



Data Brief:

Sharps Injuries among Hospital Workers in Massachusetts: Findings from the Massachusetts Sharps Injury Surveillance System, 2016, 2017, 2018

Massachusetts Department of Public Health

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Since April 2001, hospitals licensed by the Massachusetts Department of Public Health (DPH) have been required to report data on sharps injuries among workers to the Department annually (MGL Chapter 111 §53D). Data collected from all DPH licensed hospitals (an average of 97 hospitals annually) have been published since 2002, the first full year of data available. This report includes data on sharps injuries that occurred during 2016, 2017 and 2018.

The Massachusetts Sharps Injury Surveillance System is intended to provide information to assist Massachusetts hospitals and hospital workers in targeting and evaluating efforts to reduce the incidence of sharps injuries and the associated human and economic costs. For a more comprehensive description of the system, please see: <http://www.mass.gov/eohhs/docs/dph/occupational-health/injuries/injuries-hospital-2004.pdf>.

Data Highlights and Prevention Measures

- The number of sharps injuries reported by all MDPH licensed hospitals in Massachusetts remained steady between 2016 and 2018 with 2,908 sharps injuries (SI) reported in 2016, 3,010 SI reported in 2017, and 2,938 SI reported in 2018. The SI rate for workers in all hospitals fluctuated slightly from 16.1 SI per 100 licensed beds in 2016 to 17.0 per 100 licensed beds in 2017 to 16.6 per 100 licensed beds in 2018. These rates were similar to rates since 2010 (Figure 1). Comparable findings were noted in rates for employees (per full time employee equivalents) in acute care hospitals only (Figure 2). These findings suggest that the earlier observed decline in rates from 2002-2010 is leveling off and underscore the need for a continuing commitment to preventing sharps injuries. Hospitals, in interpreting their own sharps injury rates, need to understand employee reporting practices in their facilities.
- In 2018, nurses reported more injuries than any other occupation group (Tables 2 and 10). This is in contrast to 2016 and 2017, where physicians reported more injuries than any other occupation group. It is however, similar to patterns seen from 2002-2010, where nurses accounted for the most injuries. Consistently in all three years, nurses in small and medium sized hospitals reported more injuries than physicians, while in large hospitals physicians account for the greatest number of sharps injuries. This difference by hospital size may reflect differences in types of procedures conducted (e.g., more surgery in larger hospitals).
- Consistently across all three years, half of all SI occurred with devices lacking sharps injury prevention features (Table 5). When adjusting for suture needles, the percentage remains high with 37% of injuries involving devices lacking sharps injury prevention features in each of the three years. This distribution varied by device, with suture needles and scalpels accounting for the largest percentage of devices without sharps injury prevention features (Figure 3). Winged steel needles and vacuum tube collection sets had the smallest percentage of injuries with devices lacking sharps injury prevention features (Figure 3). In accordance with 105 CMR 130.1001 *et seq*, hospitals are required to use devices with sharps injury prevention features as a means of minimizing the risk of injury to healthcare workers from needles and other sharps. This high percentage of injuries involving sharps with engineered sharps injury protections (SESIPs) likely reflects high uptake of SESIPs as required, but also underscores the importance of evaluating SESIPs currently being used in order to identify opportunities for using more protective devices as well as the need to use administrative and work practice controls (e.g., using alternative methods to deliver medication). Regular evaluation of devices is necessary in order to select and implement devices that are most effective at preventing injuries.
- While injuries in operating and procedure rooms account for the greatest number of injuries in all three years (44% in 2017, 45% in 2016 and 2018), followed by inpatient units (excluding intensive care units) (20%, 21%, 22%), and the emergency department (10%, 9%, 9%) (Tables 2 and 11). Hospitals are encouraged to evaluate the devices used and work-practices in these areas to identify any patterns for targeting prevention efforts.

Key Definitions and Methods

Sharps injury (also referred to as an exposure incident): An exposure to blood or other potentially infectious materials as a result of an incident involving a contaminated sharp device that pierces the skin or mucous membranes. An injury with a clean sharp or device (before use) through contaminated gloves or other contaminated mediums is also considered a sharps injury. An injury involving a clean device without any contact with infectious materials is not considered an exposure incident.

Sharps device: Any object that can penetrate the skin or any part of the body and result in an exposure incident, including but not limited to needle devices, scalpels, lancets, broken glass, and broken capillary tubes.

Population under surveillance: All health care workers in acute and non-acute care hospitals licensed by DPH, as well as any satellite units (e.g., ambulatory care centers) operating under a hospital license.

Surveillance Period: Calendar years 2016, 2017 and 2018. For trend analysis, calendar years 2002-2018.

Sharps injury rates: Sharps injury rates indicate the probability or risk of a worker sustaining a sharps injury within the surveillance period. Numbers are the counts of sharps injuries. A large hospital may have many workers who sustain sharps injuries but the rate of injury may be low. Conversely, in a smaller hospital, relatively few workers may sustain sharps injuries but the risk may be high. Both rates and numbers of injuries must be considered when targeting and evaluating prevention efforts. The rates presented in this report were calculated by dividing the number of sharps injuries among all workers by the number of licensed beds. Confidence intervals (CI) are presented for each rate. Trends in annual rates were modeled using both negative binomial and joinpoint regressions. Joinpoint regression was used to identify any changes in the trends over the same period. Negative binomial regression was used to model the overall trends of these rates from 2002 to 2018.

Sharps with engineered sharps injury protections (SESIPs): Needle devices and non-needle sharps used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with built-in sharps injury prevention features or mechanisms that effectively reduce the risk of an exposure incident.

Findings

Table 1a. Number and rate of sharps injuries among hospital workers by hospital characteristics, Massachusetts, 2016

	Number of Hospitals	Number of sharps injuries	Rate per 100 licensed beds	95% CI
Hospital size				
Small (< 100 licensed beds)	29	194	11.3	9.7-12.9
Medium (101-300 licensed beds)	49	968	11.1	10.4-11.8
Large (>300 licensed beds)	15	1,746	22.9	21.8-24.0
Service Type				
Acute care	75	2,842	18.7	18.0-19.4
Non-acute care*	18	66	2.33	1.8-2.9
Teaching Status				
Teaching	16	1,793	28.0	26.7-29.3
Non-teaching	77	1,115	9.6	9.0-10.1
Total	93	2,908	16.1	15.5-16.7

*Non-acute care hospitals include chronic care and rehabilitation facilities.

Table 1b. Number and rate of sharps injuries among hospital workers by hospital characteristics, Massachusetts, 2017

Hospital size				
Small (\leq 100 licensed beds)	29	201	12.0	10.3-13.7
Medium (101-300 licensed beds)	50	956	10.5	9.9-11.2
Large (>300 licensed beds)	13	1853	26.5	25.3-27.7
Service Type				
Acute care	74	2,944	19.4	18.7-20.1
Non-acute care*	18	66	2.5	1.9-3.1
Teaching Status				
Teaching	13	1,915	31.9	30.5-33.3
Non-teaching	79	1,095	9.3	8.8-9.9
Total	92	3,010	17.0	16.4-17.6

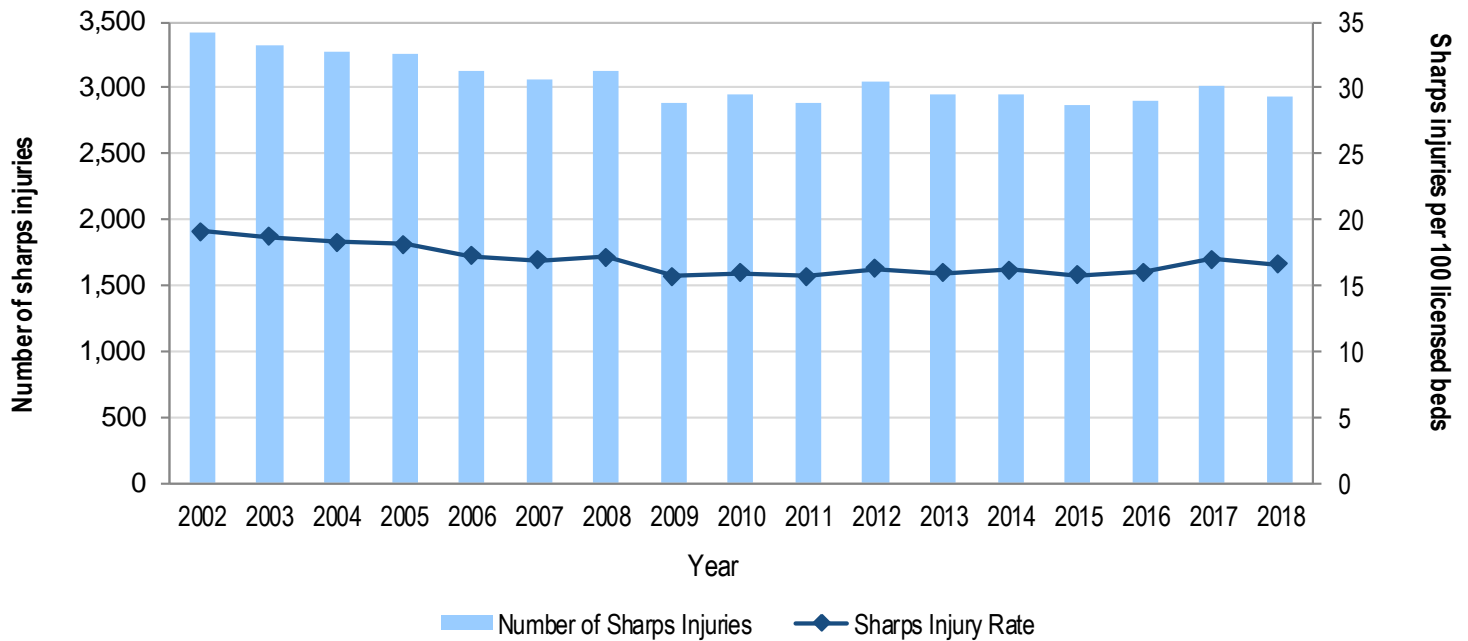
*Non-acute care hospitals include chronic care and rehabilitation facilities.

Table 1c. Number and rate of sharps injuries among hospital workers by hospital characteristics, Massachusetts, 2018

Hospital size				
Small (\leq 100 licensed beds)	27	175	11.6	9.9-13.3
Medium (101-300 licensed beds)	49	931	10.6	9.9-11.3
Large (>300 licensed beds)	14	1832	24.7	23.6-25.8
Service Type				
Acute care	72	2,874	19.3	18.6-20.1
Non-acute care*	18	64	2.3	1.7-2.8
Teaching Status				
Teaching	18	1,906	27.3	26.2-28.5
Non-teaching	72	1,032	9.6	9.1-10.2
Total	90	2,938	16.6	16.0-17.2

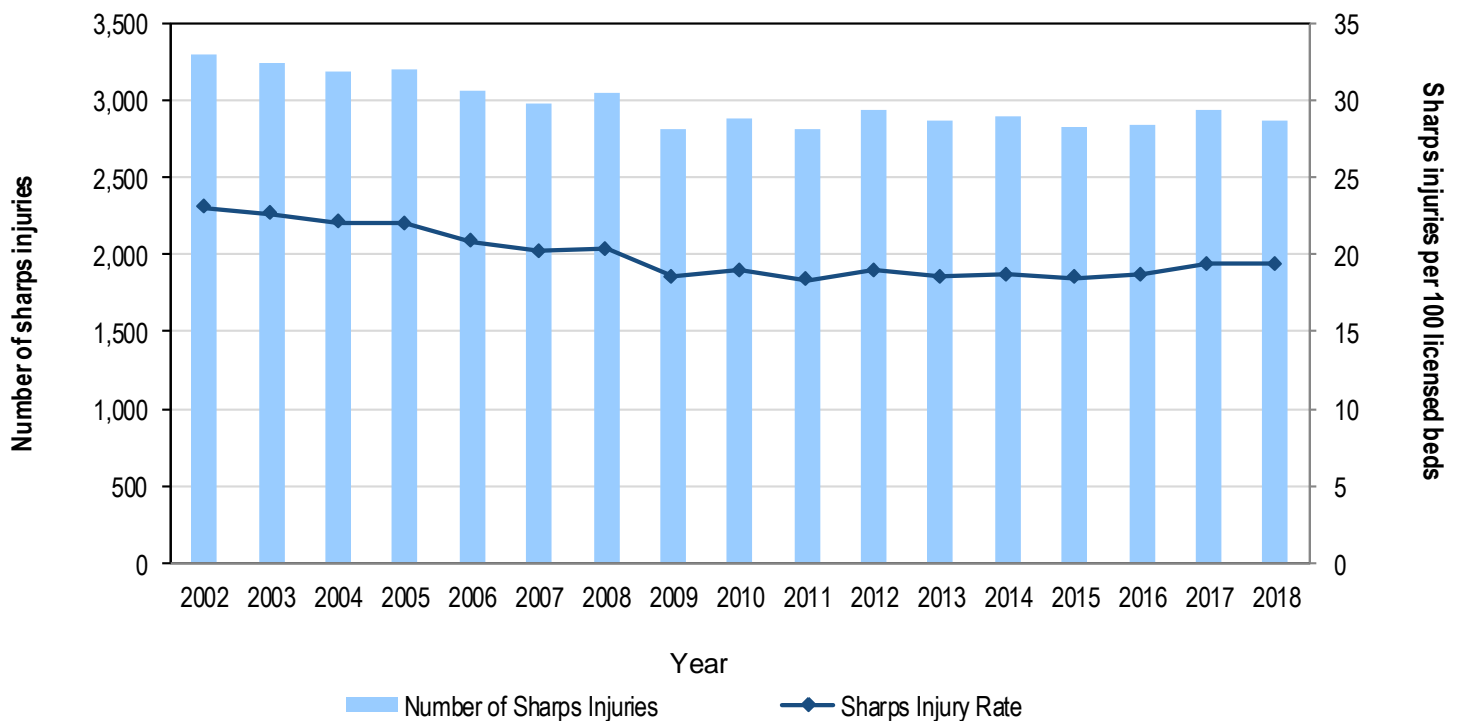
*Non-acute care hospitals include chronic care and rehabilitation facilities.

Figure 1. Number and rate of sharps injuries per licensed beds among all workers in acute and non-acute care hospitals, Massachusetts, 2002-2018



The sharps injury rate for all hospitals combined decreased significantly between 2002 and 2010. The average annual percent change in the sharps injury rate between 2002 and 2010 was -2.4 ($p < 0.05$). However, the average annual percent change from 2010 to 2018 was 0.63 ($p < 0.05$), indicating that the rate has a statistically significant increase over that time period.

Figure 2. Number and rate of sharps injuries per licensed beds among all workers in acute care hospitals only, Massachusetts, 2002-2018



The sharps injury rate for acute care hospitals decreased significantly between 2002 and 2010. The average annual percent change in the sharps injury rate between 2002 and 2010 was -2.7 ($p < 0.05$). However, the average annual percent change from 2010 to 2018 was 0.37 ($p = 0.13$), indicating that the rate remained relatively steady over that time period.

Table 2a. Sharps injuries by worker and incident characteristics and hospital size, Massachusetts hospital workers, 2016

	All Hospitals 93 hospitals		Hospital Size					
			Small 29 hospitals		Medium 49 hospitals		Large 15 hospitals	
	N	%	N	%	N	%	N	%
Workstatus of injured worker	2,908	100	194	100	968	100	1,746	100
Employee	2,469	85	177	91	790	82	1,502	86
Non-Employee Practitioner	326	11	7	4	128	13	191	11
Student	80	3	5	3	30	3	45	3
Temporary / Contract Worker	33	1	5	3	20	2	8	<1
Occupation	2,908	100	194	100	968	100	1,746	100
Physician	1,099	38	47	24	279	29	773	44
Nurse	1,092	38	90	46	380	39	622	36
Technician	462	16	40	21	205	21	217	12
Support Services	123	4	8	4	50	5	65	4
Other Medical Staff	76	2	<10	--	<40	--	<35	--
Other / Unknown / Not answered	56	2	<5	--	<20	--	<40	--
Department where injury occurred	2,908	100	194	100	968	100	1,746	100
Operating and Procedure Rooms	1,298	45	72	37	383	40	843	48
Inpatient Units	592	20	51	26	210	22	331	19
Emergency Department	281	10	22	11	128	13	131	8
Intensive Care Units	207	7	<5	--	<65	--	140	8
Outpatient areas	201	7	23	12	70	7	108	6
Laboratories	117	4	6	3	34	4	77	4
Other / Unknown / Not answered	212	7	<20	--	<80	--	116	7
Device involved in the injury	2,908	100	194	100	968	100	1,746	100
Hypodermic needle/syringe	938	32	62	32	344	36	532	30
Suture needle	631	22	34	18	190	20	407	23
Scalpel blade	210	7	12	6	55	6	143	8
Winged-steel needle	188	6	23	12	81	8	84	5
Vacuum tube collection holder/needle	114	4	5	3	61	6	48	3
Glass	28	1	<5	--	<10	--	21	1
Dental device or item	13	<1	<5	--	<10	--	6	<1
Other hollow bore needle	310	11	21	11	80	8	209	12
Other / Unknown / Not answered	476	16	36	19	144	15	296	17
Procedure for which the device was used	2,908	100	194	100	968	100	1,746	100
Injection	795	27	56	29	282	29	457	26
Suturing	637	22	33	17	195	20	409	23
Blood procedures	369	13	33	17	164	17	172	10
Line procedures	308	11	24	12	90	9	194	11
Making the incision	291	10	22	11	69	7	200	11
To obtain body fluid or tissue sample	48	2	0	0	11	1	37	2
Dental procedures	15	1	0	0	6	1	9	1
Other / Unknown / Not answered	445	15	26	13	151	16	268	15

^aHospital size: small≤100 licensed beds; medium=101-300 licensed beds; large>300 licensed beds

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 2b. Sharps injuries by worker and incident characteristics and hospital size, Massachusetts hospital workers, 2017

	All Hospitals 92 hospitals		Hospital Size					
			Small 29 hospitals		Medium 50 hospitals		Large 13 hospitals	
	N	%	N	%	N	%	N	%
Work status of injured worker	3,010	100	201	100	956	100	1,853	100
Employee	2,562	85	187	93	783	82	1,592	86
Non-Employee Practitioner	350	12	6	3	123	13	221	12
Student	63	2	0	0	32	3	31	2
Temporary / Contract Worker	35	1	8	4	18	2	9	<1
Occupation	3,010	100	201	100	956	100	1,853	100
Physician	1,160	39	55	27	267	28	838	45
Nurse	1,071	36	82	41	366	38	623	34
Technician	479	16	39	19	210	22	230	12
Support Services	129	4	10	5	48	5	71	4
Other Medical Staff	108	4	<15	--	33	4	<65	--
Other / Unknown / Not answered	63	2	<5	--	32	3	<30	--
Department where injury occurred	3,010	100	201	100	956	100	1,853	100
Operating and Procedure Rooms	1,319	44	83	41	391	41	845	46
Inpatient Units, excluding ICU	626	21	48	24	228	23	350	19
Emergency Department	283	9	24	12	130	14	129	7
Outpatient areas	269	9	22	11	58	6	187	10
Intensive Care Units	217	7	8	4	58	6	151	8
Laboratories	85	3	7	3	12	1	66	4
Other / Unknown / Not answered	211	7	9	4	80	8	122	7
Device involved in the injury	3,010	100	201	100	956	100	1,853	100
Hypodermic needle/syringe	1,018	34	71	35	338	35	609	33
Suture needle	681	23	31	15	195	20	455	25
Scalpel blade	220	7	15	7	58	6	147	8
Winged-steel needle	212	7	11	5	80	8	121	7
Vacuum tube collection holder/needle	91	3	<10	--	48	5	<40	--
Glass	32	1	<5	--	<10	--	<30	--
Dental device or item	16	1	0	0	<5	--	<15	--
Other hollow bore needle	294	10	30	15	102	11	162	9
Other / Unknown / Not answered	446	15	34	16	127	14	285	15
Procedure for which the device was used	3,010	100	201	100	956	100	1,853	100
Injection	844	28	60	30	287	30	497	27
Suturing	657	22	30	15	186	19	441	24
Blood procedures	383	13	24	12	163	17	196	11
Making the incision	326	11	36	18	85	9	205	11
Line procedures	226	8	<25	--	<70	--	139	7
To obtain body fluid or tissue sample	80	3	<5	--	<25	--	<65	--
Dental procedures	21	1	0	0	<5	--	<20	--
Other / Unknown / Not answered	473	16	26	12	150	15	297	16

^aHospital size: small≤100 licensed beds; medium=101 -300 licensed beds; large>300 licensed beds

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 2c. Sharps injuries by worker and incident characteristics and hospital size, Massachusetts hospital workers, 2018

	All Hospitals 90 hospitals		Hospital Size					
			Small 27 hospitals		Medium 49 hospitals		Large 14 hospitals	
	N	%	N	%	N	%	N	%
Work status of injured worker	2,938	100	175	100	931	100	1,832	100
Employee	2,558	87	152	87	784	84	1,622	89
Non-Employee Practitioner	255	9	10	6	90	10	155	8
Student	79	3	<5	--	<35	--	42	2
Temporary / Contract Worker	34	1	8	5	<20	--	<15	--
Nonclassifiable	12	<1	<5	--	8	1	<5	--
Occupation	2,938	100	175	100	931	100	1,832	100
Nurse	1,111	38	70	40	394	42	647	35
Physician	1,046	36	47	27	219	24	780	43
Technician	464	16	34	19	210	23	220	12
Support Services	125	4	<10	--	<50	--	71	4
Other Medical Staff	107	4	12	7	33	4	62	3
Other / Unknown / Not answered	85	3	<10	--	<30	--	52	3
Department where injury occurred	2,938	100	175	100	931	100	1,832	100
Operating and Procedure Rooms	1,319	45	66	38	376	40	877	48
Inpatient Units, excluding ICU	642	22	42	24	230	25	370	20
Emergency Department	276	9	18	10	123	13	135	7
Intensive Care Units	212	7	<10	--	<50	--	157	9
Outpatient areas	187	6	26	15	28	3	133	7
Laboratories	70	2	<5	--	<25	--	45	2
Other / Unknown / Not answered	232	8	12	7	105	11	115	6
Device involved in the injury	2,938	100	175	100	931	100	1,832	100
Hypodermic needle/syringe	994	34	50	29	335	36	609	33
Suture needle	640	22	28	16	144	15	468	26
Winged-steel needle	236	8	19	11	109	12	108	6
Scalpel blade	195	7	9	5	59	6	127	7
Vacuum tube collection holder/needle	85	3	<5	--	49	5	<35	--
Glass	21	1	<5	--	<10	--	<15	--
Dental device or item	10	<1	0	0	0	0	10	<1
Other hollow bore needle	289	10	24	14	87	9	178	10
Other / Unknown / Not answered	468	16	38	22	140	15	290	16
Procedure for which the device was used	2,938	100	175	100	931	100	1,832	100
Injection	871	30	45	26	287	31	539	29
Suturing	640	22	28	16	136	15	476	26
Blood procedures	370	13	19	11	168	18	183	10
Making the incision	314	11	15	9	100	11	199	11
Line procedures	281	10	29	17	80	9	172	9
To obtain body fluid or tissue sample	53	2	<5	--	<20	--	31	2
Dental procedures	15	1	<5	--	<5	--	<15	--
Other / Unknown / Not answered	394	13	36	21	139	15	219	12

^aHospital size: small≤100 licensed beds; medium=101-300 licensed beds; large>300 licensed beds

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 3a. Sharps injuries involving hollow-bore devices by device type and occupation, Massachusetts hospital workers, 2016

Occupation	Total		Hypodermic Needle/Syringe		Winged-Steel Needle		Vacuum Tube Collection Set		Other Hollow Bore	
	N	%	N	%	N	%	N	%	N	%
Nurse	857	100	561	65	79	9	53	6	164	19
Physician	325	100	221	68	<5	--	<5	--	98	30
Technician	257	100	91	35	86	33	52	20	28	11
Support Services	39	100	23	59	<5	<1	<5	--	15	38
Other medical staff	50	100	29	58	14	28	<10	--	<5	--
Other / Unknown / Not answered	22	100	13	59	<5	--	<5	--	<5	--
Total	1,550	100	938	61	188	12	114	7	310	20

Table 3b. Sharps injuries involving hollow-bore devices by device type and occupation, Massachusetts hospital workers, 2017

Occupation	Total		Hypodermic Needle/Syringe		Winged-Steel Needle		Vacuum Tube Collection Set		Other Hollow Bore	
	N	%	N	%	N	%	N	%	N	%
Nurse	856	100	609	71	92	11	24	3	131	15
Physician	377	100	255	68	<5	--	<5	--	115	31
Technician	246	100	79	32	86	35	51	21	30	12
Support Services	38	100	21	55	<5	--	5	13	<15	--
Other medical staff	67	100	38	56	19	29	<10	--	<5	--
Other / Unknown / Not answered	31	100	16	52	10	32	<5	--	<5	--
Total	1,615	100	1,018	63	212	13	91	6	294	18

Table 3c. Sharps injuries involving hollow-bore devices by device type and occupation, Massachusetts hospital workers, 2018

Occupation	Total		Hypodermic Needle/Syringe		Winged-Steel Needle		Vacuum Tube Collection Set		Other Hollow Bore	
	N	%	N	%	N	%	N	%	N	%
Nurse	910	100	622	68	91	10	36	4	161	18
Physician	304	100	213	70	<5	--	<5	--	84	28
Technician	240	100	70	29	103	43	41	17	26	11
Support Services	39	100	29	74	<5	--	<5	--	<10	--
Other medical staff	62	100	33	53	27		<5	--	<10	--
Other / Unknown / Not answered	49	100	27	55	9	18	<5	--	8	16
Total	1,604	100	994	62	236	15	85	5	289	18

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 4a. Sharps injuries involving solid-bore device by device type and occupation, Massachusetts hospital workers, 2016

Occupation	Total		Suture Needle		Scalpel		Glass		Other/ Unknown	
	N	%	N	%	N	%	N	%	N	%
Physician	774	100	462	60	126	16	6	1	180	23
Nurse	235	100	83	35	23	10	8	3	121	52
Technician	205	100	68	33	46	22	10	5	81	40
Support Services	84	100	<10	--	<10	--	0	--	73	87
Other medical staff	26	100	<5	--	5	19	<5	--	17	65
Other / Unknown / Not answered	34	100	10	29	<10	--	<5	--	17	50
Total	1,358	100	631	46	210	15	28	2	489	36

Table 4b. Sharps injuries involving solid-bore device by device type and occupation, Massachusetts hospital workers, 2017

Occupation	Total		Suture Needle		Scalpel		Glass		Other/ Unknown	
	N	%	N	%	N	%	N	%	N	%
Physician	783	100	490	63	120	15	5	1	168	21
Technician	233	100	93	40	55	24	8	3	77	33
Nurse	215	100	69	32	26	12	11	5	109	51
Support Services	91	100	7	8	<10	--	<5	--	74	81
Other medical staff	41	100	5	12	<15	--	<5	--	15	37
Other / Unknown / Not answered	32	100	17	53	<5	--	<5	--	19	59
Total	1,395	100	681	49	220	16	32	2	462	33

Table 4c. Sharps injuries involving solid-bore device by device type and occupation, Massachusetts hospital workers, 2018

Occupation	Total		Suture Needle		Scalpel		Glass		Other/ Unknown	
	N	%	N	%	N	%	N	%	N	%
Physician	742	100	474	64	<110	--	<5	--	161	22
Technician	224	100	72	32	53	2	5	2	94	42
Nurse	201	100	73	37	25	1	7	4	96	48
Support Services	86	100	<5	--	<5	--	<5	--	79	92
Other medical staff	41	100	<5	--	<5	--	<5	--	34	83
Other / Unknown / Not answered	40	100	15	38	6	1	5	13	14	35
Total	1,334	100	640	48	195	1	21	2	478	36

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 5a. Sharps injuries by SESIP status by hospital size: all devices and excluding suture needles, Massachusetts hospital workers, 2016

	All Hospitals 93 hospitals		Hospital Size ^a					
			Small 29 hospitals		Medium 49 hospitals		Large 15 hospitals	
	N	%	N	%	N	%	N	%
Sharps Injury Protections								
All devices	2,908	100	194	100	968	100	1,746	100
SESIP	1,250	43	98	51	475	59	677	39
Non-SESIP	1,464	50	87	45	406	42	971	56
Unknown/Not answered	194	7	9	5	87	9	98	6
Devices excluding suture needles	2,277	100	160	100	778	100	1,339	100
SESIP	1,247	55	98	61	473	61	676	50
Non-SESIP	845	37	53	33	225	29	567	42
Unknown/Not answered	185	8	9	6	80	10	96	7

Table 5b. Sharps injuries by SESIP status by hospital size: all devices and excluding suture needles, Massachusetts hospital workers, 2017

	All Hospitals 92 hospitals		Hospital Size ^a					
			Small 29 hospitals		Medium 50 hospitals		Large 13 hospitals	
	N	%	N	%	N	%	N	%
Sharps Injury Protections								
All devices	3,010	100	201	100	956	100	1,853	100
SESIP	1,318	44	97	48	471	49	750	40
Non-SESIP	1,531	51	94	47	412	43	1,025	55
Unknown/Not answered	161	5	10	5	73	8	78	4
Devices excluding suture needles	2,329	100	170	100	761	100	1,398	100
SESIP	1,317	57	97	57	471	62	749	54
Non-SESIP	860	37	63	37	225	30	572	41
Unknown/Not answered	152	7	10	6	65	8	77	5

Table 5c. Sharps injuries by SESIP status by hospital size: all devices and excluding suture needles, Massachusetts hospital workers, 2018

	All Hospitals 90 hospitals		Hospital Size ^a					
			Small 27 hospitals		Medium 49 hospitals		Large 14 hospitals	
	N	%	N	%	N	%	N	%
Sharps Injury Protections								
All devices	2,938	100	175	100	931	100	1,832	100
SESIP	1,319	45	86	49	499	54	734	40
Non-SESIP	1,482	50	70	40	379	41	1,033	56
Unknown/Not answered	137	5	19	11	53	5	65	4
Devices excluding suture needles	2,298	100	147	100	787	100	1,364	100
SESIP	1,319	57	86	59	499	63	734	54
Non-SESIP	846	37	42	29	238	30	566	42
Unknown/Not answered	133	6	19	13	50	6	64	4

^aHospital size: small≤100 licensed beds; medium=101-300 licensed beds; large>300 licensed beds

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Figure 3a. Sharps injuries by device and SESIP status, Massachusetts hospital workers, 2016, N=2,908

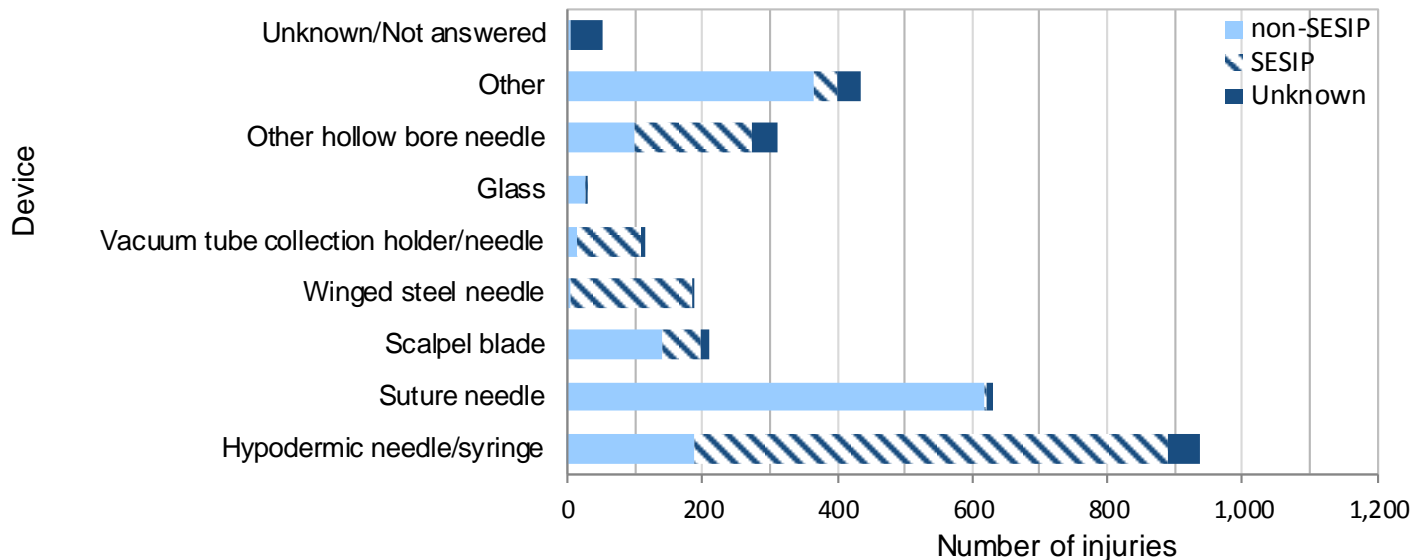


Figure 3b. Sharps injuries by device and SESIP status, Massachusetts hospital workers, 2017, N=3,010

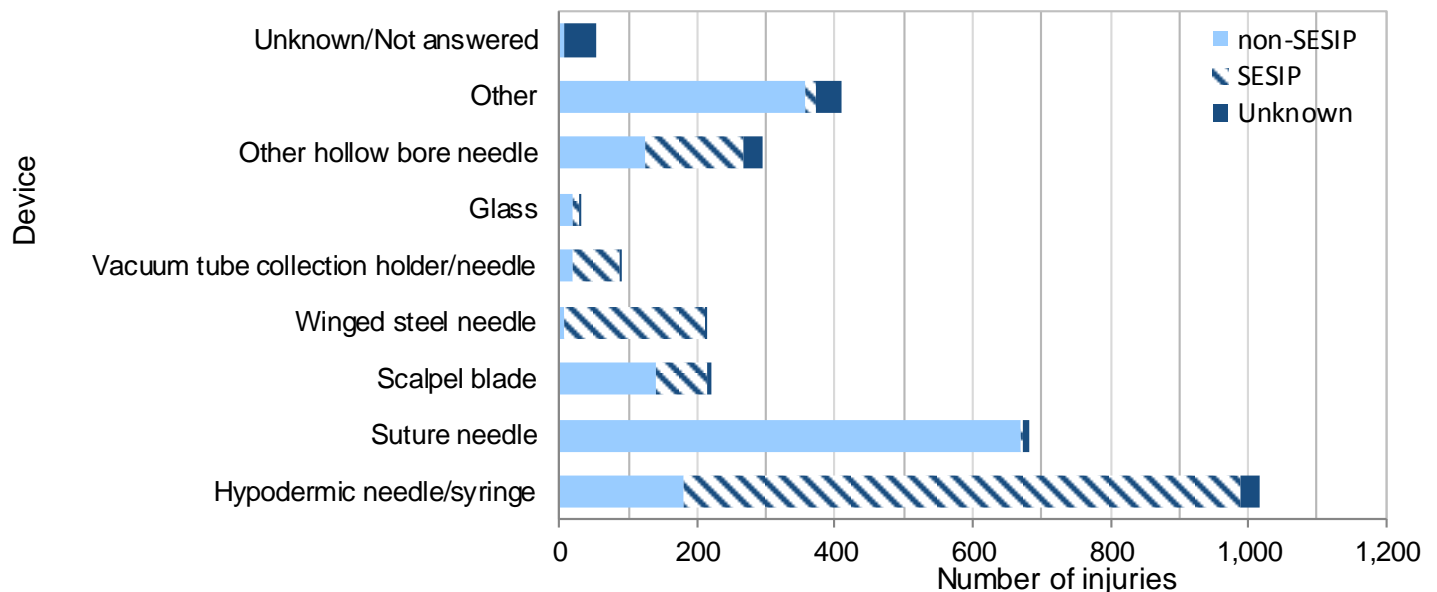


Figure 3c. Sharps injuries by device and SESIP status, Massachusetts hospital workers, 2018, N=2,937

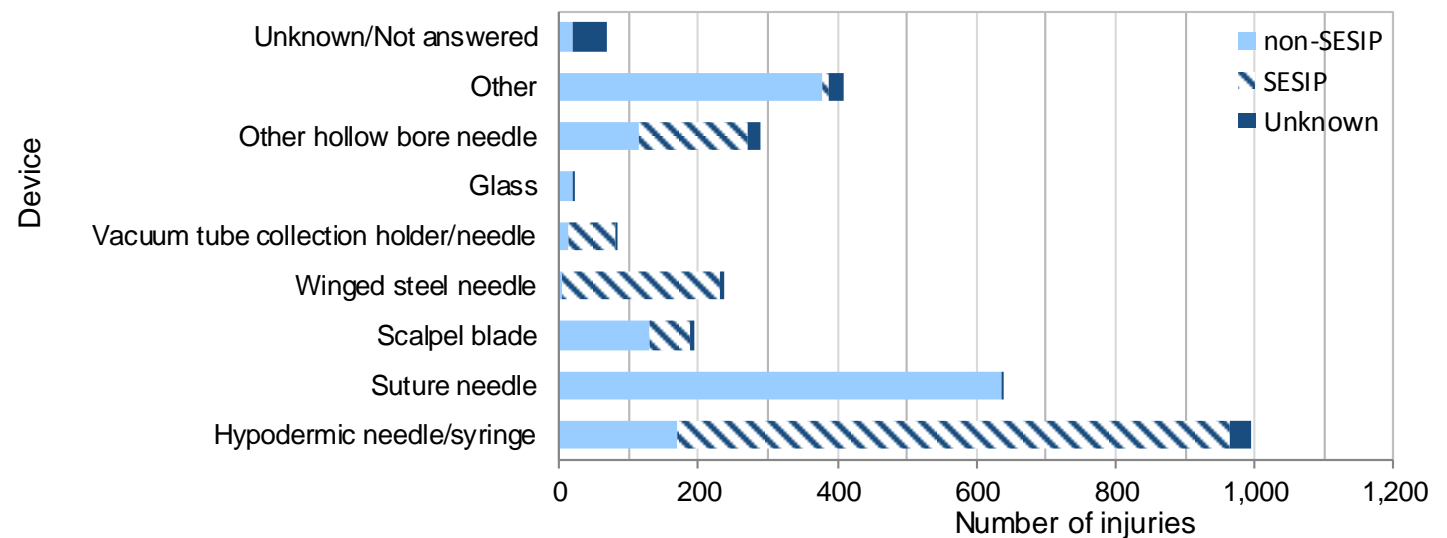


Table 6a. Sharps injuries by procedure and SESIP status, Massachusetts hospital workers, 2016

Procedure	Total		SESIP		Non-SESIP		Unknown	
	N	%	N	%	N	%	N	%
Injection procedures	795	100	608	76	159	20	28	4
Subcutaneous injection	630	100	499	79	111	18	20	3
Intramuscular injection	110	100	87	79	<20	--	<5	--
Other injections	55	100	22	40	<30	--	<5	--
Blood procedures	369	100	306	83	45	12	18	5
Percutaneous venous puncture	258	100	237	92	11	4	10	4
Finger stick / Heel stick	52	100	24	46	23	44	5	1
Percutaneous arterial puncture	32	100	29	91	<5	--	<5	--
Other blood procedures	27	100	16	59	<10	--	<5	--
Line procedures	308	100	200	65	91	30	17	6
To insert peripheral IV/set up heparin lock	108	100	95	88	<10	--	<5	--
To insert central line	44	100	13	30	<30	--	<10	--
Other line procedures	156	100	92	59	57	37	7	4
Other procedures/Unknown/Not Answered	1,436	100	136	9	1,169	81	131	9
Total	2,908	100	1,250	43	1,464	50	194	7

Table 6b. Sharps injuries by procedure and SESIP status, Massachusetts hospital workers, 2017

Injection procedures	844	100	676	80	150	18	18	2
Subcutaneous injection	636	100	537	84	90	14	9	1
Intramuscular injection	149	100	122	82	<30	--	<5	--
Other injections	59	100	17	29	<35	--	<10	--
Blood procedures	383	100	312	82	61	16	10	3
Percutaneous venous puncture	283	100	257	91	20	7	6	2
Finger stick / Heel stick	40	100	<15	--	28	70	<5	--
Percutaneous arterial puncture	40	100	<35	--	6	<1	<5	--
Other blood procedures	20	100	<15	--	7	<1	<5	--
Line procedures	226	100	156	69	64	28	6	3
To insert central line	27	100	<15	--	16	59	<5	--
To insert peripheral IV/set up heparin lock	79	100	<75	--	6	<1	<5	--
Other line procedures	120	100	<75	--	42	35	<5	--
Other procedures	1,391	100	167	12	1,181	85	43	3
Unknown / Not answered / Non-classifiable	166	100	7	4	75	45	84	5
Total	3,010	100	1,318	44	1,531	51	161	5

Table 6c. Sharps injuries by procedure and SESIP status, Massachusetts hospital workers, 2018

Injection procedures	871	100	698	80	153	18	20	2
Subcutaneous injection	639	100	523	82	106	17	10	2
Intramuscular injection	178	100	161	90	<20	--	<5	--
Other injections	54	100	14	26	<35	--	<10	--
Blood procedures	370	100	318	86	41	11	11	3
Percutaneous venous puncture	287	100	272	95	10	3	5	2
Finger stick / Heel stick	30	100	<10	--	19	63	<5	--
Percutaneous arterial puncture	32	100	23	72	<10	--	<5	--
Other blood procedures	21	100	<15	--	<10	--	<5	--
Line procedures	281	100	191	68	83	30	7	2
To insert central line	37	100	11	30	<25	--	<5	--
To insert peripheral IV/set up heparin lock	100	100	90	90	<10	--	<5	--
Other line procedures	144	100	90	63	<55	--	<5	--
Other procedures	1,245	100	97	8	1,120	90	28	2
Unknown / Not answered / Non-classifiable	171	100	15	9	85	50	71	41
Total	2,938	100	1,319	45	1,482	50	137	5

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 7a. Sharps injuries by inclusion in prepackaged kit and hospital size, Massachusetts hospital workers, 2016

	All Hospitals 93 hospitals		Hospital Size [^]					
			Small 29 hospitals		Medium 49 hospitals		Large 15 hospitals	
	N	%	N	%	N	%	N	%
Device included in prepackaged kit								
Yes	544	19	23	12	221	23	300	17
No	2,134	73	159	82	651	67	1,324	76
Unknown/Not answered	230	8	12	6	96	10	122	7
Total	2,908	100	194	100	968	100	1,746	100

Table 7b. Sharps injuries by inclusion in prepackaged kit and hospital size, Massachusetts hospital workers, 2017

	All Hospitals 92 hospitals		Hospital Size [^]					
			Small 29 hospitals		Medium 50 hospitals		Large 13 hospitals	
	N	%	N	%	N	%	N	%
Device included in prepackaged kit								
Yes	648	22	45	22	227	24	376	20
No	2,184	73	144	72	641	67	1,399	75
Unknown/Not answered	178	6	12	6	88	9	78	4
Total	3,010	100	201	100	956	100	1,853	100

Table 7c. Sharps injuries by inclusion in prepackaged kit and hospital size, Massachusetts hospital workers, 2018

	All Hospitals 90 hospitals		Hospital Size [^]					
			Small 27 hospitals		Medium 49 hospitals		Large 14 hospitals	
	N	%	N	%	N	%	N	%
Device included in prepackaged kit								
Yes	563	19	32	18	202	22	329	18
No	2,204	75	126	72	652	70	1,426	78
Unknown/Not answered	171	6	17	10	77	8	77	4
Total	2,938	100	175	100	931	100	1,832	100

[^]Hospital size: small ≤100 licensed beds; medium =101-300 licensed beds; large >300 licensed beds

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Figure 4a. Sharps injuries involving devices from prepackaged kits by device and SESIP status, Massachusetts hospital workers, 2016, N=544

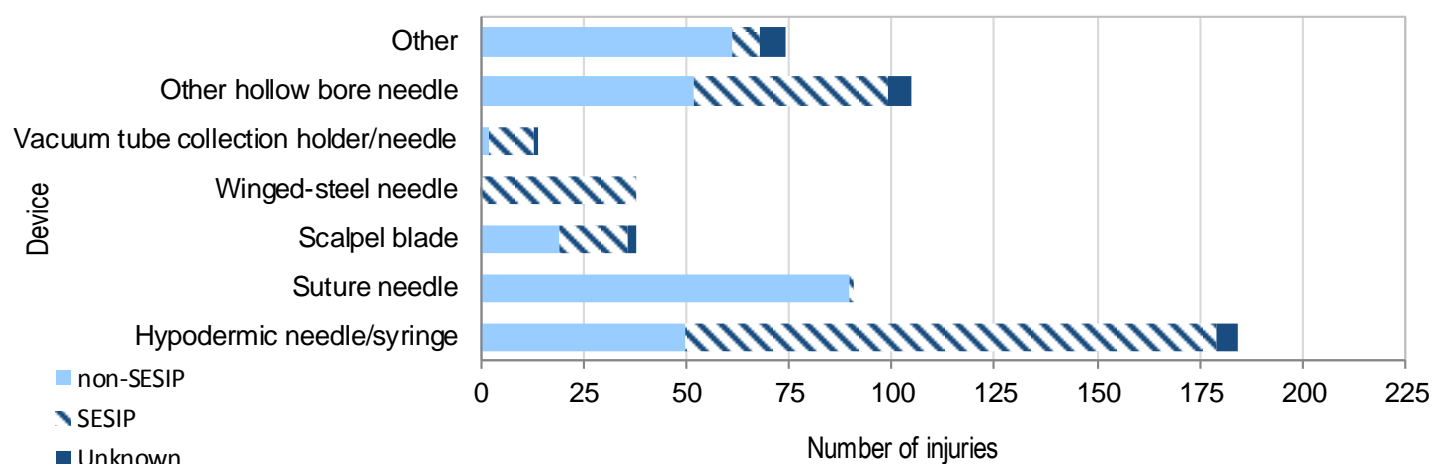


Figure 4b. Sharps injuries involving devices from prepackaged kits by device and SESIP status, Massachusetts hospital workers, 2017, N=648

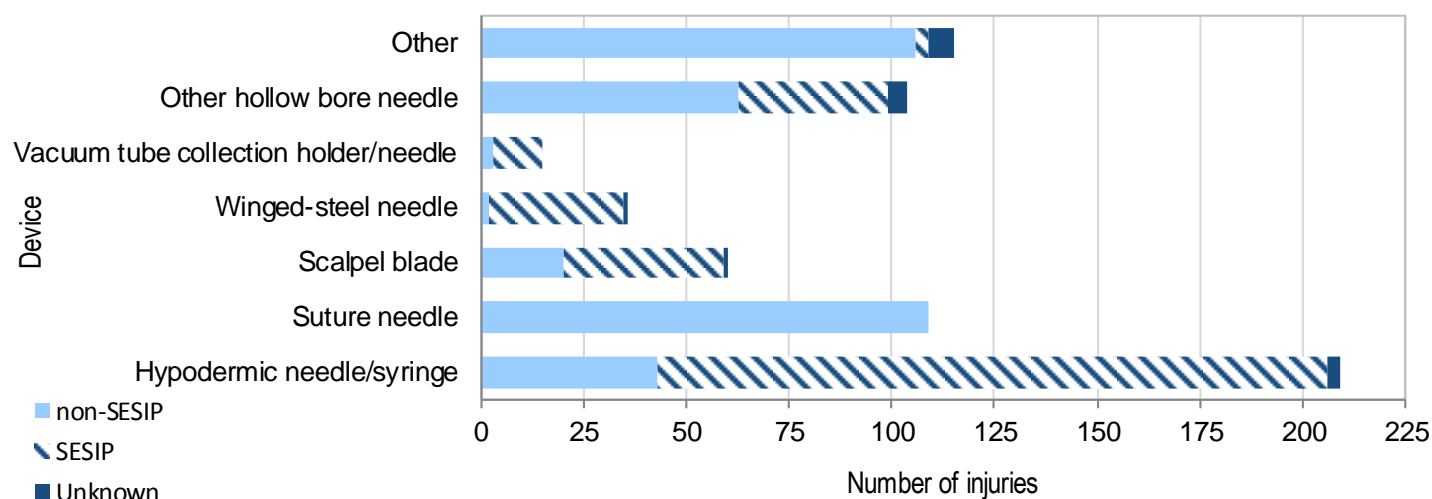


Figure 4c. Sharps injuries involving devices from prepackaged kits by device and SESIP status, Massachusetts hospital workers, 2018, N=563

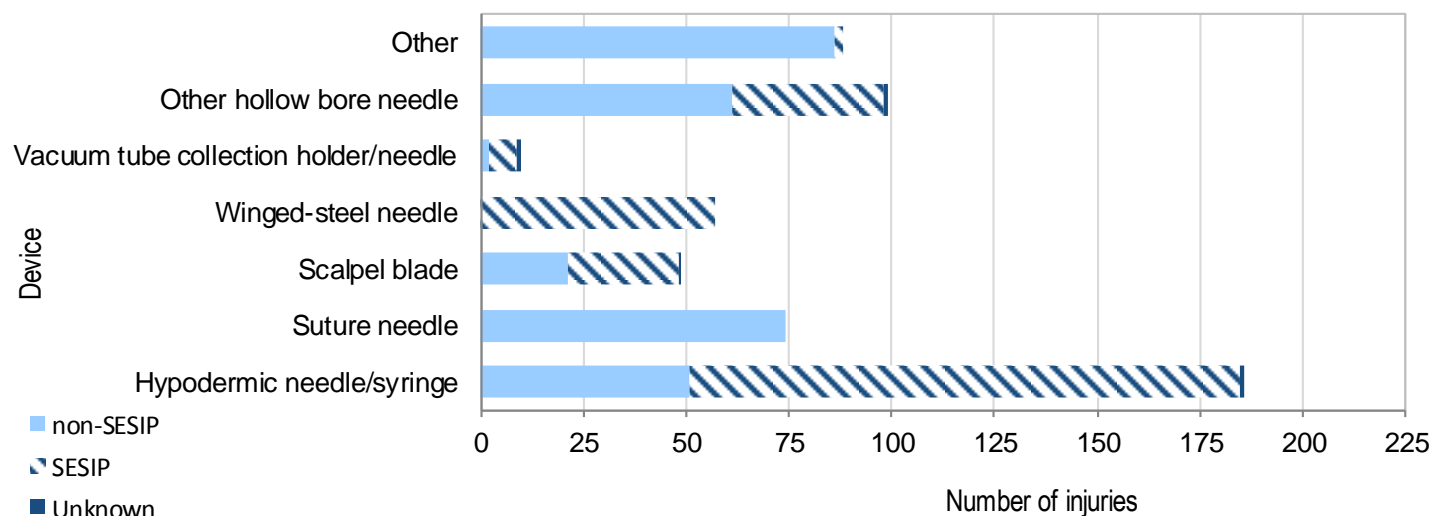


Table 8a. Sharps injuries among hospital workers by when and how the injury occurred by hospital size, Massachusetts, 2016

	All Hospitals 93 hospitals		Hospital Size ^A					
			Small 29 hospitals		Medium 49 hospitals		Large 15 hospitals	
	N	%	N	%	N	%	N	%
Before use of the item	24	1	<5	--	<10	--	16	1
During use of the item	1,183	41	81	42	396	41	706	40
Suturing	305	10	20	10	79	8	206	12
Collision with worker or sharp	257	9	25	13	83	9	149	9
Manipulate needle in patient	253	9	14	7	104	11	135	8
Patient moved and jarred device	223	8	15	8	90	9	118	7
Access IV line	20	1	<5	--	<10	--	11	1
Handle/pass equipment	13	<1	<5	--	<5	--	<15	--
Device malfunction	6	<1	<5	--	0	0	<10	--
Other / Unknown / Nonclassifiable	106	4	<5	--	<35	--	72	4
After use, before disposal	1,222	42	83	43	369	38	770	44
Handle/pass equipment	361	12	9	5	70	7	282	16
Activating injury protection mechanism	291	10	29	15	124	13	138	8
During clean-up	191	7	15	8	52	5	124	7
Collision with worker or sharp	142	5	10	5	43	4	89	5
Sharps injury prevention mechanism not activated	76	3	9	5	28	3	39	2
Recap needle	65	2	<5	--	<25	--	40	2
Device malfunction	27	1	5	3	10	1	12	1
Other / Unknown / Nonclassifiable	69	2	<5	--	<25	--	46	3
During or after disposal of item	345	12	22	11	135	14	188	11
During sharps disposal	170	6	11	6	62	6	97	6
Improper Disposal	163	6	9	5	69	7	85	5
Collision with worker or sharp	8	<1	<5	--	<5	--	5	<1
Device malfunction	<5	--	0	0	<5	--	<5	--
Other / Unknown / Nonclassifiable	<5	--	0	0	<5	--	<5	--
Unknown / Not answered / Nonclassifiable	134	5	6	3	62	6	66	4
Total	2,908	100	194	100	968	100	1,746	100

^AHospital size: small<100 licensed beds; medium 101-300 licensed beds; large >300 licensed beds

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 8b. Sharps injuries among hospital workers by when and how the injury occurred by hospital size, Massachusetts, 2017

	All Hospitals 92 hospitals		Hospital Size ^A					
			Small 29 hospitals		Medium 50 hospitals		Large 13 hospitals	
	N	%	N	%	N	%	N	%
Before use of the item	44	1	<5	--	21	2	<20	--
During use of the item	1,267	42	79	39	378	40	810	44
Suturing	342	11	12	6	87	9	243	13
Manipulate needle in patient	289	10	19	9	91	9	179	10
Patient moved and jarred device	238	8	19	9	88	9	131	7
Collision with worker or sharp	196	6	23	11	59	6	114	6
Access IV line	29	1	<5	--	<10	1	19	1
Handle/pass equipment	16	1	<5	--	<5	--	11	1
Device malfunction	7	<1	<5	--	<5	--	<10	--
Other	133	4	<5	--	<40	--	95	5
Unknown / Nonclassifiable	17	1	0	0	<5	--	<15	--
After use, before disposal	1,330	44	94	47	395	41	831	45
Handle/pass device	353	12	16	8	77	8	259	14
Activating injury protection mechanism	298	10	20	10	106	11	169	9
During clean-up	212	7	6	3	64	7	140	8
Collision with worker or sharp	130	4	8	4	25	3	96	5
Sharps injury prevention mechanism not activated	108	4	19	9	51	5	37	2
Recap needle	80	3	8	4	24	2	48	3
During sharps disposal	45	1	<5	--	<15	--	33	2
Improper disposal	45	1	6	3	18	2	19	1
Device malfunction	19	1	<10	--	10	1	<5	--
Patient moved and jarred device	7	<1	<5	--	<5	--	<5	--
Other	27	1	<5	--	<5	--	21	1
Unknown / Nonclassifiable	6	<1	0	0	<5	--	<5	--
During or after disposal of item	215	7	10	5	90	9	115	6
Improper Disposal	112	4	<5	--	<55	--	57	3
During sharps disposal	98	3	<10	--	38	44	<60	--
Other	5	<1	0	0	<5	--	<5	--
Unknown / Nonclassifiable	0	0	0	0	0	0	0	0
Unknown / Not answered / Nonclassifiable	154	5	14	7	72	8	68	3
Total	3,010	100	201	100	956	100	1,853	100

^AHospital size: small<100 licensed beds; medium 101-300 licensed beds; large >300 licensed beds

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 8c. Sharps injuries among hospital workers by when and how the injury occurred by hospital size, Massachusetts, 2018

	All Hospitals 90 hospitals		Hospital Size ^a					
			Small 27 hospitals		Medium 49 hospitals		Large 14 hospitals	
	N	%	N	%	N	%	N	%
Before use of the item	32	1	2	1	19	2	11	1
During use of the item	1,392	47	78	45	387	42	927	51
Suturing	372	13	22	13	82	9	268	15
Manipulate needle in patient	295	10	14	8	87	9	194	11
Patient moved and jarred device	229	8	15	9	101	11	113	6
Collision with worker or sharp	198	7	18	10	41	4	139	8
Access IV line	10	<1	<5	--	<5	--	5	<1
Handle/pass equipment	127	4	<5	--	<25	--	105	6
Device malfunction	11	<1	0	0	5	1	6	<1
Other	125	4	7	4	40	4	78	4
Unknown / Nonclassifiable	25	1	0	0	6	1	19	1
After use, before disposal	1,080	37	57	33	363	39	660	36
Handle/pass device	185	6	5	3	51	5	129	7
Activating injury protection mechanism	291	10	14	8	128	14	149	8
During clean-up	216	7	8	5	65	7	143	8
Collision with worker or sharp	126	4	6	3	35	4	85	5
Sharps injury prevention mechanism not activated	43	1	<5	--	24	3	<20	--
Recap needle	70	2	<5	--	<25	--	47	3
During sharps disposal	62	2	<5	--	<20	--	41	2
Improper disposal	10	<1	<5	--	<5	--	6	<1
Device malfunction	28	1	9	5	7	1	12	1
Patient moved and jarred device	<5	--	0	0	<5	--	<5	--
Other	38	4	5	3	6	1	27	1
Unknown / Nonclassifiable	<10	--	0	0	<10	--	<5	--
During or after disposal of item	297	10	28	16	104	11	165	9
Improper Disposal	148	5	10	6	55	6	83	5
During sharps disposal	122	4	17	10	42	5	63	3
Other	<30	--	<5	--	<10	--	<20	--
Unknown / Nonclassifiable	<5	--	<5	--	<5	--	<5	--
Unknown / Not answered / Nonclassifiable	136	5	10	6	58	6	68	4
Total	2,937	100	175	100	931	100	1,832	100

^aHospital size: small<100 licensed beds; medium 101-300 licensed beds; large >300 licensed beds

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 9a. Sharps injuries involving select devices without sharps injury prevention features but for which SESIPs are widely available, by when the injury occurred, Massachusetts hospital workers, 2016

Device	Total		When the Injury Occurred									
			Before use use		During use		After use, Before Disposal*		During or after Disposal*		Unknown/ Non-classifiable	
	N	%	N	%	N	%	N	%	N	%	N	%
Hypodermic Needle/Syringe	187	100	<5	--	49	26	103	55	27	14	<10	--
IV Stylet	42	100	<5	--	18	43	16	38	<10	--	<5	--
Vacuum Tube Collection Set	<20	--	0	0	<5	--	<10	--	8	50	0	0
Winged-Steel Needle	<5	--	0	0	<5	--	0	0	<5	--	<5	--
Total	249	100	4	2	72	29	124	50	42	17	7	3

Table 9b. Sharps injuries involving select devices without sharps injury prevention features but for which SESIPs are widely available, by when the injury occurred, Massachusetts hospital workers, 2017

Device	Total		When the Injury Occurred									
			Before use use		During use		After use, Before Disposal*		During or after Disposal*		Unknown/ Non-classifiable	
	N	%	N	%	N	%	N	%	N	%	N	%
Hypodermic Needle/Syringe	182	100	<5	--	42	23	111	61	19	1	<10	--
IV Stylet	44	100	<5	--	27	61	11	25	<10	--	0	0
Vacuum Tube Collection Set	20	100	0	0	<10	--	<10	--	<5	--	<5	--
Winged-Steel Needle	7	100	0	0	<5	--	<5	--	0	0	0	0
Total	253	100	<5	--	80	32	134	53	27	1	<10	--

Table 9c. Sharps injuries involving select devices without sharps injury prevention features but for which SESIPs are widely available, by when the injury occurred, Massachusetts hospital workers, 2018

Device	Total		When the Injury Occurred									
			Before use use		During use		After use, Before Disposal*		During or after Disposal*		Unknown/ Non-classifiable	
	N	%	N	%	N	%	N	%	N	%	N	%
Hypodermic Needle/Syringe	170	100	<5	--	53	31	78	46	26	15	11	6
IV Stylet	33	100	0	0	15	45	<10	--	9	27	<5	--
Vacuum Tube Collection Set	12	100	0	0	<5	--	<5	--	<10	--	<5	--
Winged-Steel Needle	4	100	0	0	<5	--	<5	--	<5	--	0	0
Total	219	100	<5	--	71	32	89	41	41	19	16	7

*SESIPs offer protection during the period after use. Injuries presented in this table that occurred after use (n=130) can be considered "preventable adverse events" – events that could have been prevented with the use of SESIPs.

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 10a. Sharps injuries by occupation (detailed), Massachusetts hospital workers, 2016

	N	%		N	%
Physician	1,099	38	Support Services	123	4
Intern/Resident	411	14	Housekeeper	77	3
MD	307	11	Central supply	35	1
Fellow	103	4	Safety/security	6	<1
Surgeon	92	3	Maintenance	<5	--
Physician Assistant	90	3	Attendant/orderly	<5	--
Medical Student	56	2	Other ancillary staff	<5	--
Anesthesiologist	33	1			
Radiologist	7	<1	Other Medical Staff	72	2
			Medical assistant	60	2
Nurse	1,092	38	Dental student	<10	--
RN or LPN	964	33	Dentist	<5	--
Nurse assistant	34	1	Dental assistant/tech	<5	--
Nursing practitioner	31	1	Other medical staff	<5	--
Patient care technician	22	1			
Nursing student	19	1			
Nurse anesthetist	15	1			
Nurse midwife	<5	--	Other	56	2
Home health aide	<5	--	Researcher	23	1
			Pharmacist	<5	--
Technician	462	16	Counselor/social worker	<5	--
OR/Surgical technician	179	6	EMT/paramedic	<5	--
Phlebotomist	107	4	Clerical/administrative	<5	--
Clinical lab technician	60	2	Dietician	<5	--
Radiologic technician	35	1	Law enforcement officer	<5	--
Respiratory therapist/ Tech	20	1	Other student	20	1
Hemodialysis technician	<5	--	Other	<5	--
Morgue technician	<5	--			
Other technician	57	2			
			Total	2,908	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 10b. Sharps injuries by occupation (detailed), Massachusetts hospital workers, 2017

	N	%		N	%
Physician	1,160	39	Support Services	129	4
Intern/Resident	459	15	Housekeeper	66	2
MD	266	9	Central supply	50	2
Surgeon	126	4	Safety/security	5	<1
Fellow	119	4	Attendant/orderly	<5	--
Physician Assistant	102	3	Maintenance	<5	--
Medical Student	37	1	Other ancillary staff	<5	--
Anesthesiologist	36	1			
Radiologist	15	<1	Other Medical Staff	108	4
			Medical assistant	89	3
Nurse	1,071	36	Dental assistant/tech	7	<1
RN or LPN	944	31	Dentist	6	<1
Nurse assistant	40	1	Dental hygienist	<5	--
Patient care technician	37	1	Other medical staff	<5	--
Nursing practitioner	25	1			
Nurse anesthetist	8	<1			
Nursing student	6	<1			
Nurse midwife	10	<1	Other	63	2
Home health aide	<5	--	Researcher	14	<1
			Pharmacist	7	<1
Technician	479	16	EMT/paramedic	<5	--
OR/Surgical technician	215	7	Clerical/administrative	<5	--
Phlebotomist	113	4	Counselor/social worker	<5	--
Clinical lab technician	33	1	Other student	32	1
Radiologic technician	32	1	Other	<5	--
Respiratory therapist/ Tech	19	1			
Other technician	67	2			
			Total	3,010	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 10c. Sharps injuries by occupation (detailed), Massachusetts hospital workers, 2018

	N	%		N	%
Physician	1,046	36	Support Services	125	4
Intern/Resident	432	15	Housekeeper	62	2
MD	238	8	Central supply	54	2
Fellow	112	4	Safety/security	6	<1
Surgeon	88	3	Attendant/orderly	<5	--
Physician Assistant	88	3	Maintenance	<5	--
Medical Student	45	2	Other ancillary staff	<5	--
Anesthesiologist	33	1			
Radiologist	10	<1	Other Medical Staff	104	4
			Medical assistant	73	2
Nurse	1,111	38	Dental assistant/tech	7	<1
RN or LPN	1,006	34	Dentist	<5	--
Nurse assistant	32	1	Dental hygienist	<5	--
Nursing practitioner	27	1	Home health aide	0	0
Patient care technician	17	1	Other medical staff	17	1
Nursing student	13	<1	Physical therapist	<5	--
Nurse anesthetist	11	<1			
Nurse midwife	5	<1	Other	76	3
			Researcher	20	1
Technician	464	16	Pharmacist	5	<1
OR/Surgical technician	212	7	EMT/paramedic	<5	--
Phlebotomist	123	4	Clerical/administrative	<5	--
Clinical lab technician	38	1	Counselor/social worker	5	<1
Radiologic technician	27	1	Other student	21	1
Respiratory therapist/ Tech	14	<1	Other	20	1
Other technician	32	1			
Anesthesia technician	11	<1	Unknown/Not Answered	9	<1
Emergency department technician	7	<1			
			Total	2,938	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 11a. Sharps injuries by department (detailed), Massachusetts hospital workers, 2016

	N	%		N	%
Operating and Procedure Rooms	1,298	45	Laboratory	117	4
Operating room	980	34	Histology/pathology	40	1
Labor and delivery	88	3	Morgue/autopsy room	11	<1
Radiology	82	3	Microbiology	7	<1
Cardiac catheterization laboratory	54	2	Blood bank	<5	--
Phlebotomy room	32	1	Clinical chemistry	<5	--
Hematology/oncology	18	1	Other laboratory	22	<1
Endoscopy/bronchoscopy/cystoscopy	17	1	Laboratory, unspecified	31	1
Dialysis	10	<1			
Other procedure room	8	<1	Other Areas	207	7
Procedure room, unspecified	9	<1	Central sterile supply	40	1
			Dermatology	28	1
Inpatient Units, other than ICU	592	20	Rehabilitation unit	28	1
Medical/surgical ward	528	18	Long term care	23	1
Obstetrics/gynecology	27	1	Exam room	20	1
Psychiatry ward	16	1	Hospital grounds	10	<1
Nursery	9	<1	Anesthesia	9	<1
Pediatrics	<10	--	Pain clinic	9	<1
Patient room, ward unspecified	<5	--	Employee health/infection control	<5	--
			Pharmacy	<5	--
Emergency Department	281	10	Laundry room	<5	--
			Ambulance	<5	--
Intensive Care Units	207	7	Other Location	30	1
Intensive care unit	180	6			
Post anesthesia care unit	27	1	Unknown/Not Answered	5	<1
Outpatient Areas	201	7			
Ambulatory care clinic	127	4			
Dental clinic	15	1			
Home health visit	10	<1			
Physician's office	9	<1			
Other outpatient areas	40	1			
			Total	2,908	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 11b. Sharps injuries by department (detailed), Massachusetts hospital workers, 2017

	N	%		N	%
Operating and Procedure Rooms	1,319	44	Laboratory	85	3
Operating room	995	33	Histology/pathology	26	1
Labor and delivery	107	4	Morgue/autopsy room	9	<1
Radiology	80	3	Blood bank	6	<1
Cardiac catheterization laboratory	47	2	Microbiology	<5	--
Hematology/oncology	29	1	Clinical chemistry	<5	--
Phlebotomy room	26	1	Other laboratory	20	<1
Endoscopy/bronchoscopy/cystoscopy	12	<1	Laboratory, unspecified	19	<1
Dialysis	<10	<1			
Other procedure room	12	<1	Other Areas	209	7
Procedure room, unspecified	<5	--	Central sterile supply	54	2
			Dermatology	35	1
Inpatient Units, other than ICU	626	21	Rehabilitation unit	27	1
Medical/surgical ward	547	18	Exam room	18	1
Obstetrics/gynecology	32	1	Long term care	11	<1
Psychiatry ward	20	1	Anesthesia	15	<1
Pediatrics	16	1	Pain clinic	7	<1
Nursery	6	<1	Hospital grounds	6	<1
Patient room, ward unspecified	5	<1	Detox unit	5	<1
			Pharmacy	<5	--
Emergency Department	283	9	Central trash area	<5	--
			Ambulance	<5	--
Intensive Care Units	217	7	Employee health/infection control	<5	--
Intensive care unit	192	6	Other Location	23	1
Post anesthesia care unit	25	1			
			Unknown/Not Answered	<5	--
Outpatient Areas	269	9			
Ambulatory care clinic	174	6			
Dental clinic	21	1			
Physician's office	18	1			
Home health visit	<15	--			
Other outpatient areas	41	1			
Community health center	<5	--			
			Total	3,010	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 11c. Sharps injuries by department (detailed), Massachusetts hospital workers, 2018

	N	%		N	%
Operating and Procedure Rooms	1,319	45	Laboratory	70	2
Operating room	1,008	34	Histology/pathology	28	1
Radiology	95	3	Morgue/autopsy room	<10	<1
Labor and delivery	75	3	Blood bank	<5	--
Phlebotomy room	45	2	Microbiology	8	<1
Cardiac catheterization laboratory	43	1	Other laboratory	15	<1
Hematology/oncology	26	1	Laboratory, unspecified	10	<1
Dialysis	11	<1			
Endoscopy/bronchoscopy/cystoscopy	9	<1	Other Areas	225	8
Other procedure room	<10	<1	Central sterile supply	55	2
Procedure room, unspecified	<5	--	Rehabilitation unit	31	1
			Dermatology	30	1
Inpatient Units, other than ICU	642	22	Exam room	30	1
Medical/surgical ward	547	19	Long term care	16	1
Obstetrics/gynecology	31	1	Anesthesia	12	<1
Psychiatry ward	24	1	Pain clinic	10	<1
Pediatrics	21	1	Pharmacy	5	<1
Nursery	7	<1	Detox unit	<5	--
Patient room, ward unspecified	7	<1	Hospital grounds	<5	--
Specific ward, type unknown	5	<1	Central trash area	<5	--
			Ambulance	<5	--
Emergency Department	276	9	Employee health/infection control	<5	--
			Laundry room	<5	--
Intensive Care Units	212	7	Other Location	22	1
Intensive care unit	193	7			
Post anesthesia care unit	19	1	Unknown/Not Answered	7	<1
Outpatient Areas	187	6			
Ambulatory care clinic	131	4			
Dental clinic	19	1			
Physician's office	14	<1			
Home health visit	<15	--			
Other outpatient areas	11	0			
Community health center	<5	--			
			Total	2,938	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 12a. Sharps injuries by device (detailed), Massachusetts hospital workers, 2016

	N	%		N	%
Hypodermic needles/syringe	938	32	Glass	28	1
Hypodermic needle attached to a disposable syringe	827	28	Specimen / Test / Vacuum tube	10	<1
Prefilled cartridge syringe	28	1	Medication ampule / Vial / IV bottle	7	<1
Unattached hypodermic needle	20	1	Slide	5	<5
Hypodermic Needle Attached to IV tubing	17	1	Pipette	<5	--
Hypodermic needle attached to a non-disposable syringe	11	<1	Capillary tube	<5	--
Hypodermic needle, unspecified	35	1	Other glass item	<5	--
Suture Needle	631	22	Dental Device or item	13	<1
Curved suture needle	490	17	Dental bur	<5	--
Straight suture needle	32	1	Scaler/curette	<5	--
Suture needle, unspecified	109	4	Dental explorer	<5	--
			Dental pick	<5	--
			Other dental device or item	<5	--
Other Hollow Bore Needles	310	11	Other	423	15
IV Stylet	157	5	Lancet	58	2
Huber Needle	48	2	Wire	49	2
Biopsy Needle	17	1	Electrode	47	2
Spinal or epidural needle	11	<1	Retractor	35	1
Intraosseous needle	6	<1	Scissors	30	1
Other type of hollow bore needle	18	1	Forceps	26	1
Hollow bore needle, unspecified	53	2	Bovie electrocautery device	20	1
			Cutting blade other than scalpel	18	1
Scalpel Blade	210	7	Pin	13	<1
			Drill bit	12	<1
Winged Steel Needle	188	6	Bone cutter	11	<1
Winged Steel needle attached to a vacuum tube collection holder	128	4	Trocar	7	<1
Winged Steele Needle	54	2	Staple	6	<1
Winged Steele Needle attached to IV tubing	6	<1	Other needle	10	<1
			Other Type of Sharp Object	67	2
			Needle, unspecified	14	<1
Vacuum Tube Collection Holder/Needle	114	4	Unknown/Not Answered	53	2
Vacuum tube collection holder/needle	83	3			
Phlebotomy needle (other than winged steel needle)	31	1			
			Total	2,908	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 12b. Sharps injuries by device (detailed), Massachusetts hospital workers, 2017

	N	%		N	%
Hypodermic needles/syringe	1,018	34	Glass	32	1
Hypodermic needle attached to a disposable syringe	841	28	Specimen / Test / Vacuum tube	13	<1
Prefilled cartridge syringe	37	1	Medication ampule / Vial / IV bottle	8	<1
Unattached hypodermic needle	13	<1	Slide	<5	--
Hypodermic Needle Attached to IV Tubing	12	<1	Pipette	<5	--
Hypodermic needle attached to a non-disposable syringe	9	<1	Capillary tube	<5	--
Hypodermic needle, unspecified	106	4	Other glass item	6	--
Suture Needle	681	23	Dental Device or item	16	1
Curved suture needle	526	17	Dental bur	5	<1
Straight suture needle	34	1	Scaler/curette	<5	--
Suture needle, unspecified	121	4	Dental explorer	<5	--
			Dental pick	<5	--
			Other dental device or item	5	<1
Other Hollow Bore Needles	294	10	Other	393	13
IV Stylet	143	5	Lancet	53	2
Huber Needle	46	1	Wire	51	2
Spinal or epidural needle	32	1	Retractor	46	2
Biopsy Needle	27	1	Scissors	39	1
Intraosseous needle	5	<1	Forceps	27	1
Other type of hollow bore needle	9	<1	Electrode	22	1
Hollow bore needle, unspecified	32	1	Bovie electrocautery device	15	<1
			Bone cutter	14	<1
Scalpel Blade	220	7	Trocar	14	<1
			Drill bit	13	<1
Winged Steel Needle	212	7	Pin	12	<1
Winged Steel needle attached to a vacuum tube collection holder	128	4	Razor	11	<1
Winged Steele Needle	77	3	Staple	8	<1
Winged Steele Needle attached to IV tubing	7	0	Tenaculum	7	<1
			Cutting blade other than scalpel	5	<1
Vacuum Tube Collection Holder/Needle	91	3	Rod	<5	--
Vacuum tube collection holder/needle	58	2	Other needle	11	<1
Phlebotomy needle (other than steel needle)	33	1	Other Type of Sharp Object	41	1
			Needle, unspecified	<5	--
			Unknown/Not Answered	53	2
			Total	3,010	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 12c. Sharps injuries by device (detailed), Massachusetts hospital workers, 2018

	N	%		N	%
Hypodermic needles/syringe	994	34	Glass	21	1
Hypodermic needle attached to a disposable syringe	876	30	Medication ampule / Vial / IV Specimen / Test / Vacuum tube	9	--
Prefilled cartridge syringe	52	2	Slide	<5	--
Unattached hypodermic needle	30	1	Pipette	<5	--
Hypodermic Needle Attached to IV tubing	16	1	Capillary tube	<5	--
Hypodermic needle attached to a non-disposable syringe	9	<1	Other glass item	<5	--
Hypodermic needle, unspecified	11	<1	Dental Device or item	10	0
Suture Needle	640	22	Dental bur	5	<1
Curved suture needle	562	19	Scaler/curette	<5	--
Straight suture needle	36	1	Dental pick	<5	--
Suture needle, unspecified	42	1	Other dental device or item	<5	--
Other Hollow Bore Needles	289	10	Other	400	14
IV Stylet	133	5	Wire	52	2
Huber Needle	56	2	Retractor	42	1
Biopsy Needle	31	1	Electrode	42	1
Spinal or epidural needle	25	1	Lancet	34	1
Other type of hollow bore needle	17	1	Scissors	32	1
Hollow bore needle, unspecified	27	1	Forceps	24	1
Scalpel Blade	195	7	Pin	16	1
Winged Steel Needle	236	8	Bone cutter	16	1
Winged Steel needle attached to a vacuum tube collection holder	145	5	Drill bit	11	<1
Winged Steele Needle	86	3	Bovie electrocautery device	9	<1
Winged Steele Needle attached to IV tubing	5	<1	Trocar	8	<1
Vacuum Tube Collection Holder/Needle	85	3	Cutting blade other than scalpel	8	<1
Vacuum tube collection holder/needle	65	2	Razor	7	<1
Phlebotomy needle (other than steel needle)	20	1	Staple	7	<1
			Tenaculum	6	<1
			Other needle	16	1
			Other Type of Sharp Object	57	2
			Needle, unspecified	13	<1
			Unknown/Not Answered	68	2
			Total	2,938	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 13a. Sharps injuries by procedure (detailed), Massachusetts hospital workers, 2016

	N	%		N	%
Injection	795	27	Making the Incision	291	10
Subcutaneous injection	630	22	Making the incision	221	8
Intramuscular injection	110	4	Cauterization	15	1
Epidural/spinal anesthesia	20	1	Other surgical procedure	26	1
Other injection	16	1	Surgical procedure, unspecified	29	1
Injection, unspecified	19	1			
			To Obtain Body Fluid or Tissue Sample	48	2
Suturing	637	22			
Suturing	632	22	Dental Procedures	15	1
Suture removal	5	<1	Dental drilling	<5	--
			Oral surgery	<5	--
Blood Procedures	369	13	Other dental	5	<1
Percutaneous venous puncture	258	9	Dental procedure, unspecified	<5	--
Finger stick / heel stick	52	2			
Percutaneous arterial puncture	32	1	Other	263	9
Dialysis / AV fistula site	13	<1	To obtain lab specimens	42	1
Draw blood from umbilical vessel	<5	--	Transferring blood/body fluid to another container	17	1
Other blood procedure	6	<1	Drilling	16	1
Blood procedure, unspecified	<10	--	Shaving	10	<1
			Processing lab specimens	<5	--
Line Procedures	308	11	Other procedure	174	6
To insert a peripheral IV line or set up a heparin lock	108	4	Procedure, unspecified	<5	--
To insert a central IV line	44	2			
Draw blood from central or peripheral IV line or port	37	1	Unknown/Not answered	182	6
To insert an arterial line	28	1			
Other injection into IV site/port	26	1			
Draw blood from arterial line	16	1			
To flush heparin/saline	12	<1			
To connect IV line	<5	--			
Other line procedure	28	1			
Line procedure, unspecified	<10	--			
			Total	2,908	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 13b. Sharps injuries by procedure (detailed), Massachusetts hospital workers, 2017

	N	%		N	%
Injection	844	28	Making the Incision	326	11
Subcutaneous injection	636	21	Making the incision	220	7
Intramuscular injection	149	5	Cauterization	5	<1
Epidural/spinal anesthesia	30	1	Other surgical procedure	43	1
Other injection	14	<1	Surgical procedure, unspecified	58	2
Injection, unspecified	15	<1			
Suturing	657	22	To Obtain Body Fluid or Tissue Sample	80	3
Suturing	649	22			
Suture removal	8	<1	Dental Procedures	21	1
Blood Procedures	383	13	Oral surgery	8	<1
Percutaneous venous puncture	283	9	Dental drilling	<5	--
Finger stick / heel stick	40	1	Periodontal surgery	<5	--
Percutaneous arterial puncture	40	1	Other dental	<5	--
Dialysis / AV fistula site	6	<1	Dental procedure, unspecified	<5	--
Draw blood from umbilical vessel	<5	--			
Blood procedure, unspecified	<15	--	Other	307	10
Line Procedures	226	8	To obtain lab specimens	31	1
To insert a peripheral IV line or set up a heparin lock	79	3	Drilling	12	<1
Draw blood from central or peripheral IV line or port	31	1	Transferring blood/body fluid to another container	11	<1
To insert a central IV line	27	1	Shaving	<10	--
To insert an arterial line	21	1	Other procedure	245	8
Other injection into IV site/port	15	<1	Procedure, unspecified	<5	--
To flush heparin/saline	15	<1			
Draw blood from arterial line	<5	--	Unknown/Not answered	161	5
To connect IV line	<5	--			
Other line procedure	25	1			
Line procedure, unspecified	9	<1			
			Total	3,010	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Table 13c. Sharps injuries by procedure (detailed), Massachusetts hospital workers, 2018

	N	%		N	%
Injection	871	30	Making the Incision	314	11
Subcutaneous injection	639	22	Making the incision	204	7
Intramuscular injection	178	6	Cauterization	7	<1
Epidural/spinal anesthesia	<30	--	Other surgical procedure	50	2
Other injection	<5	--	Surgical procedure, unspecified	53	2
Injection, unspecified	26	1			
Suturing	640	22	To Obtain Body Fluid or Tissue Sample	53	2
Suturing	634	22			
Suture removal	6	<1	Dental Procedures	15	1
Blood Procedures	370	13	Oral surgery	6	<1
Percutaneous venous puncture	287	10	Dental drilling	<5	--
Percutaneous arterial puncture	32	1	Periodontal surgery	<5	--
Finger stick / heel stick	30	1	Other dental	<5	--
Dialysis / AV fistula site	10	<1	Dental procedure, unspecified	<5	--
Draw blood from umbilical vessel	<10	--			
Blood procedure, unspecified	<5	--	Other	223	8
Line Procedures	281	10	To obtain lab specimens	38	1
To insert a peripheral IV line or set up a heparin lock	100	3	Drilling	15	1
Draw blood from central or peripheral IV line or port	43	1	Transferring blood/body fluid to another container	16	1
To insert a central IV line	37	1	Shaving	<5	--
To insert an arterial line	19	1	Other procedure	131	4
Draw blood from arterial line	13	<1	Procedure, unspecified	<25	--
To connect IV line	<10	--			
To flush heparin/saline	<5	--	Unknown/Not answered	171	6
Other injection into IV site/port	28	1			
Other line procedure	32	1			
			Total	2,938	100

For all tables presented, percentages may not total 100% due to rounding. Counts less than 5 have been suppressed. Percentages not calculated for counts that have been suppressed.

Resources

MDPH-OHSP.....www.mass.gov/service-details/needlesticks-and-other-sharps-injuries-among-healthcare-workers
 CDC Sharps Safety for Healthcare Settings: Workbook and Teaching Tools.....www.cdc.gov/sharpsafety
 NIOSH Preventing Needlesticks and Sharps Injuries.....www.cdc.gov/niosh/topics/bbp/sharps.html
 OSHA Bloodborne Pathogens and Needlestick Prevention.....www.osha.gov/SLTC/bloodbornepathogens

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