Occupational Safety
and Health Administration

Safer Needle Devices: Protecting Health Care Workers

Purpose of this Presentation:

- Update statistics
- Define and discuss safer needle devices
- Examine OSHA's position on the use of safer needle devices

The Pattern of Needlestick Injuries

- Who?
- What?
- Where?
- When?

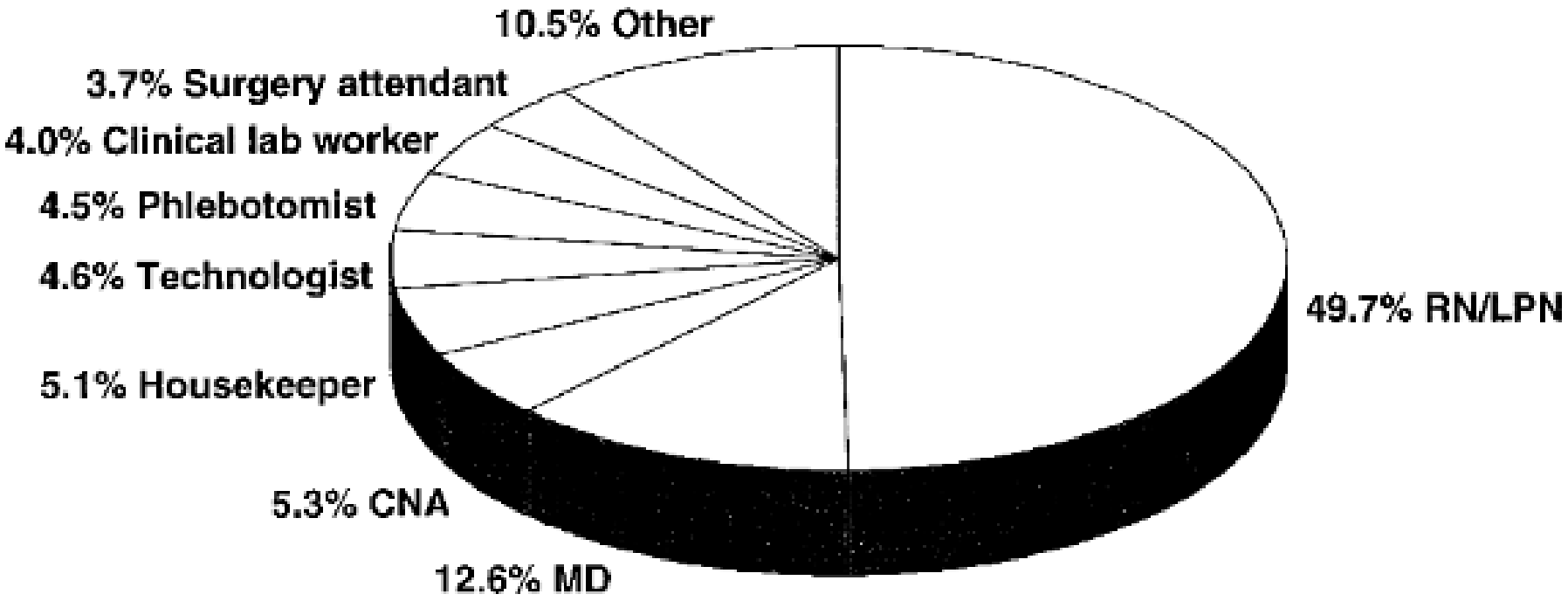
800,000 Needlestick Injuries Occur Each Year in the United States

Needlestick Injuries Are Costly:

- Time and money to investigated the source
- Post-exposure care
- Lost work time and productivity
- Treatment of resulting illnesses
- Workers' lives

Who Is Injured Most Frequently?

Needlestick Injuries Among Health Care Workers



Source: EPINet data, University of Virginia

Needlestick Injuries Are Underreported by Health Care Workers

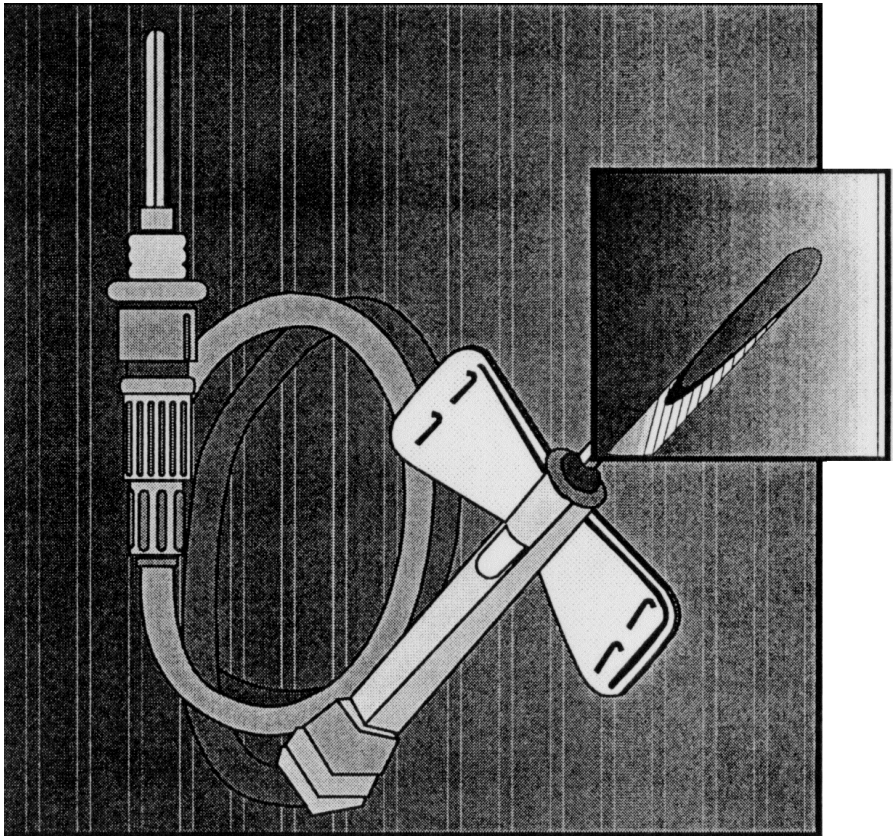
Source: Harmony, 1983; Chiarello, 1992

Underreporting Reasons

- Lack of time
- Employer response
- Concern about HIV status

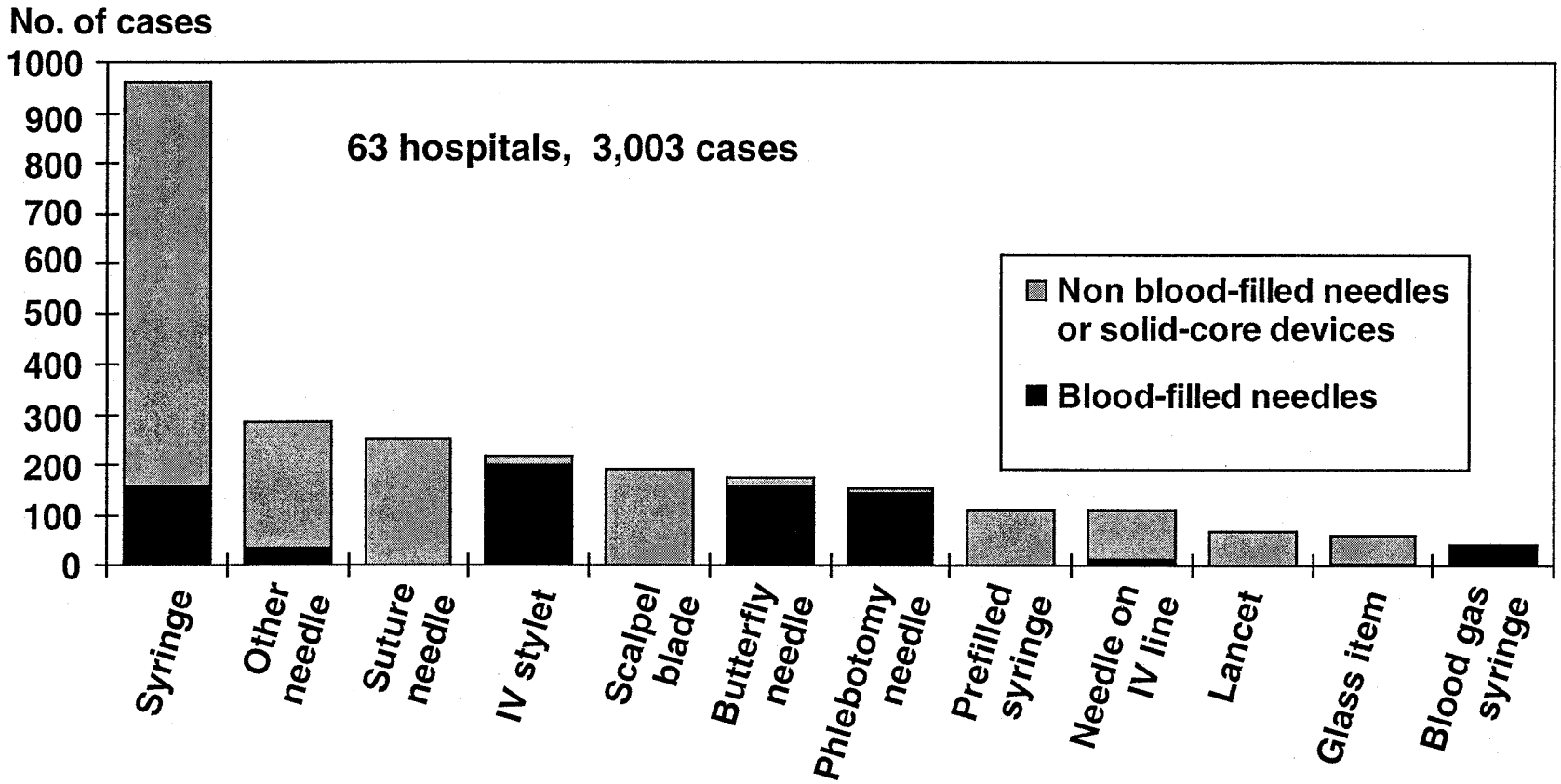
What Types of Devices Are Most Commonly Involved in Needlestick Injuries?

- Hollow-bore needles are the cause of injury in 68.5% of cases



Source: Ippolito, et al, 1997

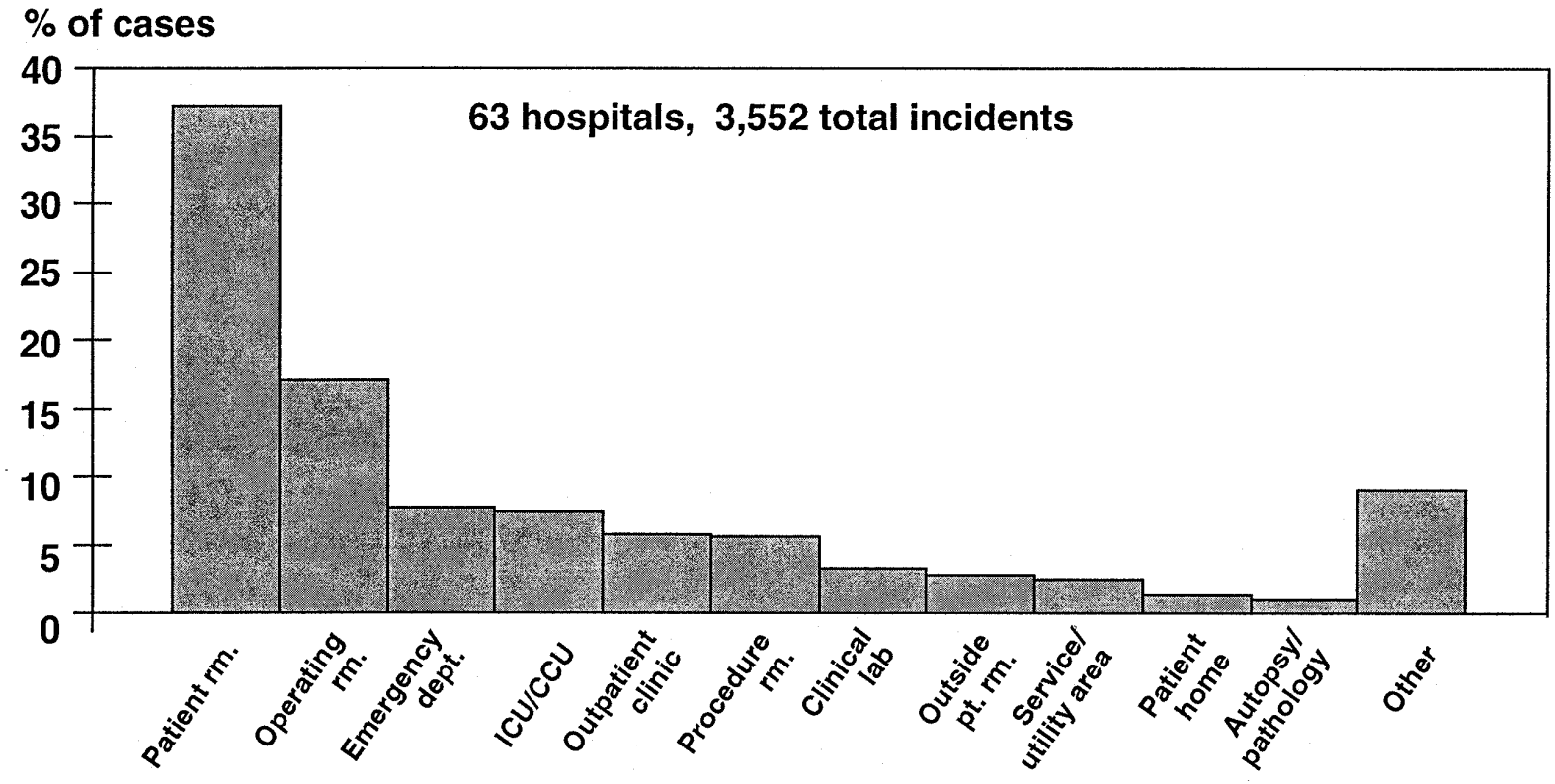
Items Most Frequently Causing Sharp-Object Injuries, 1995



Adapted from Ippolito et al, 1997

Where Do Most Needlestick Injuries Occur?

Location Where Puncture Injuries and Other Blood Exposures Occurred, 1995



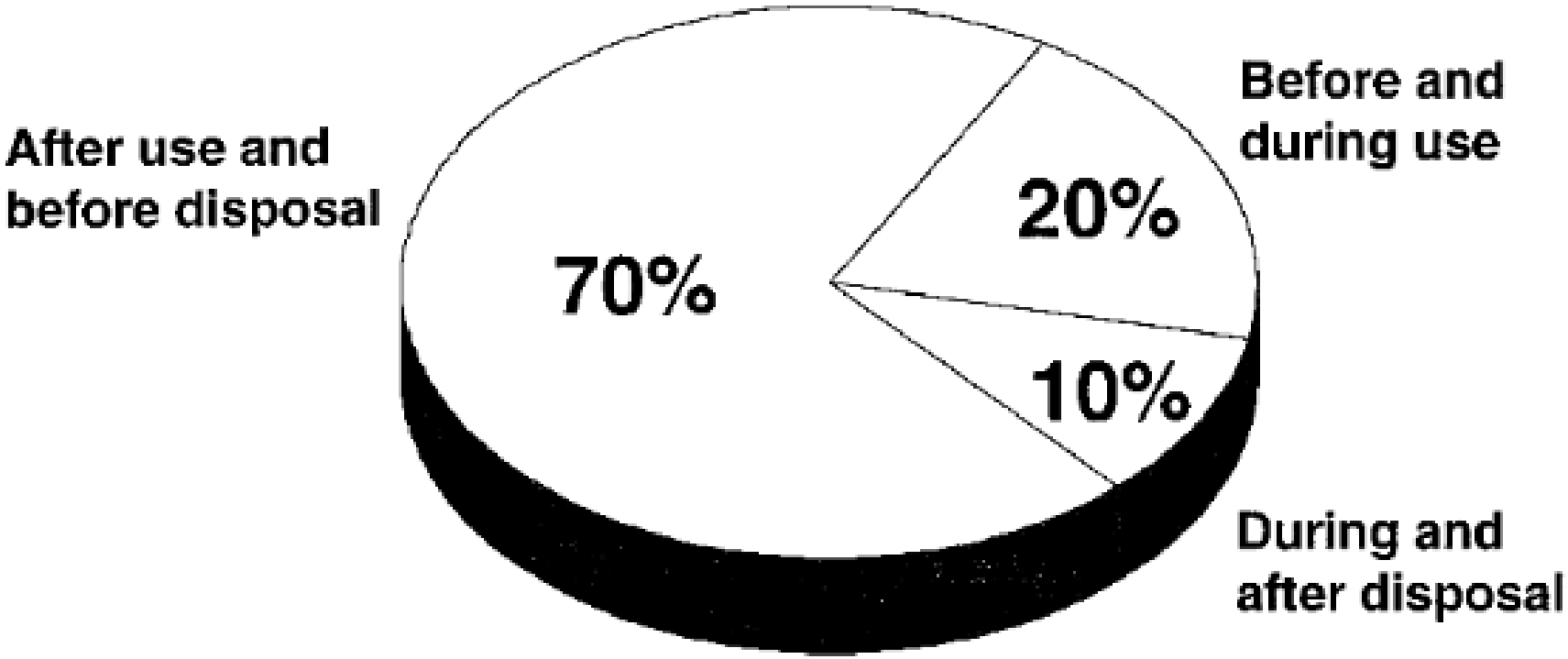
Source: Adapted from Ippolito et al., 1997.

Which Tasks Involve the Most Injuries?

- The majority of needlesticks occur when health care workers:
  - Dispose of needles
  - Administer injections
  - Draw blood
  - Recap needles
  - Handle trash and dirty linens

Source: Chiarello, 1992

When Do Needlesticks Happen?



How Serious a Threat Are Needlestick Injuries to Health Care Workers?

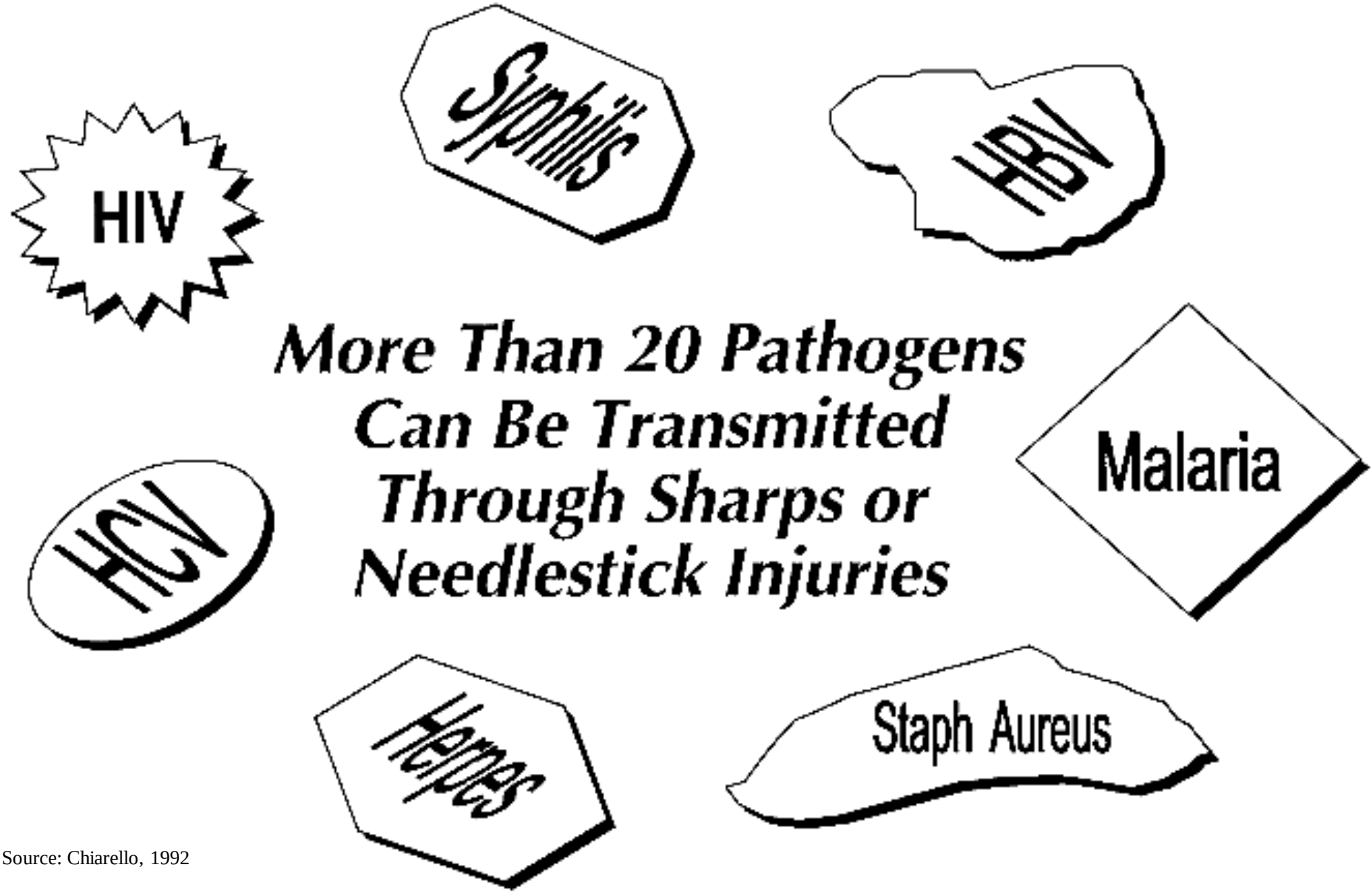
800,000 Needlestick Injuries Occur Each Year in the United States

16,000 of These Are Likely to Be Contaminated by HIV

Source: American Hospital Association, 1992

Up to 80% of All Accident Exposures to Blood Are Caused by Needlestick Injuries

Source: Jagger, J., 1988

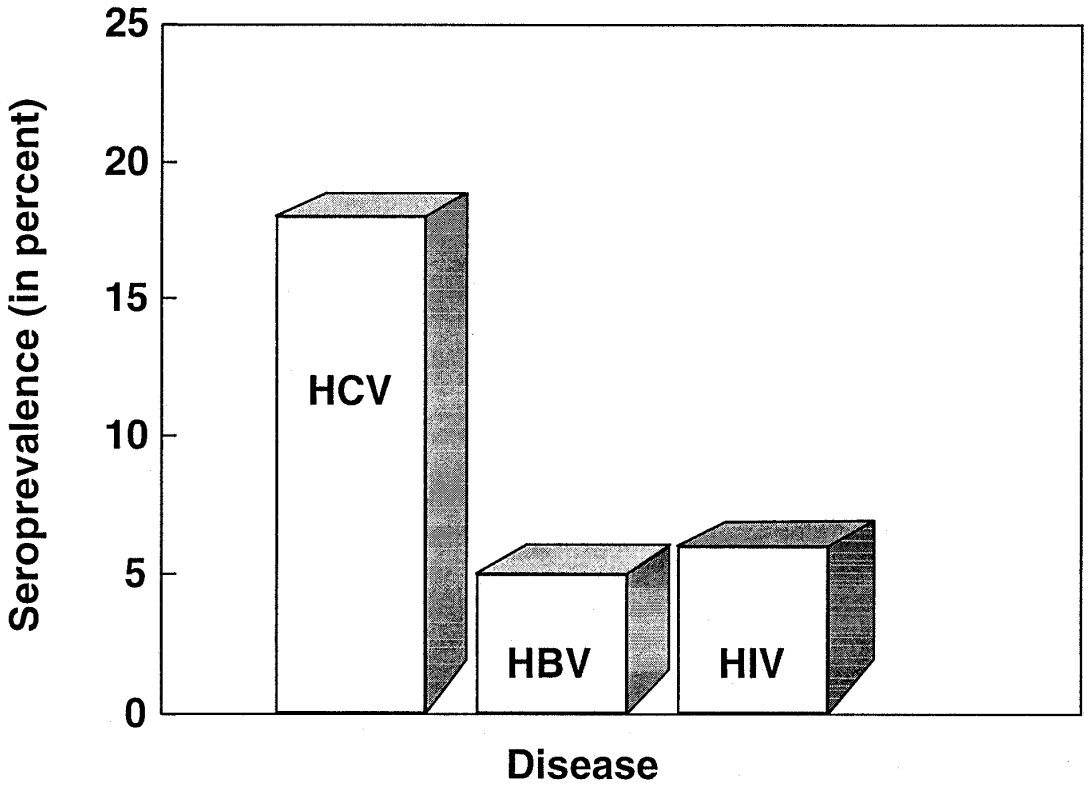


Source: Chiarello, 1992

HBV and HCV Pose an Even Greater Risk Then HIV

Source: Centers for Disease Control and Prevention, 1991

Prevalence in the Patient Population



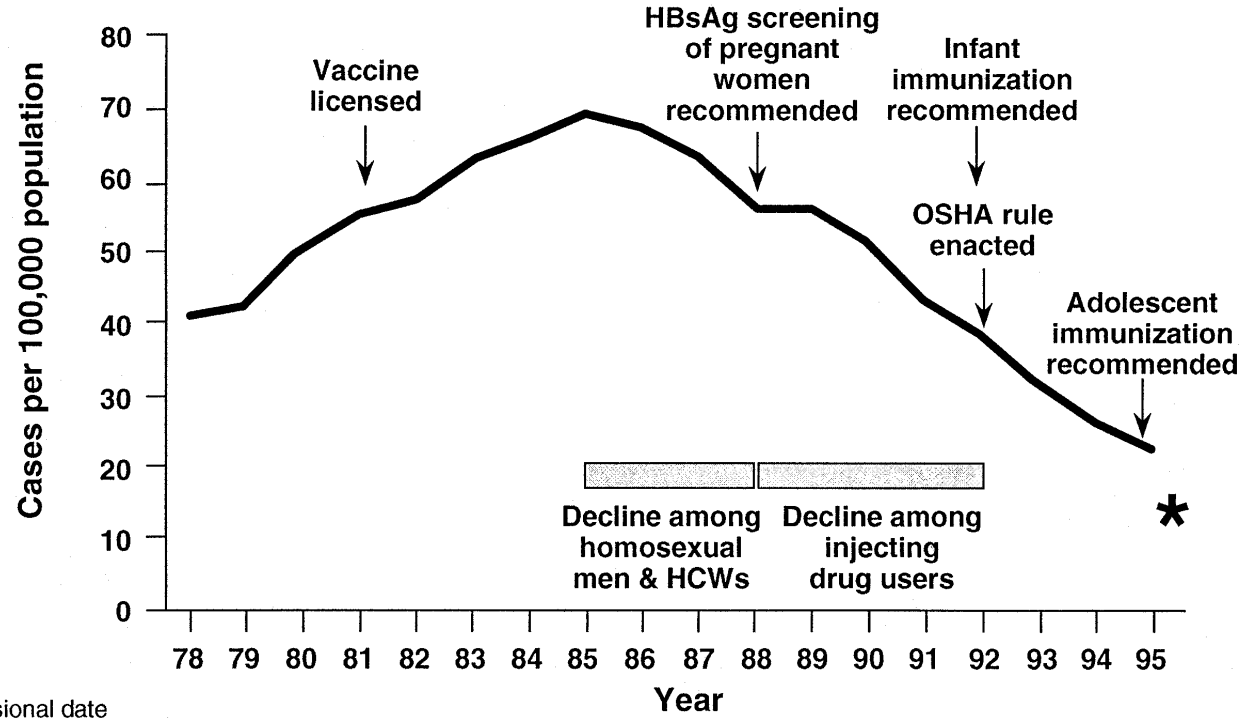
Source: Kalen, et. al, 1997

Occupational Risk of Hepatitis B:

- Much more transmissible than HIV
- Risk after needlestick: 2% - 40%
- 1994 - 1000 health care workers developed HBV infection
- Approximately 200 HCWs die each year

Source: CDC, 1991; 1997

Estimated Incidence of Acute Hepatitis B United States, 1978-1995



*Provisional date

Occupational Risk of Hepatitis C:

- HCV - major cause of chronic liver disease
- No vaccine
- No effective post-exposure prophylaxis
- 85% of HCV infected people develop chronic infection

Source: CDC, 1997; NIH, 1997

Occupational Risk of HIV:

- Risk after needlestick - 1 in 300
- Exposures from needlesticks or cuts cause most infections

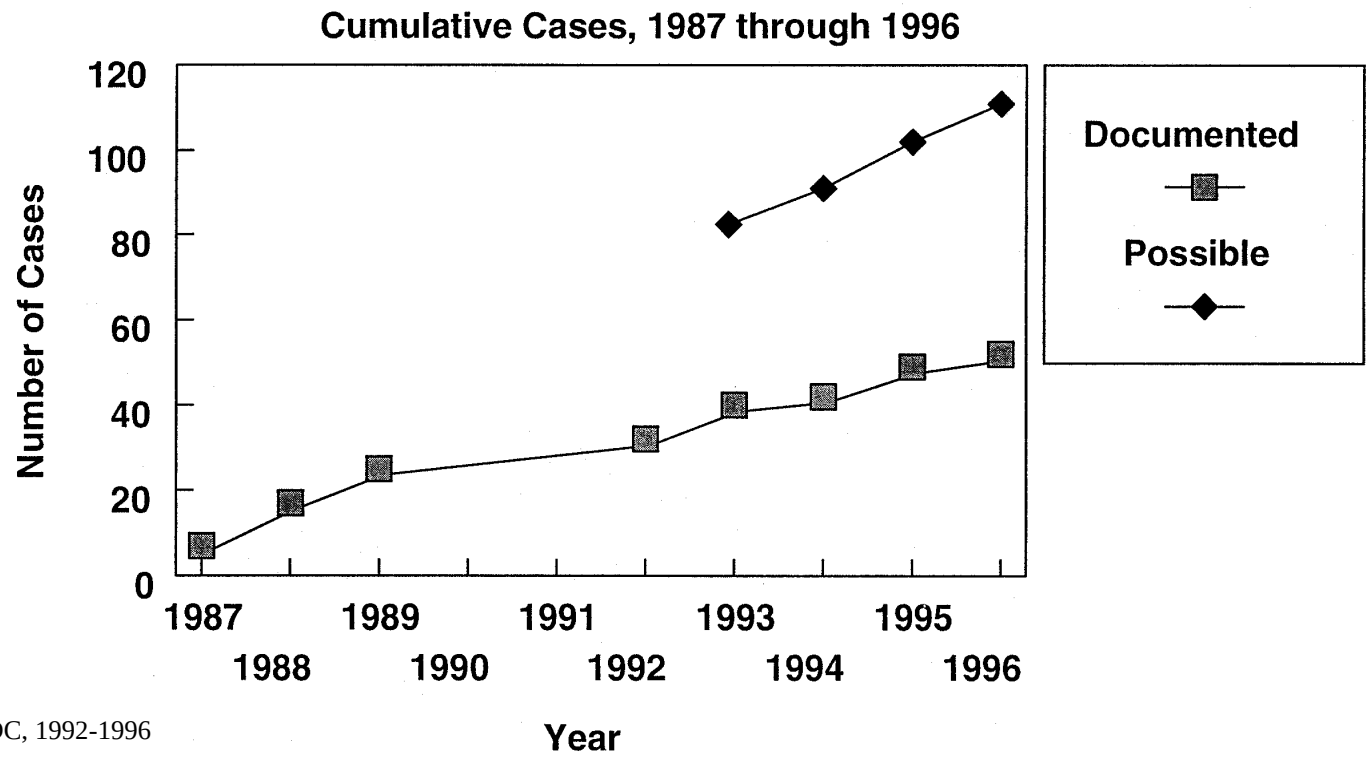
Source: CDC, 1991; 1996

HCWs with Occupationally Acquired HIV/AIDS Infection

Occupation	Documented occupational transmission[2]	Possible occupational transmission[3]	Total
Nurse	22	33	55
Laboratory technician, clinical	16	16	32
Physician, nonsurgical	6	12	18
Health aide/attendant	1	14	15
Housekeeper/maintenance worker	1	12	13
Emergency medical technician/paramedic	0	12	12
Technician/therapist[4]	0	10	10
Dental worker, including dentist	0	6	6
Physician, surgical	0	6	6
Technician/dialysis	1	3	4
Technician/surgical	2	2	4
Embalmer/morgue technician	1	2	3
Technician/laboratory, nonclinical	3	0	3
Respiratory Therapist	1	2	3
Other health care occupations	0	4	4
TOTAL	54	134	188

Source: CDC, 1997

Health Care Workers with Occupationally Acquired AIDS/HIV Infection

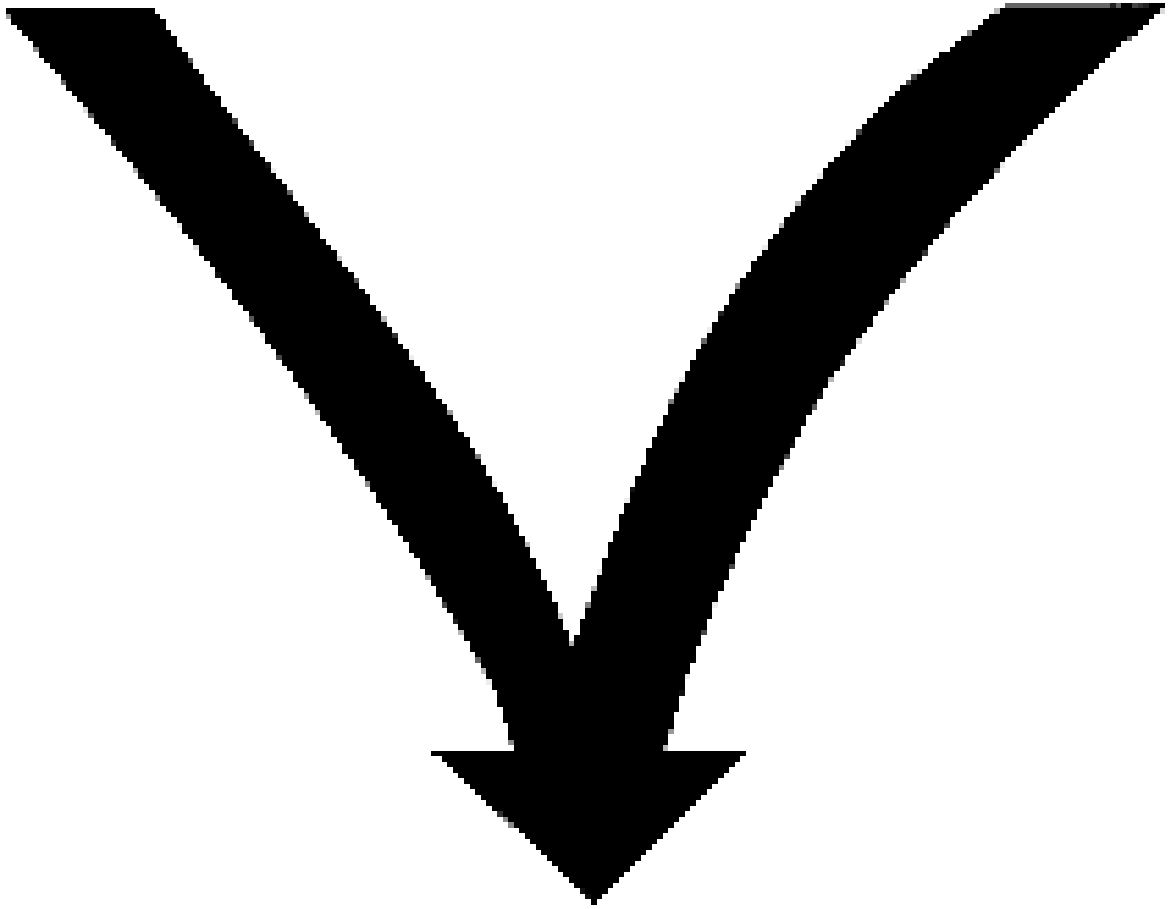


Source: MMWR, 1987-1989; CDC, 1992-1996

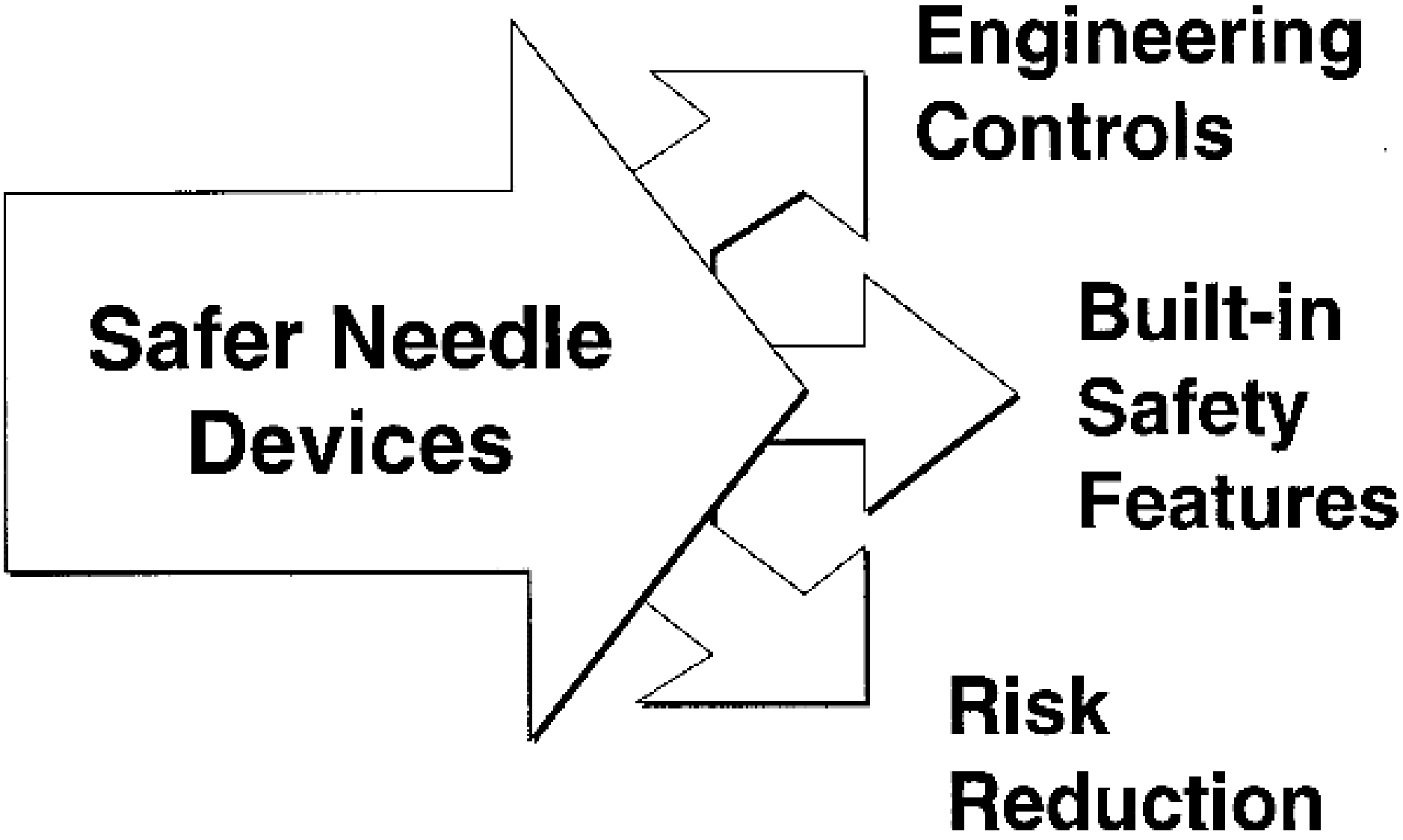
Personal Protective Equipment (PPE) Alone Usually Does Not Adequately Protect the Health Care Worker from Needlesticks

- PPE, such as gloves provide a barrier, but…
- Most personal protective equipment is easily penetrated by needles

UNSAFE NEEDLE DEVICES



NEEDLESTICK INJURIES


Safer Needle Devices
Engineering Controls
Built-in Safety Features
Risk Reduction

Do Safer Needle Devices Prevent Injury?

- Can’t eliminate all, but…
- 83% can be prevented

Source: Ippolito, et. al., 1997

Reduction in Needlestick Injuries

- Blunt suture needles

86%

- Safer phlebotomy needles

27% to 76%

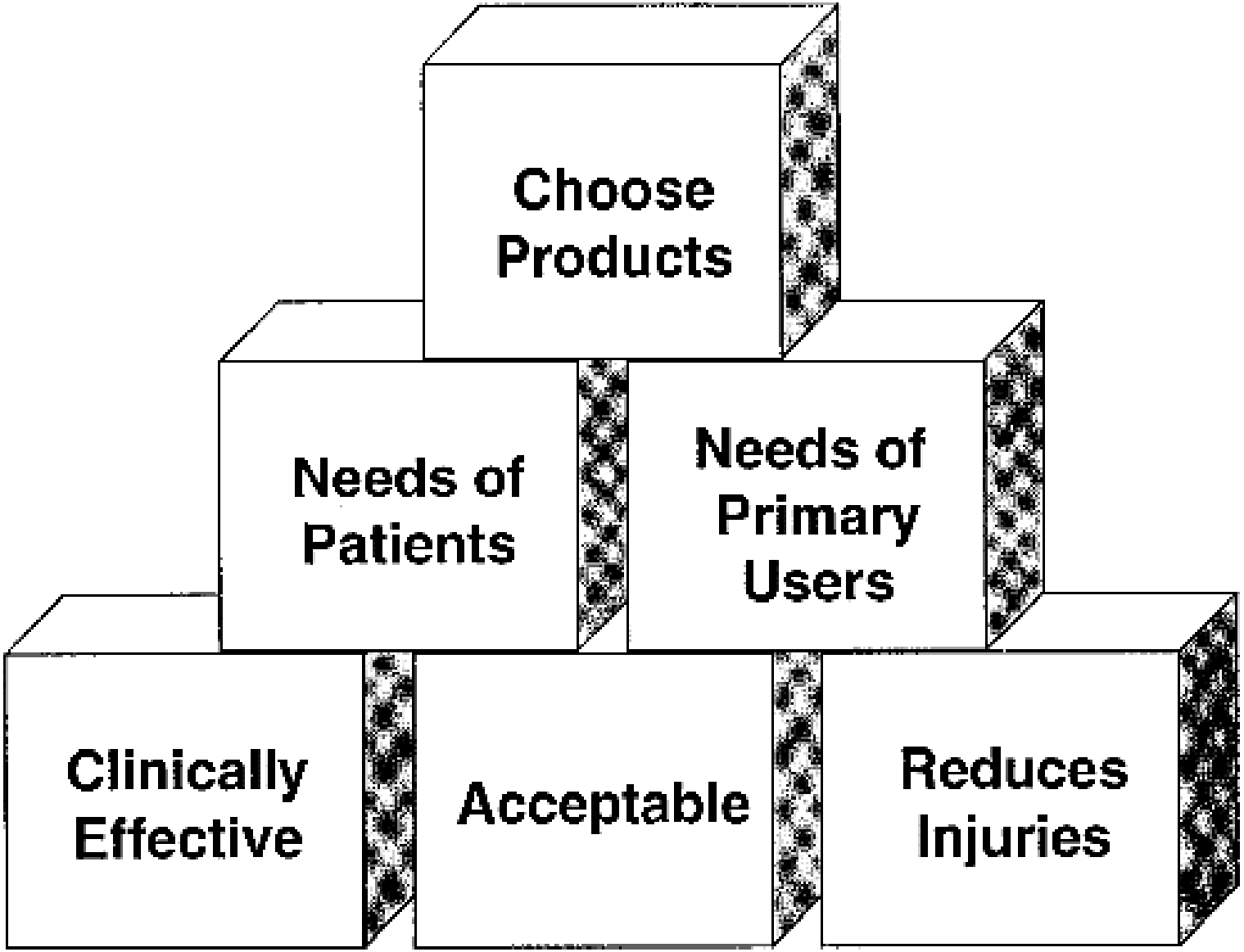
Source: MMWR, 1997

STEPS

- Analyze Data
- Evaluate Products
- Develop Criteria
- Define Priorities
- Create Team

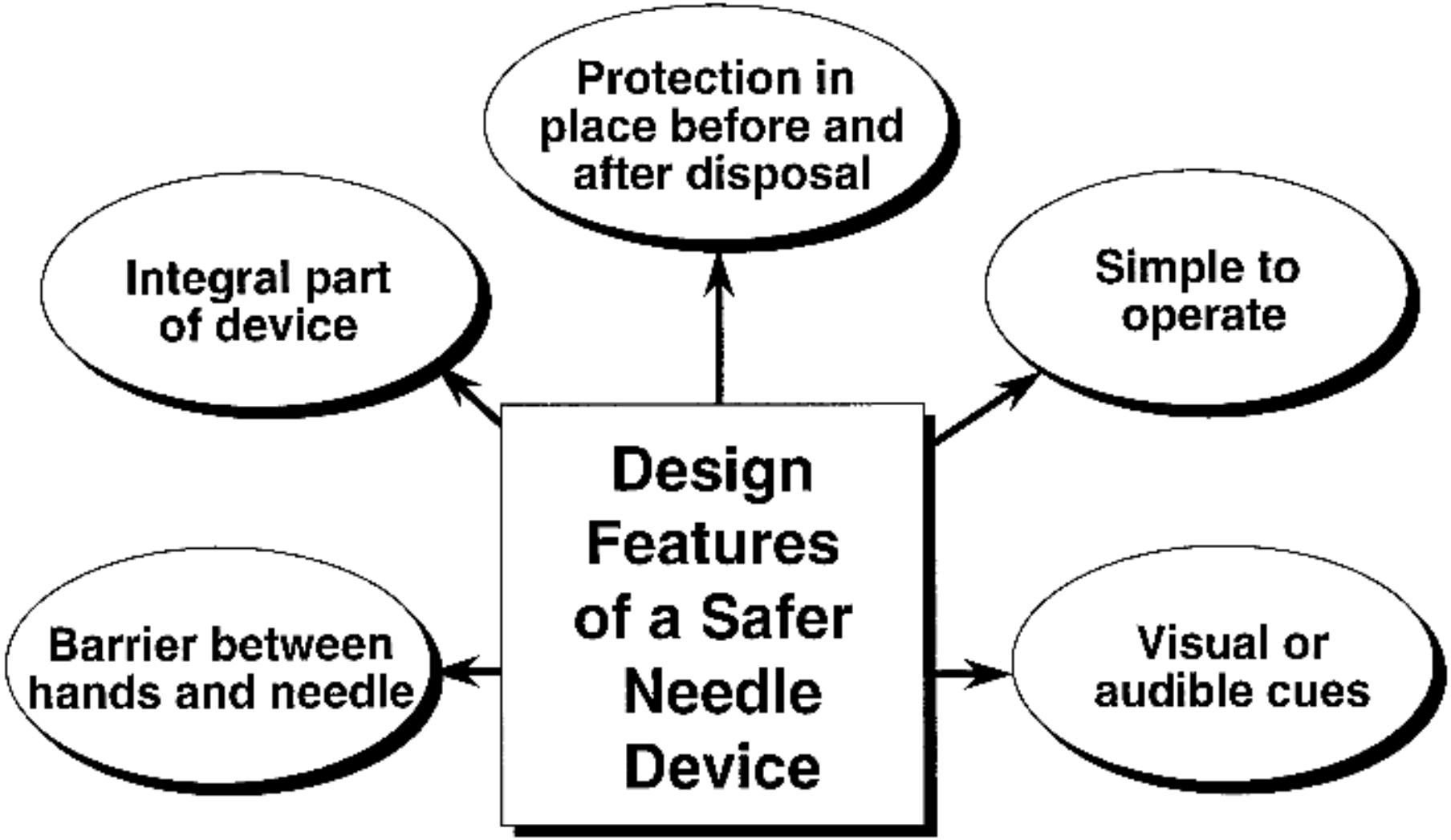
→ **SAFER PRODUCTS**

Source: Chiarello, 1995



Source: Chiarello, 1995

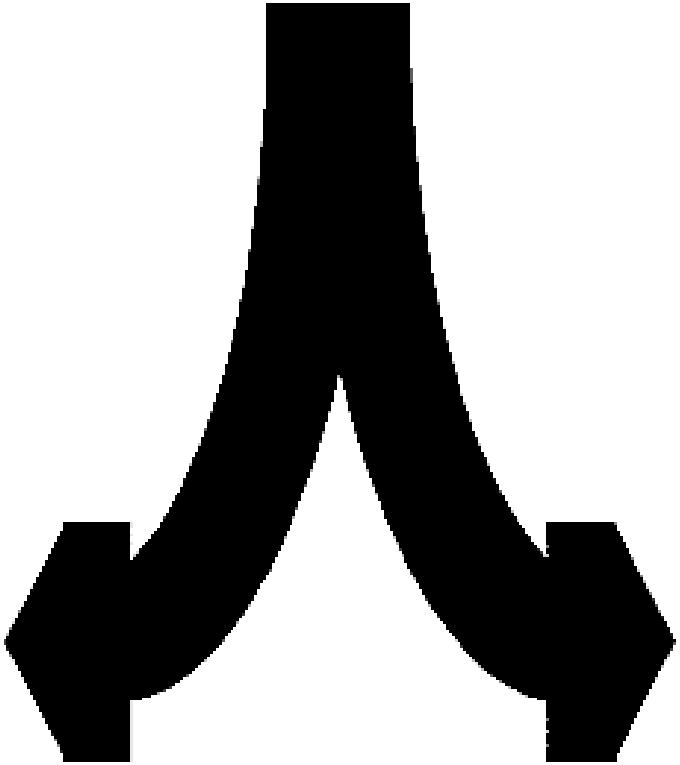
Evaluating and Selecting Safer Needle Devices



Source: FDA, 1992, 1995

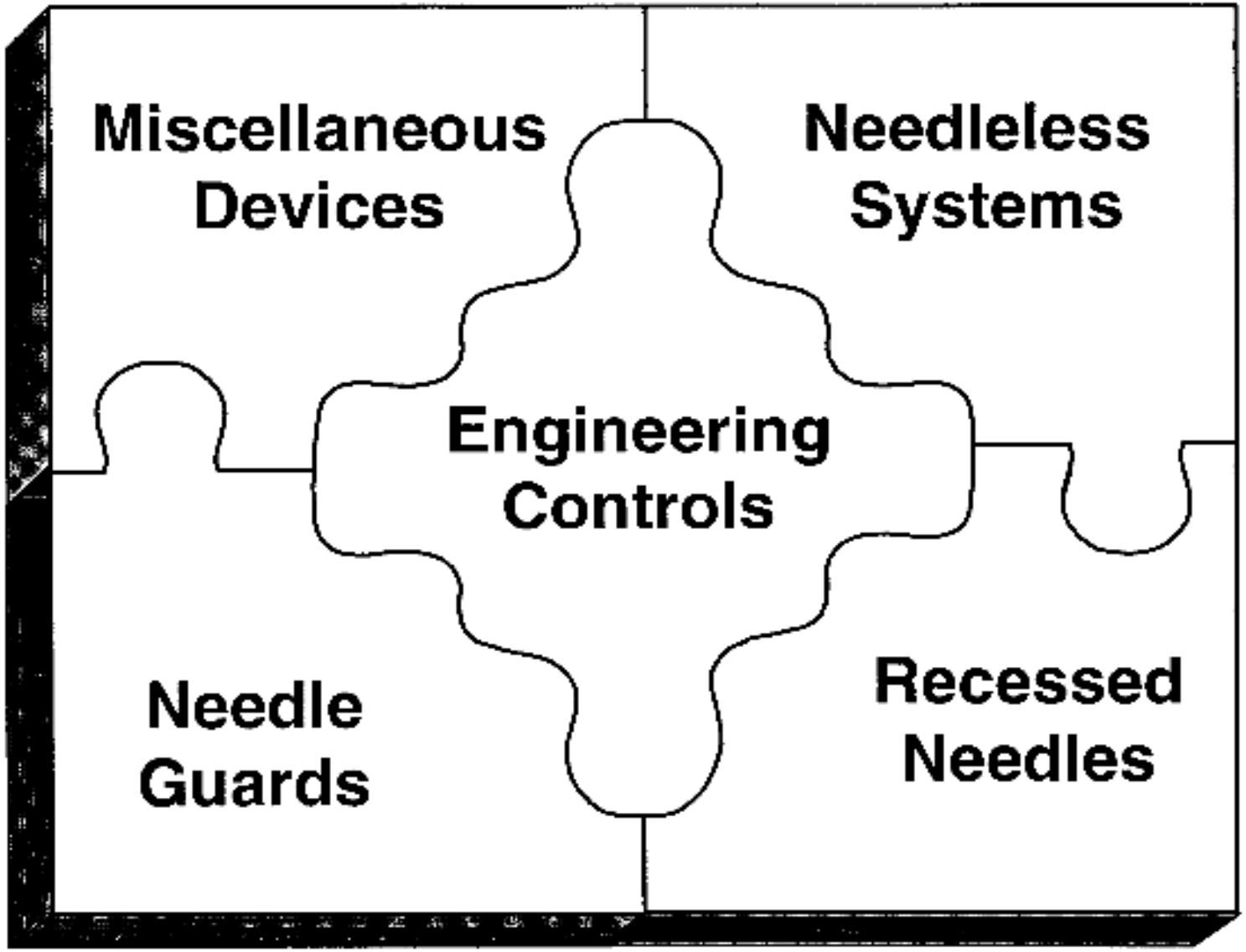
Types of Safety Features

Active
vs.
Passive



Integrated
vs.
Accessory

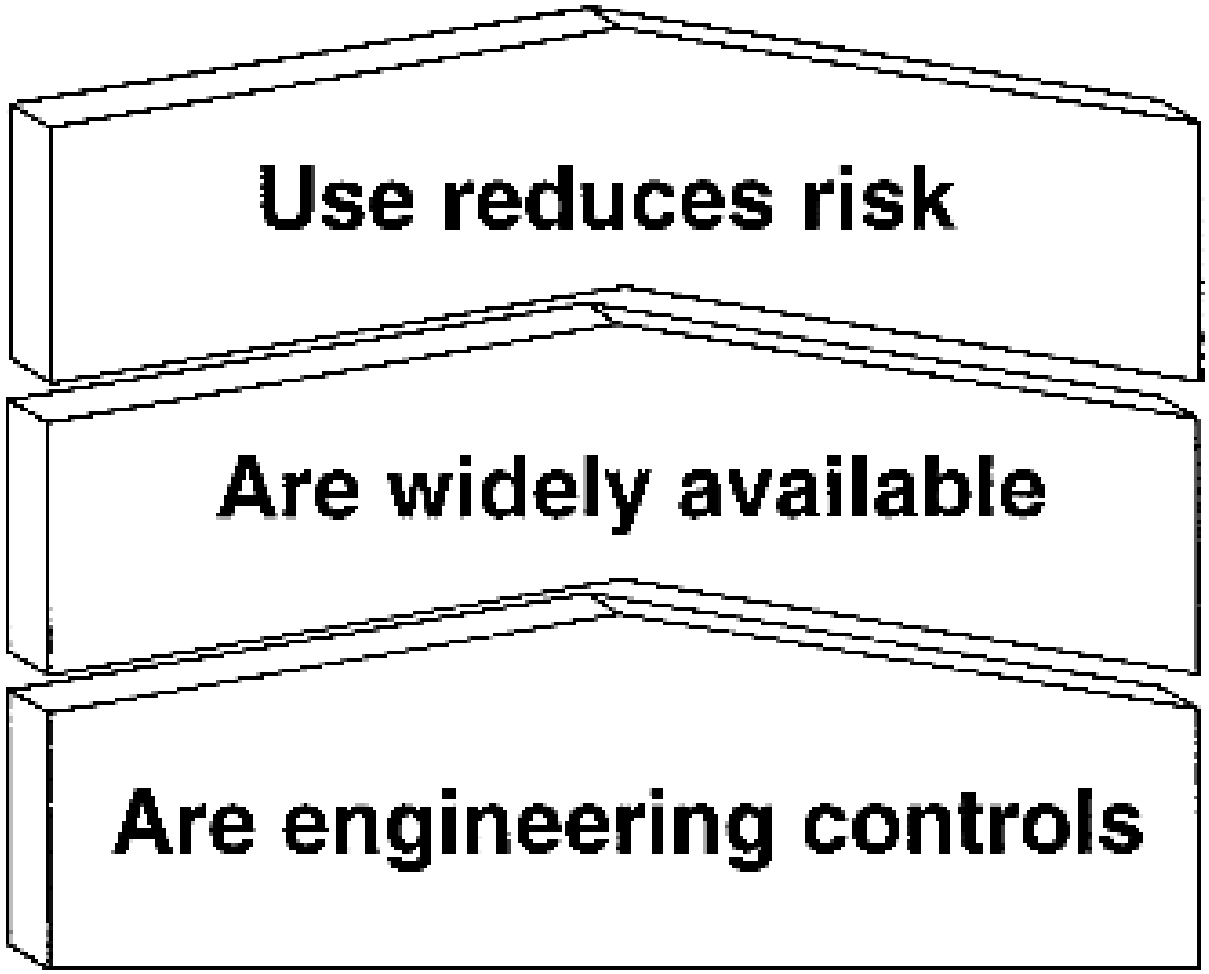
Source: Chiarello, 1995


Miscellaneous Devices
Needleless Systems
Engineering Controls
Needle Guards
Recessed Needles

OSHA's Position on Safer Needle Devices:

- Bloodborne Pathogens Standard requires use of engineering and work practice controls
- Failure to use engineering/work practice controls could result in a citation
- Devices which offer alternatives to needles are preferable

Safer Needle Devices



Safer Needle Devices protect workers from exposure to life-threatening diseases by preventing needlestick injuries

Occupational Safety and Health Administration

www.osha.gov
800-321-OSHA