
- Measure & Focus on Highest Risk Mucotaneous Exposures; MDROs and BBPs
  - Co-morbidities with CA-MRSA, HIV, HCV
- Expand into Biological Hazards; Infection Prevention

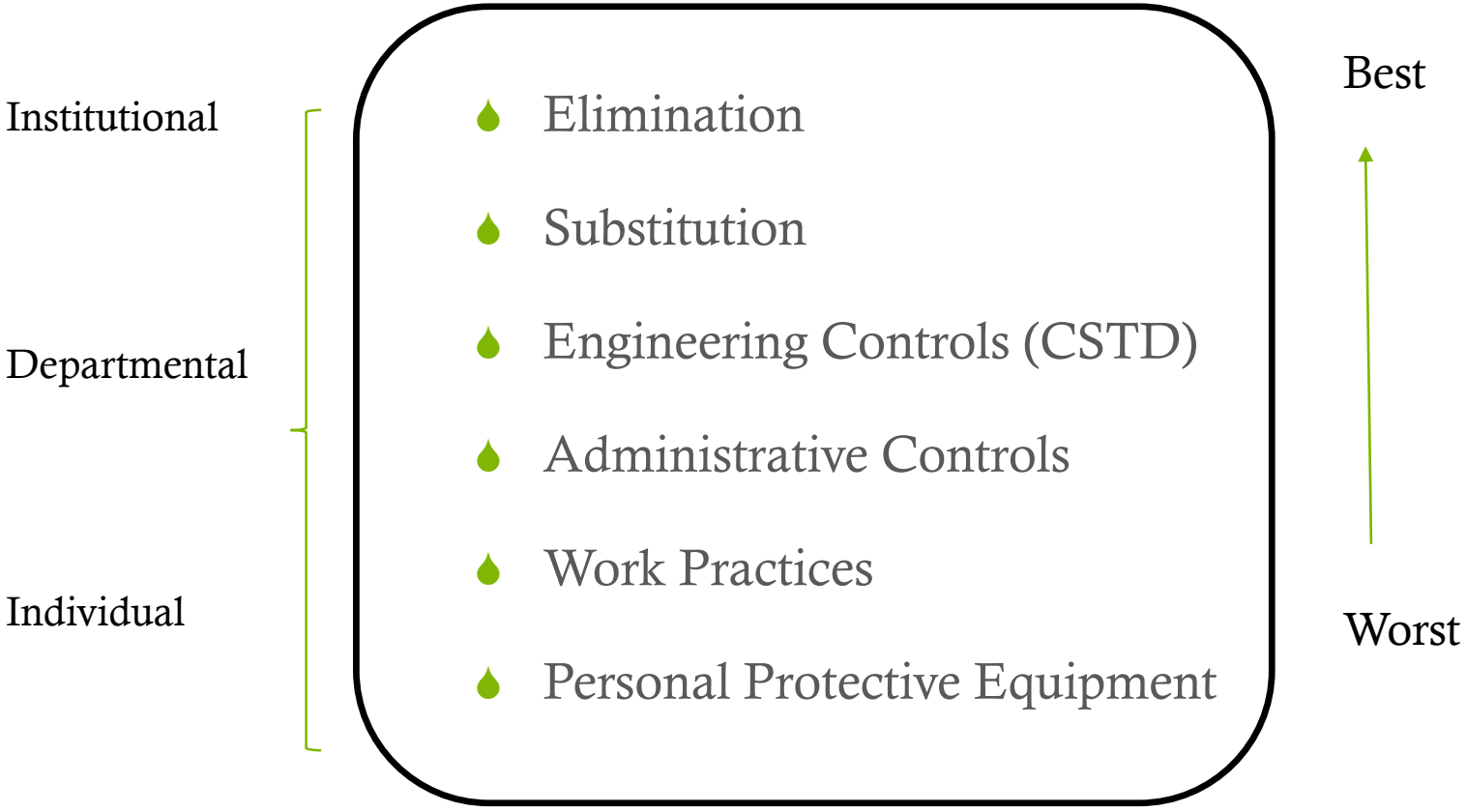
Decreasing Incidence = Worker + Patient Safety

THANK YOU!

Amber.Mitchell@internationalsafetycenter.org

Back Up Slides: Additional Resources

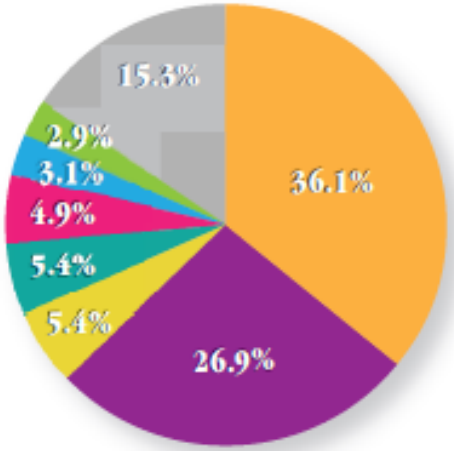
Industrial Hygiene: Hierarchy of Controls



Using EPINet Data to Develop Messaging & Targeted Education: *American Nurse Today*

When did the injury from the disposable syringe occur?

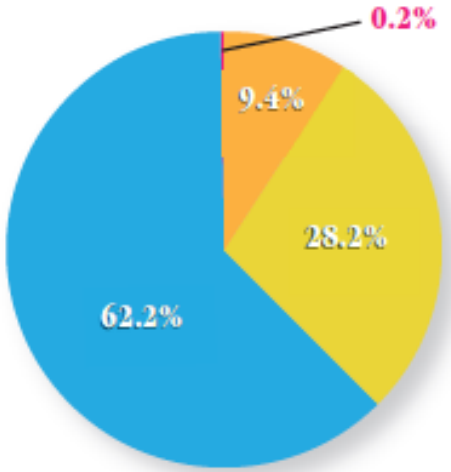
- During use
- After use and before disposal
- While recapping
- While putting device into disposal container
- Between steps of a multistep procedure
- During device disassembly
- Device left on floor, table, or bed
- Other*



*Includes sudden patient movement, device protruding from sharps container, and device withdrawal from stopper

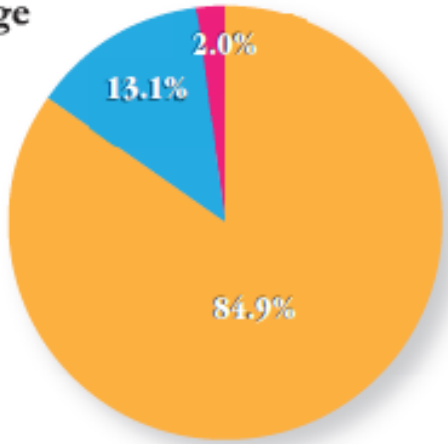
Was the safety mechanism activated?

- Yes, fully
- Yes, partially
- No
- Unknown



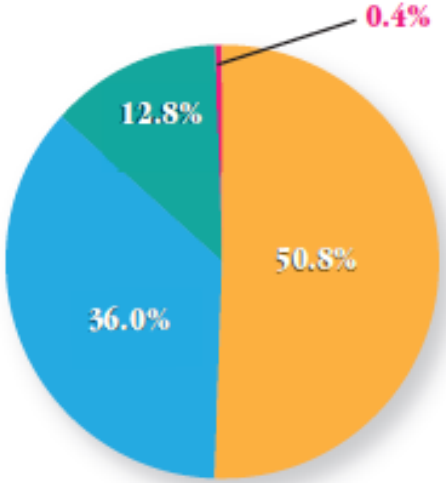
Was the disposable syringe a safety design?

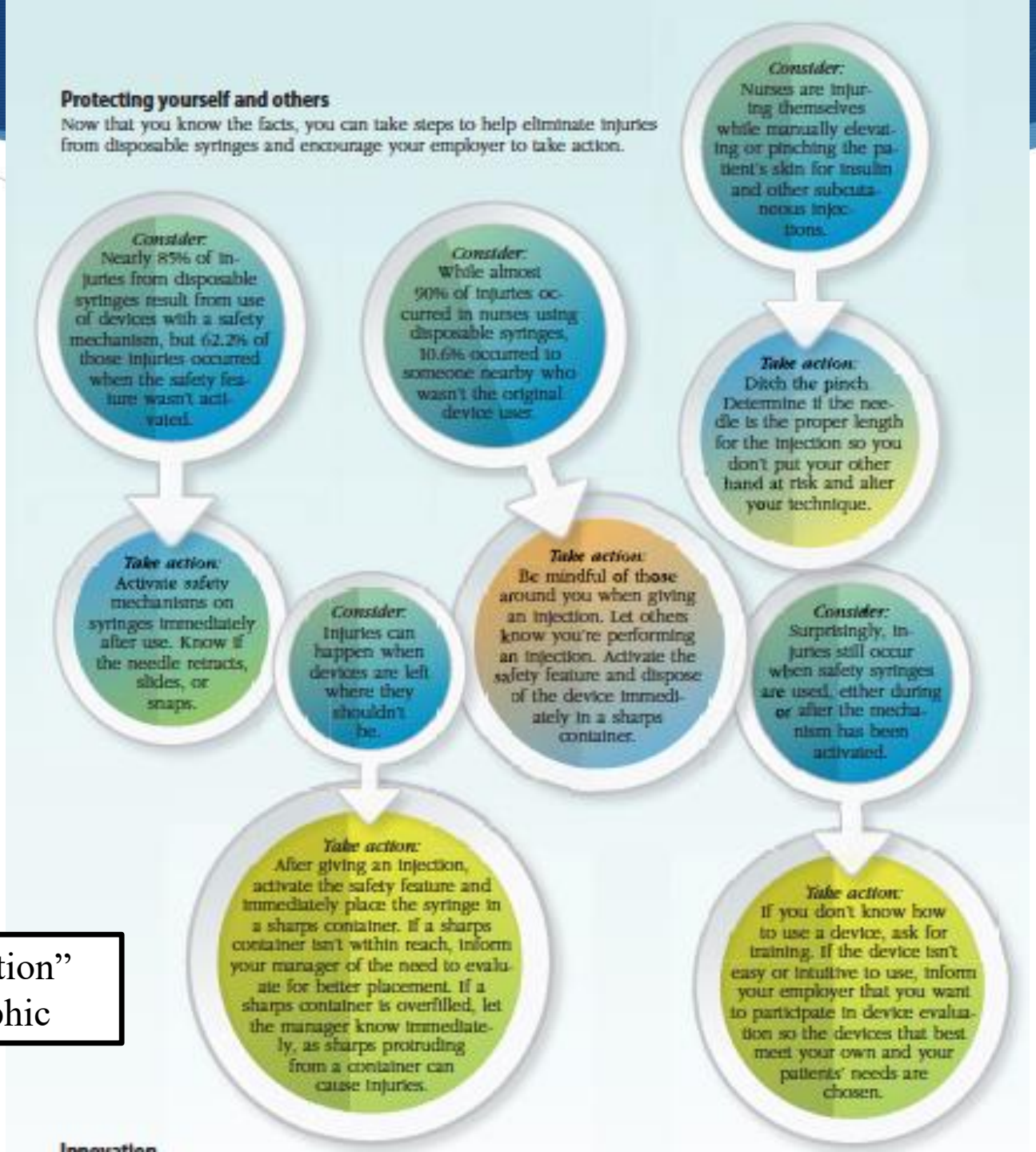
- Yes
- No
- Unknown



If the safety mechanism was activated, when did the injury occur?

- Before activation
- During activation
- After activation
- Unknown



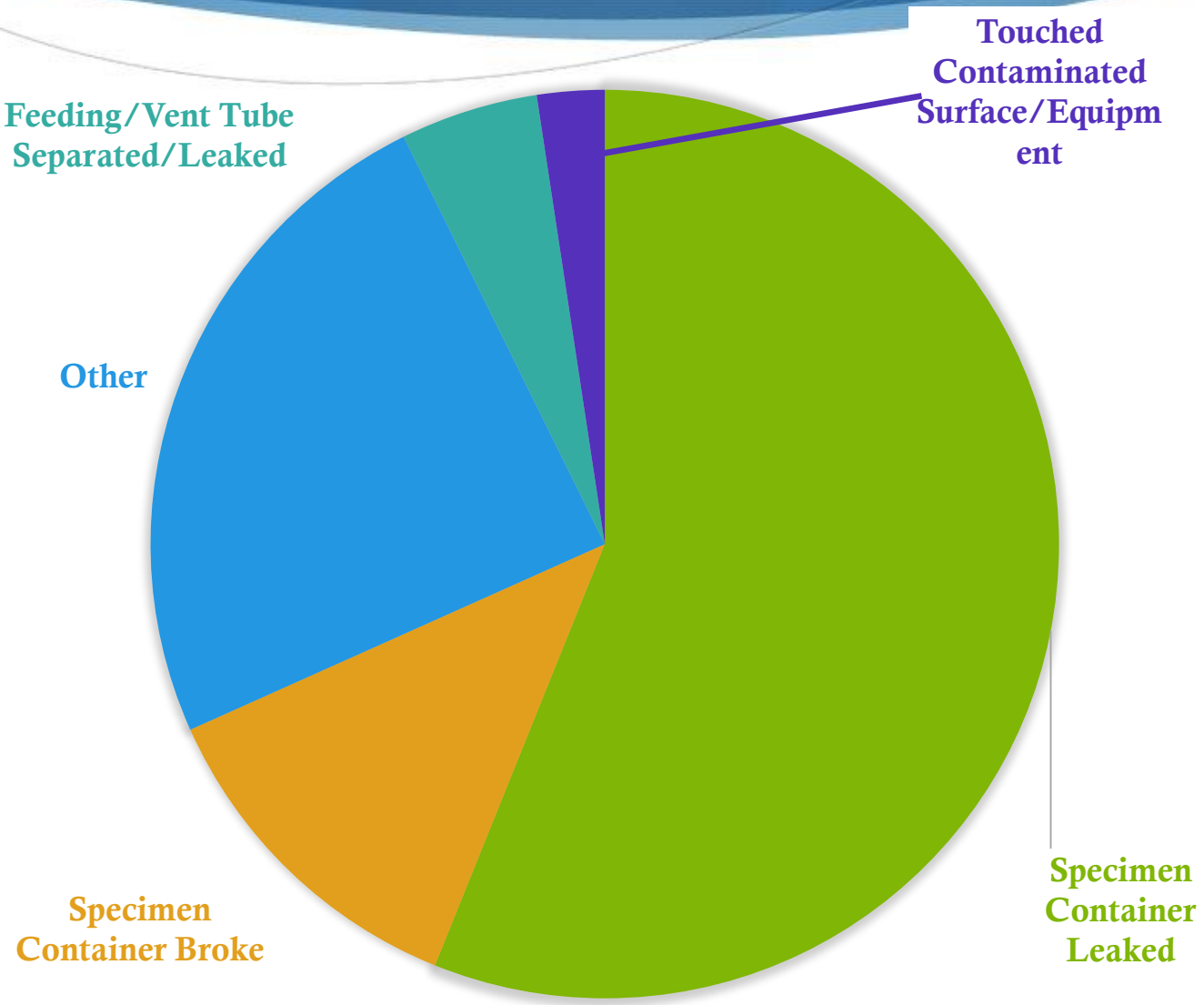


"Take Action" Infographic

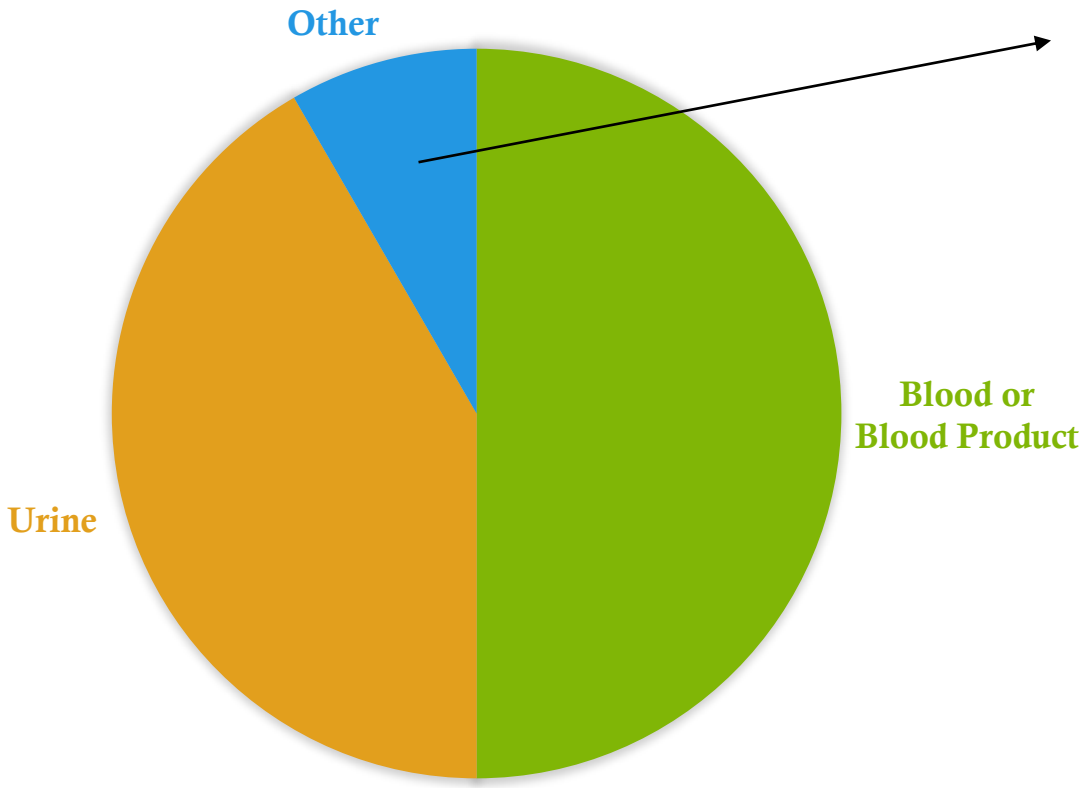
This isn't just bedside care…

Clinical Lab Blood & Body Fluid Splash / Splatter Incident Data

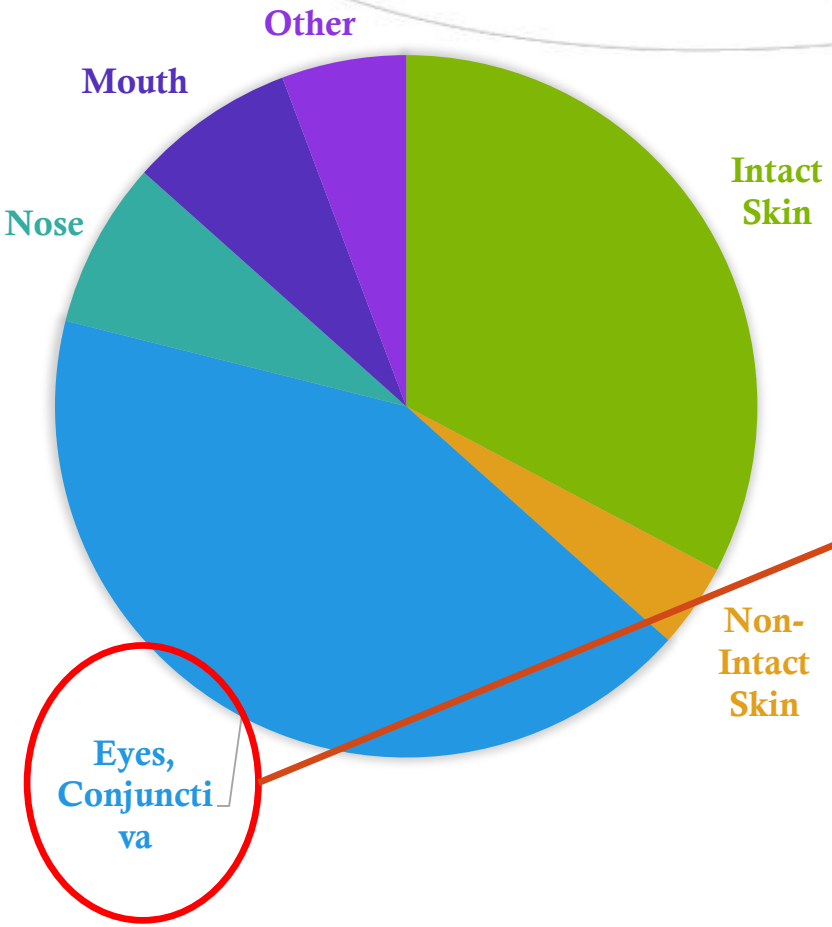
EXPOSURE THE RESULT OF?



WHAT FLUID?

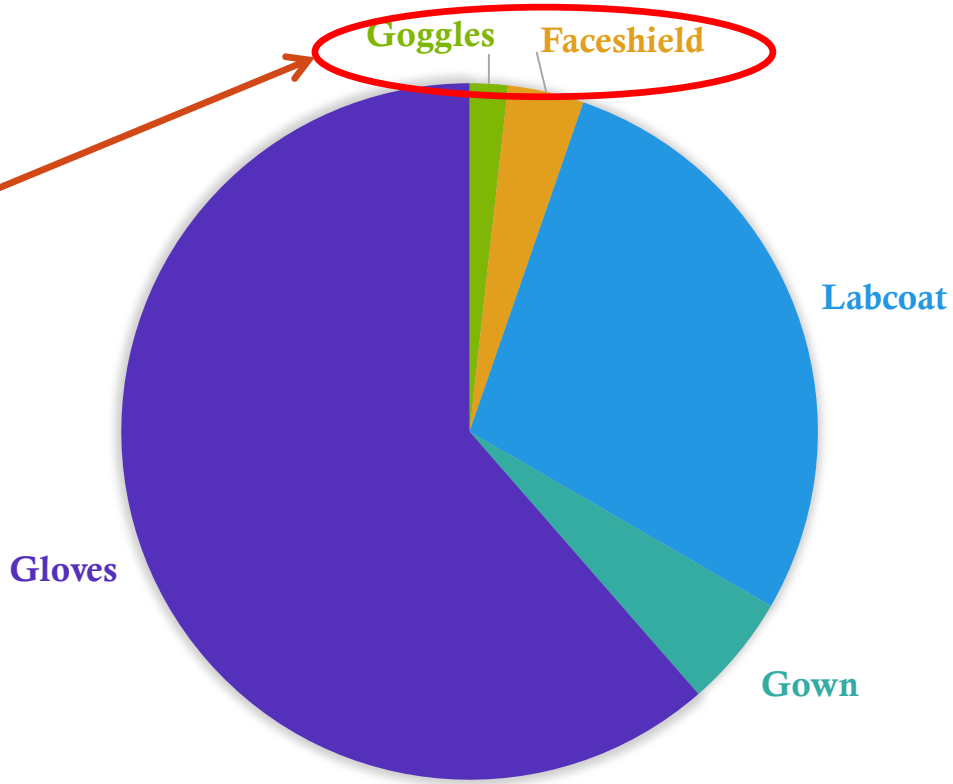


- Bacterial Solution
- HIV Viral Load Specimen
- Plasma
- Serum
- Vaginal Secretions
- Fetal Fibronectin



WHAT WAS EXPOSED PART?

PPE, BARRIER GARMENT WORN



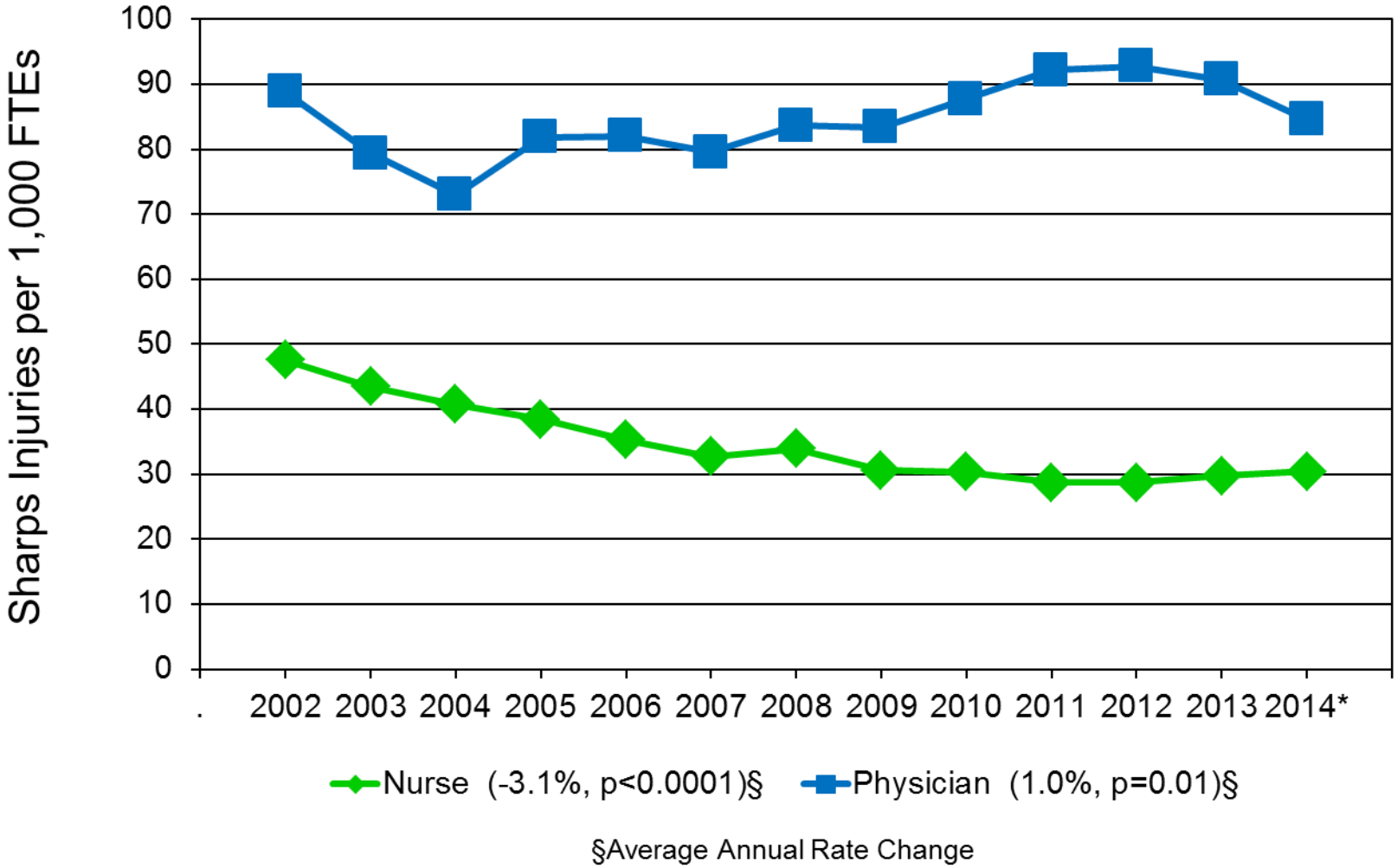
What is contributing to this increased risk and risky behavior over time?

Massachusetts Sharps Injury Surveillance Data

2002-2014

Compliments of Angela Laramie, MPH
angela.laramie@state.ma.us

Sharps Injuries among Employees of Acute Care Hospitals by Occupation, Massachusetts, 2002-2014, N=23,811

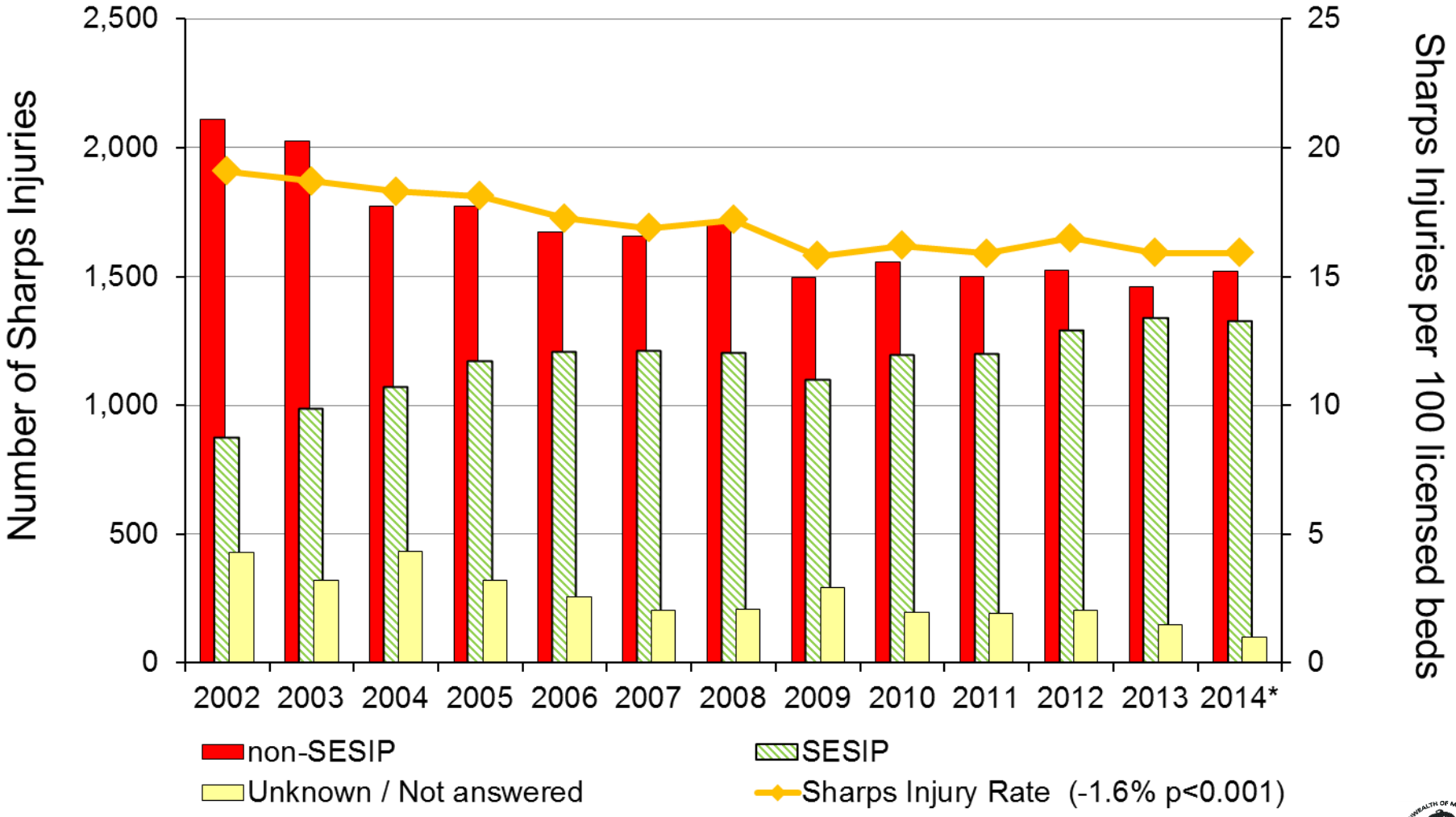


§Average Annual Rate Change

Data source: Massachusetts Sharps Injury Surveillance System, 2002-2014*

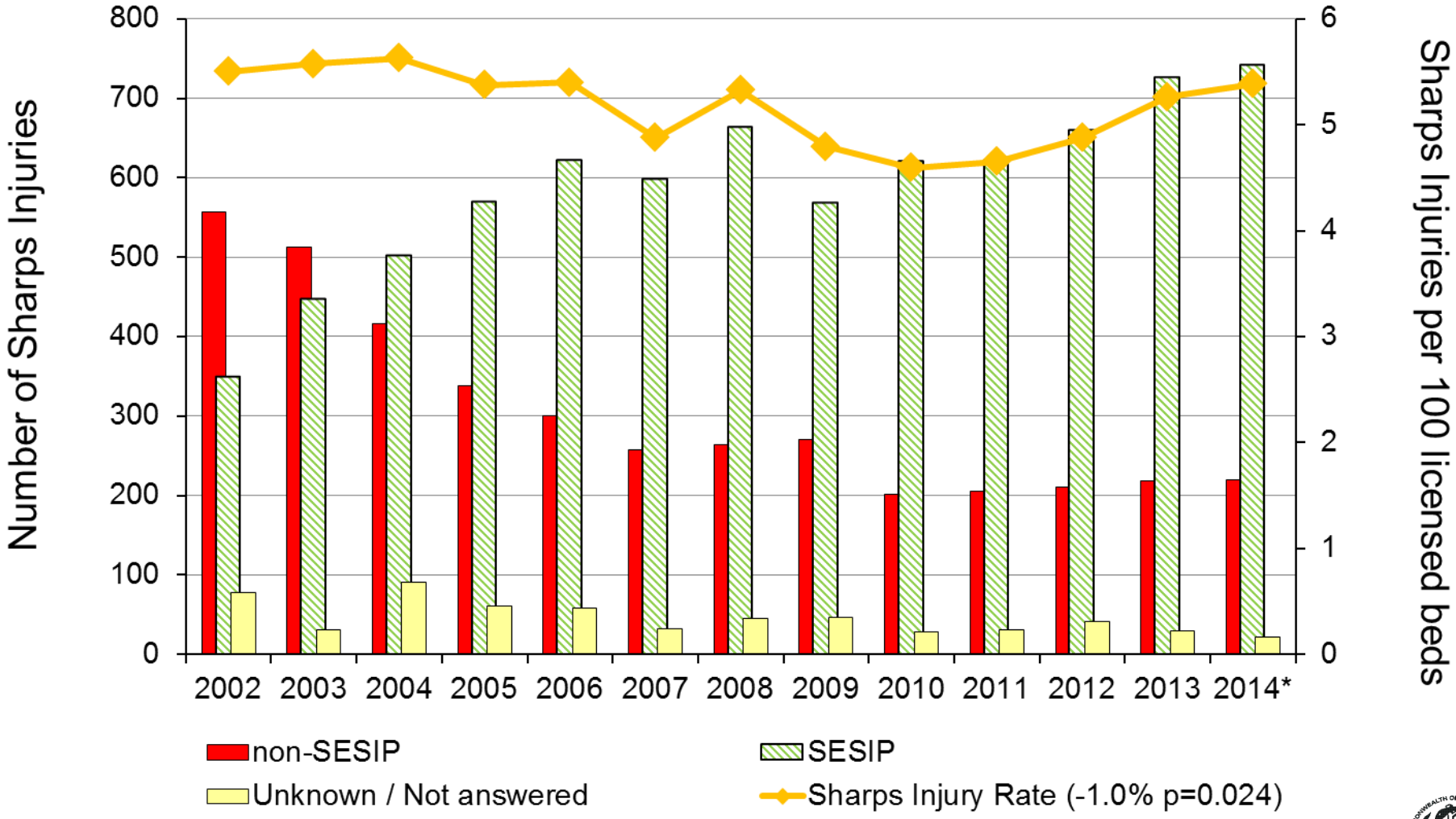
*2014 data is provisional

Sharps Injuries among Massachusetts Hospital Workers by SESIP, 2002-2014, N=40,251



Data source: Massachusetts Sharps Injury Surveillance System, 2002-2014*
*2014 data is provisional

Rate of Sharps Injury with Hypodermic Needles & Syringes and Proportion of Injuries with SESIPs v. non-SESIPs, 2002-2014, n=12,250



Data source: Massachusetts Sharps Injury Surveillance System, 2002-2014*
*2014 data is provisional