

Fairview reduces operating room waste

One surgeon's "green" efforts saves facility \$2,000 and 80 pounds of waste annually



DR. RAFAEL ANDRADE

Waste reduction targets:

- **Eliminating needless, redundant supplies from surgical picks**
- **Minimizing surgical prep waste**
- **Switching to reusable gowns**
- **Prudent use of sterile saline solutions**

At the University of Minnesota Medical Center-Fairview (UMMC), one surgeon has linked community health to the health of the environment and has made it his mission to reduce as much waste from his procedures as possible.

Dr. Rafael Andrade was concerned about the waste and pollution generated during surgical procedures and

has been working to reduce that waste by minimizing unnecessary disposable items, using more reusable equipment, and minimizing toxic chemicals. For one common procedure, Dr. Andrade realized waste could be reduced with a few simple, but safe substitutions and item deletions.



The University of Minnesota Medical Center-Fairview is a highly respected educational institution located on the university's Minneapolis campus. UMMC has 900 staffed beds and performs over 20,000 surgeries each year.

Needless, redundant supplies eliminated

The first procedure Dr. Andrade evaluated for waste reduction is the vascular access port placement. This procedure is done to provide easy venous access in patients receiving chemotherapy. The ports allow easy access to a vein for medication, blood draws, and CT scan contrast injections. The ports also minimize needle sticks and help maintain vein integrity. Many surgeons at UMMC perform this procedure; it is performed over 200 times annually in UMMC's operating rooms. Dr. Andrade alone performs this surgery approximately 40 times each year.

Each set of instruments and equipment for a specific procedure, often called a pick, is prepared according to the doctor's specification. Dr. Andrade realized that following the port placement, the pick had a number of unnecessary items and redundancies. Therefore, he worked with operating room nurses and staff members to

determine what items in the pick were vital to the success of the surgery.

Waste-reduction opportunities

From examining his pick and determining what items were extraneous, Dr. Andrade was able to reduce the amount of items and reduce the waste from the procedure.

The new pick contains 27 items, as opposed to 44 in the old pick. The new pick also includes reusable gowns and linens and reduces the number of syringes, sutures, drapes, and dressings discarded. For each case, Dr. Andrade's pick eliminates one pound of waste and saves \$50 in supply costs.

Additional waste reductions

Additional changes that Dr. Andrade has implemented include minimizing surgical prep waste, using reusable gowns, and choosing only the necessary amount of sterile saline solutions.

Additionally, a recommendation has been made for the facility to start moving toward using lead-free indicator tape. Here's a summary:

- *Surgical prep waste* – One skin prepping solution used to provide asepsis to the area where the port is being inserted into the patient contained alcohol, requiring the used items to be disposed of as more costly hazardous waste. By switching to a smaller size of that solution for cases that do not require a large field of asepsis, less material was wasted and needed to be disposed of. Dr. Andrade's team also began using an alternative non-alcohol-based product that reduced the use of additional materials and time, and saved money in disposal costs.
- *Reusable gowns* – Reusable gowns that are washed and reprocessed through UMMC's sterile processing department cost Fairview \$1.08 each to process. Each gown can be reprocessed approximately 50 times before disposal. Disposable gowns for the procedure cost the hospital \$2.39 and generate half a pound of waste each. Overall, Dr. Andrade's choice of reusable gowns costs Fairview \$170 annually and generates no solid waste. However, using disposable gowns would cost \$287 and generate 60 pounds of waste annually.



Supply shelves in UMMC Fairview's OR

- *Sterile saline solutions* – Picks often have 1 liter containers of sterile saline; however, the port placement procedure uses less than 500 ml. Substituting 500 ml sterile saline for the 1 liter bottles would reduce over 20 pounds of waste and save \$16 annually.
- *Lead-free indicator tape* – Reusable gowns, as well as surgical instruments, must be wrapped and sterilized. The wrapping fabric, often called "blue wrap" is secured using indicator tape which changes color once the package has been sterilized. UMMC currently uses lead-based indicator tape. Therefore, the tape and any blue wrap that is in contact with the tape may be considered hazardous waste. To lessen the amount of hazardous waste generated by sterilization, UMMC can either move to hard cases or use copper-based indicator tape.

Positive impact

Currently, the new pick that Dr. Andrade has begun using reduces the waste by one pound and saves \$50 for each procedure. Changing to 500 ml bottles of saline reduces waste by an additional pound per procedure. Assuming Dr. Andrade performs 40 procedures per year, he alone saves UMMC at least \$2,000 in material costs, eliminates at least 80 pounds of waste, and reduces greenhouse gas emissions by 64 pounds.

Note: This case study was adapted from an article by the Minnesota Technical Assistance Program (MnTAP), an outreach program at the University of Minnesota that helps Minnesota businesses develop and implement industry-tailored solutions that prevent pollution at the source, maximize efficient use of resources, and reduce energy use and cost to improve public health and the environment.

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