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Medical Device Management

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Introduction

Most hospitals these days are wired – and wireless. An explosion of new medical technologies has taken place at the same time that electronic medical records systems have been rolled out across many organizations and new means of electronically tracking medical devices have come to the fore. Today, medical device management – a multifaceted term covering a range of systems and processes – is really about controlling all of this technology. It starts with procurement, making sure the device meets clinical, operational and financial goals. It moves on to ensuring that the device effectively communicates with other devices and the hospital's information technology system. It continues on to accurately being able to track device location and usage, and ends when a device is sold or taken out of service.

With healthcare reform placing new emphasis on the value of care provided, as well as new spending restrictions that make unbridled technology acquisition out of the question, getting the most out of a medical device is now paramount.

Despite all of the changes in the economic environment surrounding healthcare, physicians and other clinicians continue to want the latest and greatest medical devices. Medical imaging, in particular, continues to grow in cost, with CT scanners with more slice capability seeming to arrive monthly. Imaging is still the fastest-growing segment of Medicare spending. For larger hospitals in competitive markets, especially academic medical centers, the demand for cutting-edge technologies is fierce. And yet, whereas clinicians used to generally get their way, much more attention is being paid by the C-suite to the return on investment for all this medical technology. Financial controls on what systems invest in are now much greater, and the clinical case must be much stronger to trigger a "yes" from senior leadership.

Although estimates vary widely, U.S. hospitals waste billions of dollars each year on clinical assets that are not utilized and managed effectively. In fact, in some cases, devices are not even accounted for, lost in a large health system's labyrinth.

With annual healthcare spending in the U.S. now somewhere north of \$2.5 trillion, estimates that 30% of that spending does nothing to improve health outcomes, take on special significance. With hospitals spending 31 cents of every healthcare dollar, that means wasted spending in hospitals amounts to some \$235 billion annually. That's about \$40 million spent by every acute-care hospital in America inappropriately every year.

Given the current climate in healthcare, where hospitals are feeling pressure to reduce waste by improving processes and doing more with less, healthcare systems are looking to optimize what they currently have while still providing the best care possible and protecting patient safety. The latest American College of Healthcare Executives survey of CEOs, released in January, reported that 77% ranked financial challenges as their No. 1 concern. Among that group, 63% said that limited resources were challenging their ability to invest in capital equipment and infrastructure.

A new role for supply chain

Procurement of medical devices is now a multi-departmental affair, with supply chain or materials management departments often playing the role of facilitator. Biomedical engineering can analyze clinical need, but nowadays medical devices need to interact with IT. The days of "one-off" purchasing are already over, because every device must be able to communicate with the rest of the system, often wirelessly. Standardization is the rule of the road, and supply chain is often the traffic cop, making sure everyone, including finance, the clinical department, the device vendor and the technology assessment firm, are doing what they are supposed to do. In the end, supply chain puts it all together from a sourcing and procurement perspective and keeps it together from a long-term asset-management perspective.

In the age of healthcare reform, the conversation about supply chain costs within an organization is inherently intertwined with quality and clinical outcomes. Thus, any new medical device must be evaluated in terms of its clinical effectiveness. That will only become more important as the federal government embarks on funding of comparative effectiveness research. Many of the medical devices that are the result of achievements in biomedical science have left us with a plethora of choices regarding

diagnoses and treatment, but it's frequently unclear which options are actually the best. Comparative effectiveness research will help provide information that will help organizations make better choices.

For top IDN or system executives, decisions on big-ticket medical devices are mostly about return on investment. They look to others to evaluate the clinical case for a purchase. What they want are quantifiable data on cost of acquisitions, total costs of ownership (including service), potential revenue, and number and type of patients who would be affected, and potential impact on market share. If the numbers show an ROI, the C-suite is likely on board.

The process by which medical device systems (and they are truly systems nowadays) are identified, acquired, implemented and managed has become very systematic. Acquisition and sourcing are really secondary activities for materials managers, which is a big change in their roles. Having ultimate responsibility for making sure everything goes according to plan is a higher-profile opportunity for them.

Outsourcing

The service component of cost has become more daunting and expensive, because the complexity of equipment makes it even more IT-focused. All of this complexity has pushed more systems to look to outside vendors for help in this area. *Modern Healthcare* magazine's annual Outsourcing Survey last fall found that in 2009 3,179 responding hospitals used service contract vendors, up 12% from the prior year. The list of the top 20 outsourcing firms is littered with the larger clinical device management vendors, including Trimedx and GE Healthcare.

But maintenance is hardly the main value medical device management firms provide. Most are used to gain pricing perspective and to assess comparable technologies based on clinical need.

Given the amount of spending at issue, it isn't surprising that this is one of the most hotly competitive markets in healthcare, with a plethora of firms large and small doing assessments of the financial, clinical, and operational impact of new technologies; competitive pricing reports; inventory analysis and reduction services, maintenance service contracting; equipment tracking; training of in-house staff; and management of physician preference items. ECRI, GE Healthcare, Hayes, MD BuyLine, MedAssets, Trimedx and Universal Hospital Services are just some of the firms providing some or all of those services.

A medical device vendor may tell the hospital that "everybody has this device, so you need it, too." An assessment company has done the market research and can say definitively which other hospitals in a market have a particular device, as well as provide a side-by-side comparison of the clinical and technical features, if not the relative clinical effectiveness.

There is a definitive trend toward outsourcing of at least a portion of the medical device management role, though how much is outsourced varies widely. A lot of vendors come in to do a full assessment of the hospital's entire portfolio of clinical assets and risk factors, then come up with a set of recommendations for future decision-making. For example, they may recommend that future purchases be only of wireless technology. While expensive, wireless is an operational advantage because you can transfer patient data instantly over the Internet into an electronic medical records system.

Tracking assets

Radio Frequency Identification (RFID) technology is increasingly the standard for tracking medical devices across a hospital or health system. This utilizes Wi-Fi and Voice over Internet protocols, creating a single information system that can track and manage hospital equipment, reduce medical errors and cut costs related to misplaced equipment and lost productivity. This is especially valuable with high-value and highly mobile device such as portable X-ray machines, oxygen pumps and defibrillators. These systems reduce the time employees spend looking for assets, improve asset utilization and enhance the hospitals' ability to perform scheduled maintenance.

Mobile clinical assets are an indispensable part of healthcare delivery. Whether it's an IV pump, a bedside telemetry unit or a wheelchair for transport at discharge, virtually every patient depends on one or more mobile assets during a hospital stay. However, despite its key role in patient care, the effective management and distribution of mobile equipment remains an ongoing challenge for many hospitals striving for efficiency.

Questions

1. Has the passage of healthcare reform led your organization to take a harder look at the rationale for new medical devices?
2. Given financial constraints today, and all the attention being paid to comparative effectiveness research, is the medical device arms race slowing down or are we still on a growth curve?
3. What is the role of supply chain in your organization in terms of decision-making on new purchases? Who calls the shots? Is it a collaborative process, or does biomed or clinical engineering run the show?
4. Given the increasing technological complexity of medical devices, are contract vendors the best means of performing assessments in the sourcing and procurement process, or is it better to use internal expertise?
5. Is wireless technology the only way to go, given that everything in technology seems generally headed that way, or is it too expensive for the return you receive?
6. Is technology management and assessment considered a core strategy for your organization and a formal process or simply one that has varying degrees of implementation based on the project and the requesting department?
7. Has the increasing cost of ownership due to the complexity and connectivity of medical devices (mainly in the areas of service maintenance and integration) impacted your organization's decision making or strategy when it comes to medical devices? What has been the reaction of the clinical areas?
8. Does your organization see RFID as a viable strategy for equipment management? Why or why not?

