

# IMPLEMENTATION MODULE: OR Kit Reformulation

## Background

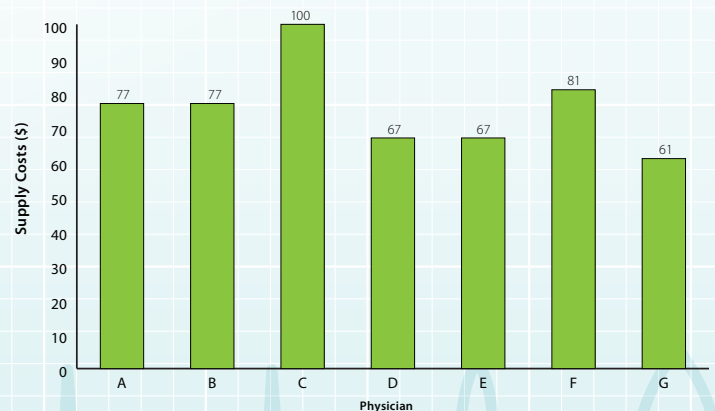
The OR is responsible for approximately 33 percent of all hospital supply costs.<sup>1</sup> Other estimates of the OR's contribution to total supply costs are much higher—coming in at greater than 50%.<sup>2</sup> And yet another figure estimates that 30.1% of all health care outlays are related to surgical expenditures.<sup>3</sup> Within the OR, supply costs can comprise more than 50% of the departmental budget.<sup>4</sup> Supply costs in the OR are driven in large part by surgeon preference, but are also due to occasional hoarding of supplies and increased inventory when supplies are split between the Sterile Processing Department (SPD) and the OR and often duplicated. While certain supplies are common to certain procedures, often surgeons have strong preferences about composition of the OR packs, devices, equipment and other items, typically captured on their preference cards and resulting “pick lists”. There can be considerable variation in supply costs per procedure across a set of surgeons, resulting in part from different preferences for different kinds and volumes of supplies.

Beyond strong physician preference, a key driver of supply costs are those supplies that are placed in surgical and anesthesia kits and then not used during the procedure.<sup>5</sup> Under FDA guidelines, any item prepared for use on a particular patient but then not used is not able to be used on a different patient, as the material is then deemed “unsterile.”<sup>6</sup> This concept, defined as “overage” by a 1997 study,<sup>7</sup> can drive significant wastage of devices and materials. These excess supplies are driven in part by how often the custom kit or the preference card has been updated and whether care has been taken to remove excess supplies from the kit. Every item picked in SPD and the OR and then not used represents additional labor and transportation costs that ultimately diminish margins. And restocking unopened, unused items can double the labor.<sup>8</sup> It is recommended that preference cards should only include items that are used more than 90% of the time.<sup>9</sup> When

preference cards are not regularly updated, excess supplies in the kits continue to be opened and become unusable. Hospitals often end up throwing these materials away, most typically in the regulated medical waste stream. In some instances clean, unopened or expired supplies are donated to missions or third party organizations that facilitate getting supplies to developing countries. Despite the goodwill of donation efforts, the excess supplies still represent significant supply costs to the organization.

The dilemma of having surgeons select their own supplies without review is that the hospital is typically responsible for paying the surgeon a set fee per procedure regardless of supply cost. And multiple surgeons with multiple supply preferences for the same procedure drive up supply budgets and inventory costs. Surgeons are coming under more scrutiny for supply costs as automated materials management systems are starting to allow for a side-by-side comparison of supply costs for the same procedure for different surgeons.

**Figure 1. How to increase efficiency in the operating room<sup>10</sup>**



As hospital administrators struggle to control costs by attempting to limit surgeons to a pre-selected or standardized group of devices, implants or supplies, the pushback can be fast and furious with surgeons touting the “quality” card in comparison to administrators’ “cost” card. There are early indications that some surgeons and hospitals are exploring a reduction in variation in clinical practice between surgeons performing similar operations<sup>11,12</sup> which could be a mechanism to drive toward more standardization and substitution of clinically effective, but less expensive alternative supplies. Reimbursement models will keep cost-cutting front and center in the next decade, while public reporting of quality measures will force administrators to determine the best way to initiate compromise and ensure that product selection in the OR is not based just on lowest cost, but that products and equipment are also demonstrated to be functionally and clinically equivalent or drive better patient outcomes.

***Do surgeons differ in use of disposables for same surgical procedure?***

*The sum total of disposable instruments for a single operative case in which laparoscopic cholecystectomy was performed ranged from \$92 to \$637 (mean \$333) depending on the preference of the surgeon. [The] study points out the differences in expenses between surgeons. Maintaining this type of expense tracking can apply to other procedures and is a good place to start a surgeon-led and hospital-based cost-saving initiative.<sup>15</sup>*

There are a number of mechanisms that can be used to address overage and reduce the resulting waste creation. Strategies include reviewing existing OR packs and updating preference cards, streamlining supply locations so inventory isn’t redundant, standardizing supply kits, or utilizing an “on hand but unopened” area on the case cart where items are available for the procedure but not opened unless needed.<sup>13</sup> This last strategy still requires restocking incurring the labor cost, but doesn’t waste the device. Another idea is to standardize supply kits. Examine copies of high volume doctors’ highest volume preference cards. Identify items used 50% of the time and mark as “hold” rather than “open.”<sup>14</sup>

While each of the strategies can drive cost reduction and decrease waste, this module is focused on how an organization can go about developing a systematic program for OR kit reformulation, with a focus on eliminating certain unused supplies from the preference card and pick list. There are several finite steps an organization can follow to implement an OR kit reformulation process in the OR.

## **Step 1. Create the Project Team**

Like most new programs, OR kit reformulation can benefit from a team effort. The team should include nursing staff who are concerned about the volume of supplies being used, a representative from Purchasing or Materials Management, as well as OR leadership and Sterile Processing. Environmental Services may also play a useful role on this team if the organization is interested in tracking its waste reduction benefits. Explore whether there might be a surgeon interested in this initiative—being careful to explain that any changes to custom kits are voluntary rather than mandated. The team will also want to bring in different nursing staff or surgeons as advisors, depending on which kind of kit you are reviewing—where one staff member might have more expertise or experience than another.

## **Step 2. Start Small: Identify Target Packs**

Like most projects, it makes sense to focus the project on the areas of largest impact or opportunity—the 80-20 phenomena. The Pareto principle states that 20% of the factors typically can cause 80% of the impact. With that in mind, identify which packs get used the most frequently—of which the organization purchases the greatest volume. Target one pack as a starting point and bring together the project team to discuss how the review process will work.

## **Step 3. Review Initial Pack**

Working with the project team and any other OR staff or surgeons brought in for specific expertise, carefully review the chosen pack and group items into “always need,” “sometimes need” and “never need” categories. Gather input from the surgeons who perform the majority of this kind of surgical procedure and from circulating nurses who can pull the charges for this procedure to see what typically gets used. Surgical custom packs often contain items such as extra light handles, emesis basins or suture.<sup>16</sup> During the case, the circulating nurses are responsible for marking off on the preference card what supplies are utilized. They are also responsible for indicating what additional supplies are routinely used that may not be included in the custom pack. If possible, try and use just two categories—“always” and “never,” but it is important in this process to ensure that the team is not

proposing to remove items that will later cause a delay or anger a surgeon during surgery while a nurse runs to grab the missing item. If there are items about which the team is uncertain—take the opportunity to gather additional input from other surgeons who perform the procedure. At this early stage in the process, it is better to leave some supplies in question in the pack than risk removing them and the problems that may cause.

## Step 4. Collect Data on Pack Transition

Using a gram scale, weigh each item in the original custom pack. List weights for each item individually—then tally the original pack weight and the weight of the pack without the excess items. Using knowledge of how the OR segregates waste at the facility, assess whether the excess items would typically be disposed of as regulated medical waste (RMW), solid waste, or recycling. Gather the disposal costs per pound for each of the three waste streams (if applicable) from the Environmental Services Director. Using the knowledge of how the items would typically be disposed of, multiply the weights by the appropriate cost per pound to establish what the organization would save in disposal costs per each revised pack. Then multiply this total cost by the number of packs the OR uses over a set period to determine total potential cost-savings from waste avoidance.

The next step involves working with purchasing to establish itemized costs for each item in the pack. Again, list the prices for each item in the pack separately and then tally the cost of the original pack against the cost of the revised pack. Subtract the revised pack supply cost from the original pack supply costs to

determine the approximate supply costs savings per pack and then multiply by the number of packs used over a set period (same number used in waste estimate above) to establish the total potential cost-savings from avoided purchase of supplies. Total the waste avoidance and the avoided purchase costs to get a total potential savings for reformulating this one custom kit. See Figure 2.

## Step 5. Sit Down with Vendors

Once the OR and Purchasing leadership have reviewed the potential financial and environmental benefits and agreed that it makes sense to move forward, the next step is to reach out to the vendor who supplies the kit that was reviewed and formally request reformulation. Depending on the vendor, these conversations can be incredibly easy or slightly challenging. Many vendors want to meet the needs of their hospital clients and will gladly revise the pack contents. Others may try and sell the organization on new additions to the pack to replace the eliminated items, as a means of keeping their revenue steady. Make sure Purchasing is helping to lead the discussion and be clear that the organization is not interested in purchasing items it cannot or will not use. It also makes sense at this point, to let the vendor(s) know that the organization will be proceeding with additional pack reformulation moving forward. Don't be discouraged if there is a lag time before the hospital begins to receive reformulated packs. Many suppliers make up the packs in bulk volumes and there may be a period of using up the old packs before the new packs can be brought in. Reformulating packs may also be beneficial for SPD staff as items that weren't included originally but should have been and have been integrated into the reformulated packs will reduce labor for SPD each time they pick a case.

**Figure 2. Track Savings from OR Kit Reformulation**

- Add weight of each item remaining in the pack
- Multiply by appropriate waste cost per pound
- Multiply avoided waste cost by the number of packs used monthly
- = **Total potential cost-savings from waste aversion**
  
- Determine cost of each item remaining in the kit
- Subtract from cost for original custom kit
- Multiply avoided supply cost by the number of packs used monthly
- = **Total potential cost-savings from avoided purchase costs**

**Total avoided waste costs + Total avoided purchase costs  
= Total cost savings from OR kit reformulation**



*Items removed from thoracotomy pack as part of kit reformulation process.*



## Step 6. Tackle Additional Packs

Now that the project team has had an initial success and developed a process for analyzing packs, use the same format to select additional packs for review—high volume, high utilization packs. Continue to tie in applicable staff with the right expertise and be sure to vet pack reformulations with surgeons who utilize those packs. Continue to track the cost-savings and waste reduction data from each pack reformulation to share with leadership in the OR, SPD and Purchasing, as well as the organization's Green Team or sustainability leader (if applicable). These are real-time cost-savings for the organization at a time when healthcare dollars are scarce—make sure organizational leadership is aware of how the OR is addressing its own environmental and cost footprint.

## Step 7. Review Preference Cards

Beyond reformulation of custom packs, the project team can also move on to reviewing surgeon's preference cards with an eye toward eliminating unnecessary supplies. Take note of any surgeons who might be interested in or supportive of the project. Having a surgeon on board as a champion can really be a way to engage other surgeons, and perhaps increase their willingness to review and revise preference cards. A surgeon can approach his or her colleagues to begin a dialogue about reviewing preference cards—perhaps even proactively thinking about how to review those procedures cross-surgeon as a means of pre-empting what may be an inevitable move by administrators to try to push surgeons toward increased standardization of preference cards for the same procedure.

## Step 8. Other Strategies for Reducing Wastage of Unused Supplies

Beyond reformulating kits and updating preference cards, there are several other strategies that can help ORs reduce excess supplies and prevent them from going into the waste stream. Often a surgeon may feel the need to have a device on hand, just in case the procedure requires it. Staff can work to create an area on the case cart where items that may be needed are stored but not necessarily opened during set up. If a surgeon were to need the item, the item is on hand and can easily be opened and passed into the sterile field without having to scramble for the core or the SPD. If the item remains unused, however, it remains intact in its packaging and can be restocked by SPD when the case cart goes back. While there is still additional labor involved, the device won't be wasted (financially) nor create waste (environmentally). The project team may also be able to reach out to Anesthesia and identify a champion who may have an interest in reducing waste generated by anesthesia kits. This is a separate domain from the custom packs and preference cards and needs to be done in collaboration with anesthesia technologists and anesthesiologists.



*Updating preference cards regularly can reduce work for SPD staff by only including necessary items for surgery.*



*Streamlining custom packs and reviewing preference cards can also reduce excess inventory.*

## Step 9. Creating a Mechanism for Staff Feedback

It is very important that as the organization begins a kit reformulation program that there is a mechanism set up to allow staff, surgeons and anesthesiologists to provide feedback. If certain items are removed from the pack but then are found to be needed, staff need a way to express those concerns. Likewise, the project team needs to be prepared to come up with stopgap solutions to ensure patient safety and surgeon satisfaction. Make the pack review part of all-staff or committee meetings. Vet the changes as thoroughly as possible before moving ahead with the reformulation. The project team needs to stay flexible to meet perioperative staff demands while still continuing to find new ways to reduce excess materials and supplies.

## Step 10. Celebrate Success

Continue to track the cost-savings and environmental benefits of the pack reformulation and preference card revision process. Share the data and results with staff. Help them understand how their willingness to rethink the way the OR does business is helping reduce the organization's impact on the environment and public health while also helping protect the organization's critical financial resources. Translate environmental benefits in to concepts that feel tangible for staff. Share the department's successes with organizational leadership and ensure that the organization's Green Team or sustainability leader is aware of the department's success and includes it in any awards applications.

**For More Information:** Go to [www.GreeningTheOR.org](http://www.GreeningTheOR.org) for a list of key resources that can assist you in this program area. Because this list is updated often, we keep it online, so as not to date this implementation module. Also available are case studies on OR kit reformulation at different facilities. Learn from your peers!

## Endnotes

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