

## Mismanaged Assets

How flawed clinical asset management practices are driving up costs—and what hospitals can do about it

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Despite financial challenges ranking among the top issues confronting hospital executives, the significant dollars spent on maintaining and servicing mobile clinical equipment is an issue that continues to fly under the radar for many. This asset group represents 9 out of every 10 pieces of equipment in a typical hospital—thousands of devices. Yet, most CFOs know very little about their clinical asset inventory and the operational and capital costs entailed each year.

High-quality patient care requires equipment that functions to the manufacturer's specifications, so equipment servicing and maintenance are necessary costs of doing business in healthcare. That doesn't mean, however, that healthcare organizations can't improve how they manage these often hidden costs.

Hospitals annually spend between \$5,000 and \$7,000 per bed to service capital assets used in patient care, such as biomedical, laboratory, monitoring, life support, and diagnostic imaging equipment. For a 200-bed hospital, that can mean an outlay of \$1.4 million per year, while larger institutions shoulder incrementally higher costs. The challenge, and opportunity, is to find ways to reduce those costs while still maintaining equipment at optimal levels.

We believe that two tools, in particular, can provide the means to help achieve those goals:

- Service cost accounting to quantify and analyze the institution's annual spend, generating a baseline for cost-reduction efforts

- An informatics-driven maintenance program to improve asset management and reduce operating costs on a recurring basis

### Why hospitals need service cost accounting

With service costs consuming a substantial share of a hospital's annual budget, a detailed audit is likely to uncover opportunities for cost savings and improved efficiency.

To cope with tighter capital budgets, many hospitals have chosen to shoulder higher service costs by opting for expensive maintenance and repairs aimed at stretching the lifespan of their equipment. Some hospitals have dropped pre-paid service contracts on select clinical equipment in favor of time-and-materials service arrangements. Although this may ease budgetary pressures in the short run, these hospitals risk not having equipment available when needed and potentially paying more out of pocket for repairs.

A full understanding of clinical equipment service costs provides the groundwork to reduce these costs and optimize associated vendor and outsourcing arrangements, while minimizing risks. Unfortunately, most hospital cost accounting systems and practices simply are not up to the task of accurately measuring service costs, which are often misclassified, misplaced, or simply not recorded in an

easily identifiable way in the traditional systems used by many healthcare institutions, from single hospitals to multi-facility health systems.

What's needed is a repeatable, robust process that provides management with the insights necessary to get maximum value from each service dollar spent while maintaining clinical equipment at an optimal performance level.

### A fundamentally flawed system

The root cause of poor equipment service cost accounting is that the equipment service function is fragmented and decentralized. Ownership of clinical equipment assets tends to reside with individual departments within the hospital, such as radiology, laboratory, or clinical specialty areas.

Service costs are often handled very differently across departments. For instance, some do not differentiate between clinical and non-clinical service costs, paying both from the same subaccounts—usually “repairs and maintenance” or “maintenance contract expense.” As a result, service and repair for clinical assets are often intermixed with service costs for fax machines and copiers.

Different departments may use different accounting codes for the same type of expense, which means that multiple budgets and line items must be examined. Some coding differences can be traced to differences in the way that expenses are coded by individual accounts payable clerks. Others reflect decisions to shift expenses to subaccounts when the budget for the original line item has been exhausted.

Outsourcing presents its own complications. Few hospitals have

## Asset Management Costs by Category

	High-End Imaging	Low-End Imaging	Biomedical Equipment
Number of Items	10	30	3,500
Cost per Item	\$50K - \$150K	\$10K - \$20K	\$50 - \$10,000
<b>Net Cost</b>	<b>\$600,000</b>	<b>\$400,000</b>	<b>\$1,000,000</b>
Percentage of Total Cost	30%	20%	50%
Includes	CT, MRI, PET, Vascular, Digital X-ray	Rad, R&F, Mammo, Ultrasound	Lab, Pumps, Scopes, Dialysis, Lasers, Sterilizers

succeeded in standardizing and centralizing contracting for outside service providers. Contract payment and coverage terms vary tremendously, and individual managers often code costs to different and, sometimes, obscure line items in their departmental budgets. The only way to quantify vendor costs is to review the specific terms of each service contract, which can be a formidable task. A 300-bed hospital may easily have 4,000 devices covered by 100 different service contracts with 50 or more different vendors. Collecting and correctly interpreting all the clinical asset-related service contracts for every department requires substantial time and effort, particularly the first time through.

### Blueprint for quantifying service costs

How can a management team arrive at an accurate measure of service costs given the complex ways that hospitals provide and account for clinical equipment service? The answer is to apply a repeatable, systematic, and knowledge-based process for accurately quantifying service costs.

1.

**Form a core project team and define the project's scope.**

The project team should consist of individuals who are familiar with and have access to the relevant accounting systems and service contracts. It is also essential to include at least one individual from the biomedical/clinical engineering department or someone with equivalent hands-on knowledge. The project team should select an executive sponsor, usually the hospital's CFO or CEO. Once established, the team's first task is to define the project scope, setting explicit goals, timelines, roles, and expected hours or level of effort required from each team member.

2.

**Collect data.**

The key data sources are the general ledger and accounts payable ledger with department-specific information and transaction-level detail, a list of all accounting codes in current use, an inventory of all the hospital's clinical assets, and copies of all vendor contracts that cover outsourcing of clinical asset maintenance or service.

3.

**Employ forensic accounting.**

This step relies on sophisticated, knowledge-based "pattern recognition" skills to determine where clinical asset service costs are likely to be hidden. It can take weeks to sift through detailed transactions to ensure all relevant costs are captured.

The first step is to determine the actual service costs for clinical equipment. Include purchased time and materials as well as service contract costs. It's

also important to include any in-house labor and departmental costs for the biomedical engineering department.

Exclude costs for non-clinical equipment (e.g., refrigeration units, laundry equipment) as well as the cost of accessories, consumables, or disposables related to the use of clinical and non-clinical assets (e.g., cables, power cords, filters, batteries). In addition, exclude consulting fees; renovation costs; and upgrades for equipment, hardware, and software.

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The team should examine clinical asset inventories, rather than the hospital's capital asset list. For example, if a hospital lists several dialysis machines on the inventory, the team will need to track down the associated service costs. This task is complicated by the fact that the service costs may be bundled in with other departmental costs or, alternatively, only show up as a component of an outsourcing contract. The latter case underscores the importance of reviewing all outsourcing agreements (in addition to reviewing the general ledger) to identify otherwise "hidden" service costs for clinical assets.

The assessment is also an opportunity to evaluate whether inventory matches up with the service contracts, to

eliminate unnecessary contracts (e.g., for equipment that is no longer in use), or to streamline contracts with overlapping or redundant services (e.g., paying for repairs on a time-and-materials basis when a pre-paid service contract is in place). The contract review process also enables the team to gauge whether the proper level of service is in place (e.g., 24/7 versus 9 to 5) given the mix of clinical equipment and the intensity of use for each type of device.

A major metropolitan hospital system in the Northeast was able to identify a potential 40% reduction in contract spend by consolidating and eliminating redundancy in contract spend and properly utilizing in-house skill sets.

**4.** **Identify savings opportunities.** The now-accurate service cost data can be used to identify cost-saving opportunities. No single metric can fully assess the efficiency of a hospital's clinical equipment service and maintenance strategy. Instead, a holistic approach in which related metrics are considered as a group to pinpoint opportunities to improve efficiency and cost savings is more appropriate. Metrics to consider include:

- Cost per staffed bed
- Cost per clinical device
- Cost per BMET
- Clinical devices per staffed bed
- Clinical devices per BMET (see sidebar for average measures)

## Determining Average Expenses for Key Metrics

Below are some of the average expenses GE Healthcare has observed from its 50 most recent assessments (of more than 500 assessments that have been conducted at hospitals across the country). Please note that these numbers should not be interpreted in isolation, nor should they be considered best-in-class "benchmarks" in the traditional sense. In many cases, optimal measures are well outside the range in which most hospitals currently operate. Also, note that these figures do not account for costs incurred on imaging devices, including but not limited to X-ray, CT, magnetic resonance, ultrasound, and radiation therapy.

Key Metric	Average
Service Cost/Staffed Bed	\$2,700
Service Cost/Inventory Item	\$195
Staffed Bed/BMET	76
Inventory/Staffed Bed	15
Inventory/BMET	1,074

### The value of service cost accounting: examples

A few examples help illustrate the basic concepts behind service cost assessment and its value in helping hospitals investigate and resolve service cost issues:

- Uncovering the real driver of high per-bed spend—Hospital A has compiled service costs for its clinical assets and discovered its service cost spend per bed seems high. In isolation, this measure provides insufficient information for the team to fully understand the issue and take appropriate action. In examining the average service cost per device, the hospital determines that the high per-bed spend is actually driven by a higher-than-expected average number of devices per bed. The next question for the team to consider is whether the device count is "right" for the hospital's number of beds and patient census, its function (e.g.,

teaching vs. community hospital), typical patient mix, and whether there may be opportunities for cost-savings by paring down the device inventory.

- Matching inventory to census requirements—In Hospital B, a 200-bed facility, the number of devices per bed seems to be in line with expectations. However, the hospital’s census is typically around 100 patients. It is only by looking at these two metrics together that the team sees an opportunity to reduce operating (and service) costs by optimizing the number of devices in inventory because the census suggests that a smaller inventory may be adequate.

### Next, a comprehensive asset management program

Conducting a clinical service cost assessment gives hospital managers an accurate view of the present-day costs involved in maintaining and servicing the clinical asset base. From this baseline, they may decide to adjust the size of the asset inventory, rebalance the mix of assets, redesign the processes involved in asset distribution, change service vendor arrangements, or any combination of activities that optimizes both cost savings and equipment functionality.

Having gone through the rigors of the assessment process and seen firsthand how multiple factors interact to drive up service costs, many hospitals turn to alternative approaches for managing their clinical assets going forward. Rather than continuing to handle the service function in-house or trying to coordinate the efforts of multiple service vendors, they see value in a comprehensive

approach that consolidates all aspects of asset maintenance—equipment service as well as parts and inventory management—within one coordinated, outsourced program.

Following its evaluation, Oxford Analytica concluded that CompreCare “generates a minimum 15% reduction in specific cost areas, consistently leading to a net reduction in costs with no compromise

## Savings Achieved Following Service Cost Assessments

### Hospital Type

- 100-bed facility
- 150-bed facility
- 450-bed facility
- 500-bed facility
- Four-hospital health network

### Outcome

- Service cost reduction of \$55,000/year (25%)
- Service cost reduction of \$79,000/year (18%)
- Service cost reduction of \$540,000/year (20%)
- Service cost reduction of \$476,000/year (20%)
- Discovery of inventory discrepancy on more than 2,000 devices (25% of total inventory) led to savings of more than \$800,000/year in service costs.

### Proven through rigorous validation

One such program is the CompreCare\* comprehensive asset maintenance solution from GE Healthcare. The program was recently validated as a cost-saving “healthymagination” innovation by Oxford Analytica, an independent international research and consultancy firm comprising senior faculty members from Oxford University and other major universities and research institutions worldwide.

CompreCare uses established best practices in asset management, proprietary technology, and service expertise to provide healthcare institutions with an informatics-driven program that can help improve decision-making, increase asset utilization, and reduce operational expenditures.

in quality of outputs.” The report goes on to state: “CompreCare reduces cost through four main channels: operational efficiencies, technology, scale, and expertise. Combined, these allow hospitals to reduce waste, increase productivity, and better use information for operational and capital decision-making—all leading to net cost savings.”

The starting point for the savings is a service cost assessment, as outlined earlier in this paper. Such an evaluation identifies the specific needs within the institution and lays the foundation for developing a maintenance program with the right mix of processes, people, and technologies to deliver the desired savings.



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