

# Sharps Safety – What devices are you using?

Occupational Health Surveillance Program  
Massachusetts Department of Public Health

MNA meeting

June 4, 2009

Funded in part by NIOSH

Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.



# MDPH Sharps Injury Prevention Regulations

105 CMR 130.1001 *et seq.*

Requires hospitals to:

- Incorporate the use of safe needle / sharps devices
- Maintain a written exposure control plan
  - with procedures for selecting safe devices
- Maintain a Sharps Injury Log
- Submit the Sharps Injury Log to MDPH annually

Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

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# Methods

- Population under surveillance: All health care workers in Massachusetts hospitals licensed by MDPH
- Reportable exposure incident: BBP exposure that is the result of events that pierce the skin or mucous membranes
- Reporting period: January 1 – December 31
- Data elements:
  - Date of exposure
  - Unique exposure ID
  - Employment status
  - Occupation
  - Department
  - Device
  - Was it a safety device?
  - Was it part of a kit?
  - Brand / model of device
  - Purpose or procedure
  - How the injury occurred
  - Who was holding the device?

# Sharps Injuries among Employees of Acute Care Hospitals, Massachusetts, 2002 -2007

	2002	2003	2004	2005	2006	2007
# of hospitals	101	99	99	99	99	99
compliance w/ reporting requirement	100%	100%	100%	100%	100%	100%
# of injuries reported	3,413	3,327	3,279	3,265	3,133	3,068
# of full-time equivalent employees (FTEs)	106,659	110,632	113,627	115,559	119,734	123,037
Range of # of injuries reported	0 – 431	0 - 312	0-317	0-339	0-343	0-317
% injuries in teaching hospitals*	40%	58%	59%	62%	65%	63%

Number of teaching hospitals: 2002-14, 2003-18, 2004-18, 2005-19, 2006-19, 2007-21

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**Annual Summary of Sharps Injuries**  
 Massachusetts Department of Public Health  
 Occupational Health Surveillance Program

Hospital: \_\_\_\_\_  
 License Number: \_\_\_\_\_  
 Hospital Contact: \_\_\_\_\_  
 Phone number: \_\_\_\_\_  
 Year: \_\_\_\_\_

**Use of the attached lists is encouraged when completing this form.**

**\*Required data elements for reporting to MDPH.**

<i>* Date of Exposure Incident</i>	<i>* Unique Exposure Incident Number</i>	<i>Employment status of exposed health care worker.</i>	<i>* Occupation</i>	<i>* Department or work area where the exposure incident occurred</i>	<i>* Device or item that was involved in the exposure</i>	<i>Was it a safety device? Y / N / Unknown</i>	<i>* Brand / model of device</i>	<i>* Purpose or procedure for which the sharp was used or intended</i>	<i>* How did the injury occur?</i>

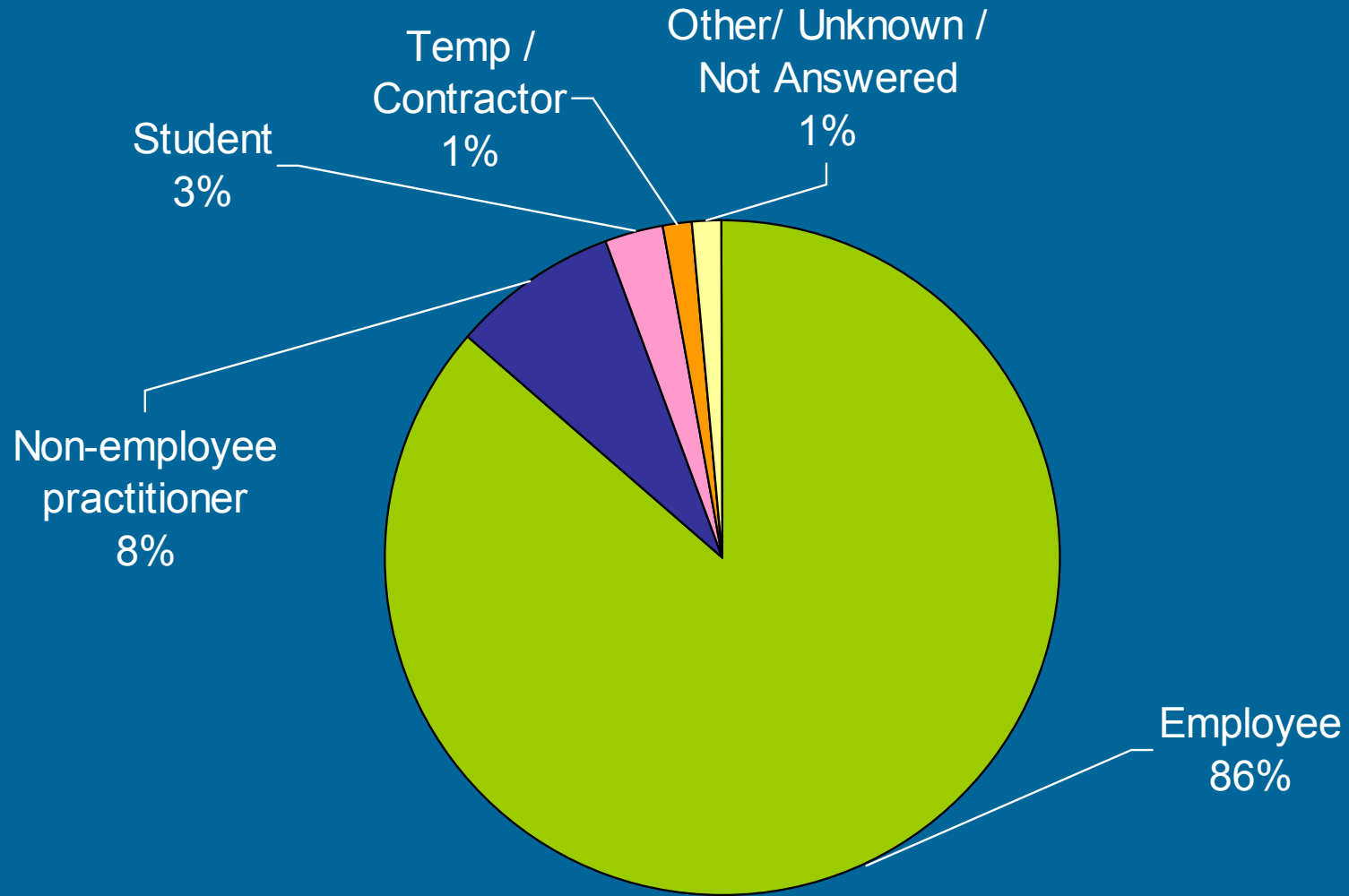
Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.



- Who's getting injured?
- Where are the injuries occurring?
- Which procedures are involved?
- How is the injury occurring?
- What devices are associated with injuries?
  - Do those devices have sharps injury prevention features?

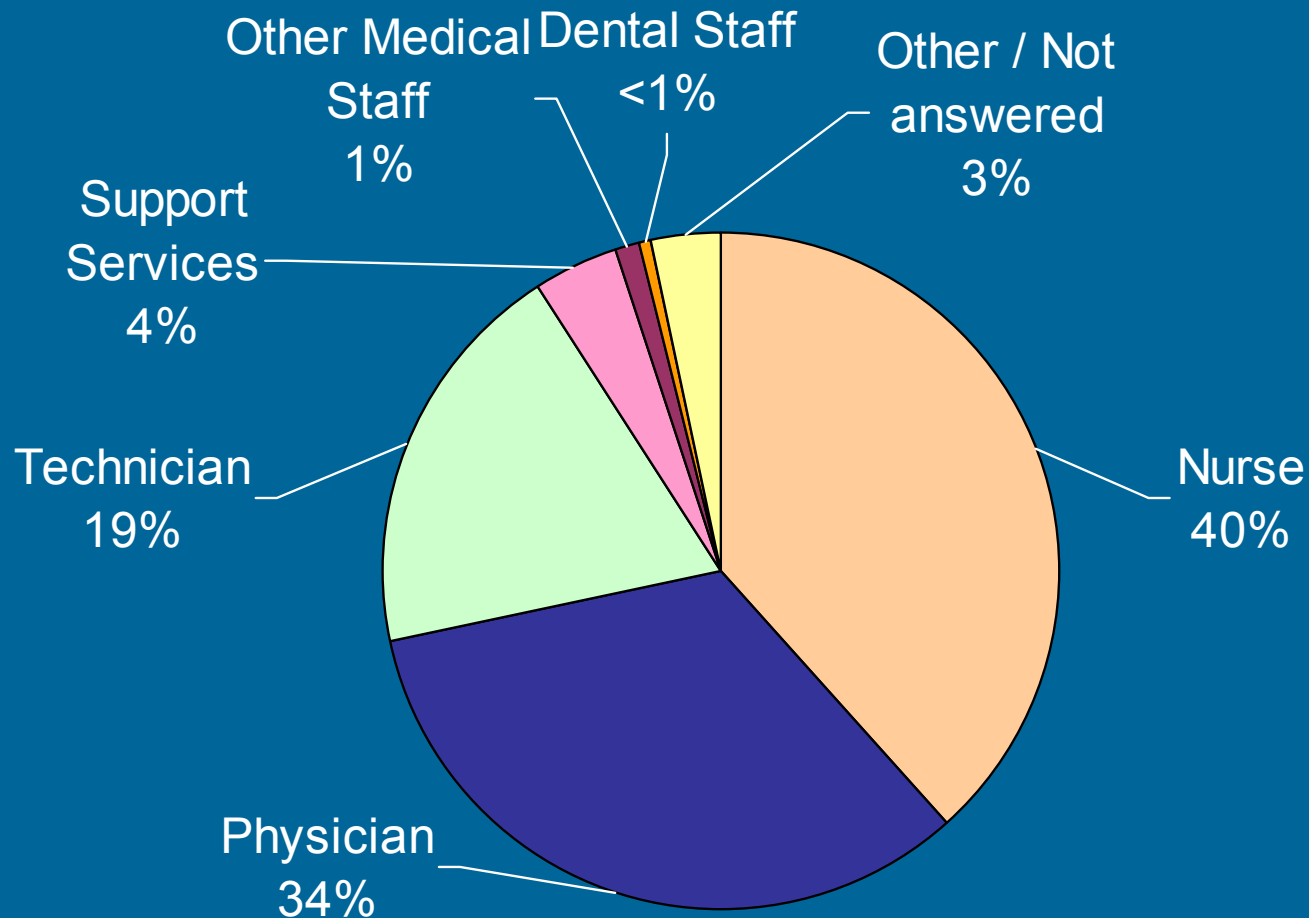
# Sharps Injuries among Hospital Workers by Status of Injured Worker, Massachusetts, 2002-2007, N=19,485



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

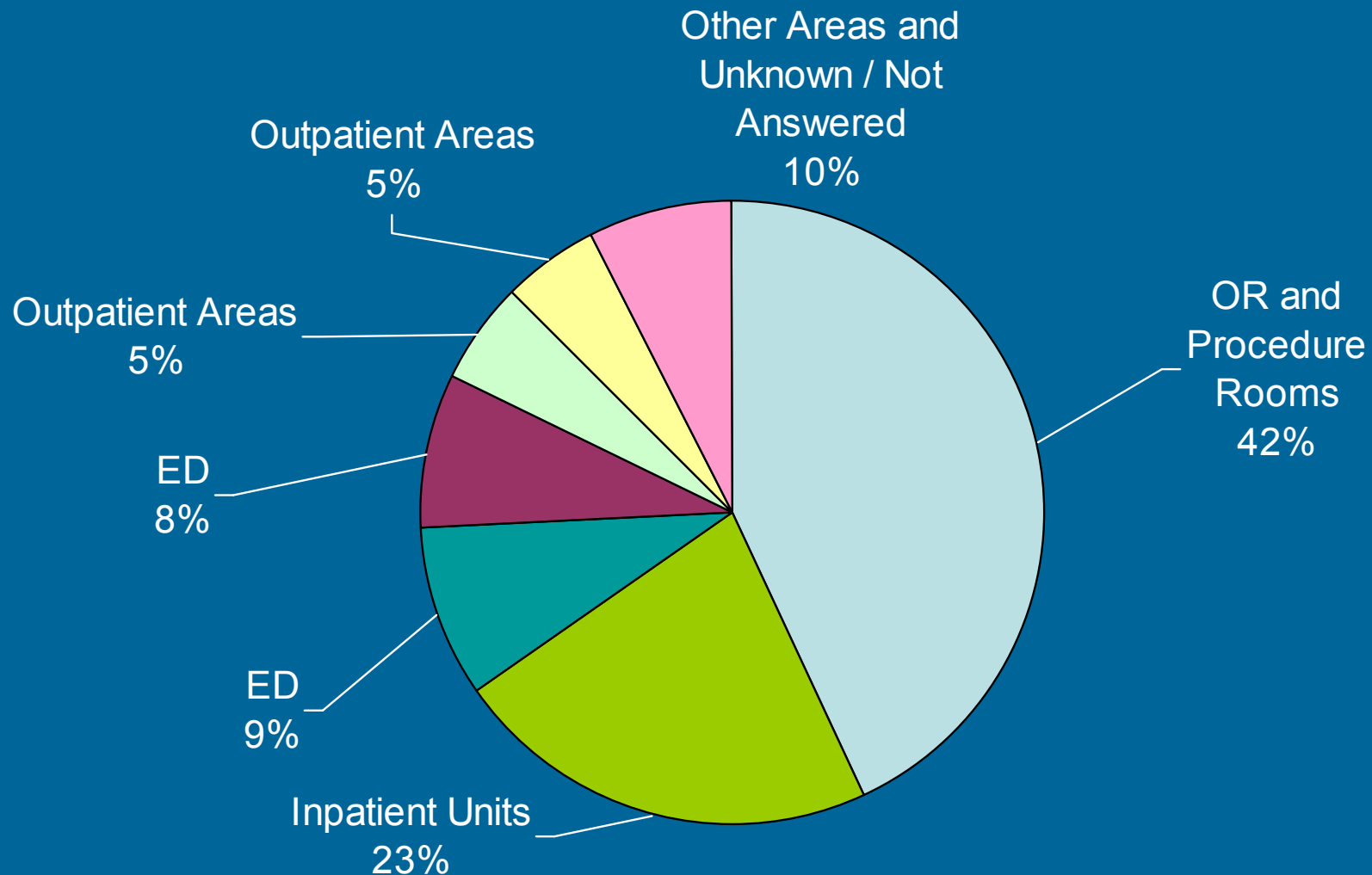
# Sharps Injuries among Hospital Workers by Occupation, Massachusetts, 2002-2007, N=19,485



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

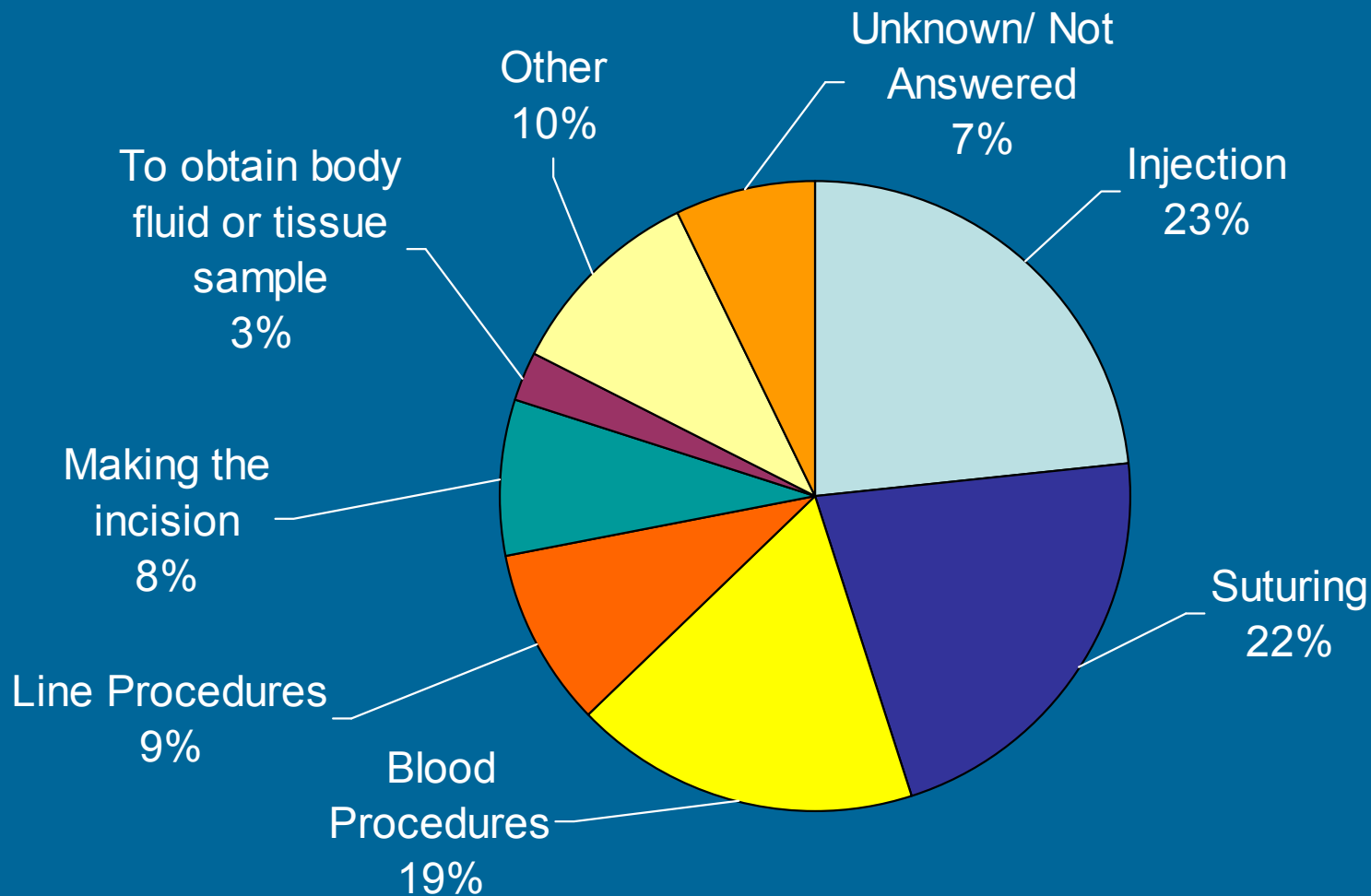
# Sharps Injuries among Hospital Workers by Department, Massachusetts, 2002-2007, N=19,485



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

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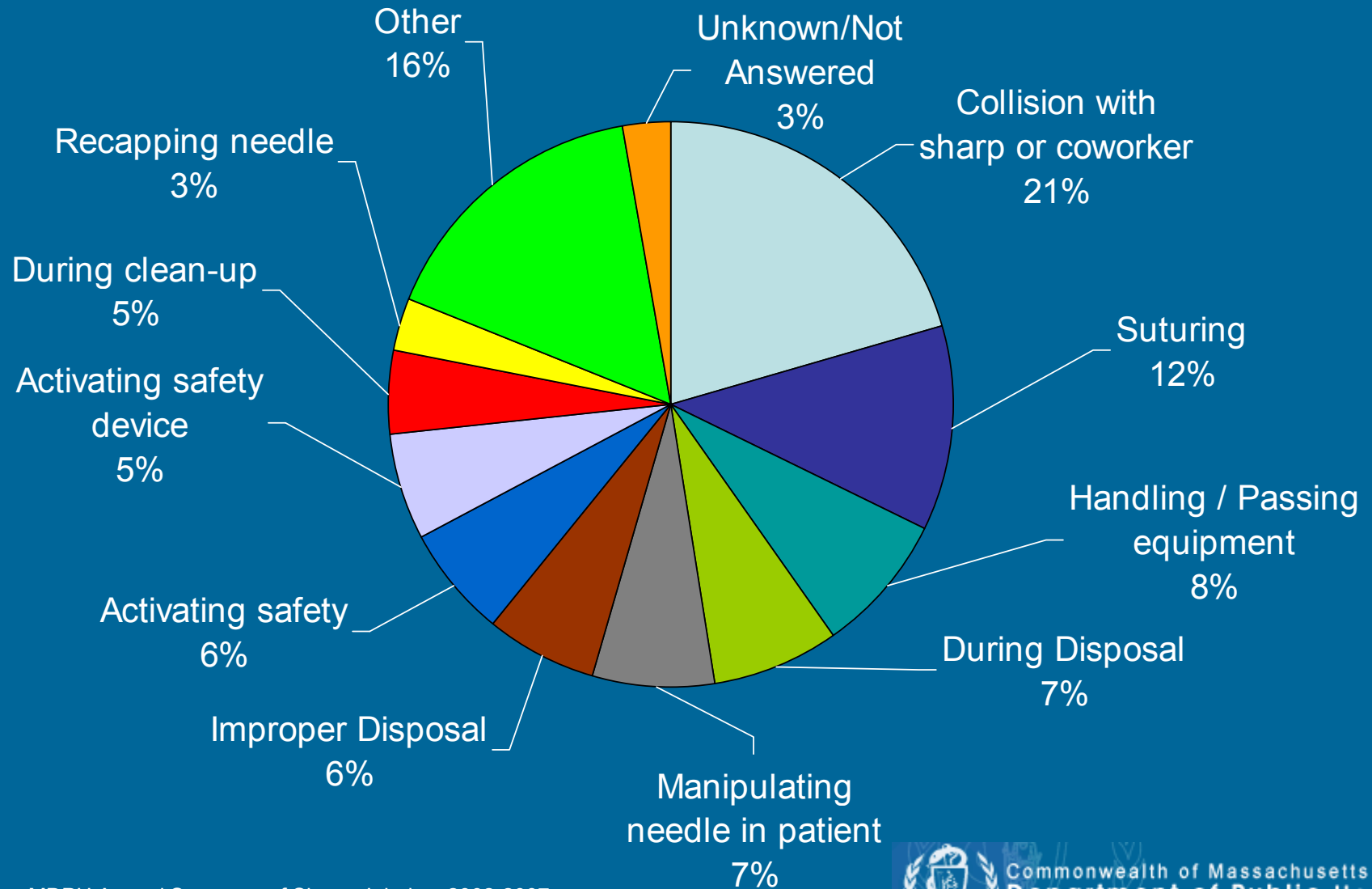
# Sharps Injuries among Hospital Workers by Procedure or Purpose for which Device was Used, Massachusetts, 2002-2007, N=19,485



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

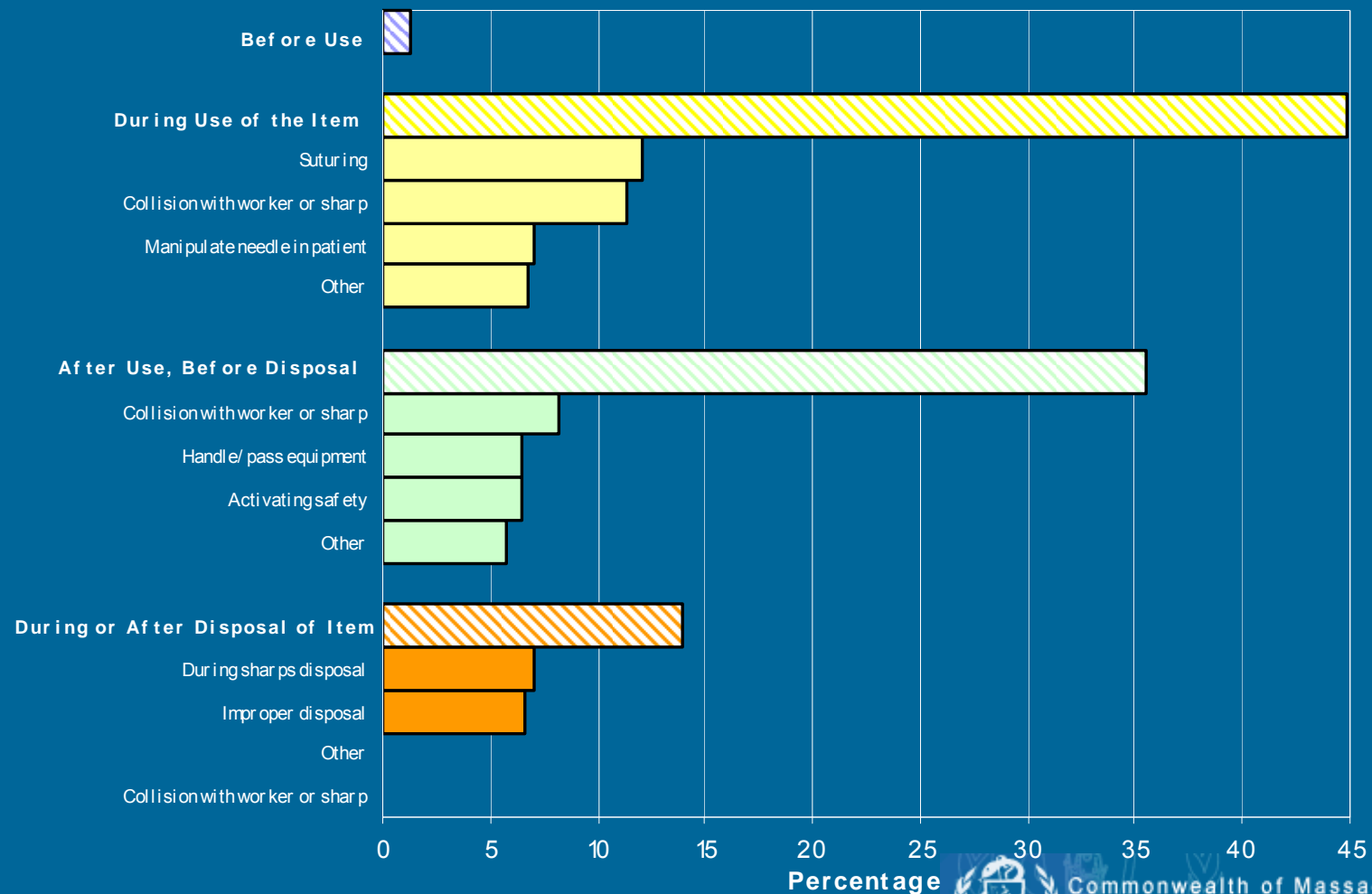
# Sharps Injuries among Hospital Workers by How the Injury Occurred, Massachusetts, 2002-2007, N=19,485



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

# Sharps Injuries among Employees of Acute Care Hospitals by How and When Injury Occurred, Massachusetts, 2002-2007, N=19,458

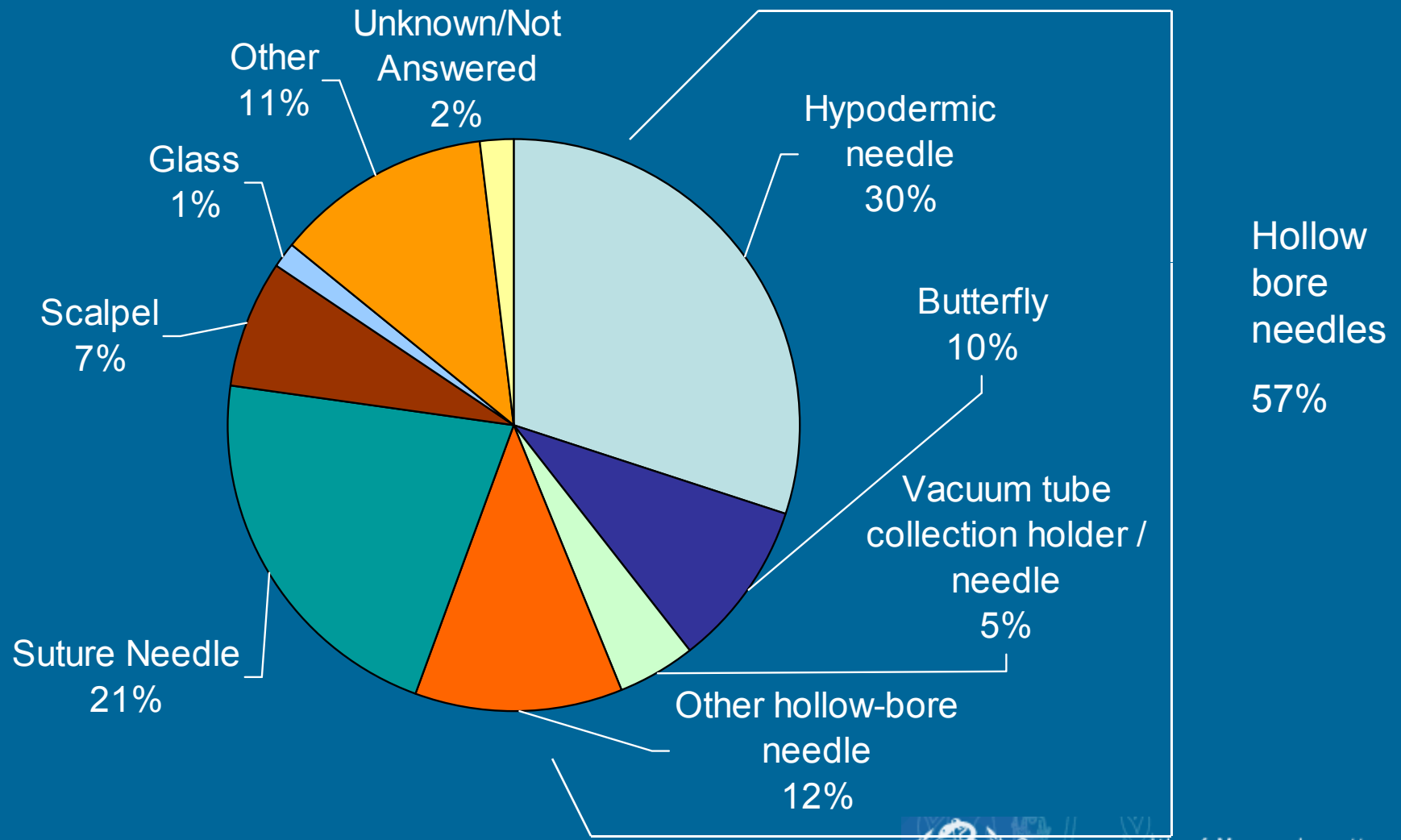


Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

- Who's getting injured?
- Where are the injuries occurring?
- Which procedures are involved?
- How is the injury occurring?
- What devices are associated with injuries?
  - Do those devices have sharps injury prevention features?

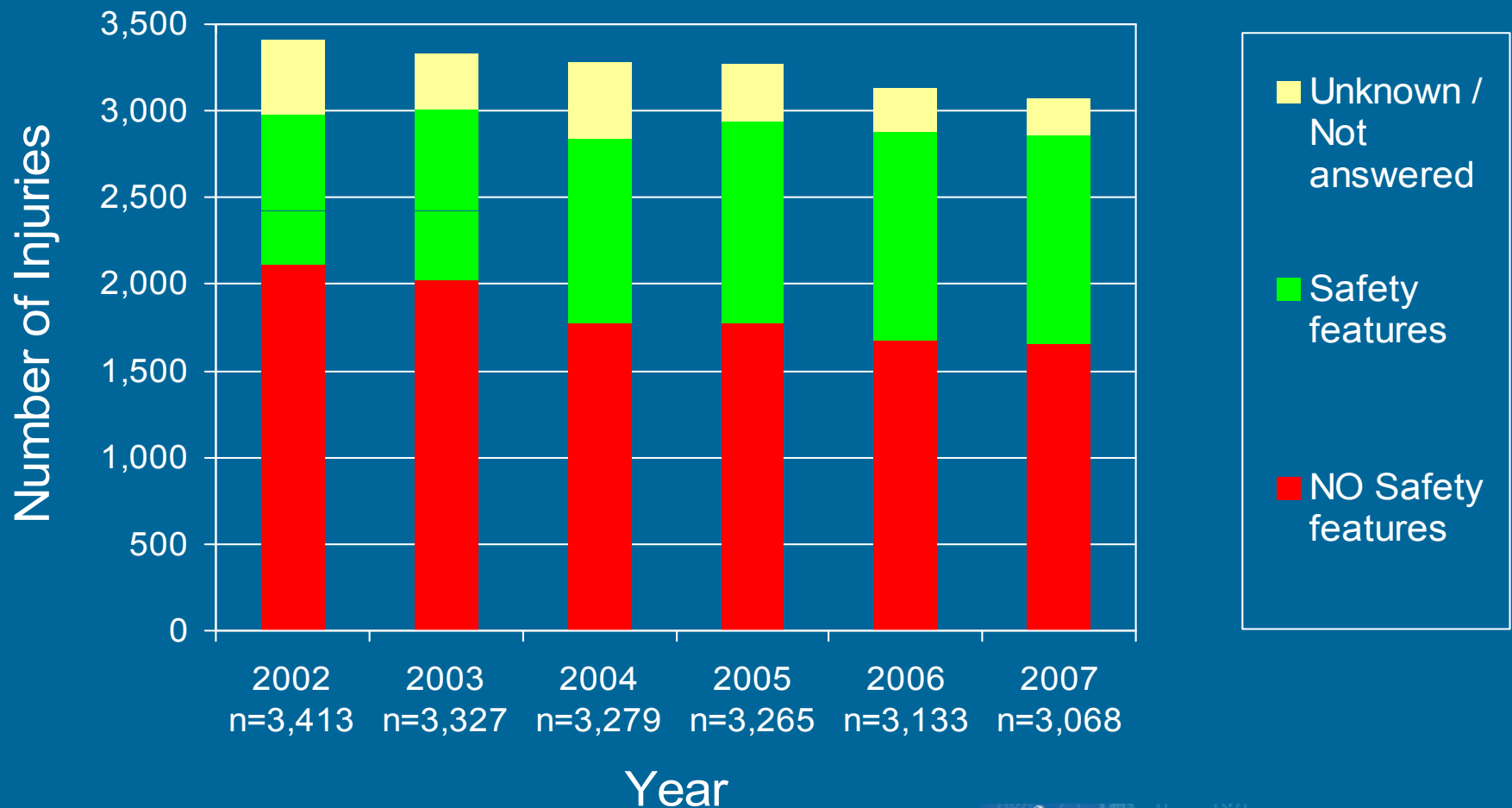
# Sharps Injuries among Hospital Workers by Device, Massachusetts, 2002-2007, N=19,485



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

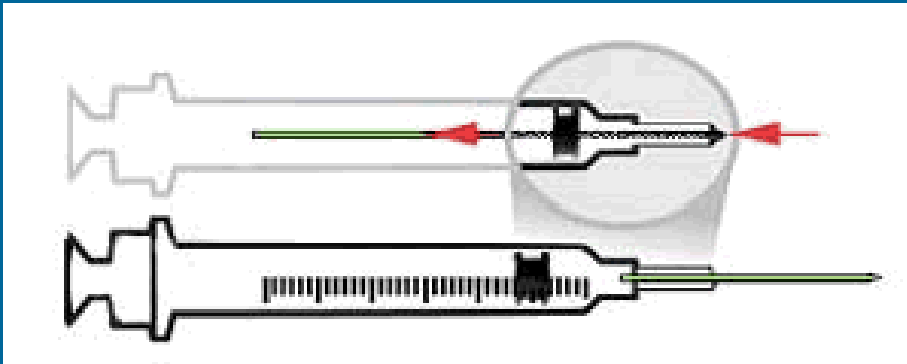
# Distribution of Injuries by Presence of Safety Features, N=19,485



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

- Why are devices without safety features still used?
- What's happening with devices **with** safety features?

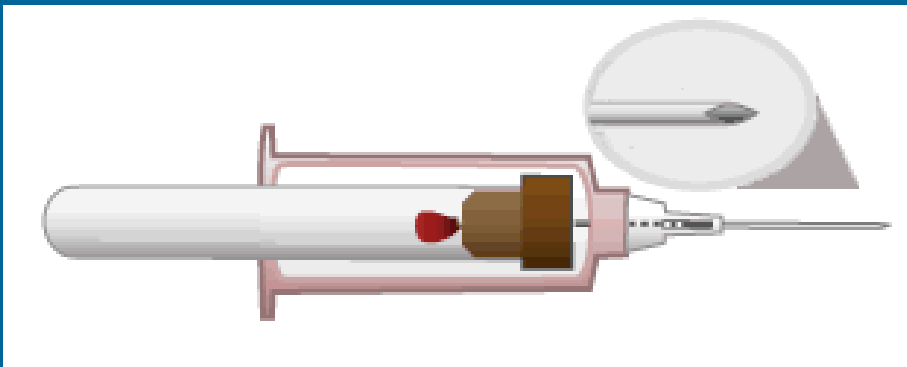


Hypodermic Needle  
Attached to a Disposable  
Syringe

30% of all injuries

Winged Steel Needle

10% of all injuries



Vacuum tube collection  
holder and needle

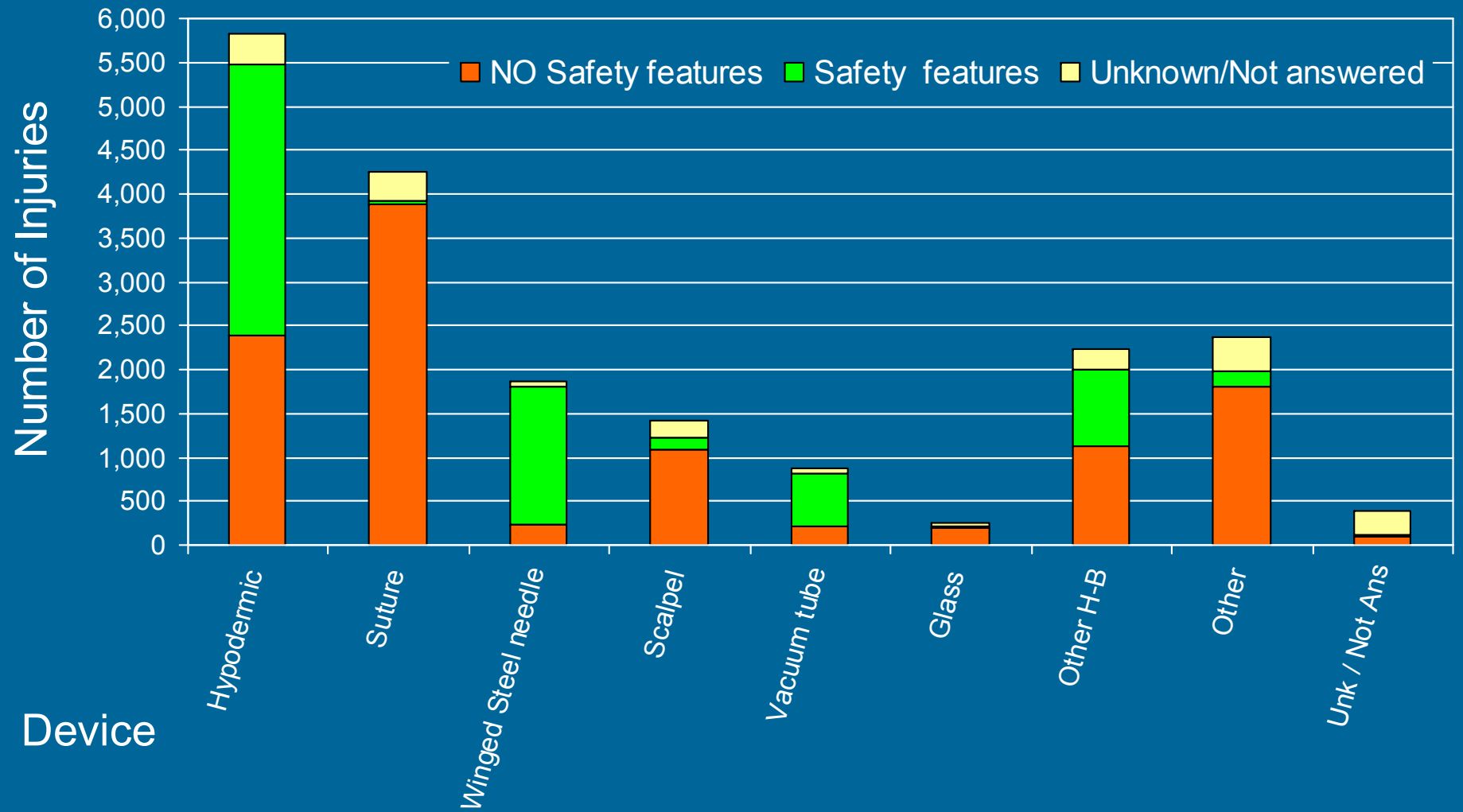
5% of all injuries

<http://www.osha.gov/SLTC/etools/hospital/hazards/sharps/sharps.html>

Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

# Sharps Injuries among Hospital Workers by Device Involved in the Injury, Massachusetts, 2002-2007, N=19,485

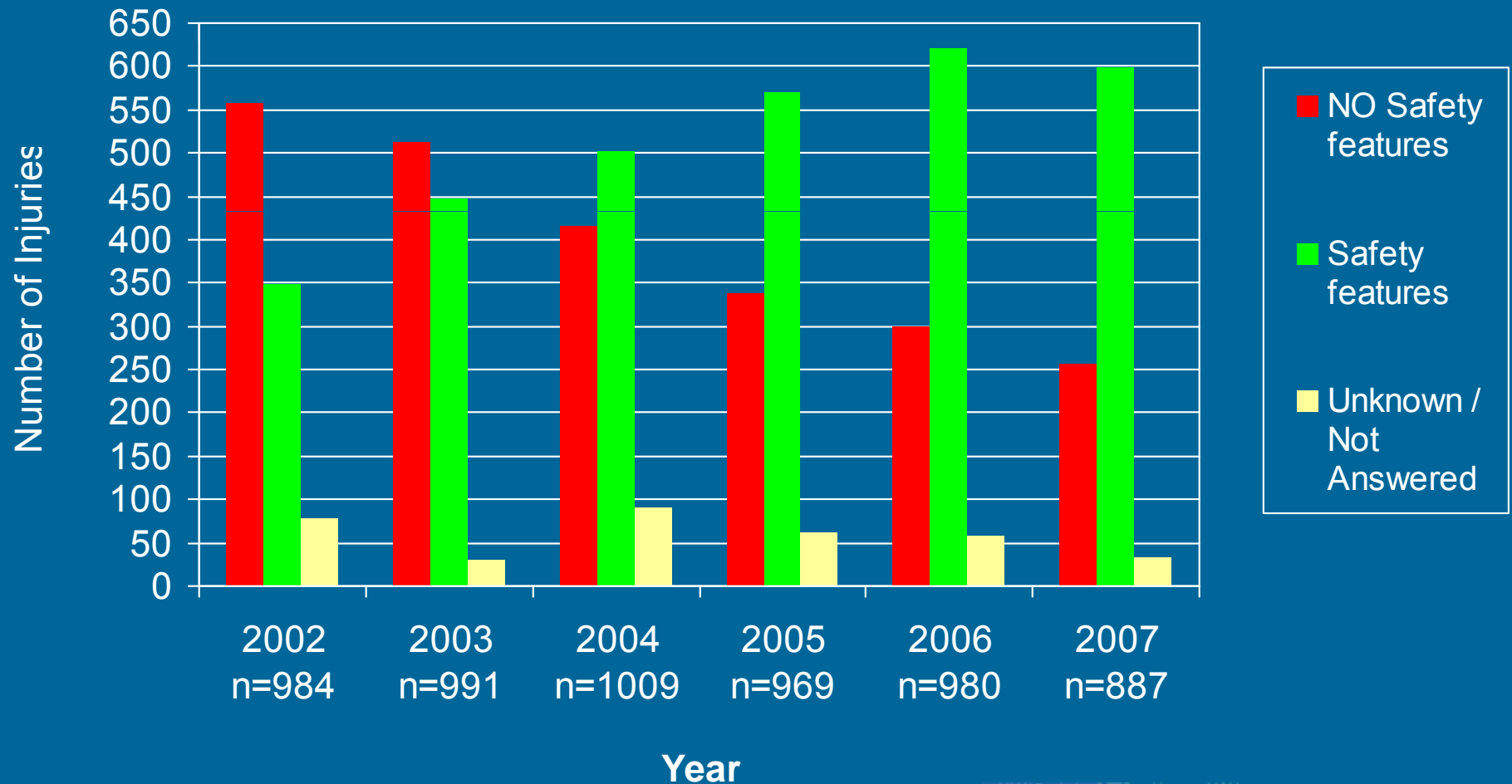


Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.



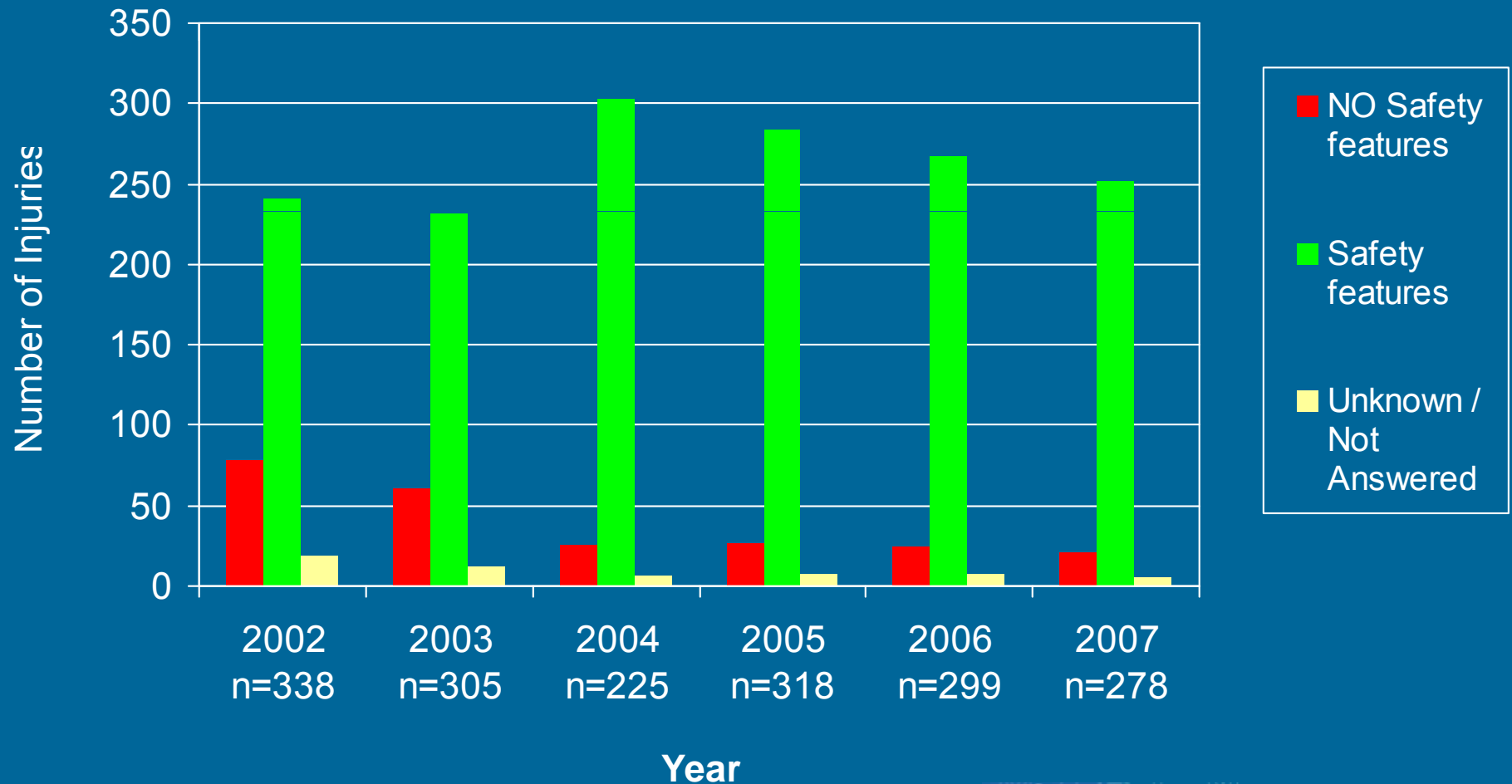
# Sharps Injuries with Hypodermic Needles n=5,820



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

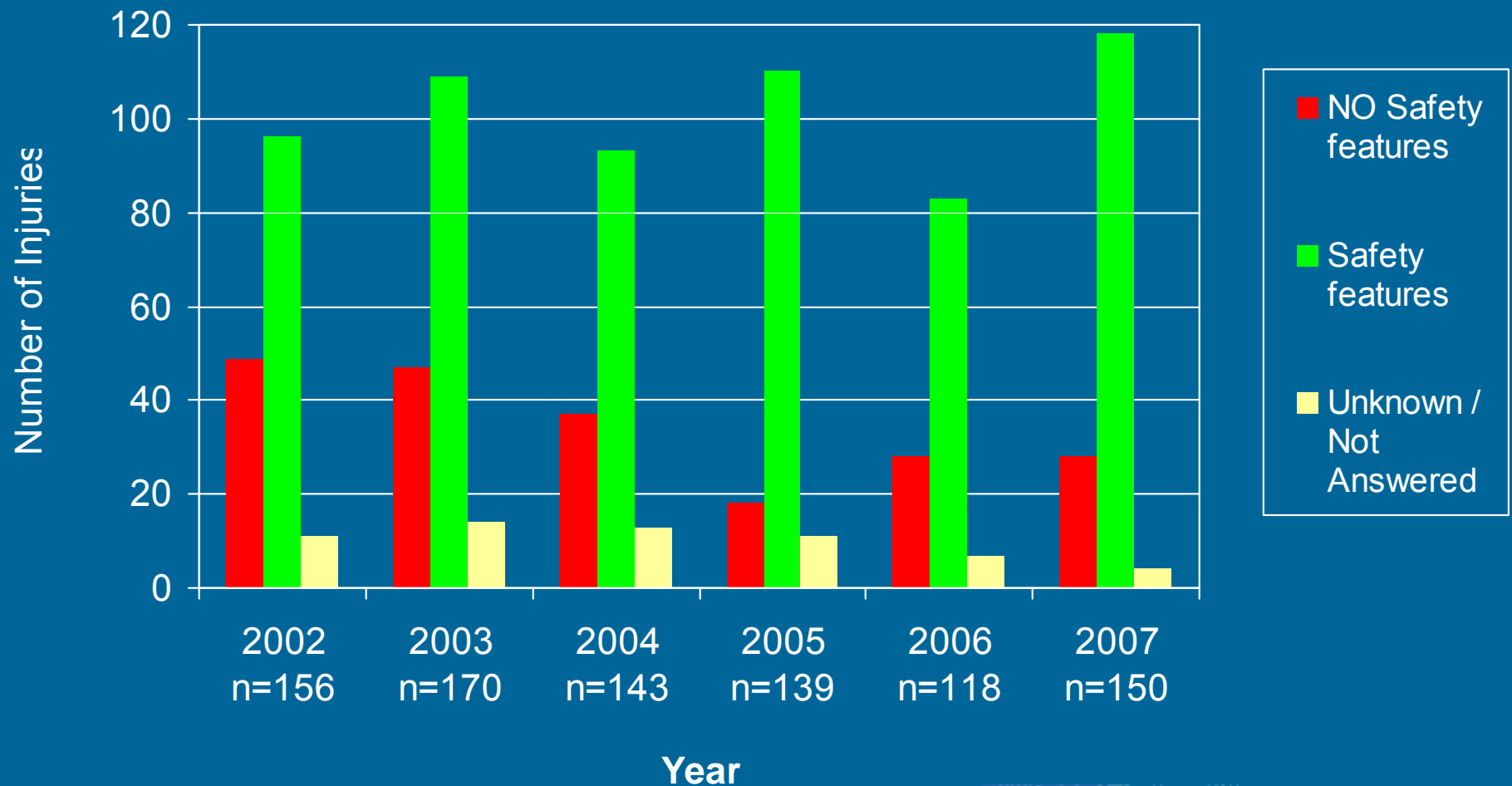
# Sharps Injuries with Winged Steel Needles n=1,873



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

# Sharps Injuries with Vacuum Tube Collection Holder / Needles n=876



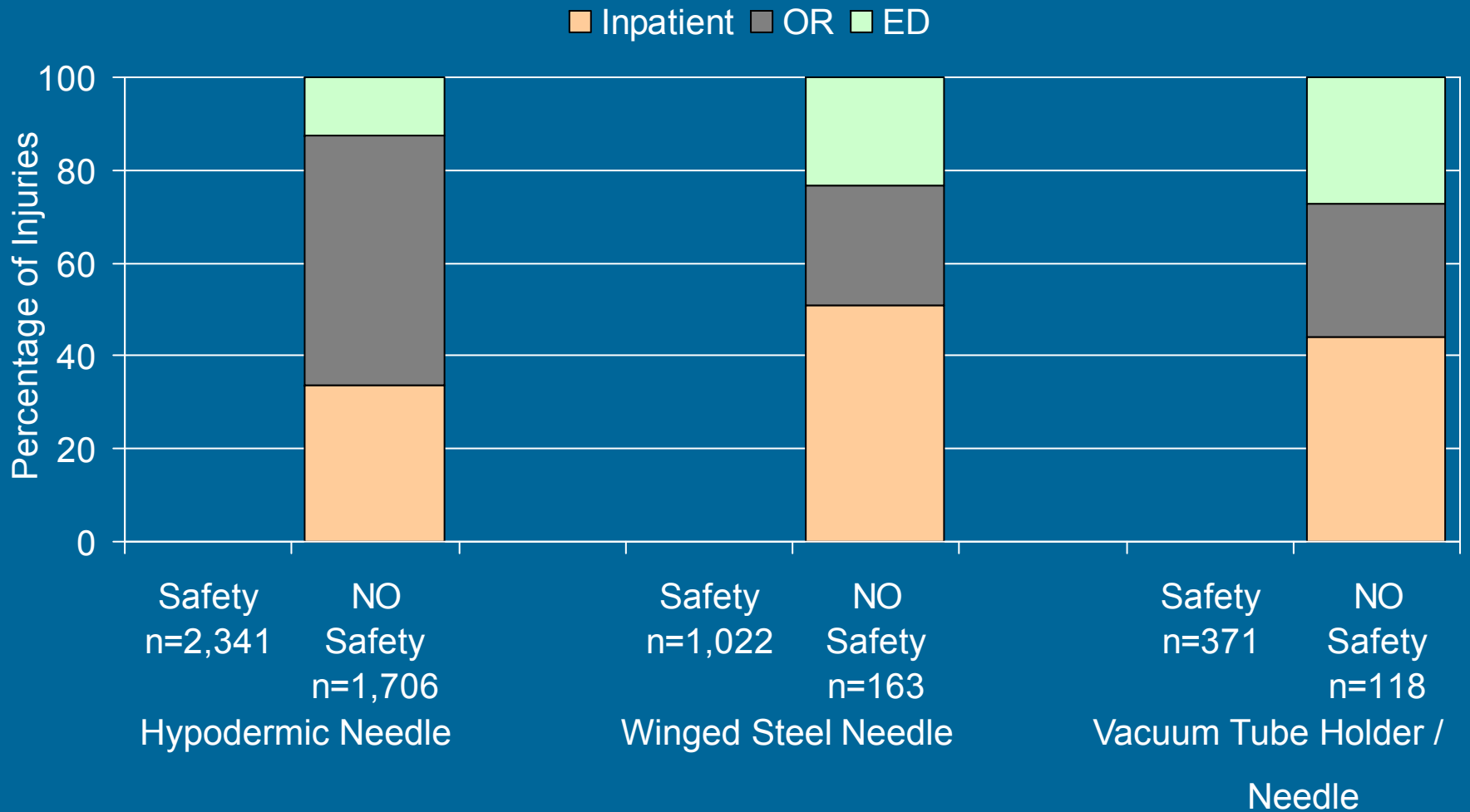
Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

# Research Questions

- Devices without safety features:
  - Where are they being used?
  - Who is getting injured?
- Devices with safety features:
  - Who is getting injured during activation of safety features?
  - What does this tell us about device design or staff training?

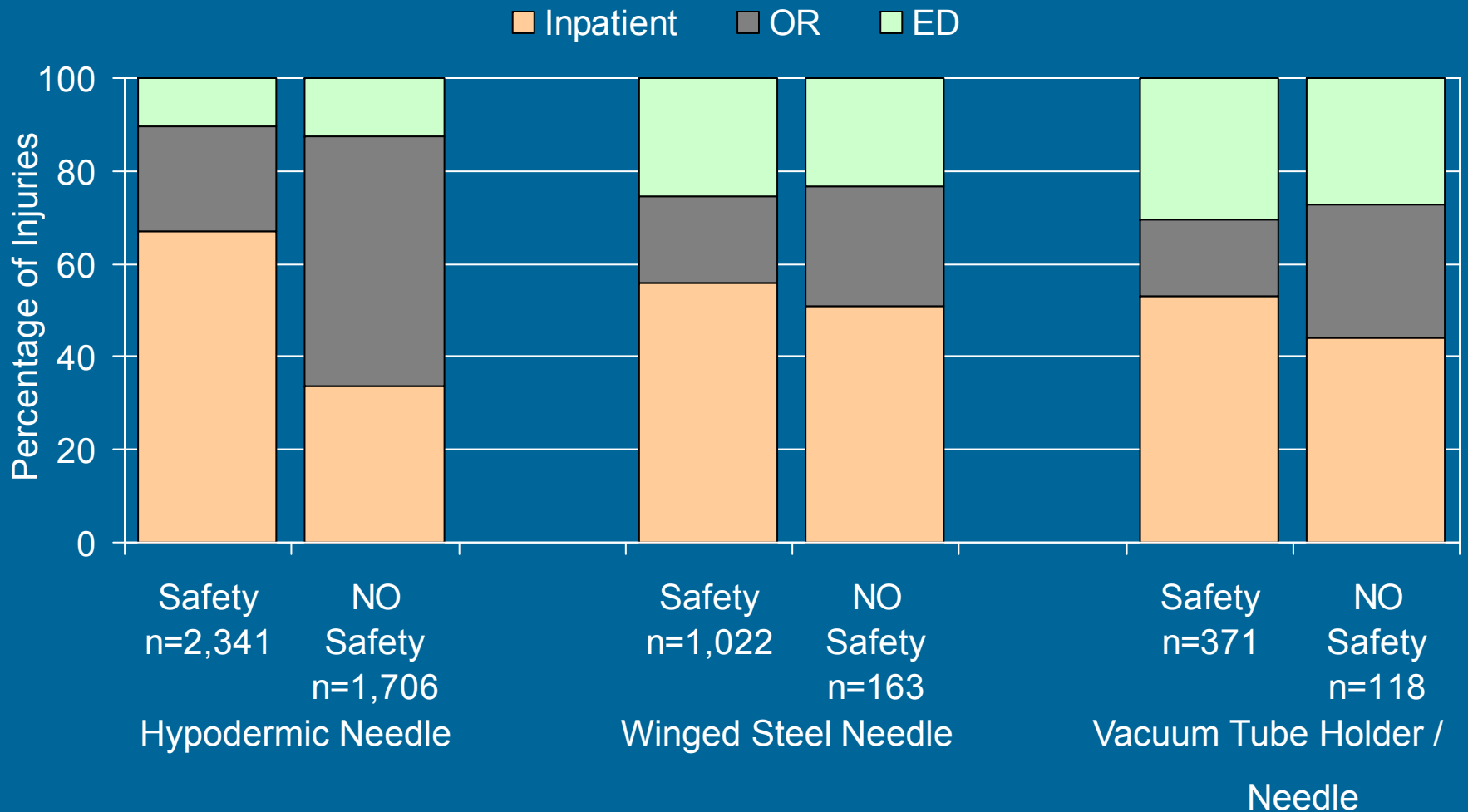
# Where are Devices Used?



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

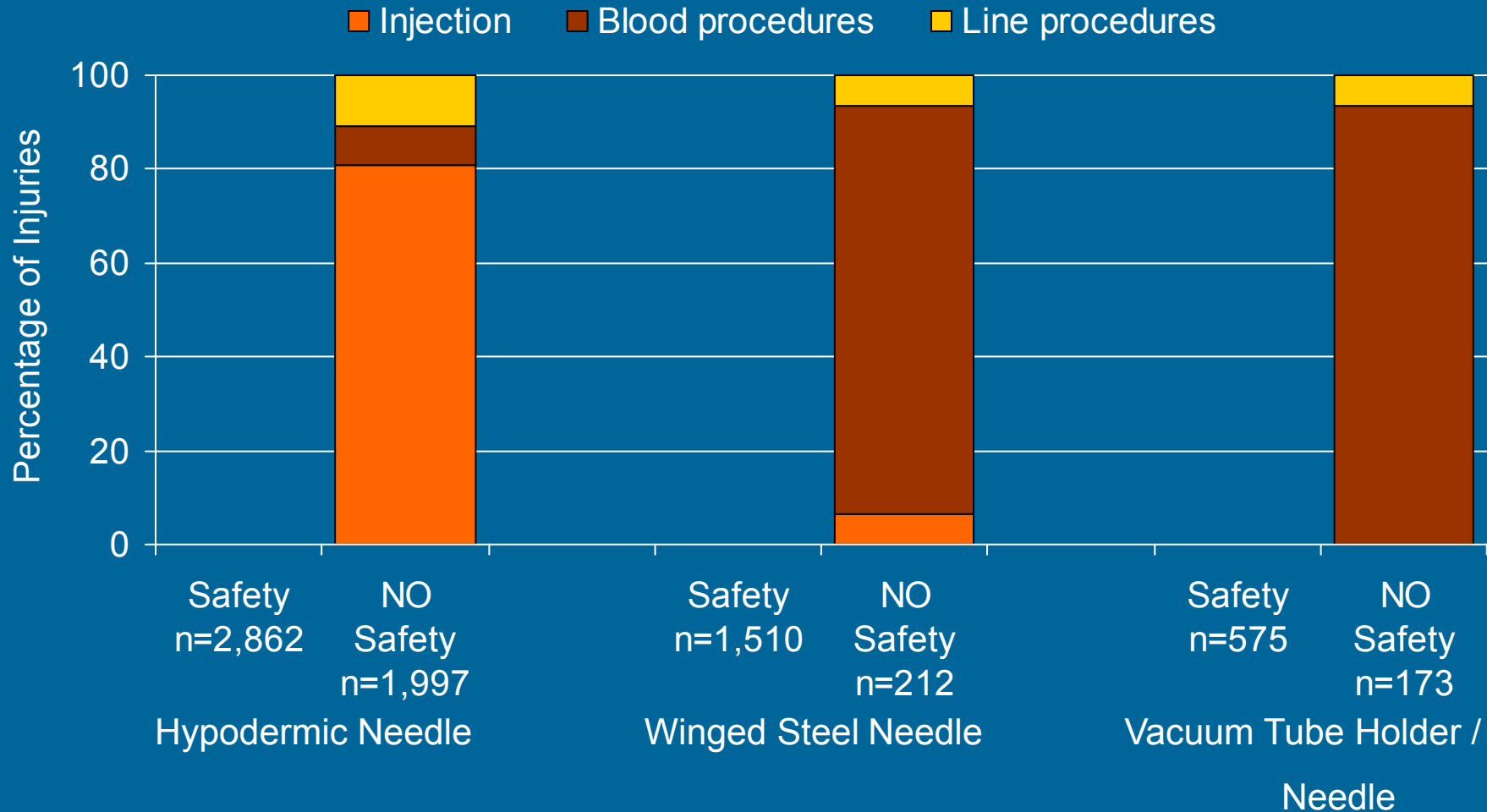
# Where are Devices Used?



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

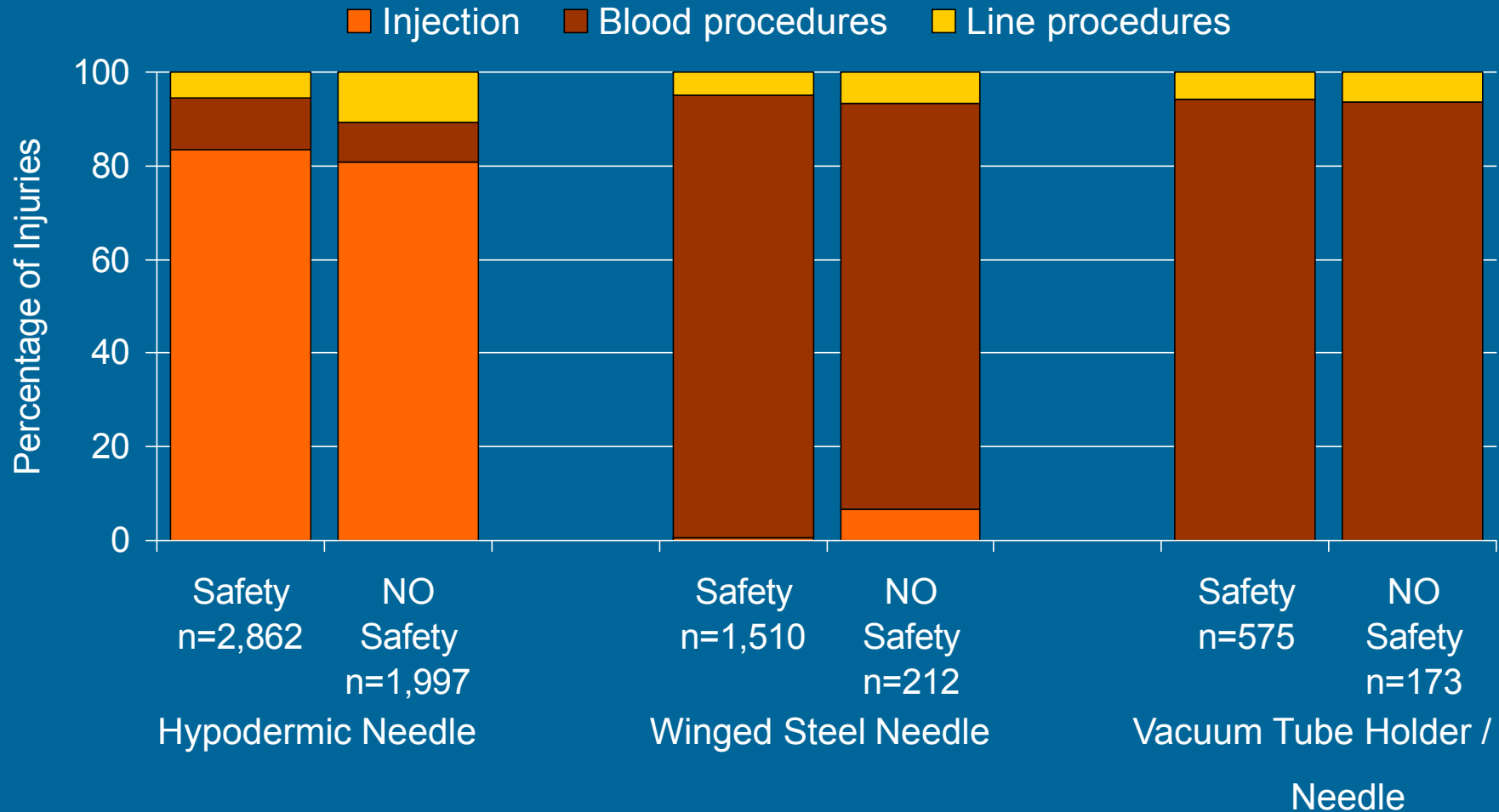
# For Which Procedures are Devices Used?



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

# For Which Procedures are Devices Used?

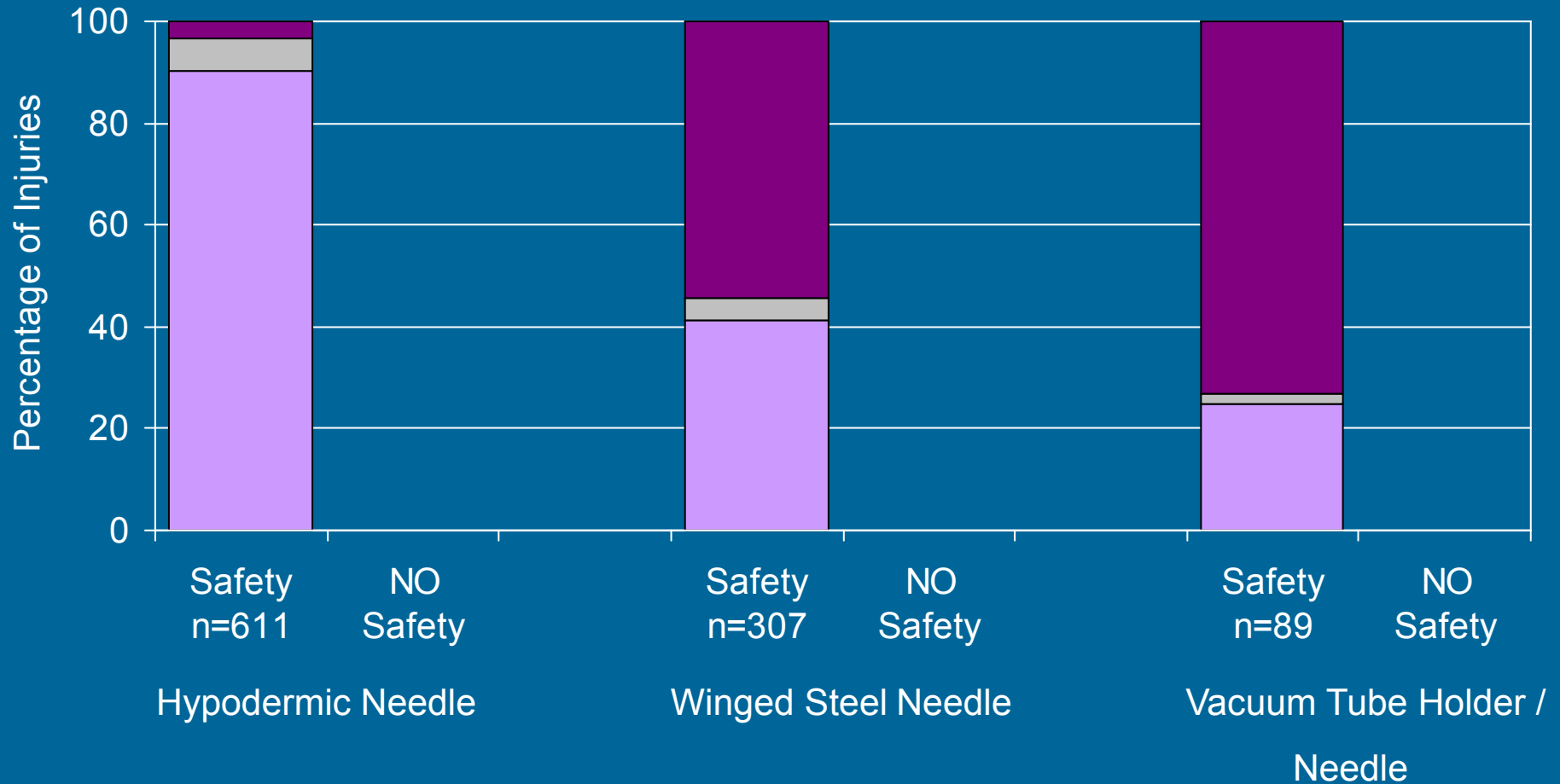


Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

# Who's getting Injured while Activating Safety? n=1,007

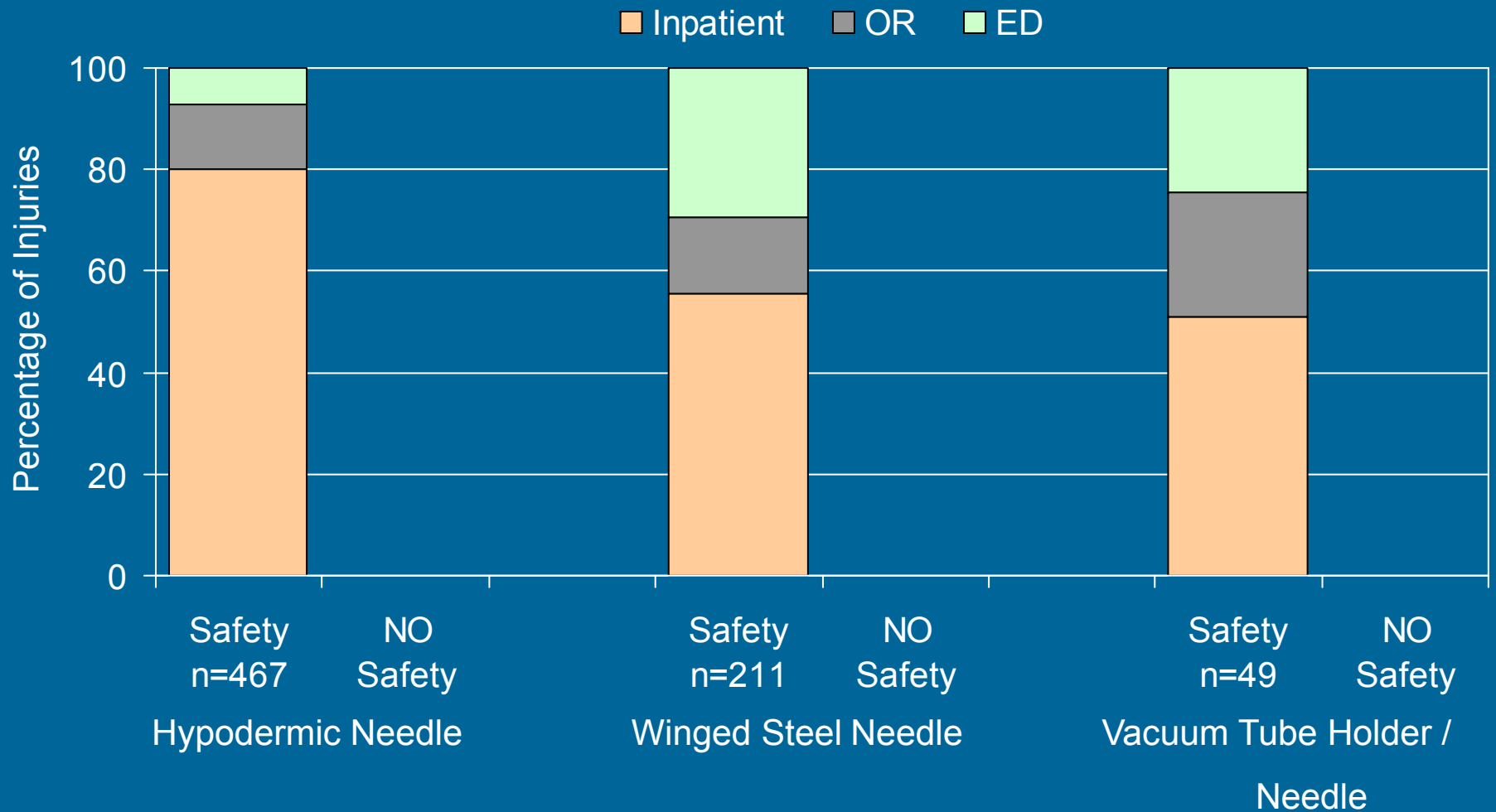
■ RN ■ MD ■ Technician



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

# Where are they getting Injured Activating Safety? n=727



Data Source: MDPH Annual Summary of Sharps Injuries, 2002-2007

Preliminary data not to be duplicated, cited, quoted or published.

- Why are devices without safety features still used?
  - What is the process for purchasing devices?
  - Who is involved in this process?
  - Is there a gatekeeper to identify requests for devices without safety features?
- What's happening with devices **with** safety features?
  - Is there an issue with the design?
  - Is there a need for additional training?
  - Have devices with different mechanisms been evaluated?

# Strengths

- Full participation by hospitals → amount of data in system
- Addresses multiple regulatory requirements
- Inform state public health prevention activities and promote local intervention
- Provides a mechanism for sharing information among hospitals

# Limitations

- Under-reporting
  - May explain the observed downward trends if there is increased under-reporting over time
- Data was self-reported
  - Missing or inconsistent data

# Future Directions

- General:
  - Continuous advocacy for use of device with safety features
  - Evaluate the relative efficacy of certain devices with safety features (2<sup>nd</sup>, 3<sup>rd</sup>, ... generations)
- For Massachusetts Sharps Injury Surveillance Program:
  - Collect mechanism of the safety feature
    - Retracting
    - Sheathing
    - Blunting
    - Hinged arm
  - Explore collection of denominators to reflect device usage in the hospital
  - Analyze data regarding brand and manufacturer of the devices

# Information for Action

## Continuous Quality Improvement

- Hospitals in evaluating own data need to do so in the context of their own sharps injury surveillance and prevention programs
- Use hospital specific data internally over time to identify prevention priorities and evaluate intervention efforts

# How do I determine the manufacturer / brand / model of a device?

Becton Dickson

Eclipse

22g X 1.5 in. 10cc

Integra

25 g X 5/8 in. 3 mL

Safety-Lok

21 g X 1.5 in. 5 mL

Precision glide

27g X 1.25 in.

Vacutainer

25 g x 0.75 in

Smiths Medical

Gripper Plus huber needle

Needle-pro

20g x 1.5 in. 3 mL

Retractable Technologies

VanishPoint

27 g x 0.5 in. 1 cc

Kendall

Monoject

18g X 1 in. 12cc

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# Exemption from the Inclusion of Sharps Injury Prevention Technology

## *105 CMR 130.005*

- A. Sharps injury prevention technology may be excluded as engineering and work practice controls in cases where the hospital or other appropriate party can demonstrate circumstances in which the technology does not promote employee or patient safety or interferes with a medical procedure.
- B. Where sharps injury prevention technology is not utilized, the hospital shall specify those circumstances, which shall include but not be limited to, situations where the technology is medically contraindicated or not more effective than alternative measures used by the hospital to prevent exposure incidents.
- C. In all cases the Department shall make the final determination as to whether a hospital or other appropriate party has demonstrated in a satisfactory manner those circumstances which warrant an exemption from the inclusion of sharps injury prevention technology.

# Guidelines

- Complete the questionnaire
- Include supporting documentation:
  - Device evaluations
  - Manufacturer information
  - Any relevant studies
- Review by internal hospital committee
- If approved, document measures to minimize risk
  - Work practice controls
  - Engineering controls

# Guidelines

## Points to consider in device evaluation:

- Existence / availability of alternative technology
- Potential interference of sharps injury prevention technology with medical procedures and patient safety
- Degree of effectiveness in preventing exposures to healthcare workers as compared with devices without sharps injury prevention technology

# Guidelines

Sample inventory template:

Device	Manufacturer	Brand	Model (size / gauge)	Part of a kit?	# of injuries in past 12 months	Date of previous review	Date of most recent review (and exemption, if applicable)	Does this device qualify for exemption?

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# Occupational Health Surveillance Program

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[www.mass.gov/dph/ohsp](http://www.mass.gov/dph/ohsp)

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