Sharps and Bio-Medical Waste Disposal: Improving Environmental Impact and Cost

Joyce Kaine, RN
Surgery Center of Fairfield County

Element 1: Purpose
- Sharps container usage and bio-medical waste disposal are areas without any direct patient benefit but which carry both short and long-term ecological costs.
- The use of sharps containers and bio-medical waste was examined in an attempt to decrease cost and environmental impact.

Element 2: Benchmarks & Goals
- Although Occupational Safety and Health Administration guidelines clearly describe what is to be disposed of in sharps containers and bio-medical waste bags, staff are often unsure of these regulations.
- A goal was set for a reduction in sharps and bio-medical waste of at least 25% within 6 months after implementation of education and training.

Element 3: Data Collection Plan
- To determine whether sharps containers and bio-medical waste red bags are used appropriately, the quality committee studied what was actually placed into sharps containers and bio-medical waste bags in an operating and recovery room setting.
- Material placed into sharps containers and bio-medical waste bags were examined to identify potential inappropriate disposal.

Element 4: Evidence of Data Collection
- After the sharps container was examined, the highest percentage of non-sharps was found to be empty glass vials. Also noted was the inappropriate disposal of pharmaceutical waste.
- After the bio-medical waste bag was examined, the high content of gloves, paper products, I.V. bags and tubing with no visible bio-medical waste on them was noted and subsequently evaluated.

Element 5: Data Analysis
- Baseline performance: From 10/2017-10/2018, 319 boxes of sharps and bio-medical waste were disposed of by Stericycle, our waste disposal company.
- Performance goal: Reduction of sharps and bio-medical waste of at least 25%.

Element 6: Comparison of Current Performance to Performance Goal
- An in-service for the staff demonstrating proper disposal of medications, sharps and bio-medical waste was performed in December of 2018. Education included proper disposal of medications, sharps and bio-medical waste.
- Most empty medication bottles, vials, packaging and empty IV’s can be disposed of in the municipal trash with the exception of hazardous Resource Conservation and Recovery Act (RCRA) waste pharmaceuticals.

Element 7: Corrective Action
- Examples of RCRA medications are as follows:
  - Epinephrine (Adrenalin)
  - Naloxone
  - Mitomycin
  - Phenol
  - Influenza Vaccine
  - Humulin R Insulin
  - Silvadene Cream

*Please note: Marcaine and Lidocaine with Epinephrine are NOT considered RCRA medications because they are not the sole active ingredient in the product.

Element 8: Re-measurement
- Data from Stericycle was obtained for the months of February, March, and April of 2019. In these months, 43 boxes were picked up by Stericycle. The data indicates there was a 43.4% reduction in sharps and bio-medical waste generated from the facility.
- Case count was also taken into consideration for the same months in 2018 and 2019. The cases performed from February-April of 2018 were 1147. Cases completed in the same months in 2019 resulted in 1102, or a 4% case difference, which would not have affected waste disposal results significantly.
- Re-negotiation of the contract with Stericycle minus the purchase of Drug Buster medication disposal systems resulted in a savings of $1268.79 per month.

Element 9: Additional Corrective Action
- No additional corrective action initiated due to the goal set by the quality committee was a 25% reduction in waste. The data resulted in a 43.4% reduction, exceeding the committee’s goal.

Element 10: Communication of Findings
- This study is concluded and closed. Sharps and biomedical waste will be monitored on a continual basis through Stericycle reports, and will be revisited if trends indicate action needed.

Acknowledgements
- Special thanks to Joan Manzolilla, DON, for creating the idea for this study, Faith Kycia, CEO for allowing me to implement it and the staff, for their interest, dedication and encouragement.