

## New Model of Community Hospital Radiology Cost Reductions From an Unforeseen Source: Via Professional Fees

### Imaging as a Culprit

For several years now imaging has been fingered as a suspected culprit for the high rate of healthcare cost increases in the U.S. The interrogation light, though, has been on imaging centers and physician self-referral and has kept away from community hospital-based imaging from being included in those accusations for good reason. The radiologist vanguard has also done a respectable job defending itself noting the many benefits and downstream cost savings that diagnostic imaging brings to a wide array of clinical conditions. But for the community hospital CEO and CFO, radiology continues to be a daunting department insofar as their thirst for capital expenditures to deliver cutting edge imaging services (Table 1).

### Radiology: Cost Sink and Profit Faucet

Despite the fact that the radiology department incurs large capital costs almost every budget cycle, they also provide one of the few glimmering hopes for profitable contributions to the hospital's bottom line. But the clinical deliverables of an imaging department lie more in the quality of the reports coming from the specialization of the radiologists, not based on the machines.<sup>1</sup>

So administrations must not only mind their wallets and purses in radiology for equipment and IT expenditures, but they also have to staff the reading room with quality radiologists that have been – and will continue to be – in short supply for non-metropolitan areas. If the quality of radiologists falls off, as it has in some institutions, then the indispensable outpatient imaging referral volume may falter and what had been a profit faucet could leave the hospital hosed with high capital expenditures and little if no profit to show for itself. Common quality issues in radiology include lack of subspecialty availability, high costs for preliminary reads on after hour ED coverage and inconsistent and indecisive reports.

### Hospital Administration in the Driver's Seat

There are new options, however, which give community hospital CEO's far greater flexibility in acquiring quality radiology staff than ever before. The technology that enabled nighttime reads is now becoming more and more available for full service interpretations during the day.<sup>2</sup>

Basically the choice is as follows: a CEO can replace the current local Radiology Practice with a new group and hope that they get better results. Or they can investigate new providers that offer a

combination of some radiologist resources on-site in the hospital, but provide the predominant remainder of interpretations through a network of remote, highly skilled specialized radiologists whose focus is on a particular specialty. This new type of professional services company is all about exactly that: better services to the medical staff.

If this new class of radiology service providers does their job the right way they can deliver higher quality by their distributed specialists and provide better business-type performance metrics than their local radiology practice counterparts.<sup>3</sup>

### Unforeseen Cost Benefit

Within this new model of remote radiology reading there lies an additional and heretofore unforeseen source for cost reductions. Some of these distributed radiology providers have invested heavily in their own technology infrastructure, software and business processes as a means of doing business at a distance from their community hospital clients. Many of the systems these companies have deployed are redundant to ones that currently reside in the local radiology departments.

HOSPITAL HARDWARE & SOFTWARE CAPITAL EXPENDITURES FOR RADIOLOGY
Modalities – CT, MR, US, NM, Digital X-Ray, Digital Mammography
Network Infrastructure
Modality Worklist/Modality Acquisition
Archive
HIS CPOE
Radiology Information System (RIS)
Standard Radiologist Workstation – 2 MegaPixel (MP) or 3 MP
Mammography Radiologist Workstation – 5 MP
3D Rad Workstation
Dictation System
Transcription Services
Critical Findings Module
Radiologist QA/Peer Review

**Table 1.** This list summarizes the most common hardware and software systems a hospital-based radiology department has to purchase and maintain.

Whether it is a model of 100% off-site reading or if one or two radiologists employed by the services company are still on-site reading studies, a number of the systems outlined in Table 1 traditionally purchased and supported by the hospital may be obviated.

**Clinical Workflow Drives Systems Investment**

Other than the well-worn argument of “we need the latest scanner” most every system investment in radiology contributes to a key workflow process step. In Figure 1 below, the left column graphically summarizes the diagnostic process steps to order, acquire, store, read and communicate the results of an exam. The middle column depicts the hardware and software systems currently paid for by the hospital to carry out that associated task. The right hand column shows the same hardware and software systems, but it is color coded to identify those systems that a properly equipped distributed reading model company can provide as part of its professional services contract.

What is a remarkable and unforeseen cost benefit to community hospitals is clear – after the image is acquired and archived, the remainder of the systems needed to read the study, dictate, transcribe, edit and then communicate the results are all able to be transferred to the responsibility of the party providing the professional reading services. The question now is what might be the magnitude of savings?

**Savings Opportunities**

*Decommissioning Selected Equipment.* In the historical model of multiple radiologists reading on-site in the department, it was common for multiple high resolution/high brightness workstations to be deployed both in the reading room as well as in the radiologists’ offices within the department. If the majority of studies are being read remotely by a distributed services provider then those unused workstations can be decommissioned, thereby reducing the support requirements from the IT staff.

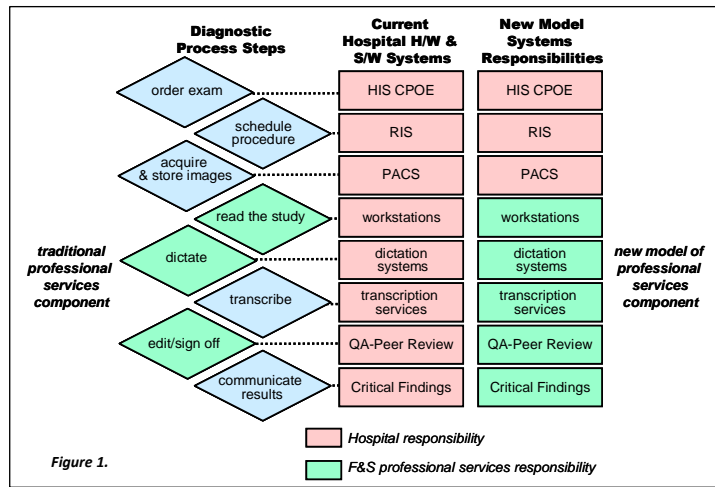
*Cancelling Support Contracts.* It is common for both hardware and software systems to carry a support maintenance agreement at a cost of 17% and up to 20% of the purchase price. If a hardware component such as a workstation or dictation system is no longer in use, the support agreements can be cancelled and savings immediately made available unless an annual contract had been pre-paid. These can add up to very significant savings to the radiology department’s operational budget because the maintenance contract value is based upon a high original capital investment. For even a modestly sized community hospital, annual savings on this component alone can exceed \$50,000.

*Cancelling Planned Capital Purchases.* Each radiology budget cycle is typically replete with replacements for outdated systems or for new purchases that have not been able to be prioritized in previous years. Examples abound but may include an old dictation system that needs to be replaced or upgraded to voice

recognition. Many institutions have expensive new digital mammography or 3D reading stations that are currently attempting to be funded. These functional but highly expensive tools are already in place and included from an advanced provider of distributed reading services and are no longer the assumed requisite investment that needs to be made to keep your imaging service state-of-the-art. Conservatively these cancelled projects and their subsequent amortization savings can routinely exceed \$100,000 each budget year.

*Per Exam Charges.* One of the key cost savings immediately able to fall out of the hospital’s budget is the transcription cost incurred on a per exam schedule, often ranging from between \$2.00 to \$2.30 per exam. If a radiologist is still reading at your site and using the existing dictation/transcription process then a large opportunity is being missed to transfer that responsibility and cost to the radiology professional services provider. Savings will vary but are ordinarily well over \$50,000 each year.

*Other Customary Professional Fees.* In the performance of their duties as an on-site local radiology practice it is not uncommon for the hospital to assume the costs of nighttime and weekend teleradiology coverage which produces only a preliminary report. The following day the radiology group completes a final report and collects a full professional fee for the exam while leaving the hospital to pick up the incremental teleradiology fee. For even a modest



sized community hospital these fees exceed \$100,000. By contracting with a distributed services provider, nighttime and weekend coverage is included, providing full final interpretations with no additional cost exposure to the hospital’s budget. While speaking of after-hours coverage costs one also needs to consider vacation coverage using locums. If the local radiology practice does not have the breadth to cover each partner’s time away, hospitals routinely retain locum radiologists at a cost of \$10,000 per week at a very minimum. The math is easy to see what your annual exposure adds up to based on the vacation coverage weeks required. A national partner providing distributed reading services includes 52 week coverage – 24 hours a day, 365 days a year – so incremental locums expense need not be contemplated.

**Example**

In order to demonstrate the scale and financial power of this new approach it warrants looking at a modest example. Consider a community hospital performing a total of 50,000 imaging exams per year that amortizes capital expenses over a 5-year term and pays, on average, 17% in support maintenance contracts. This institution likely has three radiologist

workstations, a 3D workstation and a transcription service. The administration covers both the cost for the radiologist group for preliminary coverage from a teleradiology vendor as well as some sort of stipend originally negotiated to attract the group to your area.

Providing these same 50,000 exams to a distributed radiology service provider would look like the following: one radiologist on-site would provide the general X-Ray and interventional work and the remaining 30,000 to 35,000 studies would be interpreted off-site by 24/7 radiologists best suited to give an exceptional quality reading to that exam. All final dictations would be provided via HL7 to the hospital RIS or HIS complete – without any transcription necessary and no preliminary reads expense from a teleradiology third party. Two of the three radiologist workstations and the 3D workstation could be de-commissioned and support contracts halted immediately.

In addition, the budgeted software for Critical Findings and QA-Peer Review (to look good on the next JCAHO inspection) can be tabled because the new services provider includes those steps within their own quality processes and infrastructure. And the expensive high resolution digital mammography reading station that is needed to go along with the new digital mammography modality is also no longer necessary for the hospital to purchase.

#### 50,000 EXAMS PER YEAR COMMUNITY HOSPITAL

Capital Amortization Term	5 Year	
Annual Support Contracts	17% (avg.)	
<b>RETIRE CURRENT HARDWARE/SOFTWARE COSTS</b>		
2 Standard Rad Workstations	\$40,000	\$6,800
3D Rad Workstation	\$75,000	\$12,750
Dictation System	<u>\$100,000</u>	<u>\$17,000</u>
ANNUAL SUPPORT COSTS		\$36,550
PERIODIC CAPITAL COSTS	\$215,000	
ANNUAL AMORTIZATION		\$43,000
<b>PROFESSIONAL EXPENSES</b>		
Teleradiology Prelim. Coverage		\$150,000
Transcription Services (\$2.00/exam)		<u>\$100,000</u>
<b>1st YEAR SAVINGS OPPORTUNITY</b>		<b>\$329,550</b>
<b>CANCEL FUTURE CAPITAL PURCHASES</b>		
Mammo Rad Workstation	\$65,000	
Critical Findings Module	\$20,000	
Radiologist QA Software	\$20,000	

**Table 2.** This example shows how the cost savings associated with the new model of Distributed Radiology Service drives compelling fiscal results in addition to quality improvements.

So a multi-six figure savings can be realized both the first and subsequent years of switching to a professional services provider who has already built the infrastructure to deliver high quality final interpretations in a remote fashion

#### 1 + 1 = 3

An even more basic math is essential to appreciating the total benefits of a well implemented distributed reading service for

radiology that goes one step beyond cutting costs. It starts off by understanding the implicit incentives of a local radiology group and how they are often mis-aligned with the priorities of a community hospital.

	HOSPITAL	RAD GROUP
Adding a subspecialty radiologist to the group	Improves Service	Dilutes Income
Rads Self Editing using Voice Recognition	Eliminates Transcription Costs	Reduces Rad Productivity
Provide 24/7 Coverage	Necessary Service	Inconvenience
Consistent Reporting Formats	Medical Staff Satisfaction	Not the way Rads were trained
Custom Reports per Specialty	Increased Referrals	Not the way Rads were trained
QA-Peer Review Process	Essential to Quality	Reduces Rad Productivity
Critical Findings Process	Essential to Patient Safety	Reduces Rad Productivity

**Table 3.** Incentives for the community hospital are often opposite those of a local radiology practice incumbent.

Because of mis-aligned incentives, a local radiology practice will be slow to implement any innovative quality measures if it is going to affect productivity and hence income. Radiology practices will often specify the need for new software systems such as QA-Peer Review and Critical Findings if the hospital is willing to foot the bill for them. But the compliance in usage is low as there is little if no recourse in the enforcement of their usage.

But a distributed professional services entity, performing like a world class business partner, will increase quality, reduce costs and, in addition, implement these cutting edge quality services and enforce their compliance so that they can earn the business at the next community hospital prospect. Their incentives are exactly aligned with the CEO, CFO and Medical Staff.

#### Summary

Large radiology departmental expenditures have, in the past, been as predictable as the seasons coming and going. With the advent, though, of high quality technology-enabled distributed reading services, a new option is now available to the community hospital senior management team. The longstanding capital intensive model can be materially changed by looking to a radiology professional services provider to use their own technology infrastructure to deliver and communicate clinically strategic imaging reports. When executed properly, costs will be reduced and the subsequent quality improvements can have the complementary effect of improving revenue by attracting incremental outpatient imaging volume – that is once they see the climate change in the quality of the reports they receive.

<sup>1</sup> Scott Atlas, MD *Journal ACR* 0091-2182/07 DOI 10.1016/j.jacr.2007.04.003, "Embracing Subspecialization"

<sup>2</sup> October 6, 2009 *Diagnostic Imaging*. Vol. 31 No. 10 "Teleradiology day reads shake up the specialty"

<sup>3</sup> The Invisible Radiologist, *Radiology Business Journal* Aug/Sept 2009