

EPINet Report:

2004 Percutaneous Injury Rates

By Jane Perry, M.A., Ginger Parker, M.B.A., and Janine Jagger, M.P.H., Ph.D.

IN 2004, THE INTERNATIONAL HEALTHCARE Worker Safety Center at the University of Virginia collected data on percutaneous injuries and blood and body fluid exposures from 41 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 2004 percutaneous injury report and blood and body fluid exposure report are presented on pages 3 and 4, and a list of the facilities that contributed data can be found on page 2.

Most of these facilities (38) are part of a state-wide network in South Carolina coordinated by Palmetto Hospital Trust Services; the other three facilities are located in Virginia, Pennsylvania, and Nebraska. Nine of the facilities are teaching hospitals, and 32 are nonteaching facilities. In 2004, 22 facilities had an average daily census (ADC) of less than 100 occupied beds*; 9 facilities had an ADC of 100 to 300; and 4 facilities had an ADC of greater than 300. (For six of the participating institutions, all of them long-term care facilities, ADC data were not available.)

Most of the facilities are acute-care or tertiary-care hospitals or medical centers, some of which have

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

physicians' offices, home health agencies and other outpatient settings affiliated with them. Among the participating facilities is an alcohol and drug abuse agency, a home hospice agency, a long-term acute-care facility, a skilled nursing facility, and a rehabili-

with an ADC of less than 100 was 21.9 per 100 occupied beds; for hospitals with an ADC of 100-300, 20.76 per 100 occupied beds; and for hospitals with an ADC of greater than 300, 34.78 per 100 occupied beds.

By comparison, in 2003 the average PI rate for teaching hospitals was 26.8 per 100 occupied beds, and for nonteaching facilities, 18.7 per 100 occupied beds. Forty-eight facilities reported data in 2003; the total number of PIs was 1,728.

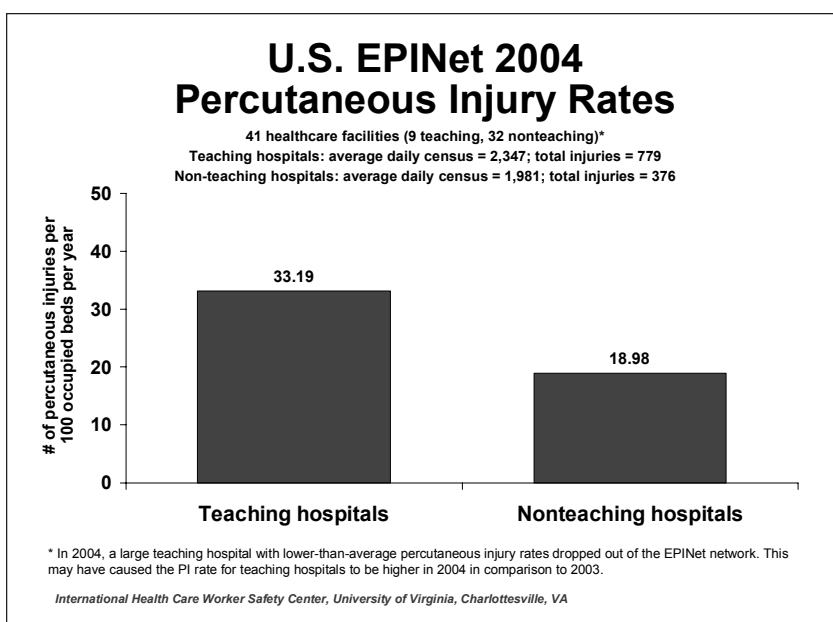
The PI rate for teaching hospitals in 2004 was likely affected by the loss to the network of one large teaching hospital with a lower-than-average PI rate. This may explain, in part, why the PI rate for teaching hospitals in

2004 is higher in comparison to 2003.

EPINet data from 2004, as in previous years, revealed great variation among individual facilities in PI rates: 2 facilities had a zero PI rate, while 4 facilities had rates over 50 per 100 occupied beds. The reasons for such variation are not fully understood, but they may include the mix of patients, injury underreporting 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 bet-

(continued on page 2)



tation hospital.

2004 EPINet Data Findings

In 2004, a total of 1,155 percutaneous injuries (PIs) were reported by network facilities. The 2004 data yielded these findings:

- The overall percutaneous injury rate for all network hospitals was 26.69 PIs per 100 occupied beds.
- The average PI rate for teaching hospitals was 33.19 injuries per 100 occupied beds.
- The average PI rate for nonteaching facilities was 18.98 injuries per 100 occupied beds

The following rates include injuries that occurred before use:

- The average PI rate for hospitals

EPINet 2004 Percutaneous Injury Rates

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

Blood and Body Fluid Exposures

In 2004, a total of 354 blood and body fluid exposures (BBF) were reported by network facilities. The 2004 data yielded these findings:

- The average blood and body fluid (BBF) exposure rate was 8.18 per 100 occupied beds.
- The average BBF exposure rate for

teaching hospitals was 9.76 per 100 occupied beds.

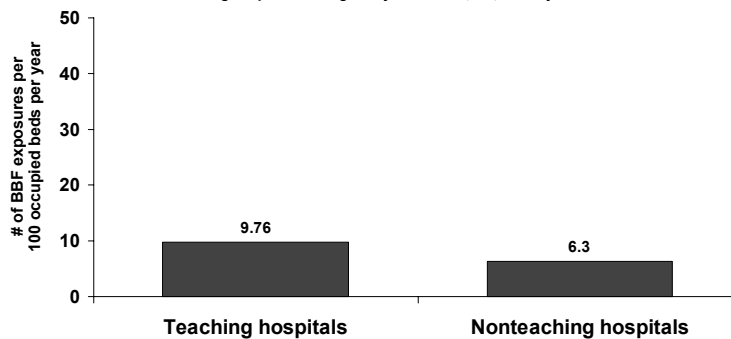
- The average BBF exposure rate for non-teaching hospitals was 6.3 per 100 occupied beds.

By comparison, in 2003 the average BBF rate for teaching and non-

teaching facilities was 7.2 per 100 occupied beds. Forty-eight facilities reported BBF data in 2003; the total number of BBF exposures was 524. □

U.S. EPINet 2004 Blood and Body Fluid Exposure Rates

41 healthcare facilities (9 teaching, 32 nonteaching)
Teaching hospitals: average daily census = 2,347; total exposures = 229
Non-teaching hospitals: average daily census = 1,981; total injuries = 125



International Health Care Worker Safety Center, University of Virginia, Charlottesville, VA

EPINet Network Hospitals and Healthcare Facilities, 2004

In 2004, 41 hospitals and healthcare facilities participated in a voluntary EPINet data-sharing network coordinated by the International Healthcare Worker Safety Center. For each year of data, we publish an updated list of the participating facilities; we gratefully acknowledge their efforts and contributions.

Martha Jefferson Hospital (Charlottesville, VA); **Saint Joseph Hospital** (Omaha, NE); **Saint Vincent Health Center** (Erie, PA).

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); **Chester County Hospital** (Chester, SC); **Clarendon Memorial Hospital** (Manning, SC); **Conway Medical Center** (Conway, SC); **Fairfield Memorial Hospital** (Winnsboro, SC); **Greenville Memorial Hospital** (Greenville, SC); **Greenville Hospital System (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); **Kershaw County Medical Center** (Camden, SC); **Laurens County Hospital** (Clinton, SC); **Lexington Medical Center** (West Columbia, SC); **Loris Community Hospital** (Loris, SC); **Lowman Home** (part of

Lutheran Homes of South Carolina (White Rock, SC); **Marion Regional Healthcare System** (Marion, SC); **McLeod Regional Medical Center** (Florence, SC); **McLeod Medical Center/St. Eugene** (Dillon, SC); **McLeod Wilson Medical Center** (Darlington, SC); **Medical University of South Carolina** (Charleston, SC); **Mercy Hospice and Palliative Care** (Conway, SC); **Mullins Nursing Center** (Mullins, SC); **Newberry County Memorial Hospital** (Newberry, SC); **Oconee Memorial Hospital** (Seneca, SC); **The Regional Medical Center of Orangeburg and Calhoun Counties** (Orangeburg, SC); **Self Regional Healthcare** (Greenwood, 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, 2004, 41 healthcare facilities*

Total cases = 1,140 (excludes injuries before use); total avg. daily census = 4,328 (*9 teaching/32 nonteaching hospitals)

JOB CATEGORY:

M.D. (attending/staff)	130	11.5%
M.D. (intern/resident/fellow)	138	12.2%
Medical student	11	1.0%
Nurse RN/LPN	459	40.6%
Nursing student	4	0.4%
Respiratory therapist	19	1.7%
Surgery attendant	84	7.4%
Other attendant	27	2.4%
Phlebotomist/venipuncture/ I.V. team	57	5.0%
Clinical laboratory worker	19	1.7%
Technologist (non-lab)	59	5.2%
Dentist	2	0.2%
Dental hygienist	1	0.1%
Housekeeper	19	1.7%
Paramedic	4	0.4%
CNA/HHA	11	1.0%
Laundry worker	-	0%
Security	-	0%
Other student	11	1.0%
Other	76	6.7%

WHERE INJURY OCCURRED:

Patient room	330	29.2%
Outside patient room	9	0.8%
Emergency department	80	7.1%
Intensive/critical care unit	97	8.6%
Operating room	343	30.4%
Outpatient clinic/office	72	6.4%
Blood bank	-	0%
Venipuncture	6	0.5%
Dialysis facility	6	0.5%
Procedure room	58	5.1%
Clinical laboratories	11	1.0%
Autopsy/pathology	10	0.9%
Service/utility area	3	0.3%
Labor and delivery	41	3.6%
Home-care	9	0.8%
Other	55	4.9%

ORIGINAL PURPOSE OF SHARP DEVICE:

Unknown, N/A	51	4.5%
Injection, IM/subcutaneous	264	23.3%
Heparin or saline flush	16	1.4%
Other injection/aspiration I.V.	27	2.4%
Connect I.V. line	4	0.4%
Start I.V. or heparin lock	53	4.7%
Draw venous blood sample	149	13.2%
Draw arterial blood sample	29	2.6%
Obtain body fluid/tissue sample	26	2.3%
Fingerstick/heel stick	13	1.1%
Suturing	240	21.2%
Cutting (surgery)	92	8.1%
Electrocautery	8	0.7%
Contain specimen/pharmaceutical	7	0.6%
Place arterial line	24	2.1%
Drilling	6	0.5%
Other	124	10.9%

WHEN INJURY OCCURRED:

During use of device	469	41.4%
Between steps of multistep procedure	140	12.3%

Disassembling device	27	2.4%
Preparing instrument for reuse	6	0.5%
Recapping device	33	2.9%
Withdrawing device from resistant material	20	1.8%
Other after use, before disposal	169	14.9%
Putting device into disposal container	52	4.6%
After disposal, from device:		
- protruding from disposal container	12	1.1%
- piercing side of disposal container	-	0%
- left on/near disposal container	6	0.5%
- left on floor, table or other inappropriate place	66	5.8%
- protruding from trash bag or inappropriate disposal container	10	0.9%
Restraining patient	10	0.9%
Other	114	10.1%

TYPE OF DEVICE CAUSING INJURY:

Disposable syringe	390	35.3%
Prefilled cartridge syringe	19	1.7%
Blood gas syringe	14	1.3%
Syringe, other type	9	0.8%
Needle on I.V. tubing	5	0.5%
Winged steel needle	70	6.3%
I.V. catheter (stylet)	40	3.6%
Vacuum tube blood collection needle	24	2.2%
Spinal or epidural needle	5	0.5%
Unattached hypodermic needle	4	0.4%
Arterial catheter introducer needle	7	0.6%
Central line catheter introducer needle	14	1.3%
Drum catheter	1	0.1%
Other vascular catheter needle	4	0.4%
Other non-vascular catheter needle	2	0.2%
Needle, unknown type	21	1.9%
Needle, describe	37	3.3%
Lancet	10	0.9%
Suture needle	232	21.0%
Scalpel, reusable	41	3.7%
Scalpel, disposable	41	3.7%
Razor	2	0.2%
Scissors	10	0.9%
Bovie electrocautery device	8	0.7%
Bone cutter	2	0.2%
Bone chip	-	0%
Towel clip	3	0.3%
Microtome blade	1	0.1%
Trocar	4	0.4%
Specimen/test tube, plastic	1	0.1%
Fingernails/teeth	5	0.5%
Retractors, skin/bone hooks	8	0.7%
Staples/steel sutures	3	0.3%
Wire	14	1.3%
Pin	5	0.5%
Drill bit	3	0.3%
Pickups/forceps/hemostats	3	0.3%
Sharp item, not sure what kind	8	0.7%
Other sharp item (describe)	22	2.0%
Medication ampule	3	0.3%
Vacuum tube, glass	4	0.4%

Specimen/test tube, glass	2	0.2%
Capillary tube	1	0.1%
Glass item, unknown type	2	0.2%
Other glass item	2	0.2%

SOURCE PATIENT IDENTIFIABLE?

Yes	1076	95.2%
No	40	3.5%
Unknown	12	1.1%
Not available	2	0.2%

INJURED WORKER ORIGINAL USER OF SHARP ITEM?

Yes	719	63.8%
No	381	33.8%
Unknown	6	0.5%
NA	21	1.9%

SHARP ITEM CONTAMINATED?

Yes	1062	94.4%
No	13	1.2%
Unknown	50	4.4%

IF INJURY WAS CAUSED BY A NEEDLE, WAS IT A SAFETY DESIGN?

Yes	421	38.4%
No	601	54.8%
Unknown	75	6.8%

IF YES, WAS SAFETY FEATURE ACTIVATED?

Yes, fully	19	4.9%
Yes, partially	65	16.8%
No	304	78.4%

IF YES (NEEDLE WAS SAFETY DESIGN), DID INJURY HAPPEN:

Before activation of safety feature	237	65.8%
During activation of safety feature	89	24.7%
After activation of safety feature	34	9.4%

DEPTH OF INJURY:

Superficial (little/no bleeding)	695	62.4%
Moderate (skin punctured, some bleeding)	396	35.5%
Severe (deep stick/cut, profuse bleeding)	23	2.1%

BODY PART INJURED:

Arm	34	3.1%
Back	1	0.1%
Face/head	1	0.1%
Foot	4	0.4%
Front	3	0.3%
Hand, left	633	57.1%
Hand, right	419	37.8%
Leg	13	1.2%

GLOVES—Did sharp item penetrate:

Single pair of gloves	770	71.5%
Double pair of gloves	148	13.7%
No gloves	159	14.8%

TYPE OF FACILITY:

Non-teaching hospital	305	26.8%
Teaching hospital	744	65.3%
Ambulatory/outpatient surg.	82	7.2%
Long-term care	9	0.8%

Uniform Blood and Body Fluid Exposure Report U.S. EPINet Network, 2004, 41 healthcare facilities*

Total cases = 354; total avg. daily census = 4,328 (*9 teaching/32 nonteaching hospitals)

JOB CATEGORY:

M.D. (attending/staff)	28	8.0%
M.D. (intern/resident/fellow)	23	6.6%
Medical student	5	1.4%
Nurse RN/LPN	178	50.7%
Nursing student	2	0.6%
Respiratory therapist	7	2.0%
Surgery attendant	13	3.7%
Other attendant	4	1.1%
Phlebotomist/venipuncture/ I.V. team	11	3.1%
Clinical laboratory worker	7	2.0%
Technologist (non-lab)	25	7.1%
Housekeeper	-	0%
Laundry worker	-	0%
Paramedic	3	0.9%
Other student	1	0.3%
CNA/HHA	9	2.6%
Security	6	1.7%
Other, describe	29	8.3%

WHERE EXPOSURE OCCURRED:

Patient room	120	34.1%
Outside patient room	4	1.1%
Emergency department	45	12.8%
Intensive/critical care unit	40	11.4%
Operating room	71	20.2%
Outpatient clinic/office	8	2.3%
Blood bank	2	0.6%
Venipuncture	-	0%
Dialysis facility	-	0%
Procedure room	25	7.1%
Clinical laboratories	5	1.4%
Autopsy/Pathology	-	0%
Service/utility area	1	0.3%
Labor and delivery	13	3.7%
Home-care	1	0.3%
Other, describe	17	4.8%

BBF[†] INVOLVED IN EXPOSURE:

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

Blood or blood products	276	78.0%
Vomit	14	4.0%
Sputum	24	6.8%
Saliva	28	7.9%
Cerebro-spinal fluid	-	0%
Peritoneal fluid	2	0.6%
Pleural fluid	2	0.6%
Amniotic fluid	10	2.8%
Urine	12	3.4%
Other body fluid	31	8.8%

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

Yes	235	74.6%
No	46	14.6%
Unknown	34	10.8%

EXPOSED PART(S):

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

Intact skin	98	27.7%
Non-intact skin	50	14.1%
Eyes (conjunctiva)	225	63.6%
Nose (mucosa)	7	2.0%
Mouth (mucosa)	31	8.8%
Other exposed parts	10	2.8%

DID THE BLOOD OR BODY FLUID:

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

Touch unprotected skin	273	83.5%
Touch skin through gap between protective garments	31	9.5%
Soak through protective garment	10	3.1%
Soak through clothing	13	4.0%

BARRIER ITEMS WORN AT TIME OF EXPOSURE:

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

Single pair latex/vinyl gloves	223	63.0%
Double pair gloves	21	5.9%
Goggles	8	2.3%
Eyeglasses (not protective)	43	12.1%
Eyeglasses with sideshields	2	0.6%
Faceshield	10	2.8%
Surgical mask	51	14.4%
Surgical gown	55	15.5%
Plastic apron	2	0.6%
Lab coat, cloth (not protective)	6	1.7%
Lab coat, other	2	0.6%
Other item	28	7.9%

CAUSE OF EXPOSURE:

Direct patient contact	188	54.0%
Specimen container leaked/ spilled	15	4.3%
Specimen container broke	3	0.9%
IV tubing/bag/pump leaked	21	6.0%
Other body fluid container spilled/leaked	15	4.3%
Touched contaminated equipment/surface	7	2.0%
Touched contaminated drapes/sheets/gown	1	0.3%
Feeding/ventilator/other tube separated/leaked/spilled	26	7.5%

Other, describe	71	20.4%
Unknown	1	0.3%

SOURCE PATIENT IDENTIFIABLE?

Yes	344	98.9%
No	2	0.6%
Unknown	2	0.6%

LENGTH OF TIME BBF IN CONTACT WITH SKIN OR MUCOUS MEMBRANE:

Less than 5 minutes	278	81.5%
5-14 minutes	43	12.6%
15 minutes-1 hour	15	4.4%
More than 1 hour	5	1.5%

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

Small amount (up to 5 cc)	303	90.4%
Moderate amount (up to 50 cc)	23	6.9%
Large amount (more than 50 cc)	9	2.7%

EXPOSURE LOCATION

Largest exposure:

Arm	19	6.0%
Face/head	238	74.6%
Front	6	1.9%
Hand, left	18	5.6%
Hand, right	32	10.0%
Leg	4	1.3%
Foot	1	0.3%
Back	1	0.3%

Medium-sized exposure:

Arm	8	6.3%
Face/head	105	82.0%
Front	1	0.8%
Hand, left	6	4.7%
Hand, right	6	4.7%
Leg	2	1.6%

Smallest exposure:

Arm	5	14.7%
Face/head	8	23.5%
Front	5	14.7%
Hand, left	11	32.4%
Hand, right	2	5.9%
Leg	3	8.8%

TYPE OF FACILITY:

Non-teaching hospital	113	31.9%
Teaching hospital	216	61.0%
Ambulatory/outpatient surg.	24	6.8%
Long-term care	1	0.3%

[†]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 3-4 are based on 2004 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 2.)