

# Journal of Plastic Surgery and Cosmetology

#### Perspective

## Plastic and Hand Surgery Operating Room Waste Reduction

#### Mark G Albert\*

Department of Plastic Surgery, University of Massachuetts, Worcester, Massachusetts, USA

\*Corresponding author: Albert GM, Department of Plastic Surgery, University of Massachuetts, Worcester, Massachusetts, USA, Email: malbert502@gmail.com Received date: 04 February, 2022; Manuscript No. JPSC-22-56353; Editor assigned date: 07 February, 2022; PreQC No. JPSC-22-56353(PQ); Reviewed date: 17 February, 2022; QC No JPSC-22-56353; Revised date: 28 February, 2022; Manuscript No. JPSC-22-56353(R); Published date: 07 March, 2022; DOI: 10.4172/jpsc.100026.

#### Abstract

**Background:** Combined, Operating Rooms (ORs) and labor and delivery suites account for over 70% of hospital trash. Recycling has been shown to have a significant financial impact on a hospital-wide basis in previous research, but its importance in the OR has yet to be proven.

**Objective:** To provide a strategy for lowering costs in plastic and hand surgery through judicious selection of tools and supplies, as well as the implementation of recycling.

**Methods:** The authors identified disposable supplies and devices that are commonly opened and wasted in typical plastic and hand surgery procedures, as well as the cost reductions that can be realised by removing these items. The cost of (OR) Operating Rooms trash versus single-stream recycling, as well as the value of recycling HIPAA documents and blue wrap, were evaluated in a cost analysis.

**Results:** A total of fifteen items were removed from disposable plastic packs, and seven items were retrieved from hand bags. These modifications alone might save a total of US dollars 17,381.05 each year. The authors' school has saved an average of dollars 3,487 per month since implementing single-stream recycling on all three campuses. Extrapolating at the current savings rate, a minimum of US dollars 41,844 per year should be saved.

**Discussion:** Operating rooms waste reduction is a costeffective way to save money in the operating room. Hospitals can reduce the amount of opened and unused material by changing the composition of current disposable packs and instrument sets designated for plastic and hand surgery.

**Conclusion:** This prudent supply and instrument selection, as well as the implementation of recycling, can result in significant cost savings and environmental advantages.

**Keywords:** Cost; Environment; Green; Hand; Plastic recycling; Waste

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#### Introduction

Combined, Operating Rooms (ORs) and labor and delivery suites account for over 70% of hospital trash [1]. Reprocessing single-use devices has become popular due to cost-cutting initiatives; nevertheless, these reprocessed instruments are typically not cleaned and sanitized correctly [2,3]. We offer a way for lowering costs in plastic and hand surgery by carefully selecting devices and materials.

Recycling has been shown in other research to have a significant economic impact on a hospital-wide level; however, its value in the operational room has yet to be proven. In the United States, recycling is becoming more popular, with 34.7% of all garbage effectively recycled in 2011, up from 16% in 1990 and 28.5% in 2000 [4]. With almost 4 billion tons of garbage created each year, health care facilities are the second greatest contributors to waste in the United States. Operational rooms, particularly labor and delivery, account for 70% of all health-care waste.

Commonly recycled materials such as plastic, paper, hard plastic, glass, metal, and blue wrap are disposed of as general garbage in the operating rooms, inpatient and outpatient settings, leading in financial losses and environmental impact. All recyclable items are collected in one collection bin and segregated at a material recovery facility in a single-stream recycling system.

Blue wrap, a polypropylene-based plastic, is often used for sterilizing tools and as a component of operating rooms drapes and gowns. Blue wrap is projected to account for 19% of OR trash and 5% of all hospital waste, according to the University of Minnesota Medical Center [5] (Minneapolis, Minnesota, USA). It is not biodegradable or widely recyclable. Because it can be melted into pellet form and supplied to domestic industries for the production of other plastic items, this material has established a resale market.

#### **Plastic Recycling**

The authors looked at the current disposable goods and devices used in typical plastic and hand surgery operations at one of their institution's teaching hospitals. Breast augmentation, implant expander removal, panniculectomy, abdomen pasty, [6] carpal tunnel release, ganglion cyst excision, pulley release, dupuytren excision, tendon repair, fracture open reduction and internal fixation, and fracture closed reduction and percutaneous pinning were among the procedures performed [7].

The authors conducted interviews with plastic and hand surgeons at their facility to determine which supplies and tools are regularly opened and discarded. The savings from removing unnecessary goods were then estimated, and a cost analysis was completed. Based on surgeon feedback, new disposable packs and equipment sets were developed [8].

Paper and plastic recycling at the University of Massachusetts' Hahnemann campus began in January 2012. In April 2013, the hiring of a new waste disposal business resulted in the implementation of single-stream in the operating rooms, inpatient and outpatient facilities on all three campuses. Single-stream recycling has only been implemented in the operating rooms at the Hahnemann campus so far.

Blue wrap was also collected before patients entered operating rooms and has being delivered to a local foundation on a weekly basis since August 2013. Individuals with special needs are engaged by the



green company to sew the blue wrap into products that are sold for charity, such as shopping bags, wallets, and neckties.

#### Discussion

In the surgical setting, operating rooms waste reduction is an effective cost-cutting strategy. Hospitals can reduce the amount of opened and unused material by changing the composition of current disposable packs and instrument sets designated for plastic and hand surgery.

This cautious supply and instrument selection can result in significant savings. The Hahnemann campus saw a significant rise in recycling volume once single-stream [9] recycling was implemented. While single-stream recycling is now available on all three campuses, operating rooms recycling are currently only available at our Hahnemann location. In addition, only the Hahnemann campus has begun a physician- and nurse-led recycling effort. These reasons are most likely to blame for the large disparity in recycling rates between campuses.

Similar to our work at Hahnemann, we plan to initiate a campaign at our other two campuses to publicize, simplify, and promote singlestream recycling. We also plan to establish operating rooms recycling at our other two campuses, as well as look into local blue wrap purchasers to see if there is potential for further profit beyond the existing savings from free disposal. We also intend to look into the role of fluid collection systems in reducing operating room waste and saving money. We've also been talking with administrators about getting reusable gowns and instrument containers, as well as other reusable surgical supplies.

The success of these cost-cutting efforts depends on a collaborative approach. At the outset, infection control, environmental services, central sterile, nurses, and management should all be involved. We've discovered that if instructions are basic and straight forward, new programs [10] are more likely to succeed. Checklists are available at if you're interested in starting cost-cutting projects at your institution. Begin by inquiring whether your university recycles, and if so, whether it is done specifically in the operating rooms. Bins of HIPAA documents are sent where, and how are they disposed of. Is the blue wrap being gathered? How well-informed are your employees on recycling. Who decides what goes into disposable instrument packs and sets.

#### Conclusion

All health care practitioners are responsible for waste reduction but, as leaders in the workplace, physicians should set an example for

correct disposal methods. In the end, the surgeon should decide which components should be included and which should be excluded from disposable packs and equipment sets. Single-stream recycling should be implemented as soon as possible for social and environmental reasons, and the cost-cutting aspect is especially vital given the uncertain financial future of health care in the United States. These techniques will result in national, environmental, and financial savings if they are implemented across all specialties and hospitals.

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