Understanding How Hospitals Buy Medical Technology

By Alec Alpert

Modern hospitals depend heavily on medical technology to diagnose, treat and prevent diseases. A typical mid-sized hospital has hundreds of items of medical equipment, from simple stethoscopes and blood pressure monitors to highly sophisticated MRI machines and linear accelerators. Hospitals are complex enterprises with entire departments dedicated to technology planning, assessment, acquisition, maintenance, upgrade and replacement at the end of the product life cycle. They have elaborate systems, programs, policies, procedures and protocols in place for purchasing new medical equipment.

To sell successfully to healthcare providers, marketing and sales professionals have to be well versed in the buying processes that healthcare providers use. Medical device marketing is quite different from any other marketing. Typically, hospitals have a review process to qualitatively and quantitatively evaluate their medical technology needs. The review's scope depends on the cost of the technology, and may involve many departments. For expensive equipment, the review most likely will be elaborate. For less expensive and disposable items, the review may simply assess the department's current needs, and the proposed purchase's operational and financial impacts. In either case, a market survey and literature search take place to some extent, and this is supplemented with extensive data collection and analysis when needed. This is why **white papers** and **case studies** published by medical device manufacturers are very useful during the review process – the decision-makers look for every bit of information they can find. Hence, white papers and case studies can significantly influence the decision-making process.

A typical review process includes the following phases:

1. Strategic planning
2. Assessment
3. Acquisition
4. Utilization
5. Repair and maintenance
6. Replacement and disposal

The process starts with ***strategic planning***. In this top-level phase, the relevant stakeholders (e.g., Directors, Professors, Managers, Doctors, Engineers, Purchasing, etc.) review key issues, success factors and resource allocation, and assign responsibilities for sustained improvement in technological performance. They identify the services their facility provides, and the technologies that would complement their existing services. The typical questions to answer are: Where are we? Where do we want to be? How are we going to get there?

Because medical technology greatly impacts the cost and structure of healthcare delivery, hospitals include ***technology assessment*** in their planning process, which typically includes ***cost-benefit*** and ***cost-effectiveness*** analyses.

Cost-benefit analysis calculates the costs of applying the technology and compares them to the benefits resulting from its application. It provides criteria upon which to base decisions of whether to adopt or reject a proposed device. The device is adopted if its benefits exceed its costs. However, one limitation of this analysis is that it expresses all benefits, including therapeutic effects, in monetary terms. Hence, hospitals also conduct cost-effectiveness analyses to quantify therapeutic effects in terms of reduced patient hospital stays, and compare these to the costs of the technology's implementation. Although at first glance the chosen technology may seem to have limited impact on other facility operations, stakeholders also examine the likely effect of the new equipment on existing services.

Other aspects of cost-effectiveness analysis include assessment of ***long-term replacement strategies*** and ***identification of emerging technologies***. Since medical devices have finite longevity, hospitals have replacement plans to minimize the effects of unforeseen capital replacement. By identifying emerging technologies that fit into the projected plans of the hospital's service area, the hospital tries to avoid investing in nearly obsolete technologies.

Purchase of a new technology is justified only when an increase in equipment's cost-effectiveness is clearly demonstrated. The typical questions asked during the analysis are:

- Will the new medical device increase the volume of the service?
- Will it raise the costs of the service?
- Will the device generate additional revenues and, if so, how much?
- What is the new device's expected lifespan?
- What is the device's reliability and the costs associated with its repair and maintenance?
- How reliable and reputable is the manufacturer?
- What impact will the new device have on routine operating costs?
- What will the disposal cost be?
- How easy is the device to operate?

Once the technology has been assessed and the decision to purchase has been made, the next phase in the process is ***technology acquisition***, which typically includes the following steps:

- Preparation of general and functional specifications
- Clinical, technical and cost evaluations

- Review of proposals and evaluations, and making a final decision on a device manufacturer
- Contract negotiation for the device's acquisition
- Preparation and issuance of a purchase order
- Contract award

A contract award is the green light for the medical device company to deliver and install the product.