

Characteristics of Persons and Jobs With Needlestick Injuries in A National Data Set; Emphasizing Results Outside the Healthcare Industry

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Method

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- Occupational Safety and Health Act (OSH Act) requires most private employers with 11 or more employees to keep logs of occupational injuries and illnesses.
- Bureau of Labor Statistics (BLS) annually surveys a scientifically selected probability sample of these establishments (roughly 250,000 firms in 1992 and 183,700 in 2003).
- BLS assembles the data and publishes results in its annual Survey of Occupational Injuries and Illnesses.
- Needlestick study analyzed subset of data from 1992 through 2003 for most categories.
- Information on characteristics of injuries and demographics was available only on cases involving days-away-from-work, a subset that typically comprised one-third of all cases.

Method Cont.

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- Key variable was BLS source code “needles and syringes” which included both clean and contaminated needles, from which numbers of contaminated injuries could not be estimated.
- Employment data were drawn from different BLS surveys, the Occupational Employment Statistics program for over 800 occupations and the Current Population Survey.
- This study used employment data from only the Health Services industry.
- Because of large samples most differences were statistically significant.

Results

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- On average, over 12 years, there were 903 needlestick cases out of an average of 1,830,155 days-away-from-work cases for all recordable BLS injuries and illnesses.
- Needlesticks comprised 0.05% of all BLS cases.
- No statistically significant time-trend was apparent for either numbers of needlesticks or the ratio of needlesticks to employment in Health Services.

Results Cont.

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- Table 2 ranked occupations with the greatest number of cases.
- Information was available for 43 occupations
- Table 2 contained information on only 23 occupations for which the contribution to all needlesticks was 0.5% or more.
- There was breadth in the non-healthcare occupations including farm workers, laborers, and garbage collectors.

Table 2 Needlesticks by Occupation

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Occupation			Needlesticks	
	Code #	Description	Number of cases combining yrs 1992-2002	Percent contribution of this occupation to all cases (95% CI)
Non-Health Care Workers				
1.	479	Farm workers	270	3.33% (2.94%-3.72%)
2.	021	Managers, service occupations, n.e.c.	81	1.00% (0.78%-1.22%)
3.	475	Managers, farms, exc. horticultural	68	0.84% (0.64%-1.04%)
4.	518	Industrial machinery repairers	66	0.81% (0.64%-1.01%)
5.	889	Laborers, non-construction	63	0.78% (0.61%-0.97%)
6.	628	Supervisors, production occupations	52	0.64% (0.47%-0.81%)
7.	376	Investigators and adjusters, exc. insurance	51	0.63% (0.46%-0.80%)

Results Cont.

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- Data from 20 additional occupations with less than 0.5% contribution to all needlesticks included: groundskeepers, animal caretakers textile sewing machine operators, garbage collectors, purchasing agents, truck drivers, secretaries, stock handlers, hairdressers, cashiers, baggage porters and forestry scientists.

Table 4 Industry

	Needlestick	All other BLS injuries*
Category	Percent of cases for 11 years 1992-2002, (95% CI)	Percent of cases for 11 years 1992-2002, (95% CI)
Agriculture	5.13% (4.68%-5.57%)	2.13% (2.12%-2.13%)
Mining	0% (0%-0%)	0.87% (0.86%-0.87%)
Construction	0.16% (0.08%-0.24%)	10.23% (10.22%-10.25%)
Manufacturing	3.04% (2.69%-3.39%)	24.39% (24.38%-24.41%)
Transportation and Public Utilities	2.38% (2.07%-2.68%)	11.34% (11.32%-11.35%)
Wholesale Trade	1.58% (1.33%-1.84%)	7.56% (7.55%-7.57%)
Retail Trade	3.78% (3.39%-4.16%)	17.49% (17.47%-17.50%)
Finance, Insurance, Real Estate	3.63% (3.25%-4.01%)	2.41% (2.41%-2.42%)
Service	80.31% (79.51%-81.12%)	23.59% (23.57%-23.61%)

*All Bonferroni p-values comparing needlesticks with all other BLS injuries were <0.0001.

Discussion

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- Most results were consistent with expectations and literature.
- The great majority of cases were in the Service industry.

Discussion Cont.

- Unique occupational findings related to non-healthcare workers seldom mentioned in the literature: laborers, garbage collectors, secretaries, stock handlers, clerks, food preparers, cashiers and farm workers.
- This study found 20% of needlesticks occurred outside the Service industry.
- An estimated 600,000 to 800,000 needlesticks occurred within the Services industry each year for an annual cost of \$188 million.
- This study suggested that nationwide, 25% (=20%/80%) or roughly 150,000 to 200,000 needlesticks occurred outside Services for a cost of \$38 million.

Discussion Cont.

- Given new needlestick laws and new safety syringes from 1992 to 2003, a downward trend in injuries or ratios of injuries to employment was expected.
- The fact that neither were found was attributed to sampling variation and other limitations and underscored the importance of combining many years of data.
- However, the only other study with national data found a 15%, but statistically insignificant, increase in work-related pathogens exposures from 1998 to 2000.

Discussion Cont.

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- There were limitations.
- The majority of needlesticks likely did not require one or more days of lost-work-time, and were therefore unavailable.
- BLS acknowledged the exclusion of the following groups: self-employed individuals; farms with fewer than 11 employees; all private household workers; federal, state and local government workers.
- These were significant exclusions. During 1992 - 2003, 15% of employed people were federal, state or local government workers and 7% were self-employed.
- This study's results on physicians might be due to the fact that 57% of physicians were self-employed.
- This study counted from 674 to 1532 annual needlesticks during 1992-2003 whereas the CDC estimated annual needlesticks were 600,000 to 800,000.

Discussion Cont.

- Limitations above are important.
- But the Annual Survey is a national database with consistent, on-going, data-collection techniques covering many years.
- If the biases that affected these data were present in the demographic and job categories considered, then this study was justified in comparing statistics across these same categories.
- Moreover, the BLS data have been used in highly regarded medical studies.
- Finally, the BLS data are widely used in social science research particularly in analyzing relative magnitudes across demographic and occupational categories.

Conclusion

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- BLS Annual Survey of Occupational Injuries and Illness has useful national data on needlesticks; worthy of additional analyses
- Provides reasonable estimates: nurses, aides, janitors at greatest risks.
- Roughly 20% of BLS cases outside Health Services.
- Cost outside Health Services = \$38million/year.
- Some exposed occupations outside Health Services: Laborers, garbage collectors, grounds keepers, truck drivers, secretaries, stock handlers, clerks, food preparers, cashiers and farm workers.