

# Imaging Technology: Utilization and Service

**Introduction:** Imaging providers—now, more than ever—need to operate their technology resources as efficiently as possible. To achieve maximum efficiency, the imaging devices must be properly maintained, or providers run the risk of equipment failure. If efficiency is defined as the number of units (procedures) produced in a standard day (10 hours), then three key elements drive efficiency: technology availability (uptime), speed (time needed to produce a single unit), and staff productivity. These three elements are the foundation of throughput.

The previous edition of Imaging Market File presented 2011 equipment-inventory data collected by the AHRA in 2012 using the AHRAdatalynx tool. This edition looks at CT and MRI equipment-utilization percentages and service costs.

**Equipment utilization:** A primary indicator of a technology's operational efficiency is how consistently the imaging equipment is used, relative to its total capacity. Equipment capacity is defined as procedures performed divided by the total available time slots (based on the hours of operation of the equipment).

CMS defines 100% utilization as equipment operating for 50 hours per week, 52 weeks per year; even though many devices in hospitals and in outpatient facilities operate during extended hours, Regents applied the CMS standard for this analysis of the AHRAdatalynx database. These data come from more than 200 CT and MRI units, in both hospital and outpatient settings, across the country.

Multiple factors (including equipment capabilities, staffing, and workflow) affect the time that it takes to perform MRI or CT exams. We used an average time per study based on Regents' national client experience of 45 minutes per MRI exam and 20 minutes per CT exam to arrive at the capacity percentages outlined here (Figures 1 and 2). The CT and MRI units were grouped in five or six age categories, respectively, for this analysis.

**MRI and CT utilization:** Both MRI and CT devices that were 3.1 to five years old had the highest utilization rates—higher than those of the newest systems (up to three years old). This could be due to

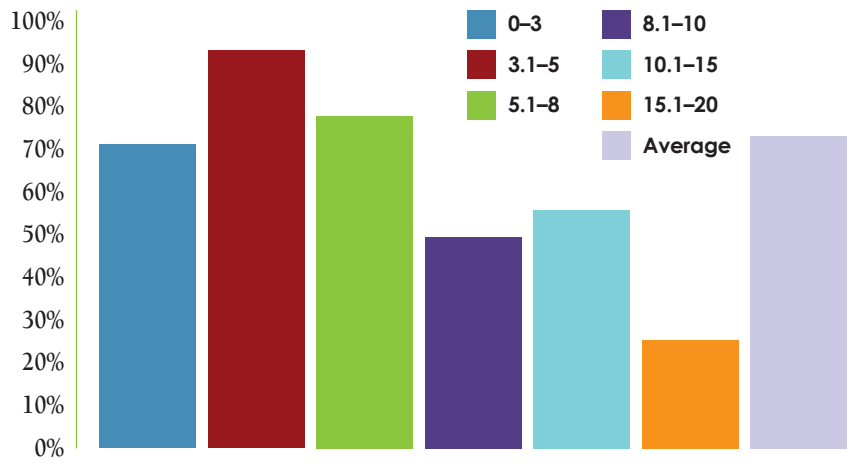


Figure 1. MRI utilization percentage by system age (years).

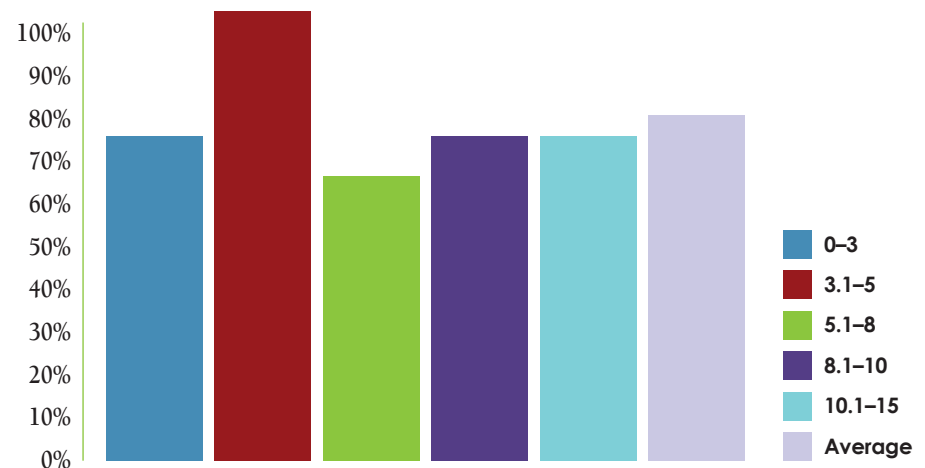


Figure 2. CT utilization percentage by system age (years).

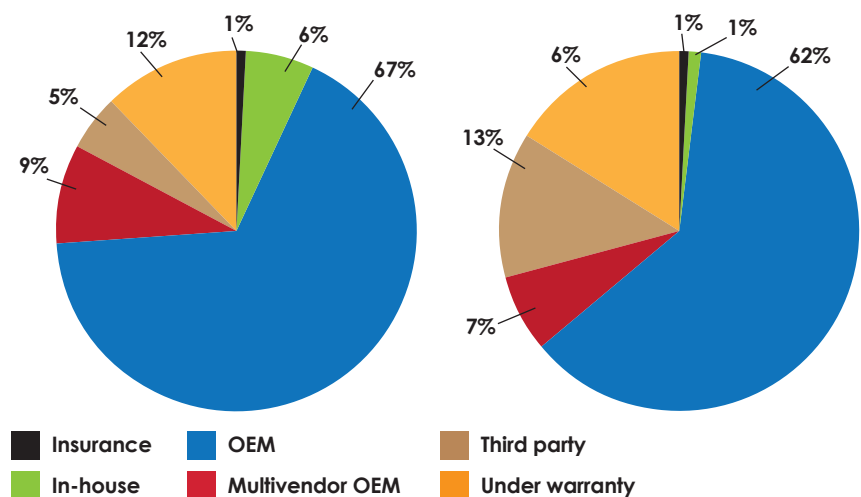


Figure 3. Service providers for CT (left) and MRI systems.

the comfort level associated with the older technology or the learning curve associated with new technology.

It's not surprising that the oldest MRI systems (8.1 to 20 years old) were the least efficient machines, possibly due to longer scan times or more frequent equipment failure. As a result of the application of the CMS equipment-utilization rate of 50 hours per week, some CT systems appear to be operating at greater than 100% capacity.

**Equipment service:** Service for 62% of the MRI systems installed was provided under OEM contracts, while 16% of service was under warranty (Figure 3). This does not necessarily translate into a 78% MRI service share for OEMs because (in a strong preowned-equipment market) the warranty is not always owned by the OEM. A warranty might be provided by a third-party service company as part of a used-equipment sale.

CT service follows a similar pattern, with 67% of systems under OEM service contracts and 12% under warranty. Some of the equipment shows a lower-than-average service cost that might reflect an in-house program or a time-and-materials strategy.

**Service costs:** The data show an average MRI service cost of \$74,261 for 2011 (Figure 4). Some of the variations in service cost by field strength might be attributable to the relative size of the installed base. The 3T MRI systems have a service cost that is much higher than average, due to their relatively short time on the market and the fact that many third-party organizations do not offer to service those systems (or cannot compete with OEMs).

In a similar case, only one vendor manufactures a 1.2T MRI system, and not many third-party service organizations have the ability to handle service and maintenance for that unit. As a result, the average annual service cost is significantly higher.

On the CT side, we see parallel anomalies for the 32- and 320-slice technology (Figure 5). Until very recently, just one vendor manufactured a 32-slice CT system, and the 320-slice CT units are relatively new to the market, with a limited installed base. Both systems appear to have a higher cost of service.

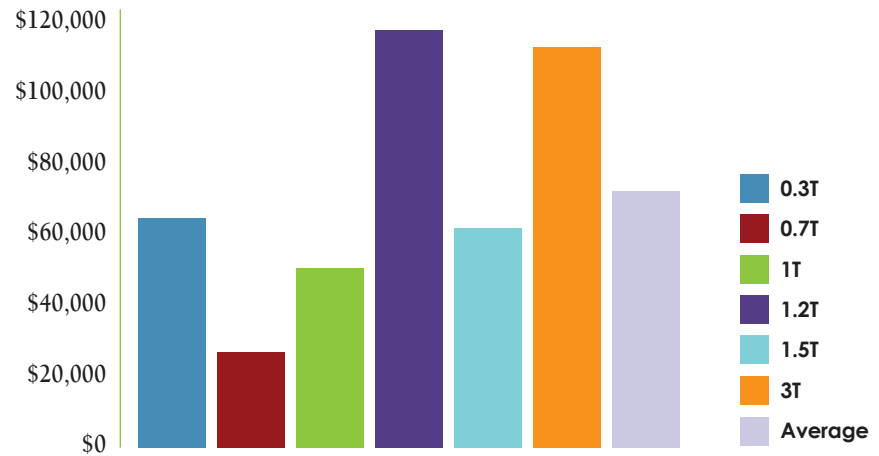


Figure 4. Average annual MRI service cost per system (by field strength).

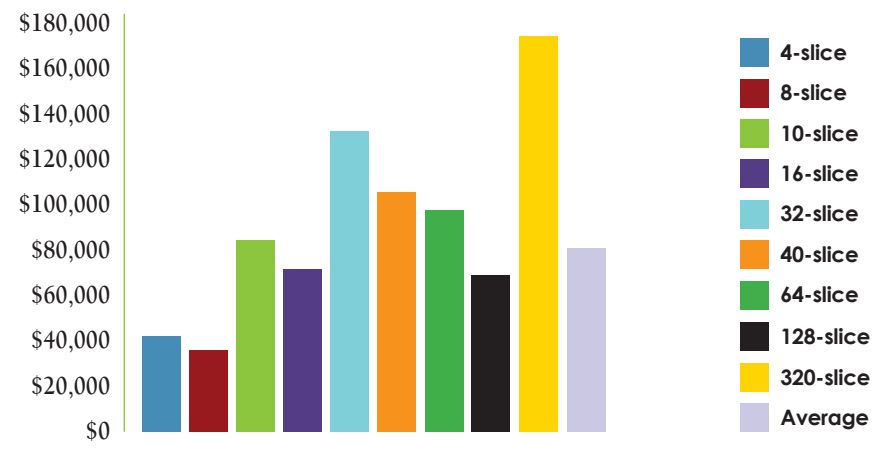


Figure 5. Average annual CT service cost per system (by slice count).

Data and  
Research  
Provided by



Regents Health Resources was formed in 1996 to assist hospitals and physicians in the development and management of their medical-imaging and oncology services. The consultancy has served more than 500 clients nationwide with a diverse range of services, from strategic planning and operational assessments to joint-venture planning, valuations, and imaging-center sales and acquisitions.

[www.RegentsHealth.com](http://www.RegentsHealth.com)

**About AHRAdataLynx:** AHRA, in collaboration with Regents Health and National Imaging Network, developed AHRAdataLynx, a benchmarking tool designed specifically for medical-imaging professionals. AHRAdataLynx is populated with data from a set of comprehensive surveys that include information on productivity and utilization, compensation and benefits, equipment and usage, financials, radiologists and turnaround times, and referring physicians. Launched in the summer of 2012, the AHRAdataLynx database continues to accrue daily, as more member-providers participate.

[www.ahraonline.org/AM/template.cfm?Section=about\\_datallynx](http://www.ahraonline.org/AM/template.cfm?Section=about_datallynx)



[www.NationalImagingNetwork.com](http://www.NationalImagingNetwork.com)



**TELL US WHAT YOU THINK!**

We hope you have enjoyed the topics presented in this year's IMAGING MARKET FILE. What would you like to see in 2013?

[www.RegentsHealth.com](http://www.RegentsHealth.com)



Email us at [marketfile@regentshealth.com](mailto:marketfile@regentshealth.com) or scan the QR Code to **DOWNLOAD THE FULL VERSION** of this month's IMF.

[www.regentshealth.com/imaging-market-file-dl](http://www.regentshealth.com/imaging-market-file-dl)



Visit us at RSNA  
**Booth # 7202**  
North Building  
Hall B