

EPINet Report:

2003 Percutaneous Injury Rates

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In 2003, THE INTERNATIONAL HEALTHCARE Worker Safety Center at the University of Virginia collected data on percutaneous injuries and blood and body fluid exposures from 48 healthcare facilities in the United States that use the EPINet surveillance program to track exposure incidents. These facilities voluntarily participate in the collaborative EPINet network coordinated by the Center, and their exposure data are combined into an aggregate database. The 2003 percutaneous injury report and blood and body fluid exposure report are presented on pages 44 and 45, and a list of the facilities that contributed data can be found on page 43.

Most of these facilities (44) are part of a state-wide network in South Carolina coordinated by Palmetto Hospital Trust Services; the other four are located in the eastern half of the U.S., except for St. Joseph Hospital in Omaha, Nebraska. Ten of the facilities are teaching hospitals, and 38 are nonteaching facilities. In 2003, 29 facilities had an average daily census (ADC) of less than 100 occupied beds*; 12 facilities had an ADC of 100 to 300; and 7 facilities had an ADC of greater than 300.

Most of the facilities are acute-care or tertiary-care hospitals or medical centers, some of which have physicians' offices, home health agencies and other outpatient settings af-

filiated with them. Among the participating facilities is an alcohol and drug abuse agency with a detoxification unit, a home hospice agency, a long-term acute-care facility, a skilled nursing facility, and a rehabilitation hospital.

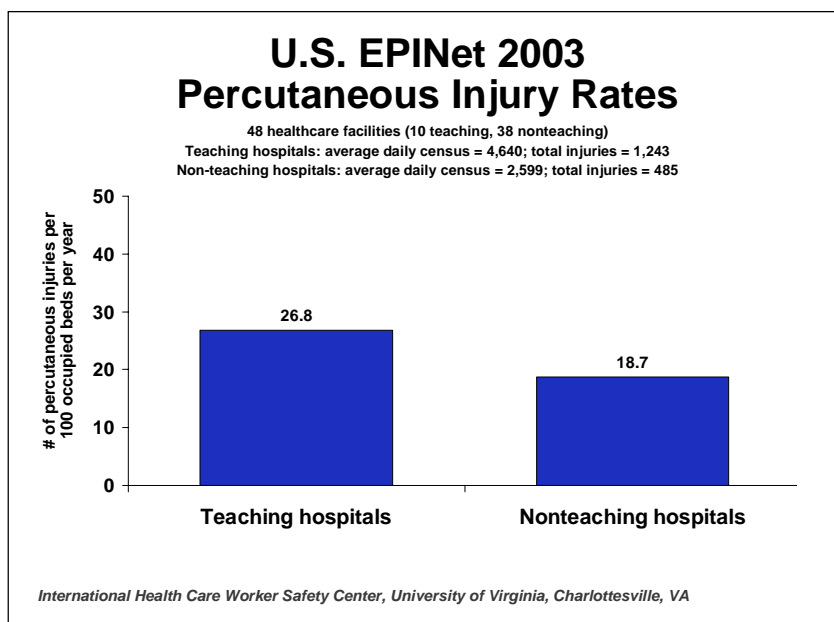
100 occupied beds; and for hospitals with an ADC of greater than 300, 24.8 per 100 occupied beds.

By comparison, in 2002 the average PI rate for teaching hospitals was 27.1 per 100 occupied beds, and for nonteaching facilities, 17.7 per 100 occupied beds. Forty-seven facilities reported data in 2002; the total number of PIs was 1,693.

EPINet data from 2003, as in previous years, revealed great variation among individual facilities in PI rates: 6 facilities had a zero PI rate, while 2 facilities had rates over 50 per 100 occupied beds. The reasons for such variation are not fully understood, but may include the mix of patients, injury under-

reporting rates, the extent to which a facility has converted to safety devices, and whether it is a teaching or nonteaching institution.

Because of these variables, we cannot assume that a healthcare facility with a low PI rate necessarily has a better safety record than a hospital with a higher rate. For example, a hospital with a high PI rate may do a better job of educating its employees about the need to report needlestick injuries or may have more patients requiring invasive procedures than another facility with a lower rate. For that reason, comparing rates among hospitals may not be very meaningful. It is more reliable to track injury trends within a



2003 EPINet Data Findings

In 2003, a total of 1,728 percutaneous injuries (PIs) were reported by network facilities. The 2003 data yielded these findings:

- The overall annual percutaneous injury rate for all network hospitals was 23.87 PIs per 100 occupied beds.
- The average PI rate for teaching hospitals was 26.8 injuries per 100 occupied beds.
- The average PI rate for nonteaching facilities was 18.7 injuries per 100 occupied beds.
- The average PI rate for hospitals with an ADC of less than 100 was 18 per 100 occupied beds; for hospitals with an ADC of 100-300, 21.5 per

(* "Occupied beds" is defined as the ADC for the same year in which the data were collected.)

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EPINet 2003 Percutaneous Injury Rates

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single institution over several years, and make historical comparisons as prevention measures are implemented.

Blood and Body Fluid Exposures

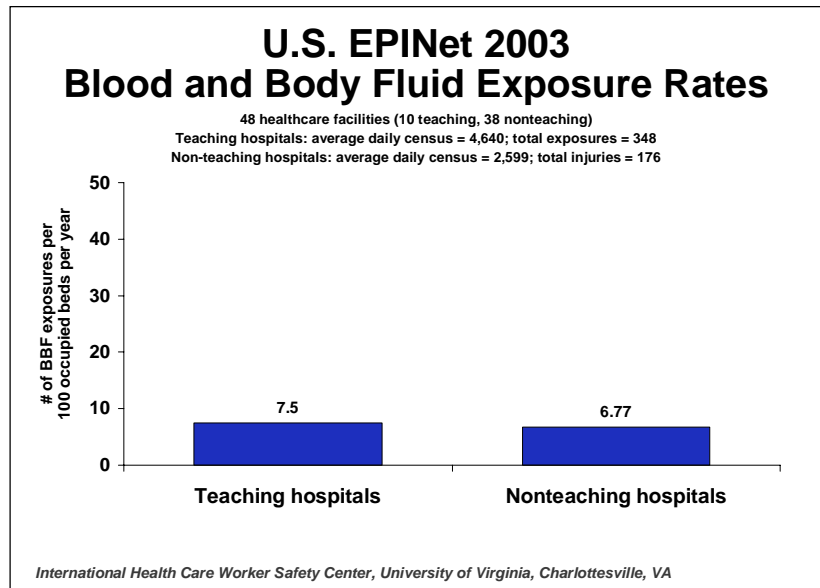
In 2003, a total of 524 blood and body fluid exposures (BBF) were reported by network facilities. The 2003 data yielded these findings:

- The average blood and body fluid (BBF) exposure rate was 7.2 per 100 occupied beds.
- The average BBF exposure rate for teaching hospitals was 7.5 per 100 occupied beds.
- The average BBF exposure rate for non-teaching hospitals was 6.8

per 100 occupied beds.

By comparison, in 2002 the average BBF rate for teaching and non-teaching facilities was 6.3 per

100 occupied beds. Forty-seven facilities reported BBF data in 2002; the total number of BBF exposures was 469. □



EPINet Network Hospitals and Healthcare Facilities, 2003

In 2003, 48 hospitals and healthcare facilities participated in a voluntary EPINet data-sharing network coordinated by the International Healthcare Worker Safety Center, University of Virginia. The research data published in *AEP* come largely from this network. Each year we publish an updated list of participating facilities; we gratefully acknowledge their efforts and contributions.

Florida Hospital Orlando (Orlando, FL); **Saint Joseph Hospital** (Omaha, NE); **Saint Vincent Health Center** (Erie, PA); **University Hospitals of Cleveland** (Cleveland, OH).

PHTS Network Hospitals, South Carolina:

Abbeville County Memorial Hospital (Abbeville, SC); **Allendale County Hospital** (Fairfax, SC); **Anderson Area Medical Center** (Anderson, SC); **Bamberg County Memorial Hospital** (Bamberg, SC); **Barnwell County Hospital** (Barnwell, SC); **Beaufort Memorial Hospital** (Beaufort, SC); **Cannon**

Memorial Hospital (Pickens, SC); **Carolinas Hospital System** (Florence, SC); **Carolinas Hospital System** (Kingstree, SC); **Chester County Hospital** (Chester, SC); **Conway Medical Center** (Conway, SC); **Edgefield County Hospital** (Edgefield, SC); **Fairfield Memorial Hospital** (Winnsboro, SC); **Georgetown Memorial Hospital** (Georgetown, SC); **Greenville Memorial Hospital and Medical Campus/Greenville Hospital System** (Greenville, SC); **GHS-Allen Bennett Memorial Hospital**, Greer, SC; **GHS-Hillcrest Hospital** (Simpsonville, SC); **GHS-Marshall I. Pickens Hospital** (Greenville, SC); **GHS-Roger C. Peace Rehabilitation Hospital** (Greenville, SC); **GHS-Roger Huntington Nursing Center** (Greer, SC); **Hampton Regional Medical Center** (Varnville, SC); **Kershaw County Medical Center** (Camden, SC); **Laurens County Hospital** (Clinton, SC); **Lexington Medical Center** (West Columbia, SC); **Lexington-Richland Alcohol and Drug Abuse Council** (West Columbia, SC); **Loris Commu-**

nity Hospital (Loris, SC); **Marion Regional Healthcare System** (Marion, SC); **Mary Black Memorial Hospital** (Spartanburg, SC); **McLeod Regional Medical Center** (Florence, SC); **McLeod Medical Center/St. Eugene** (Dillon, SC); **McLeod Wilson Medical Center** (Darlington, SC); **Mercy Home Care** (Myrtle Beach, SC); **Mullins Nursing Center** (Mullins, SC); **Newberry County Memorial Hospital** (Newberry, SC); **Oconee Memorial Hospital** (Seneca, SC); **Palmetto Health Baptist** (Columbia, SC); **Palmetto Health Baptist Easley** (Easley, SC); **Palmetto Health-Richland Memorial Hospital** (Columbia, SC); **The Regional Medical Center of Orangeburg and Calhoun Counties** (Orangeburg, SC); **Self Regional Healthcare** (Greenwood, SC); **Spartanburg Hospital for Restorative Care** (Spartanburg, SC); **Spartanburg Regional Medical Center** (Spartanburg, SC); **Tuomey Regional Medical Center** (Sumter, SC); **Union Hospital District-Wallace Thomson Hospital** (Union, SC). □

Uniform Needlestick and Sharp-Object Injury Report U.S. EPINet Network, 2003; 48 healthcare facilities*

Total cases = 1,708 (excludes injuries before use); total avg. daily census = 7,239 (*10 teaching/38 nonteaching hospitals)

JOB CATEGORY:								
M.D. (attending/staff)	182	10.7%	Disassembling device	50	3.0%	Specimen/test tube, glass	7	0.4%
M.D. (intern/resident/fellow)	193	11.4%	Preparing instrument for reuse	21	1.2%	Capillary tube	0	0.0%
Medical student	17	1.0%	Recapping device	57	3.4%	Glass slide	5	0.3%
Nurse RN/LPN	642	37.9%	Withdrawing device from resistant material	34	2.0%	Other glass item	5	0.3%
Nursing student	9	0.5%	Other after use, before disposal	292	17.2%	SOURCE PATIENT IDENTIFIABLE?		
Respiratory therapist	31	1.8%	Putting device into disposal container	94	5.6%	Yes	1560	92.1%
Surgery attendant	153	9.0%	After disposal, from device:			No	97	5.7%
Other attendant	38	2.2%	- protruding from disposal container	24	1.4%	Unknown	30	1.8%
Phlebotomist/venipuncture/ I.V. team	91	5.4%	- piercing side of disposal container	4	0.2%	Not available	6	0.4%
Clinical laboratory worker	41	2.4%	- left on/near disposal container	4	0.2%	INJURED WORKER ORIGINAL USER OF SHARP ITEM?		
Technologist (non-lab)	80	4.7%	- left on floor, table or other inappropriate place	101	6.0%	Yes	1001	59.5%
Dentist	2	0.1%	- protruding from trash bag or inappropriate disposal container	31	1.8%	No	634	37.7%
Dental hygienist	1	0.1%	Restraining patient	14	0.8%	Unknown	19	1.1%
Housekeeper	43	2.5%	Other	104	6.1%	N/A	27	1.6%
Paramedic	2	0.1%	TYPE OF DEVICE CAUSING INJURY:			SHARP ITEM CONTAMINATED?		
CNA/HHA	33	1.9%	Disposable syringe	527	31.9%	Yes	1551	91.8%
Laundry worker	3	0.2%	Prefilled cartridge syringe	25	1.5%	No	23	1.4%
Security	2	0.1%	Blood gas syringe	21	1.3%	Unknown	115	6.8%
Other student	22	1.3%	Syringe, other type	19	1.2%	IF INJURY WAS CAUSED BY A NEEDLE, WAS IT A SAFETY DESIGN?		
Other	111	6.5%	Needle on I.V. tubing	7	0.4%	Yes	514	31.6%
WHERE INJURY OCCURRED:			Winged steel needle	126	7.6%	No	925	56.9%
Patient room	459	27.0%	I.V. catheter (stylet)	71	4.3%	Unknown	187	11.5%
Outside patient room	17	1.0%	Vacuum tube blood collection needle	63	3.8%	IF YES, WAS SAFETY FEATURE ACTIVATED?		
Emergency department	173	10.2%	Spinal or epidural needle	6	0.4%	Yes, fully	44	9.1%
Intensive/critical care unit	92	5.4%	Unattached hypodermic needle	9	0.5%	Yes, partially	100	20.7%
Operating room	566	33.3%	Arterial catheter introducer needle	7	0.4%	No	340	70.2%
Outpatient clinic/office	77	4.5%	Central line catheter introducer needle	8	0.5%	IF YES (NEEDLE WAS SAFETY DESIGN), DID INJURY HAPPEN:		
Blood bank	2	0.1%	Drum catheter	3	0.2%	Before activation of safety feature	281	63.0%
Venipuncture	20	1.2%	Other vascular catheter needle	4	0.2%	During activation of safety feature	104	23.3%
Dialysis facility	5	0.3%	Other non-vascular catheter needle	1	0.1%	After activation of safety feature	61	13.7%
Procedure room	88	5.2%	Needle, unknown type	16	1.0%	DEPTH OF INJURY:		
Clinical laboratories	26	1.5%	Needle, describe	40	2.4%	Superficial (little/no bleeding)	963	57.3%
Autopsy/pathology	15	0.9%	Lancet	21	1.3%	Moderate (skin punctured, some bleeding)	668	39.7%
Service/utility area	25	1.5%	Suture needle	339	20.5%	Severe (deep stick/cut, profuse bleeding)	51	3.0%
Labor and delivery	53	3.1%	Scalpel, reusable	67	4.1%	BODY PART INJURED:		
Home-care	4	0.2%	Scalpel, disposable	67	4.1%	Arm	50	3.0%
Other	77	4.5%	Razor	8	0.5%	Back	1	0.1%
ORIGINAL PURPOSE OF SHARP DEVICE:			Scissors	13	0.8%	Face/head	1	0.1%
Unknown, N/A	84	5.0%	Bovie electrocautery device	14	0.8%	Foot	7	0.4%
Injection, IM/subcutaneous	356	21.0%	Bone cutter	3	0.2%	Front	5	0.3%
Heparin or saline flush	14	0.8%	Bone chip	4	0.2%	Hand, left	952	57.0%
Other injection/aspiration I.V.	51	3.0%	Towel clip	4	0.2%	Hand, right	619	37.1%
Connect I.V. line	3	0.2%	Microtome blade	1	0.1%	Leg	34	2.0%
Start I.V. or heparin lock	86	5.1%	Trocar	8	0.5%	GLOVES—Did sharp item penetrate:		
Draw venous blood sample	251	14.8%	Fingernails/teeth	13	0.8%	Single pair of gloves	1127	68.6%
Draw arterial blood sample	50	2.9%	Retractors, skin/bone hooks	14	0.8%	Double pair of gloves	251	15.3%
Obtain body fluid/tissue sample	34	2.0%	Staples/steel sutures	5	0.3%	No gloves	265	16.1%
Fingerstick/heel stick	26	1.5%	Wire	15	0.9%	TYPE OF FACILITY:		
Suturing	348	20.5%	Pin	9	0.5%	Non-teaching hospital	485	28.1%
Cutting (surgery)	155	9.1%	Drill bit	2	0.1%	Teaching hospital	1243	71.9%
Electrocautery	13	0.8%	Pickups/forceps/hemostats	6	0.4%			
Contain specimen/pharmaceutical	14	0.8%	Sharp item, not sure what kind	18	1.1%			
Place arterial line	33	1.9%	Other sharp item (describe)	43	2.6%			
Drilling	11	0.6%	Medication ampule	2	0.1%			
Other	167	9.8%	Pipette, glass	1	0.1%			
WHEN INJURY OCCURRED:			Vacuum tube, glass	4	0.2%			
During use of device	634	37.4%						
Between steps of multistep procedure	229	13.5%						

Uniform Blood and Body Fluid Exposure Report U.S. EPINet Network, 2003; 48 healthcare facilities*

Total cases = 524; total avg. daily census = 7,239 (*10 teaching/38 nonteaching hospitals)

JOB CATEGORY:

M.D. (attending/staff)	25	4.8%
M.D. (intern/resident/fellow)	31	5.9%
Medical student	6	1.1%
Nurse RN/LPN	262	50.2%
Nursing student	3	0.6%
Respiratory therapist	22	4.2%
Surgery attendant	18	3.4%
Other attendant	9	1.7%
Phlebotomist/venipuncture/ I.V. team	16	3.1%
Clinical laboratory worker	11	2.1%
Technologist (non-lab)	31	5.9%
Housekeeper	2	0.4%
Laundry worker	0	0.0%
Paramedic	13	2.5%
Other student	3	0.6%
CNA/HHA	22	4.2%
Security	7	1.3%
Other, describe	41	7.9%

WHERE EXPOSURE OCCURRED:

Patient room	193	37.0%
Outside patient room	13	2.5%
Emergency department	64	12.3%
Intensive/critical care unit	53	10.2%
Operating room	86	16.5%
Outpatient clinic/office	9	1.7%
Blood bank	1	0.2%
Venipuncture	1	0.2%
Dialysis facility	0	0.0%
Procedure room	37	7.1%
Clinical laboratories	9	1.7%
Autopsy/Pathology	1	0.2%
Service/utility area	1	0.2%
Labor and delivery	18	3.4%
Home-care	4	0.8%
Other, describe	32	6.1%

BBF[†] INVOLVED IN EXPOSURE:

(more than one item can be checked)[‡]

Blood or blood products	389	74.2%
Vomit	23	4.4%
Sputum	42	8.0%
Saliva	30	5.7%
Cerebro-spinal fluid	4	0.8%
Peritoneal fluid	5	1.0%
Pleural fluid	4	0.8%
Amniotic fluid	6	1.1%
Urine	30	5.7%
Other body fluid	53	10.1%

WAS THE BODY FLUID, OTHER THAN BLOOD, VISIBLY CONTAMINATED WITH BLOOD?

Yes	308	72.3%
No	82	19.2%
Unknown	36	8.5%

EXPOSED PART(S):

(more than one item can be checked)[‡]

Intact skin	180	34.4%
Non-intact skin	69	13.2%
Eyes (conjunctiva)	344	65.6%
Nose (mucosa)	8	1.5%
Mouth (mucosa)	55	10.5%
Other exposed parts	9	1.7%

DID THE BLOOD OR BODY FLUID:

(more than one item can be checked)[‡]

Touch unprotected skin	424	86.2%
Touch skin through gap between protective garments	52	10.6%
Soak through protective garment	4	0.8%
Soak through clothing	12	2.4%

BARRIER ITEMS WORN AT TIME OF EXPOSURE:

(more than one item can be checked)[‡]

Single pair latex/vinyl gloves	312	59.5%
Double pair gloves	41	7.8%
Goggles	21	4.0%
Eyeglasses (not protective)	64	12.2%
Eyeglasses with sideshields	8	1.5%
Faceshield	17	3.2%
Surgical mask	63	12.0%
Surgical gown	69	13.2%
Plastic apron	5	1.0%
Lab coat, cloth (not protective)	15	2.9%
Lab coat, other	9	1.7%
Other item	66	12.6%

CAUSE OF EXPOSURE:

Direct patient contact	252	49.2%
Specimen container leaked/ spilled	28	5.5%
Specimen container broke	3	0.6%
IV tubing/bag/pump leaked	42	8.2%
Other body fluid container spilled/leaked	18	3.5%
Touched contaminated equipment/surface	9	1.8%
Feeding/ventilator/other tube separated/leaked/spilled	59	11.5%
Other, describe	99	19.3%
Unknown	2	0.4%

SOURCE PATIENT IDENTIFIABLE?

Yes	492	96.5%
No	11	2.2%
Unknown	4	0.8%
N/A	3	0.6%

LENGTH OF TIME BBF IN CONTACT WITH SKIN OR MUCOUS

MEMBRANES:

Less than 5 minutes	393	77.5%
5-14 minutes	76	15.0%
15 minutes-1 hour	35	6.9%
More than 1 hour	3	0.6%

AMOUNT OF BBF THAT CAME IN CONTACT WITH SKIN OR MUCOUS MEMBRANES:

Small amount (up to 5 cc)	455	90.5%
Moderate amount (up to 50 cc)	33	6.6%
Large amount (more than 50 cc)	15	3.0%

EXPOSURE LOCATION

Largest exposure:

Arm	27	5.5%
Face/head	383	78.6%
Front	4	0.8%
Hand, left	24	4.9%
Hand, right	40	8.2%
Leg	6	1.2%
Foot	2	0.4%
Back	1	0.2%

Medium-sized exposure:

Arm	14	6.3%
Face/head	172	77.5%
Front	12	5.4%
Hand, left	9	4.1%
Hand, right	12	5.4%
Leg	2	0.9%
Foot	1	0.5%

Smallest exposure:

Arm	13	23.6%
Face/head	19	34.5%
Front	12	21.8%
Hand, left	7	12.7%
Hand, right	2	3.6%
Back	1	1.8%
Leg	1	1.8%

TYPE OF FACILITY:

Non-teaching hospital	176	33.6%
Teaching hospital	348	66.4%

[†]BBF = blood or body fluids

[‡]Because more than one item can be checked in this category, percentages total more than 100%.

NOTE: The needlestick and sharp-object injury report and blood and body fluid exposure report that appear on pages 44-45 are based on 2003 data from the EPINet data-sharing network coordinated by the International Healthcare Worker Safety Center at the University of Virginia. (A list of hospitals participating in the network appears on page 43.)