

Sharps injury reduction using a sharps container with enhanced Engineering: A 28 hospital non-randomized intervention and cohort study

Am J Infect Control 2010;38:799-805. <http://www.ajicjournal.org/> .

Terry Grimmond, FASM, BAgrSc, GdDipAdEd,^a Suzann Bylund, RN, CM, CPDM,^b Candace Anglea, RN, BSN, CIC,^c Lou Beeke, CWCP,^d Angela Callahan, RN, MSN,^e Erik Christiansen,^f Kelly Flewelling, CWCP,^g Kathleen McIntosh, RN,^h Kay Richter, RN, CIC,ⁱ Monica Vitale, RN, CNOR.^j

Background: The decrease in reported sharps injuries (SI) in the United States has markedly slowed. Additional devices and strategies need investigation. Sharps containers are associated with SI, and more than 90% of these injuries are related to container design. This study addresses the hypothesis that containers with enhanced engineering can reduce SI.

Methods: In a before/after intervention study from 2006 to 2008, we examined the impact of conversion to a sharps container with enhanced engineering (the Device) on SI categories in 14 Ascension Health hospitals (study group). The Device's safety features included large horizontal aperture, sensitive counterbalanced door, large atrium, and passive overfill prevention. Study group results were also compared with a control cohort of 14 contemporaneous size-matched, Ascension Health hospitals (control group).

Results: The Device was associated with significant reductions in after-procedure (30%), disposal-related (57%), and container-associated (81%) SI in the study group. No significant reductions occurred in container-associated sharps injuries in the control group. Hospitals using the Device had significantly fewer total SI than control hospitals.

Conclusion: Enhanced aperture design can significantly reduce container-associated sharps injuries. Other factors contributing to reduced injuries may include 1-hand deposit, safe closure, hand restriction, and preassembly. These results, from a country where sharps safety devices are widespread, are particularly applicable to countries where safety devices are not extensively used.

Key Words: Sharps injury; needlestick injury; sharps container; sharps injury reduction; safety devices; engineered controls; reusable.

From Grimmond and Associates, Hamilton, New Zealand^a; Ascension Health, St. Louis, MO^b; Saint Thomas Hospital, Nashville, TN^c; Borgess Medical Center Kalamazoo, MI^d; Mount St. Mary's Hospital Lewiston, NY^e; Carondelet Health Kansas City, MO^f; St. Mary's Hospital Amsterdam, NY^g; St Vincents Hospital Bridgeport, CT^h; St Vincents Hospital, Indianapolis, INⁱ; and The Heart Center, Indianapolis, IN.^j

Address correspondence to Terry Grimmond, Grimmond and Associates, 3 Tarbett Rd Hillcrest, Hamilton, New Zealand. E: tg@gandassoc.com.

Presented at the 36th APIC Annual Educational Conference and International Meeting, June 7-11, 2009, Ft Lauderdale FL. (Presentation Number: 15-178)

Conflicts of interest: Terry Grimmond was retained by The Daniels Corporation to assist Ascension Health with the research models, data collation, and literature review. The remaining authors report no conflicts of interest.