

Working Towards a Green Recovery: Reprocessing of the Pulse Oximeter Sensors and Sequential Compression Device (SCD) Sleeves

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Introduction: The daily waste generated by US Healthcare facilities is about 14,000 tons, with each patient contributing approximately 33.8 pounds. This waste ends up in landfills or in the natural environment. Through a reprocessing program, our institution's sustainability solutions partner diverted 5 million pounds of medical waste from the landfills in 2023.

Identification of the Problem: PACU staff's practice of proper waste management requires attention. During our observation, the pulse oximeter sensor and the sequential compression device sleeves were consistently found in the regular waste bin.

QI Question/Purpose of the Study: To foster a culture of environmental responsibility by establishing an efficient waste management practice that is also cost-effective.

Methods: Using the Plan-Do-Study-Act (PDSA) framework, the team implemented proper waste disposal practices focused on reuse, reduction, recycling, and reprocessing. Initial audits of waste bins assessed baseline compliance. Staff received in-service education on environmental impact and cost savings. Reprocessing volumes for sensors and sleeves were tracked, and additional education from the hospital's sustainability partner representative reinforced the reprocessing workflow, highlighting end-product outcomes and rebate incentives for the hospital.

Outcomes/Results: Pre-intervention (April): PACU reprocessed 859 sensors & 191 sleeves. The hospital-wide totals were 1,999 and 710, respectively.
Post-intervention (May-July): Monthly PACU sensor reprocessing increased from 961 to 1109. Sleeves total rose to 201, 226, 185, respectively. The hospital-wide sensor reprocessing also rose to (2237, 2109, and 2543), respectively, and sleeves (747, 838, 687), respectively.

On average, PACU staff contributed 43% of all hospital sensors reprocessing and 27% of sleeves monthly, demonstrating their significant role in sustainability and cost savings efforts. Based on manufacturer rebates (\$0.30-0.50 per sensor and \$0.35 per sleeve), PACU alone generated \$1,431 in savings out of the hospital's \$ 3,709.

Discussion: Reprocessing rates improved, particularly for sensors, following enhanced education and awareness efforts. Healthcare facilities and manufacturers must prioritize sustainable supply chain decisions to minimize environmental and public health impacts.

Conclusion: By fostering environmental accountability, the unit helped divert waste from the landfills and contributed nearly half of the hospital's sensor reprocessing.

Implications for perianesthesia nurses and future research: Embedding reprocessing into daily workflows not only reduces waste but also drives cost savings. Perianesthesia nurses can lead these sustainable initiatives.