

Reduction of Sharps Injuries with a Reusable Sharps Containment Safety Device – a 28 Hospital Study.

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Background/Objectives: Sharps containers are associated with sharps injuries (SI) but are seldom examined in intervention studies. To continue the health group's efforts to reduce SI, the impact of a reusable sharps collector (RSC), reported to decrease Container-associated SI (CASI) and other After-procedure SI, was examined.

Methods: The RSC (Sharpsmart, Daniels Sharpsmart Inc) was adopted by 14 of the health-group's hospitals (**Grp1**) between Dec 2005 and Feb 2007. All participated in a Before-After intervention study concluding in Feb 2008. All hospitals currently used sharps safety devices and no new hospital-wide SI reduction-strategy occurred during the study period. Employee descriptions of their SI were obtained retrospectively from each hospital's SI Log for 12 months prior and 12 months after adoption of the device.

SI were categorized as: During-procedure; After-procedure but Before Disposal; CASI; and Inappropriate Disposal. CASI comprised: pierced container; protruding sharp; during deposit; bounce out; or sharp left on container. Categories of SI were enumerated per 1000 full time equivalent staff (FTE).

In addition, a contemporaneous cohort study was conducted by examining SI rates per 1000 FTE for 2006 & 2007 from 14 similar-sized hospitals not using the RSC (**Grp2**) to determine if elapsed time or other variables may have influenced Grp1 hospital results.

Prior to introduction of the RSC, all hospitals used disposable sharps containers (Covidien, BD) with the exception of one Grp2 hospital.

Results were statistically analyzed using Chi² analysis; Risk Ratios and Confidence limits determined; and p ≤0.05 regarded as significant.

Results: Prior to the study, no significant difference was observed in Total SI or CASI between Grp1 or Grp2 hospitals. FTE in Grp1 hospitals was 6% and 4% higher than Grp2 hospitals in yr 1 and 2 respectively.

Following adoption of the RSC in Grp1 hospitals, although During-procedure SI rose significantly, CASI and After-procedure SI fell significantly. Hospitals not using the RSC had no significant SI reduction. In Yr2, Grp1 hospitals had significantly less CASI and Total SI than Grp2 hospitals.

Table 1. Impact of the RSC on SI Rates per 1000FTE

	Grp1 Hospitals (RSC in Yr2)					Grp2 Hospitals (No RSC)	
	During Procedure	Container associated	Inappropriate Disposal	All SI After- procedure	Total SI	Container associated	Total SI
Yr 1:	11.8	2.9	2.1	13.9	25.7	2.8	28.0
Yr 2:	15.1	0.6	1.6	9.8	24.9	2.6	28.3
% Change	+28%	-81%	-23%	-30%	-3%	-7%	+1%
p value	0.004	<0.001	NS	<0.001	NS	NS	NS
RR	1.2	0.19	0.77	0.70	0.97	0.93	1.01
95% CL	1.08-1.52	0.10-0.36	0.48-1.21	0.59-0.85	0.86-1.10	0.63-1.37	0.90-1.14

Conclusions: The RSC was associated with significant SI reductions and deemed an effective SI-reduction strategy.