

Balancing Cost and Quality: Managing Risk in Your Service Program

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Achieving sustainable cost savings is a critical imperative for many U.S. health systems. Sharp and continuing margin declines, as well as the operational aftereffects of the historically high mergers and acquisitions activity, have left many health systems feeling financially pressured and searching for answers. Clinical asset maintenance has become one target for finding relief.

Service model change should be pursued through a balanced approach. Careful consideration of a number of factors will be needed to help avoid unplanned downtime or suboptimal asset performance that can have serious effects, such as lost revenue opportunity, unexpected costs, disrupted workflow, frustrated biomedical and clinical staff, and decreased patient satisfaction.

There are multiple options and models to consider, including OEMs, third-party service organizations, and insurance programs. Understanding the benefits and the risks is important.

Here are six key areas to evaluate and questions to help guide your efforts.

-  1. Are you optimizing your human capital?
-  2. Will your assets be available when your patients need them?
-  3. Is your model flexible enough to meet growing or evolving needs?
-  4. What administrative surprises are hidden in your program?
-  5. How will you achieve and maintain program compliance?
-  6. Will your new model offer short term cuts or help achieve systematic, sustainable cost savings?



Are you optimizing your human capital?

Considering the cost of imaging assets, the mission-critical importance to care delivery, and publicized concerns about the potential effects of over utilization, technical service labor may be the most important issue you need to get right in your new model. Starting with how many resources are needed to support your organization. What is the optimal mix of in-house versus outsourced resources? How will you scale and optimally deploy these resources to meet the needs of your organization as it grows and changes?

When determining your labor strategy, you will also need to consider the factors listed below. Calculate the soft and hard financial impact into the analysis of a prospective service model.

- Technical training and experience
- Service aptitude and attitude
- Technical focus and specialization
- Geographic coverage and distribution of service engineers
- Service tools and technology to enable the engineer

For example, advanced service diagnostics and tools from OEMs are important to support the engineers. Will your team have access to these items? Usage of diagnostic tools can help support productivity. To provide an estimate of the value of an OEM diagnostic tool, an engineer could multiply the number of hours saved when using each diagnostic tool by the hourly cost of downtime, and then replicate that analysis for each modality. For example, a frequently used GE MR diagnostic tool called EPI WP test (an EPI pulse sequence tool used to trouble shoot white pixels which cause corduroy artifacts) was estimated to save in-house personnel three hours per quarter on average. If the MR revenue potential is \$1,500 per hour, this would suggest there could be a potential annual ROI savings of \$4,500 per quarter or \$18,000 annually.

Ensure that all parties will receive timely and current training. Technologists and clinicians need ongoing training to effectively use advanced applications and to demonstrate efficiency operating the systems. Without this training, quality issues can arise, equipment assets could be underutilized and you may realize a lower return on your technology investments.

The experience of a large Texas health system demonstrates the potential value derived from optimizing their human capital. Through workflow observation, project management and targeted education, as well as a workflow redesign, they were able to reduce MR exam timeslots from 60 to 50 minutes, reduce actual exam time on average by 10 percent, and add 2,250 exam slots per year. It is estimated that this could potentially deliver \$2.8M of revenue.

The cost of not considering these factors can be serious. A lack of support and training for physicians and management can impact operations. Insufficient applications training may cause unnecessary “service issues” that are actually related to how the equipment is being used and not how it is operating, and more.

Optimizing human capital for a large Texas health system has helped to:

- ↓ Reduce MR exam timeslots from 60 to 50 minutes
- ↓ Reduce actual exam time on average by 10 percent
- ↑ Add 2,250 exam slots per year
- ↑ Potentially deliver an estimated \$2.8M of revenue

Data from approved case study JB25840US.



Questions to consider:

- Do the service engineers have the skills and tools to perform testing, calibration, preventive maintenance, and repairs that meet OEM standards for optimal performance or to meet your organization's standards?
- Have you made allowances in your calculations for the expense of additional training to remain competent on new equipment, as well as on equipment from any new manufacturer that may be added to the fleet in the future?
- How can you use your training investment to recruit and retain talent? Can maintaining their knowledge help cover gaps in your service model?
- How do you measure whether your labor strategy is in line with your organizational goals and/or market trends?
- Are you prepared for the ongoing labor turnover rate? How will your model be impacted by the availability of talent?
- Will in-person or online training programs be available to provide access to advanced, accredited educational courses?
- How will your technologists receive support in running protocols and maintaining their competencies?

Will your assets be available when your patients need them?

Identify specific commitments on response time and equipment uptime, as well as remedies for noncompliance in your service model. Just a five percent loss in uptime for one CT could result in lost revenue. To amplify the point, add the potential impact downstream, such as workflow disruptions that result in canceled procedures, underutilized OR suite time or the potential impact of delayed care to a seriously ill patient. HCAHP scores, while a complicated formula, can be affected by patient satisfaction scores and impact reimbursement.

Key to achieving a guaranteed performance metric is the response process. How will you be confident that guarantee will be realized? One important variable is access to remote diagnostics and support, especially if you have facilities in remote geographic locations and/or without equipment redundancies. The value can grow if any of those facilities are mission-critical based on patient volumes and/or clinical capabilities. When effectively designed, remote diagnostic services can dramatically help reduce the time needed to identify and fix an issue, and may enable the proactive repair of issues prior to a decline in system performance.

However, not all remote diagnostics services are created equal. Are your remote services monitoring the sources of the most disruption? For example, some programs remotely monitor more than 1,200 parameters for MR, while others monitor only four sensors. While those four sensors can identify catastrophic events, the other 1,196 criteria and parameters may anticipate larger events as well as smaller changes that can affect system performance.

Studies suggest the average utilization of equipment in healthcare is 42 percent.

Another important variable is accessibility to data and analytics that can inform and guide decision making. Studies suggest the average utilization of equipment in healthcare is 42 percent.¹ Will you have access to analytics about system usage, staff productivity, and patient flow? This data can strategically guide a healthcare organization's efforts to right-size (and right-locate) its asset installed base without compromising the quality or timeliness of care – all while helping to increase operational efficiency and potentially decrease costs.

Questions to consider:

- How will uptime be measured?
- Who will track and report uptime?
- What are the remedies for noncompliance?
- What are the remote fix and triage rates (including triage to In-House full-time employees) on individual systems?
- What is being monitored? Use the often quoted 80/20 rule. What is the 20 percent that will generate 80 percent of the issues? Are those also being monitored or just the catastrophic indicators?
- Are remote diagnostics available on the systems your organization purchased? How will it be used on your behalf?
- What are your current equipment utilization rates and what are you doing to improve them?

Is your model flexible enough to meet growing or evolving needs?

Budgetary control and long-term price protection are needed to achieve effective, sustainable cost containment. Some programs market the flexibility of one-year terms that can be amended at any time, with equipment added or subtracted from the plan. Does the provider reserve the right to adjust the second year's premium based on the first year's financial performance? Or do they provide fixed pricing for multiple years, typically from three-to-five years, and sometimes longer?

Contract flexibility is also important. What if you have new service needs that arise, purchase new equipment, or need to address financial environmental changes during the term of that agreement? Will your service provider allow for changes in coverage levels at certain intervals of the contract term to accommodate for changing strategies and/or the incorporation of more or less comprehensive coverage features?

Some models may offer a substantial service cost reduction combined with promised flexibility to specify your own service providers. In practice, such programs suggest or require customers to "shop around" for the lowest-priced service vendors. That is often the only way to deliver the promised cost savings. As a result, sometimes the service engineers, dispatched to maintain million-dollar scanners and other critical equipment, may not have sufficient or current training, which may result in extended downtime due to incomplete or incorrect fixes or suboptimal equipment performance.

Some service providers in the market provide additional flexibility within their contracts outside of the traditional terms and offerings. This flexibility may include:

- Usage-based coverages based on service consumption and/or equipment utilization
- Pooling options based on typical consumption patterns for parts and/or labor

- Offering conversion flexibility to change coverages during the term of the service agreement instead of having to wait until the end
- Tighter performance commitment with associated financial penalties and/or out-clauses for non-performance

These are just a few examples of what may be important to you in assessing model flexibility. Know what you want and make certain it's included.

Questions to consider:

- What capabilities does your provider have to capture, report, and analyze data from your clinical assets?
- Are they able to provide options to act upon that data and help improve operational productivity or help identify potential cost savings?
- What next level data do you need and how will you use it to drive alignment on coverage levels and inform other decisions?
- What flexibility is needed for changes in equipment or coverage levels? How frequently would you need to make changes?
- What type of exposure could you have outside of contract coverage and how do you plan for that exposure?

What administrative surprises are hidden in your program?

Administration costs are often an unpleasant surprise. The mechanics of scheduling, gaining approvals, tracking and paying for equipment service can be laborious and time-consuming, leading to increased downtime. And these areas can be a significant source of hidden cost in your service model. Will you need to hire an additional full time employee (FTE) to manage the administration? After compensation, benefits and other expenses related to the new FTE, will your anticipated savings be offset by the labor expense? A thorough assessment of your maintenance program should include consideration for the administrative elements that could offset savings in other areas.

Another surprise can be found in how the service provider will interact with your equipment and staff. In some models, the number of service providers interacting with equipment/systems increases significantly. Rather than streamlining the service process, it becomes more complex to manage multiple service providers – potentially further increasing administrative time and expense, and also potentially causing disruption and frustration.

The cost of a \$17 dollar hammer is really \$117 when you factor in the \$100 process costs.

Uncovering the long-term “real” costs associated with contract and program administration is essential to achieving the desired cost savings. Many of these costs are not captured when accounting for the total cost of a service program. To use a related example from the book *The Challenger Sale*, Grainger found that the cost of a \$17 hammer is really \$117 when you factor in the \$100 process costs of sourcing and paying for the hammer.² The same logic applies to a medical maintenance program. How much are the process costs for hundreds or thousands of individual transactions in a given year? How are you accounting for those process costs, and how much expense have you simply transferred from contract to process costs?

Questions to consider:

- How will you allocate personnel to manage the paperwork and administrative responsibilities? How will the cost of that personnel impact the proposed cost savings?
- Do you have the infrastructure and dedicated personnel to manage the service budget as well as the day-to-day maintenance and service activities to ensure their assets are functioning optimally?
- How many calls, claims and purchase orders are required for each service event?

How will you achieve and maintain program compliance?

Regulation from numerous federal, state, local and private regulatory bodies plays a major role in the healthcare industry to ensure providers promote and provide quality care. These agencies often establish mandatory rules and oversight or, in the case of accreditation agencies, require voluntary participation to obtain rankings or certifications of quality. How do you stay abreast of continually changing healthcare regulations and the standards necessary to support compliance and to provide safe health care to every individual who accesses the system?

Risk of non-conforming devices increases when important activities are not properly performed according to procedures. Common examples include untrained staff, improper maintenance, missed updates or recalls, by-passed safety mechanisms, use of unqualified replacement parts, improper assembly, modifications or 'work around' solutions. Failure to implement radiation dose management techniques and strategies for radiology equipment is another important contributor to risk.

A broad range of failures and consequences can result from non-compliance ranging from patient inconvenience, injury or even loss of life to liability issues and risk for license/registration revocation, financial penalties, or other sanctions.

Minimizing compliance risks can require significant resources and coordination to meet all standards and be ready for unscheduled audits. It requires a compliance program that monitors new and changing requirements and implements adequate and properly defined policies, processes and procedures to consistently ensure safe and effective operation of a device. Furthermore, an effective program measures results and demonstrates a facility's commitment to quality, compliance and the ability to support customer needs.

A key component of a compliance program is a quality management system that helps to ensure medical devices consistently meet applicable requirements and specifications and operate in a safe and effective manner. It aids in establishing the appropriate procedures and processes, as well as innovative equipment applications and training that supports the proper and safe functioning of medical equipment, the quality of the services provided, and overall patient care.

Questions to consider:

- How do you ensure your service program is compliant with your regulators at all times, not just when you are due for an inspection?
- Do you have a consistent method and metrics for measuring your quality and compliance performance?
- How is your program keeping up with changing regulatory requirements?

Will your new model offer short term cuts or help achieve systematic, sustainable cost savings?

Short term cuts may feel great. However, if they are not repeatable and sustainable, have you truly made progress? Have you considered a comprehensive and analytics-driven asset management approach? Some health systems have found that it can help them gain greater control over service spend overall, while simultaneously increasing utilization and reducing other operational and capital expenditures throughout the system. Following a systematic and sustainable program for clinical asset management, healthcare organizations have the potential to:

- Reduce capital costs by right-sizing inventories based on patient base
- Reduce operational costs by maintaining and servicing fewer units
- Enhance patient care through more effective maintenance procedures and more consistent asset availability
- Build and maintain a knowledgeable and well-trained biomedical team
- Support clinical staff with optimally performing equipment
- Enable improved patient experience and satisfaction with efficient and high quality care delivery.

Questions to consider:

- Does your current service program track metrics and deliver data and analytics in status, location, maintenance history, utilization and performance against benchmarks?
- Do you have a 360° operational overview for comprehensive service model optimization?
- Are you able to easily track all the asset data and help enable compliance for audits?
- Do you monitor patient and exam volume trends on CT and MR systems to enable better decisions about relocating, upgrading and staffing?
- Do you have insights to help imaging departments increase staff productivity and optimize patient flow?
- Are you able to provide planning reports to help make sound decisions about how to allocate the capital budget?
- Is information readily available to help drive business decisions and strategy?
- Can you combine organizational priorities with market data and utilization information?

Summary

There are many different approaches to medical maintenance, and there is no single solution that works for all healthcare providers. And the advantages and trade-offs of each must be considered across a variety of factors.

Some models may achieve a reduction in operating expenses through brute force limitations that pare equipment service back to a near break-fix mentality and leave large gaps that can increase costs, potentially imperiling patient care delivery and staff productivity. Some may have hidden costs resulting from administrative paperwork or a lack of access to training and advanced tools. Others may inherently have more risk and can have downstream operational impact that can offset cost savings.

There are many approaches to cutting costs, but the approach you choose should not come at the expense of equipment performance, continuity and timeliness of patient care, staff satisfaction and productivity, or the ability to capture and utilize data to improve and guide decision making. These six critical areas should be considered as you balance the pros and cons of your service model change to ensure the change you make will deliver the results you desire.

About the author



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Todd Hall has worked with healthcare providers to develop medical maintenance and asset-management programs for the past 13 years. Todd has a bachelor's degree in Mechanical Engineering from the University of Wisconsin as well as a master's in Business Administration from Babson College.

Questions to consider service option trade-offs:

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Questions to consider service option trade-offs: (continued)

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