

From: **Green Surgical Practices for Health Care**

Arch Surg. 2011;146(2):131-136. doi:10.1001/archsurg.2010.343

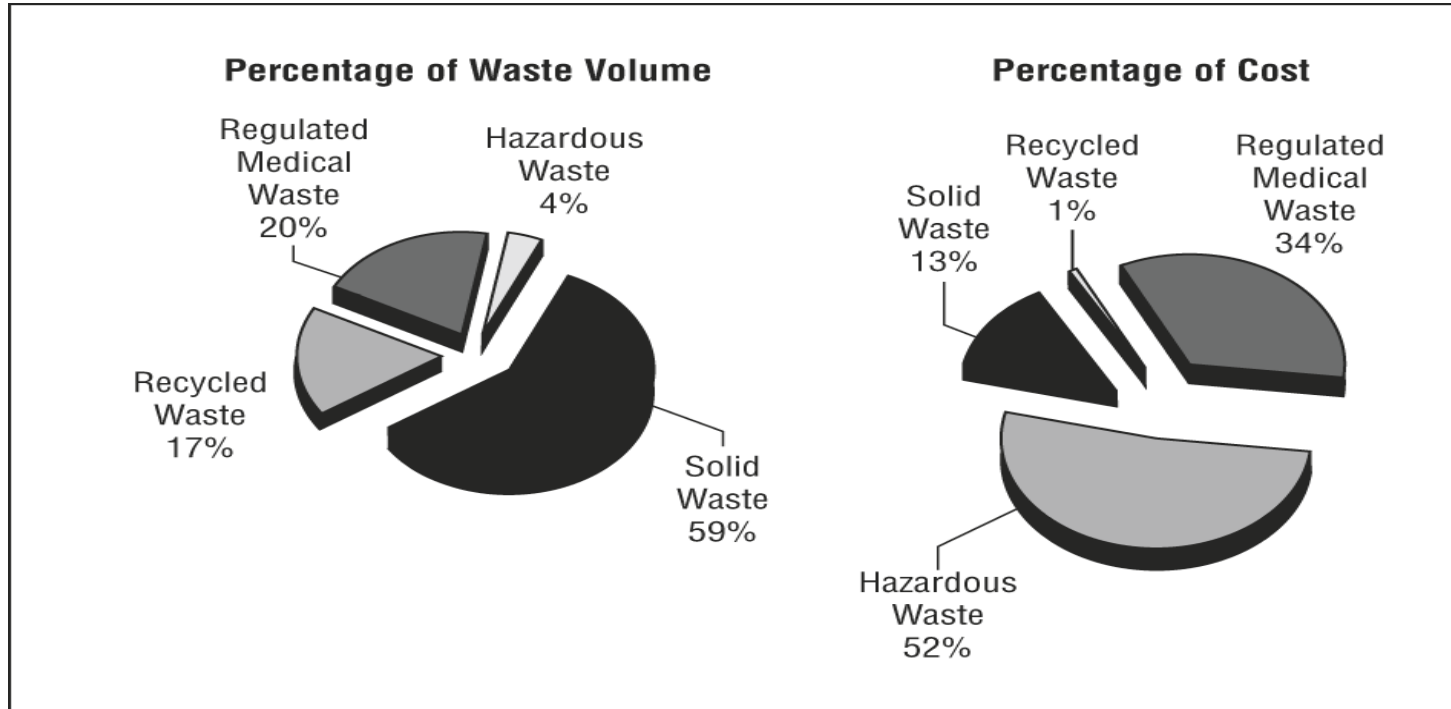


Figure Legend:

Comparison of waste volume and cost. Courtesy of Colleen Cusick, RN, The Johns Hopkins Go Green Initiative.

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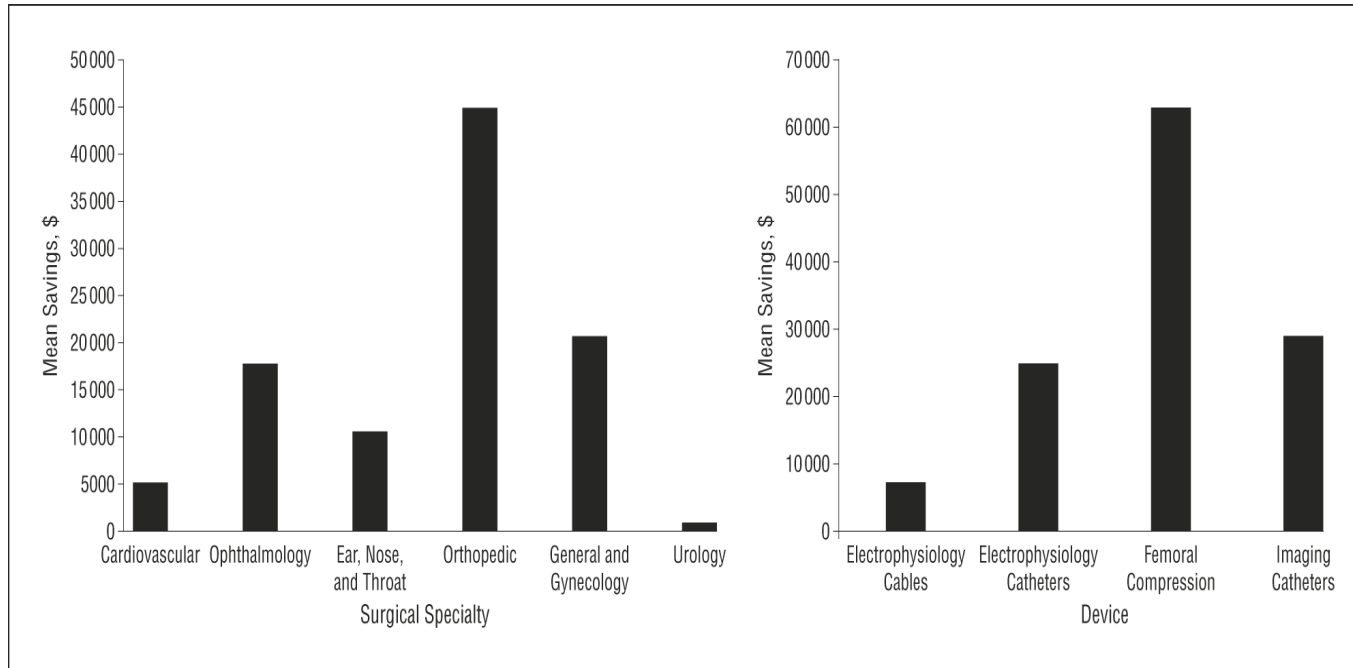


Figure Legend:

Comparison of mean savings associated with reprocessing of specific devices in various surgical specialties. A, Operating room reprocessing savings by surgical specialty. B, Mean distribution of \$100 000 in device reprocessing savings across 20 facilities. Adapted from Flynn and Knishinsky.

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Table 1. Questionnaire Completed by Each Member of our Panel^a

Question

- 1) How much medical waste is produced annually in the US? Of this, surgical waste constitutes what percentage or fraction?
- 2) Waste streams are usually classified into specific categories. Into which categories will you place surgical waste and what is the associated cost for disposing each identified stream?
- 3) There have been several reports on the impact of medical waste disposal techniques on the environment. Are you aware of any such effects? If yes, please provide examples and data to support or disprove these reports.
- 4) Please list and explain several surgical waste disposal techniques used by your institution or one that you are familiar with.
- 5) Are there any benefits or risks—to people, environment, and medical institutions—associated with these techniques?
- 6) There has been much hype in the media and even in medical centers on “going green.” What are your thoughts on this?
- 7) Has the organization you work in adopted any such green practices? If yes, what steps did management take to implement them and how has employee acceptance been?
- 8) Have you noted any benefits or risks associated with these new green practices at your center? Please comment, if possible, on financial costs, safety, environmental cleanliness, waste volume, and employee/patient health. Any data to support points is appreciated.
- 9) Considering the subject of surgical waste production and disposal, what is one area of greatest concern to you and why?
- 10) Based on your experience, what are the five (5) main things surgical practices in particular can do to become more green? Please rank in order of greatest impact.

^aThe introductory paragraph was as follows: “We are interested in studying the impact, if any, of surgical medical waste on health and the environment. Please answer all the questions below and where suitable, provide data to support your statements. All data will be de-identified to protect patient and institutional rights. Thank you.”

Table Title:

Questionnaire Completed by Each Member of our Panel^a

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Table 2. Common Materials Used in Surgical Practices That Should Not Be Placed in Red-Bag Waste

Material

Paper towels	Casts and splints
Vent tubing	Packaging materials
Suction tubes	Alcohol preps and wipes
Intravenous bags	Dressings and gauze
Foley bags	Cotton
Foley catheters	Tapes
Batteries	Diapers and incontinence pads
Masks	Bedpans
Gowns	Urinals
Drapes	Emesis basins
Linens	

Table Title:

Common Materials Used in Surgical Practices That Should Not Be Placed in Red-Bag Waste

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Table 3. Energy Efficiency Programs^a

Program

Energy-efficient heating, venting, and air-conditioning system designs
Energy-efficient lighting system designs
Energy-efficient sterilization, gas, and water plants
Energy-efficient waste disposal systems
Energy-efficient housekeeping methods
Energy-efficient medical and nonmedical equipment
Thermal storage analysis systems and cooling analysis systems
Energy-efficient building infrastructure designs
Effective cogeneration feasibility analysis and design
Highly motivated and trained staff, including senior management, for initiating and implementing energy-saving protocols

^aFrom data by Ruparel.²³

Table Title:

Energy Efficiency Programs^a

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Table 4. Resource Conservation and Recovery Act List of Hazardous and Toxic Pharmaceutical Agents

P-Listed Acutely Hazardous Waste	U-Listed Toxic Waste
Arsenic trioxide	Chloral hydrate ^a
Epinephrine ^b	Chlorambucil
Nicotine	Cyclophosphamide
Nitroglycerin	Daunomycin
Phentermine ^a	Dichlorodifluoromethane
Physostigmine	Diethylstilbestrol
Physostigmine salicylate	Hexachlorophene
Warfarin sodium $\geq 0.3\%$	Lindane
	Melphalan
	Mercury
	Mitomycin
	Paraldehyde ^a
	Phenol
	Reserpine
	Resorcinol
	Saccharin
	Selenium sulfide
	Streptozotocin
	Trichloromonofluoromethane
	Uracil mustard
	Warfarin sodium $< 0.3\%$

^aContinuous intravenous infusion.

^bMost common hazardous waste.

Table Title:

Resource Conservation and Recovery Act List of Hazardous and Toxic Pharmaceutical Agents