

## SUPPLEMENTARY MATERIAL

**Appendix Table 1** Circumstance of sharp injuries

	Medical (%)	doctors (%)	Nurses (%)	Medical Technicians (%)	Sanitation workers (%)	Students (%)	Other workers (%)	Total (%)
Recapping of used needles	414 (9.4%)		1244 (11.4%)	35 (8.1%)	19 (2.2%)	237 (16.3%)	13 (4.2%)	1962 (10.7%)
Drawing arterial blood	68 (1.5%)		122 (1.1%)	2 (0.5%)	1 (0.1%)	16 (1.1%)	4 (1.3%)	213 (1.2%)
Intravenous injection	91 (2.1%)		648 (6.0%)	3 (0.7%)	6 (0.7%)	83 (5.7%)	9 (2.9%)	840 (4.6%)
Intramuscular injection	59 (1.3%)		287 (2.6%)	2 (0.5%)	3 (0.3%)	37 (2.5%)	0 (0.0%)	388 (2.1%)
Drawing venous blood	35 (0.8%)		508 (4.7%)	98 (22.6%)	4 (0.5%)	62 (4.3%)	9 (2.9%)	716 (3.9%)
Preparing solution	70 (1.6%)		1328 (12.2%)	0 (0.0%)	5 (0.6%)	178 (12.3%)	13 (4.2%)	1594 (8.7%)
Discard needle into container	128 (2.9%)		1219 (11.2%)	20 (4.6%)	58 (6.6%)	110 (7.6%)	5 (1.6%)	1540 (8.4%)
Removing arteriovenous needle from patient	53 (1.2%)		1723 (15.9%)	12 (2.8%)	11 (1.3%)	253 (17.4%)	6 (1.9%)	2058 (11.2%)
Cuts by medical instrument during rescuing patient	149 (3.9%)		190 (1.8%)	1 (0.2%)	0 (0.0%)	12 (0.8%)	4 (1.3%)	356 (1.9%)
Scalpel cuts	263 (6.0%)		66 (0.6%)	21 (4.8%)	4 (0.5%)	20 (1.4%)	2 (0.6%)	376 (2.0%)
Surgical needle stab	1720 (39.0%)		394 (3.6%)	0 (0.0%)	1 (0.1%)	86 (5.9%)	12 (3.8%)	2213 (12.1%)

Disposal of surgical instruments	177 (4.0%)	382 (3.5%)	4 (0.9%)	54 (6.2%)	27 (1.9%)	35 (11.2%)	679 (3.7%)
Handling of medical waste	113 (2.6%)	758 (7.0%)	21 (4.8%)	624 (71.5%)	102 (7.0%)	28 (9.0%)	1646 (9.0%)
Transmission of medical apparatus and instrument by hands	333 (7.6%)	269 (2.5%)	9 (2.1%)	5 (0.6%)	37 (2.5%)	2 (0.6%)	655 (3.6%)
Dispensing medications	97 (2.2%)	859 (7.9%)	4 (0.9%)	0 (0.0%)	76 (5.2%)	16 (5.1%)	1052 (5.7%)
Others	638 (14.5%)	870 (8.0%)	201 (46.4%)	78 (8.9%)	115 (7.9%)	154 (49.4%)	2056 (11.2%)

**Appendix** Table 2 Sharp device involved in sharp injuries accidents

	Medical doctor	Nurse	Medical Technician	Sanitation workers	Students	Other workers	Total
Scalp wire needle	107 (2.4%)	3530 (32.5%)	12 (2.8%)	203 (23.3%)	383 (26.4%)	35 (11.2%)	4270 (23.3%)
Single-use syringe needle	1137 (25.8%)	4213 (38.8%)	95 (21.9%)	285 (32.6%)	646 (44.5%)	73 (23.4%)	6449 (35.2%)
Glass syringe needle	15 (0.3%)	52 (0.5%)	3 (0.7%)	16 (1.8%)	9 (0.6%)	1 (0.3%)	96 (0.5%)
Venous catheter introducer	75 (1.7%)	455 (4.2%)	1 (0.2%)	38 (4.4%)	69 (4.8%)	5 (1.6%)	643 (3.5%)
Arterial catheter introducer	23 (0.5%)	30 (0.3%)	1 (0.2%)	10 (1.1%)	7 (0.5%)	0 (0.0%)	71 (0.4%)
Prefilled syringe needle	10 (0.2%)	51 (0.5%)	0 (0.0%)	7 (0.8%)	4 (0.3%)	1 (0.3%)	73 (0.4%)
Tapping needle	99 (2.2%)	44 (0.4%)	2 (0.5%)	18 (2.1%)	19 (1.3%)	5 (1.6%)	187 (1.0%)
Finger lancet	8 (0.2%)	72 (0.7%)	43 (9.9%)	8 (0.9%)	8 (0.6%)	2 (0.6%)	141 (0.8%)
Suture needle	17 (0.4%)	49 (0.5%)	3 (0.7%)	7 (0.8%)	3 (0.2%)	3 (1.0%)	82 (0.4%)
Blood glucose lancet	20 (0.5%)	99 (0.9%)	0 (0.0%)	5 (0.6%)	14 (1.0%)	1 (0.3%)	139 (0.8%)
Butterfly / winged needle	6 (0.1%)	30 (0.3%)	3 (0.7%)	11 (1.3%)	5 (0.3%)	1 (0.3%)	56 (0.3%)
Arterial blood collection needle	31 (0.7%)	83 (0.8%)	1 (0.2%)	6 (0.7%)	8 (0.6%)	0 (0.0%)	129 (0.7%)
Catheter needle	21 (0.5%)	33 (0.3%)	1 (0.2%)	2 (0.2%)	4 (0.3%)	0 (0.0%)	61 (0.3%)
Vacuum tube blood collection	10 (0.2%)	326 (3.0%)	49 (11.3%)	8 (0.9%)	33 (2.3%)	5 (1.6%)	431 (2.3%)

needle							
Scalpel blade	268 (6.1%)	148 (1.4%)	17 (3.9%)	16 (1.8%)	23 (1.6%)	3 (1.0%)	475 (2.6%)
Razor	4 (0.1%)	42 (0.4%)	0 (0.0%)	4 (0.5%)	3 (0.2%)	0 (0.0%)	53 (0.3%)
Scissor	31 (0.7%)	90 (0.8%)	6 (1.4%)	21 (2.4%)	8 (0.6%)	16 (5.1%)	172 (0.9%)
Electrotome	29 (0.7%)	12 (0.1%)	0 (0.0%)	1 (0.1%)	0 (0.0%)	1 (0.3%)	43 (0.2%)
Surgical suture needle	1804 (40.9%)	609 (5.6%)	1 (0.2%)	18 (2.1%)	103 (7.1%)	35 (11.2%)	2570 (14.0%)
Medullary cavity amplifier	78 (1.8%)	69 (0.6%)	3 (0.7%)	1 (0.1%)	9 (0.6%)	0 (0.0%)	160 (0.9%)
Microtome knife	38 (0.9%)	21 (0.2%)	46 (10.6%)	3 (0.3%)	2 (0.1%)	11 (3.5%)	121 (0.7%)
Bone cutter	7 (0.2%)	2 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	9 (0.0%)
Bone knife	10 (0.2%)	3 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	13 (0.1%)
Reamed needle	29 (0.7%)	17 (0.2%)	0 (0.0%)	3 (0.3%)	1 (0.1%)	0 (0.0%)	50 (0.3%)
Glass slide	52 (1.2%)	168 (1.5%)	25 (5.8%)	76 (8.7%)	20 (1.4%)	5 (1.6%)	346 (1.9%)
Glass dropper / tube	14 (0.3%)	16 (0.1%)	23 (5.3%)	25 (2.9%)	2 (0.1%)	4 (1.3%)	84 (0.5%)
Others	465 (10.5%)	603 (5.5%)	98 (22.6%)	81 (9.3%)	68 (4.7%)	105 (33.7%)	1420 (7.7%)