



This article is presented on behalf of the Outpatient Endovascular and Interventional Society (OEIS).

Supply Management in an Office-Based Endovascular Center

Walter Kim^{1,2}; Sam Ahn, MD, FACS, MBA^{1,2,3,4}

¹Vascular Management Associates, Los Angeles, California; ²University Vascular Associates, Los Angeles, California; ³DFW Vascular Group, Dallas, Texas; ⁴Texas Christian University School of Medicine, Fort Worth, Texas

OBL Corner Section Editor: Paul Gagne, MD

Supplies are one of the top two expenditures in the office-based endovascular center (OEC); the other is payroll. Good supply management is critical to both the clinical and financial success of the OEC. The success or failure of an intervention may hinge on whether the OEC has the right device when the physician needs it. The profitability of the OEC may hinge on what was paid for supplies and how they were managed.

What and How Much to Stock?

It is expensive and operationally very challenging to stock a large array of devices in all different sizes in anticipation of the physician's need during an intervention. From a business perspective, it is desirable to tie up as little capital as possible by keeping a low inventory level; clinically, it is desirable to keep as much inventory as possible in case something is needed.

Preferences regarding type and model of devices can vary widely from physician to physician. Physicians need to convey clearly to the inventory manager which devices they absolutely need and must always have, including devices which they might very rarely use but would need in an emergency, such as an expensive covered stent. It is important for the physicians to get involved in these discussions, as they know best what they need and feel most comfortable with. Physicians in a group should also try to consolidate manufacturers where possible in order to reduce the diversity of devices that need to be stocked and to get to the best possible pricing from the vendors.

Consignment arrangements, where the OEC does not have to pay for the devices until it uses them, may be used to widen the selection of devices available to the physicians without incurring upfront costs. However, if the devices are frequently used, an upfront purchase may end up being cheaper.

The par value should be set so that there are 1-2 weeks of needed supplies at any time. There is usually no need to maintain a larger inventory than that. Most devices can be delivered within a few days of ordering. However, the practice should try to avoid rush orders, which incur higher shipping costs.



Sam Ahn, MD, FACS, MBA^{1,2,3,4}

¹Vascular Management Associates, Los Angeles, California; ²University Vascular Associates, Los Angeles, California; ³DFW Vascular Group, Dallas, Texas; ⁴Texas Christian University School of Medicine, Fort Worth, Texas



Walter Kim^{1,2}

¹Vascular Management Associates, Los Angeles, California; ²University Vascular Associates, Los Angeles, California

And the practice should, where possible, try to consolidate orders to save on shipping charges; ordering small quantities at high frequency can incur shipping costs, which quickly add up to become significant amounts. Sales tax and shipping charges are those expenses that are very easy to overlook. In any case, there will inevitably be disruptions in the supply chain and having a 1- to 2-week buffer will help to mitigate the negative effect of said disruptions. It is also good practice for the inventory manager to preview upcoming cases to make sure that the devices that are needed will be available.

Pricing

Since devices can be very expensive, their costs could help decide the kind of procedures that can be done in the OEC. Profit margin for each procedure is heavily dependent on the cost of

Table 1. A list of some common devices and supplies for an OEC.

DEVICES AND SUPPLIES
Percutaneous transluminal angioplasty (PTA) balloons (various diameters, balloon lengths, shaft lengths, material, and wire systems)
Stent (various diameters and lengths, shaft lengths, materials, and designs)
Guide wires (various diameters, lengths, stiffness, distal tips, and materials)
Sheaths (various diameters, lengths, shapes, material, and designs)
Catheters (various shapes, various diameters, lengths, stiffness, and materials)
Intravascular ultrasound (IVUS) catheter (various imaging diameters, lengths)
Atherectomy device (various designs, lengths, sizes, crossing profiles)
Embolization coil (various coil diameters and lengths, shapes, materials)
Snares
Micropuncture set
Closure devices
Drapes, equipment covers, and gowns
Procedure packs
Medications
Accessories

the devices used during the procedure. The ability to negotiate a good price for devices has a big impact on the OEC's bottom line.

OECs usually have some leverage to negotiate a better price than the list price. The most effective leverage is volume. It is to the physicians' advantage to try to consolidate their supplies to as few manufacturers as possible to leverage their volume discount. The busier the OEC, the easier it is to get a bigger discount and improve profitability. The OECs with only 1 or 2 low-volume physicians are at a big disadvantage and may struggle to be profitable.

Manufacturers sometimes offer bulk purchase discounts. The unit pricing may seem very attractive and overall, it may appear to be a good deal. However, the OEC should do a careful analysis. Some of the things to consider include when the payment is due and whether the OEC can really afford to have a big chunk of its capital tied up in inventory. What is the expiry date of the devices and will the OEC be able to use all the devices before the expiry date? Will the manufacturer exchange the devices if they expire? Does the OEC have the space to store the devices bought in bulk? If the manufacturer will not exchange the expired devices and there is good chance that some of them will expire before they can be used, the deal may not be worth it.

Some manufacturers may also offer capitated pricing, a program in which — for a fixed monthly payment, say \$10,000 — the manufacturer provides all or a range of their products. The manufacturer will balance bill the OEC if it consumes more than \$10,000.00 worth of supplies or refund the OEC if it consumes less on a quarterly basis. The problem with these kinds of deals is that it is very hard to know exactly how much each individual item costs. The manufacturers tend to roll up all the individual items into a consolidated line item; and consequently, it is hard to know if, indeed, the deal was advantageous to the OEC.

Procedural or bundled pricing is also becoming a more common

**Figure 1.** An example of one OEC's inventory area.

offering from device manufacturers. In this pricing model, the manufacturer will bundle a combination of products and assign a single dollar value to the bundle as opposed to the individual line items. Bundles vary and should be adjusted to the OEC's inventory usage pattern, but look something like: 1 atherectomy catheter, 2 percutaneous transluminal angioplasty (PTA) balloons, 2 wires, and a stent. Problems will arise when there are physicians within the same group with drastically different treatment modalities that result in widely varying device usage. Furthermore, such bundling may discourage individualized patient care. Lack of pricing transparency may also result in issues with financial reports, especially in larger practices.

The contracts with the vendors should be reviewed on an annual basis to make sure that they remain competitive. There is no company that can supply all the products to the lab. The center will have to deal with multiple vendors. The practice should not be afraid to move to a new vendor if it results in significant savings to the lab. Some of the physicians may not want to do it because of device preference or personal relationship with the company representatives. The profitability of the center should override any of these underlying factors that could prevent migration to different vendors.

Expiration Date

The OEC needs to keep a watchful eye on the expiration dates for each type of item and the exchange policy of the manufacturer if it expires or is close to expiring. The inventory manager has to make sure that items nearing the expiration date are used first. If a \$1000 stent expired and the manufacturer will not give one in exchange for it, the OEC just lost \$1000. The expired items could easily add up to tens of thousands of dollars a month if the inventory manager is not careful. In hospital operating rooms, it is a common occurrence and surgeons have little control over it, but in the self-financed OEC, it can have significant impact on profit margins.

Inventory Management Software

Ensuring the OEC is adequately stocked at all times is a full-time job in a busy practice. This is a job that is very difficult to do without having a good information technology (IT) system in place to manage the inventory. The IT system should be able to check in supplies, track usage, and report on what is in the inventory in real time. It should be able to identify items that fall below set par levels so that those items can be replenished in a timely basis. It should be able to alert the inventory manager to expiring and expired items. Additionally, and very importantly from the business perspective, the IT system should be able to itemize the supplies used for each case and the total cost of the supplies for that case. This information is essential to monitor costs and in providing feedbacks to the physicians on the costs of their choice of devices and the cost of each procedure.

The OEC needs to appoint one or more people to manage the inventory and invest in a good inventory management system. A hospital-based practice may not need those employees or software, but they are vital to the operation of an OEC.

Keeping Supply Costs Down

Working in a hospital, many physicians do not know or care about the cost of the devices they use. However, for an OEC to be successful, it is imperative that physicians become very cognizant of the devices they use and how much they cost. They need to become cost efficient without, of course, jeopardizing patient care. The best way to educate the physicians is to provide them with information on the costs of supplies for the cases they perform. Having inventory management software that can track every item used in a procedure and the cost of those items is essential. With inventory management software, the procedure room staff can track every item used by, typically, scanning in its barcode. At the end of a case, they can print out a list and the cost of the items used, which can then be presented to the physician to review. Providing physicians with this real-time feedback is a very effective way of educating them and changing the culture of indifference to the cost of supplies.

Storage Space

Adequate and appropriate space for organizing and storing supplies is important. Supplies should be organized so that particular items are easy to find. Manufacturers will sometimes provide free storage carts, which are useful. Keep supplies in a secure area. A small item may cost several thousand dollars, and the OEC cannot afford to have items misplaced or stolen.

Also, a separate and clearly designated area for receiving new deliveries before they are logged in or processed into the inventory management system is highly desirable. This is to prevent new deliveries from being inadvertently used before they can be logged in and accounted for.

Closing the Loop on Orders

Finally, and very importantly, the practice must have a process in place to ensure that their orders are fulfilled as they were placed. Were the ordered supplies delivered? Orders are sometimes fulfilled in different batches and it is easy to lose track of the original order. Are the prices correct? Is the OEC being billed for the right devices, the right quantity at the right price? Without a good process in place, there is no way to ensure that what the practice pays for is what the practice actually gets.

Concluding Remarks

Managing supplies should not be an afterthought in planning for an OEC. It is critical to the success of the OEC. Physicians need to be engaged in the process, and understand pricing and the implications of any deals with the vendors. There should be a good process in place, staff have to be allocated for supplies management and be trained, and the practice needs to provide them with effective tools to carry out their jobs. The contracts with the vendors should be reviewed on annual basis to make sure that they remain competitive.

The authors can be contacted via Sam Ahn, MD, at sahn@vmamd.com