TEXAS CONTAMINATED SHARPS INJURIES: 2008 Report

This report contains the aggregate contaminated sharps injury data submitted to Texas Department of State Health Services as required by Texas Health and Safety Code, Chapter 81, Subchapter H (HB2085), 76th Legislature.

Texas Bloodborne Pathogen regulations require governmental entity reporting of contaminated sharps injuries. This report summarizes contaminated sharps injuries reported by governmental entities in Texas during 2008: where the injuries occurred; when the injury occurred by time and date; information about the workers who sustained injuries; the original intended use of sharps device involved in the injury; how the injury occurred; type of sharps device in use at the time of injury; worksite safety controls; and safety engineered sharps protection status of device involved in the injury.
Aggregate reports of contaminated sharps injuries in Texas may be accessed at: Texas Contaminated Sharps Injuries Reports.

National Surveillance Data of Percutaneous Injuries

A study of the 57 healthcare workers with occupationally acquired HIV infection acquired over the past twenty years showed most of healthcare workers (88%) had percutaneous injuries.[1] Conclusions of the study listed prevention strategies that included: the avoidance of blood exposures, education about the benefits and limitations of Post Exposure Prophylaxis (PEP), and technologic advances (such as safety engineered devices) to enhance safety in the health care setting.[1] Three out of 1000 (.3%) health care workers stuck with a needle contaminated with HIV will become infected with HIV, in comparison, a percutaneous injury with a hepatitis C contaminated device, there is a 1.8% incidence of infection.[2] Hepatitis C is the most frequent infection resulting from sharps injuries.[3] There is no post exposure prophylaxis for hepatitis C and 75-80% of persons infected will develop active liver disease, cirrhosis 10-20% and 1-5% of cirrhosis cases will develop liver cancer over a period of years.[3] Hepatitis B is preventable due to the available vaccine. Regulations requiring vaccination of health care workers has resulted in the reduction of new hepatitis B cases from 17,000 to 400 annually[3]. The transmission rate of hepatitis B is 2 to 40%[3].

A facility's "culture of safety" is important for sharps injury prevention, for example:

- Sharps injury prevention is a prominent organizational priority
- Management and staff have a shared commitment to prevent sharps injuries
- Staff is encouraged to report sharps injuries
- Individual safety accountability is promoted.[4]

Quality Management of Bloodborne Pathogen Exposures

Although prevention of bloodborne pathogen exposures at the workplace is the primary means of preventing occupationally acquired HIV infection, appropriate postexposure management is an important element of worksite safety.[5]

A three-year prospective study to improve the management of blood-exposure incidents was conducted in The Netherlands to analyze the time it took to report the incident, time required for HIV testing of the source individual, assessment of employee's hepatitis B vaccination status, and adherence to prevention protocol at the expert center with the following results.[6] Fifty percent of the incidents occurred in a hospital and 50% outside of a hospital thus, 24-hour access to risk assessment was considered essential because thirty-three percent of the cases occurred at times other than office hours. Over the three years, the HIV testing of the source persons was increasingly performed quicker, and earlier reporting was also observed in that the percentage of workers reporting within 2 hours of the incident increased from 70 to 81%. Improvements in overall management of incident and processing of test results was observed, among healthcare workers outside the hospital, there was an increase from 34% to 70% hepatitis B immunization among healthcare workers. Incident management flaws were reduced from 37% of 396 incidents in 2003 to 8% of incidents in 2005. PEP was administered once in both 2003 and 2004, and 5 times in 2005.

Reporting of Sharps Injuries Occurred in Texas in 2008
Contaminated sharps injuries as reported by Public Health Service Regions: Texas Public Health Service Regions (see map).
The greatest number of injuries was reported in Region 6 (figure 1).

Figure 1. Contaminated Sharps Injuries by Public Health Region 2008

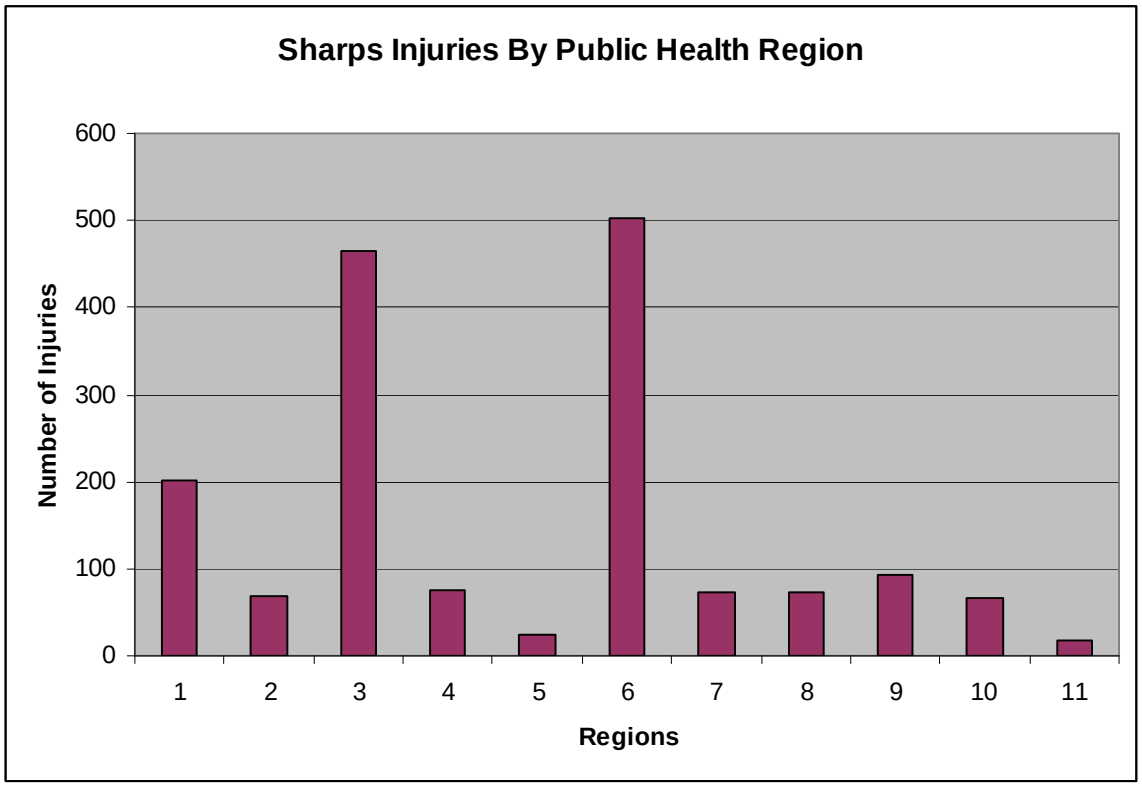


Table 1 reflects the diverse types of governmental entities reporting sharps injuries, table 2 further defines the location within governmental entities, and table 3 specifies work sites of injuries.

Table 1. Injuries by Type of Governmental Entity (n=1652)

Governmental Entity	Number	Percent
Hospitals/Medical/Health Centers	1124	68.0%
Colleges/Universities	353	21.4%
City/County Services	61	3.7%
State Facilities	73	4.4%
Schools	23	1.4%
Long Term Care	8	0.5%
Other	6	0.4%
Federal	2	0.1%
Home Health	2	0.1%
Total	1652	100.0%

Table 2. Injuries By Type of Facility (n=1652)		
Location/Facility	**Number**	**Percent**
Hospital	1326	80.3%
Clinic	126	7.6%
Correctional Facility	67	4.1%
School/College	31	1.9%
EMS/Fire/Police	26	1.6%
Dental Facility	20	1.2%
Other/Unknown	11	0.7%
Medical Examiner/Office Morgue	9	0.5%
Residential Facility	9	0.5%
Outpatient Clinic	9	0.5%
Home Health	8	0.5%
Long Term Care	6	0.4%
Laboratory	2	0.1%
Hospice	2	0.1%
Total	1652	100.0%

As may be noted in table 3, the surgery/operating room and the patient's room are sites of the most injuries with the emergency department reporting the third highest number.

Table 3. Sharps Injuries by Work Area (n=1652)		
Work Area	**Number**	**Percent**
Surgery/Operating Room	419	25.4%
Patient/Resident Room	284	17.2%
Emergency Department	187	11.3%
Critical Care Unit	102	6.2%
Procedure/Med Room	84	5.1%
Laboratory	81	4.9%
Medical/Outpatient Clinic	78	4.7%
L & D/Gynecology Unit	61	3.7%
Dental Clinic	60	3.6%
Other/Unknown	48	2.9%
Medical/Surgical Unit	46	2.8%
Infirmary/School Clinic	34	2.1%
Floor (Not Patient Room)	22	1.3%
Jail Unit	17	1.0%
Autopsy/Pathology	16	1.0%
Radiology Department Count	16	1.0%
Ambulance	13	0.8%
Office	12	0.7%
Pre-op or PACU Count	12	0.7%
Nursery	11	0.7%
Home	12	0.7%
Field (non EMS)	9	0.5%
Service/Utility Area (Laundry)	8	0.5%
Pediatrics	7	0.4%
Central Supply/Sterile Prep	6	0.4%
Dialysis Room/Center	5	0.3%
Seclusion Room/Psychiatric	2	0.1%
Total	1652	100.0%

When Injuries Occurred

There continues to be neither seasonal variation (figure 2) nor a change in the time of day (figure 3) when most sharps injuries occur as compared to prior years.

Figure 2 . Contaminated Sharps Injuries by Month

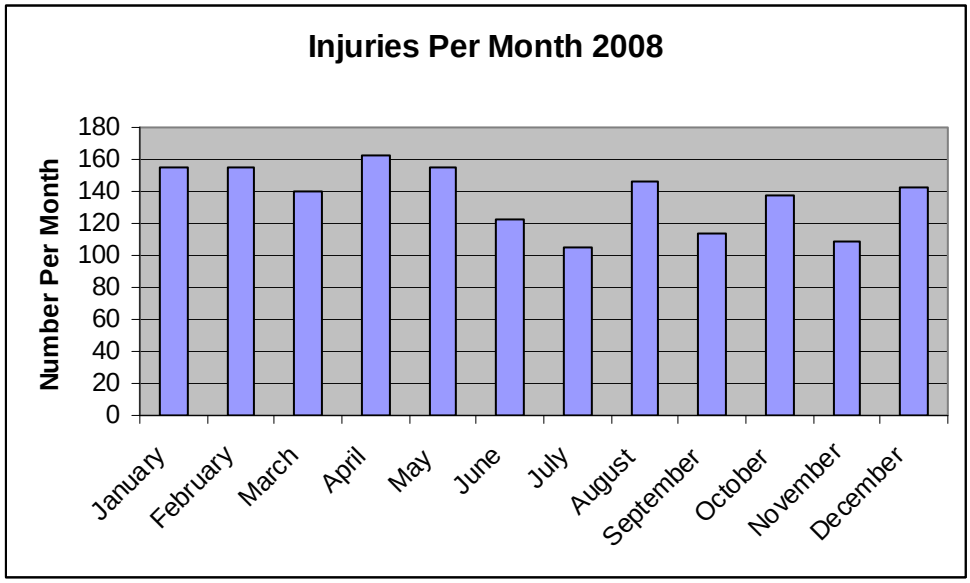
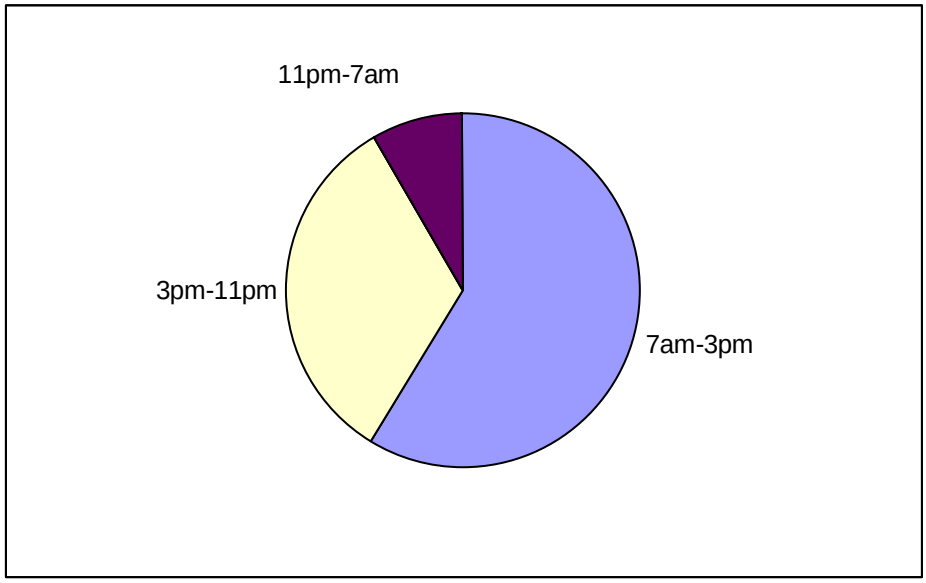


Figure 3 . Time of Sharps Injuries



Healthcare Worker Information

Registered nurses, interns/residents, and medical doctors/osteopathic doctors/fellows reported the greatest number of injuries in 2008 (table 4).

Table 4. Sharps Injuries by Job Classification (n=1652)

Job Classification	Number	Percent
Registered Nurse	386	23.4%
Intern/Resident	240	14.5%
MD/DO/Fellow	166	10.0%
Licensed Vocational Nurse	114	6.9%
OR/Surgical Technician	122	7.4%
Phlebotomist/Venopuncture/IV Team	91	5.5%
Medical Student	69	4.2%
Aide (CNA, CMA, HHA, Orderly)	58	3.5%
Other/Unknown	57	3.5%
Housekeeping/Laundry	47	2.8%
EMT/Paramedic	37	2.2%
Dental Student	32	1.9%
CRNA/NP	22	1.3%
Clinical Laboratory Technician	25	1.5%
Other Students	18	1.1%
Dental Assistant/Technician	17	1.0%
Radiology Technician	17	1.0%
Other Technicians	13	0.8%
Physician Assistant	13	0.8%
Respiratory Therapist/Technician	13	0.8%
Researcher	12	0.7%
School Personnel (not nurse)	8	0.5%
Law Enforcement	8	0.5%
Morgue/Autopsy Technician	7	0.4%
Dentist	7	0.4%
Clerical/Administrative	6	0.4%
Safety/Security/Maintenance	6	0.4%
Firefighter	6	0.4%
Emergency Department Technician	6	0.4%
Physical Therapist	5	0.3%
Dental Hygienist	5	0.3%
Nursing Student	5	0.3%
Central Supply/Sterile Process	4	0.2%
Volunteers	3	0.2%
Food Service	2	0.1%
Pharmacist	2	0.1%
Hemodialysis	1	0.1%
Counselor/Social Worker	1	0.1%
Public Health Specialist	1	0.1%
Total	1652	100.0%

Demographics of Injured Workers in Texas

Females continue to suffer the majority (60.2% in 2008) of injuries and the workers age 25 through 34 years of age reported the highest number of sharps injuries (tables 5 and 6).

Table 5. Gender of Injured Worker

Sex	Number	Percent
Male	658	39.8%
Female	994	60.2%
Total	1652	100.0%

Table 6. Age of Injured Worker

Age	Number	Percent
Less Than 18	4	0.2%
18 Through 24	169	10.2%
25 Through 34	673	40.7%
35 Through 44	336	20.3%
45 Through 54	195	11.8%
55 Through 64	95	5.8%
65 Through 80	15	0.9%
Unknown	165	10.0%
Total	1652	100.0%

Ninety-five percent of the sharps injuries were sustained to the hand of injured workers (table 7).

Table 7. Area of Body Injured (n=1652)

Area of Body Injured	Number	Percent
Hand	1568	94.9%
Arm	31	1.9%
Leg/Foot	21	1.3%
Face/Head/Neck	6	0.4%
Torso	5	0.3%
Unknown	21	1.3%
Total	1652	100.0%

How Sharps Injuries Occurred
Giving injections, suturing, and collecting venous blood samples accounted for the highest number of injuries as reported in 2008 (table 8).

Table 8. Use of Sharp At Time of Injury (n=1652)		
Original Intended Use	**Number**	**Percent**
Injection, SC/ID/IM	364	22.0%
Suturing Skin	243	14.7%
Draw Venous Sample	199	12.0%
Unknown/Not Applicable	176	10.7%
Suturing Deep	108	6.5%
Cutting	98	5.9%
Start IV or Setup Heparin Lock	93	5.6%
Surgery/Surgical Procedures	73	4.4%
Obtain Body Fluid/Tissue Sample	60	3.6%
Start /Use IV/Central Line	59	3.6%
Dental Procedures	49	3.0%
Finger Stick/Heel Stick	40	2.4%
Draw Arterial Sample	34	2.1%
Contain Specimen	11	0.7%
Drilling	10	0.6%
Heparin or Saline Flush	7	0.4%
Remove Central Line/Porta Cath	9	0.5%
Electrocautery	6	0.4%
Dialysis	5	0.3%
Shaving	4	0.2%
Tattoo	2	0.1%
Wiring	2	0.1%
Total	1652	100.0%

Unsafe Practice
Table 9 displays how the injury occurred by procedure or process. It may be noted that 99 (6%) of the injuries occurred due to an unsafe practice. Unsafe practice in table 9 is not anticipated to reference reuse of a contaminated needle or other practices that resulted in patient exposure/contracting bloodborne pathogens. In this report, unsafe practices can include needle recapping, use of devices that are not safety engineered, failure to activate the safety feature, and over-filling the sharps container, etc. Unsafe practice in reference to needle and syringe usage additionally refers otherwise to practices that expose the patient to bloodborne pathogens. "A safe injection does not harm the recipient, does not expose the provider to any avoidable risks and does not result in waste that is dangerous to the community" as published in the CDC 2007 Guideline for Isolation Precaution. APIC is supporting a nationwide campaign titled HONOReform with a working slogan: One Needle, One Syringe, One Vial, and Only One Time. This campaign is in response

to multiple U.S. cases of unsafe needle practices that have resulted in patients' exposure to bloodborne pathogens in ambulatory health care sites.[7]

Table 9. Procedure/Process Involved in Injury (n=1652)		
How Exposed	**Number**	**Percent**
Between Steps of Multistep Procedure	374	22.6%
Suturing	185	11.2%
Found In An Inappropriate Place	158	9.6%
Patient Moved During Procedure	132	8.0%
Activating Safety Device	133	8.1%
Interaction With Another Person	101	6.1%
Unsafe Practice	99	6.0%
Use of Sharps Container	83	5.0%
Disassembling Device/Equipment	87	5.3%
Laboratory Procedure/Process	60	3.6%
Recapping	52	3.1%
Use of IV/Central Line	47	2.8%
Surgery	36	2.2%
Other/Unknown	43	2.6%
Device Malfunctioned	31	1.9%
Procedure/Environment	12	0.7%
Preparation for Reuse of Instrument	15	0.9%
Device Pierced Side of Disposal Container	4	0.2%
Total	1652	100.0%

Type of Sharp

The type of sharp involved in injuries is displayed in table 10. Syringes/needles and suture needles were listed as devices involved in the greatest percentages of injuries. IV catheters/needles/stylets were third highest in injury involvement.

Table 10. Type of Sharp Involved (n=1652)

Type of Sharp	Number	Percent
Suture	358	21.7%
Disposal Syringe	244	14.8%
Other Syringe/Needle	184	11.1%
Winged Steel Needle	138	8.4%
Insulin Syringe/Pump	118	7.1%
Scalpels	101	6.1%
IV Catheters/Needles/Stylets	118	7.1%
Blood Tube Holder/Needle	63	3.8%
Lancet	42	2.5%
Other Surgical Instruments	38	2.3%
Other/Unknown	36	2.2%
Tuberculin Syringe	33	2.0%
Staples/Steel Sutures	25	1.5%
Drill Bit/Burr	17	1.0%
Dental Instruments	16	1.0%
Prefilled Cartridge	15	0.9%
Glass Items	15	0.9%
Blood Gas Syringe	14	0.8%
Microtome/Other Saws/Blades	12	0.7%
Retractors/Skin/Bone Hooks	12	0.7%
Pin Fixation Guide	11	0.7%
Razor	9	0.5%
Scissors	9	0.5%
Pickup Forceps/Hemostats	6	0.4%
Biopsy/Paracentesis/Acupuncture	6	0.4%
Trocar	5	0.3%
Electrocautery	5	0.3%
Huber Needle	2	0.1%
Total	1652	100.0%

Safety Engineered Sharps Devices

Table 11. Was Device Safety Engineered (n=1652)		
Safety Engineered Device	**Number**	**Percent**
Yes	539	32.6%
No	805	48.7%
Unknown	308	18.6%
Total	1652	100.0%

Table 12. Protective Mechanism Activation (n=1652)		
Was Protective Mechanism Activated	**Number**	**Percent**
Yes, Fully Activated	66	4.0%
Yes, Partially Activated	106	6.4%
Not Activated	697	42.2%
Unknown	783	47.4%
Total	1652	100.0%

Table 13. When During Activation Did Injury Occur (n=1652)		
When During Activation Did Injury Occur	**Number**	**Percent**
Before	279	16.9%
During	296	17.9%
After	135	8.2%
Unknown	942	57.0%
Total	1652	100.0%

Worksite Safety Controls Compliance

Table 14. Worksite Safety Controls Compliance (n=1652)								
Worksite Safety Controls	**Glove Use At Time of Injury**		**Hepatitis B Vaccine Series Completed**		**Bloodborne Pathogen Education Within Last Year**		**Sharps Container Available Near Work Area**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Yes	1398	84.6%	1471	89.0%	1384	83.8	1439	87.1
No	218	13.2%	94	5.7%	41	2.5	41	2.5
Unknown	36	2.2%	87	5.3%	227	13.7	172	10.4
Total	1652	100%	1652	100%	1652	100%	1652	100%

Cumulative Reports of Texas Sharps Injuries Over Eight Years

Table 15. Number of Sharps Injuries By Health Service Region								
Region	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
1	235	206	200	198	191	205	180	201
2	122	116	87	102	109	60	81	69
3	449	411	390	340	355	291	287	466
4	36	69	52	58	40	33	52	76
5	8	4	2	17	10	16	15	25
6	375	343	576	609	579	431	464	503
7	88	116	131	100	132	101	72	73
8	309	192	158	96	180	187	148	74
9	102	107	122	99	115	87	93	94
10	38	30	44	41	93	38	40	66
11	27	28	17	9	21	13	22	17
Total	1789	1622	1779	1669	1825	1462	1454	1652

Table 16. Proportion of Sharps Injuries by Facility Type Per Year 2001-2008								
Facility Type	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Hospital	78%	80%	81%	84%	82%	82.1%	80.5%	80.3%
Clinic	7.4%	8%	9%	6.4%	6.5%	5.5%	6.2%	7.6%
EMS/Fire/Police	4%	2%	2%	2%	2%	1.6%	2.3%	1.6%
Correctional Facility	2.3%	2%	1.2%	1.4%	3.1%	4.7%	4.1%	4.1%
School/College	2.1%	2%	2%	2%	2%	1.4%	2.2%	1.9%
Residential Facility	0.1%	1.1%	1.4%	1.0%	1.0%	1.2%	0.8%	0.5%
Laboratory	2%	1.0%	0.8%	.1%	2%	0.4%	0.2%	0.1%
Outpatient Treatment	1.4%	1.1%	0.7%	1.0%	1.0%	0.7%	0.2%	0.5%
Dental Facility	1.0%	0.2%	0.5%	1.0%	1.0%	0.7%	1.7%	1.2%
Home Health	1.0%	0.8%	0.7%	1.0%	1.0%	0.6%	0.9%	0.5%
Medical Examiner/Morgue	0.2%	1.5%	0.7%	1.3%	1.0%	0.5%	0.2%	0.5%
Blood Bank/Center/Mobile	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	0.0%

Table 17. Percentage of Injuries Per Job Class Per Year								
Job Class	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
RN	25.9%	26.1%	21.6%	23.7%	23.5%	23.6%	20.2%	23.4%
MD/DO	22.0%	22.1%	27.0%	22.2%	12.2%	10.7%	9.2%	10.0%
Int./Res.	0.0%	0.2%	0.7%	8.7%	13.3%	16.7%	19.5%	14.5%
Laboratory	10.0%	9.5%	9.0%	6.3%	8.0%	6.2%	6.8%	7.0%
Surg. Asst	7.5%	7.2%	7.0%	6.9%	8.4%	7.2%	8.3%	7.4%
LVN	8.0%	7.2%	7.3%	6.2%	7.8%	8.2%	6.8%	6.9%
Students	4.4%	3.7%	4.6%	5.1%	4.9%	5.6%	4.6%	5.6%
Housekeeper	4.5%	3.7%	3.7%	3.1%	3.7%	2.9%	2.7%	2.8%
First Resp.	4.6%	3.0%	2.4%	2.8%	2.2%	2.0%	3.2%	3.1%
Aides	2.9%	3.8%	4.1%	2.4%	4.0%	3.9%	3.4%	3.5%
Dental	1.8%	1.4%	1.5%	1.8%	1.7%	2.0%	1.9%	3.6%
Other Tech	1.5%	2.2%	2.0%	1.2%	1.7%	2.1%	0.7%	1.2%
Radiology	1.3%	1.1%	1.2%	1.1%	0.4%	1.0%	1.4%	1.0%
Respiratory	1.3%	1.5%	1.0%	0.9%	1.3%	0.7%	1.4%	0.8%
PA	0.5%	0.4%	0.8%	1.2%	1.1%	1.5%	1.4%	0.8%
Maintenance	0.0%	0.5%	0.2%	0.5%	0.2%	0.3%	0.3%	0.4%
CRNA/NP	0.4%	1.0%	1.1%	1.0%	0.7%	0.7%	0.7%	1.3%
Schools	0.7%	0.6%	0.5%	0.4%	1.3%	1.0%	0.6%	0.5%
C.S./Sterile Process	0.0%	0.4%	0.6%	0.3%	0.8%	0.2%	0.3%	0.2%
Other/Unknown	2.7%	4.4%	3.9%	4.1%	2.7%	3.3%	2.3%	4.2%
Physical Therapist	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
Researcher	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
Clerical/Admin.	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%

Table 18. Types of Sharps By Percentage Per Year Involved in Injuries								
Type of Sharp	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Syringes/Needle	26.4%	32.4%	32.7%	31.0%	30.6%	26.8%	30.4%	33.7%
Suture Needle	17.9%	18.1%	21.3%	22.9%	21.2%	22.1%	21.8%	23.2%
Winged Steel Needles	8.7%	8.9%	9.8%	6.2%	7.8%	6.7%	6.4%	8.4%
IV Cath/Needle	6.8%	5.7%	5.4%	6.3%	7.8%	8.7%	8.0%	7.1%
Surgical Inst.	9.1%	9.5%	8.3%	8.7%	7.4%	5.6%	8.2%	6.4%
Scalpels	5.4%	6.2%	6.4%	7.7%	7.3%	8.4%	7.2%	6.1%
Insulin Syringes	4.6%	5.7%	4.0%	4.0%	5.0%	5.8%	6.6%	7.1%
Blood Tube Holders	4.6%	4.6%	3.3%	3.3%	3.1%	3.4%	3.0%	3.8%
Other/Unknown	8.2%	1.1%	1.7%	2.1%	2.5%	4.1%	2.8%	2.2%
Tuberculin Syringes	1.9%	2.0%	2.1%	1.4%	1.6%	2.0%	2.6%	2.0%
Blood Gas Syringes	1.5%	1.5%	1.1%	1.2%	1.6%	1.0%	1.5%	0.8%
Lancets	3.5%	2.8%	2.1%	2.7%	1.4%	1.0%	1.7%	2.5%
Dental Inst.	0.0%	0.0%	0.0%	0.4%	1.2%	1.0%	2.0%	2.0%
Biopsy/Other Needles	0.0%	0.0%	0.0%	0.4%	0.9%	0.7%	0.7%	0.4%
Tubes/Glass	1.3%	1.5%	1.0%	1.2%	0.5%	0.5%	1.4%	0.9%
Huber needles	0.0%	0.0%	0.0%	0.4%	0.4%	0.2%	0.0%	0.1%

Table 19. Safety Engineered Status of Sharps Devices Involved in Injuries Per Year								
Safety Engineered	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Yes	14.7%	21.0%	27.0%	22.1%	30.3%	29.8%	27.1%	32.6%
No	73.9%	68.0%	60.0%	58.6%	50.6%	47.0%	48.5%	48.7%
Unknown	11.2%	11.0%	13.0%	19.9%	20.2%	23.3%	24.4%	18.6%

Conclusion:
Texas governmental entity facilities are to be commended, in that sharps injuries reports indicate more than a fifty percent increase in the use of safety engineered sharps devices (table 19) from 2001 through 2008.

Recommendations:
The healthcare worker can help prevent sharps injuries: [4]

- Be prepared by keeping workplace organized with an available sharps container
- Work in area that is well lighted
- Receive training in how to use safety engineered sharps
- Before handling sharps, assess for any hazards-ask for help if unsure about device use

There is no acceptable reason to reuse a syringe.[7]

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