

Strategic Financial Planning



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Growing Hospital-Based Radiology Services

By Scott Seidelmann



Georgia-based Atlanta Medical Center South is among a number of hospitals that are successfully implementing an accountable, standards-based radiology approach. In two years, the hospital has seen a 42 percent increase in high-tech imaging referrals from its top 10 referring physicians. In addition, hospital leaders believe radiology improvements have contributed to increased ED throughput and a reduction in overall LOS. → →

Current Reality Calls for Improvement

Radiology touches every major disease category and most patients in and outside of the hospital, accounting for nearly 10 percent of U.S. healthcare expenditures. It is often the most profitable outpatient service line for hospitals, and estimates project that radiology will grow another 9 percent over the next five years, with high-tech imaging (such as MRI, CT, and PET scans) expected to increase 18 percent. Yet, imaging services are largely delivered in a nonintegrated, mom-and-pop fashion.

Of the 3,000 U.S. radiology groups, 93 percent have 10 or fewer radiologists. Often there is just one radiology group in a town, which typically does not have the scale or sophistication needed to meet today's imaging demands.

This is not only incongruous, it's also problematic. These groups are very likely subsidized by the local hospital, and they typically have to sub-contract with a teleradiology provider to handle preliminary nighttime reads—an

additional cost for either the group or the hospital.

More alarmingly, radiology lacks accountability and transparency. There are no well-defined or widely used performance standards or metrics to assess the accuracy, timeliness, or utilization of radiology reads.

A related issue is the lack of access to subspecialty radiologists (i.e., those with advanced training in a subspecialty, such as pediatric neurological disorders). A 2008 study found that general and subspecialty radiologists had different interpretations of high-tech images 44 percent of the time (Premerus, *Medical Misdiagnosis in America 2008: A Persistent Problem with a Promising Solution*). The study revealed that, overall, the subspecialist reports were more definitive and less likely to suggest follow-up procedures. More accurate diagnoses by subspecialty experts typically lead to more targeted, efficient treatments, resulting in significant downstream cost savings from faster emergency department (ED) throughput and shorter lengths of stay (LOS).

New Model Drives ROI

In early 2011, Atlanta Medical Center South was facing an all-too-common situation with its radiology department: instability in contracting with different individuals and small groups of radiologists and dissatisfaction among some physicians with the timeliness and consistency of radiology services.

Tele-access to subspecialists. Today, at the hospital's south campus facility, a single national provider of radiology services is responsible for interpreting all images. Three general radiologists are on-site to manage the program and provide 24/7 coverage for all interventional radiology procedures.

The hospital also has 24/7 tele-access to a comprehensive network of off-site radiologists that includes all subspecialties: neuroradiology, musculoskeletal, cardiovascular, women's imaging, pediatric, nuclear medicine, etc. Each of these radiologists is licensed in the state of Georgia and credentialed by the appropriate health plans.

Workflow management. The radiology company's cloud-based radiology information system (RIS) is integrated with the hospital's own RIS, electronic health record, and picture archiving and

communication system. The cloud-based RIS is the de facto workflow manager for the department. When a neurological case arrives at the hospital at 2:00 a.m. and needs a 30-minute turnaround, the RIS assigns it to an available neuroradiologist on the tele-access panel.

"Not only have we stabilized an unstable situation, we now provide a higher level of care in imaging; instead of one generalist trying to read the less frequent, highly specialized types of films, we have subspecialists reading them," says hospital CEO William T. Moore.

Analytics Drive Radiology Improvements

Comparative performance reporting is a powerful tool in improving the value of radiology services. From data spring analytics that give hospitals valuable insights into improving the quality and timeliness of radiology services—not to mention ambulatory growth. When reviewing radiology data for potential improvements, hospital leaders should be asking questions such as the following:

- > Are referring physicians ordering CTs when an X-ray could answer most diagnostic questions?
- > Are physicians ordering unnecessary MRIs on inpatients, which result in higher radiology spend and slower discharge?
- > Is the hospital's orthopedic referral volume low relative to other hospitals of a similar size nationally?
- > What percentage of radiologic studies is turned around in less than two hours—and what's holding up the slower cases?
- > Are physicians ordering CTs with oral contrast in the ED (which is a drag on throughput) when non-contrast CTs can be substituted safely and effectively some of the time?

Major improvements can be achieved in radiology using protocols based on performance data. Consider the recent success with CTs of the abdomen/pelvis, which is a high-risk imaging study. When radiologists fail to diagnose appendicitis or diverticulitis, there's a substantial likelihood of patient morbidity and mortality. However, in recent years, hospitals across the country have been able to reduce the error rate on abdominal/pelvis CTs to 0.8 percent, from 1.8 percent, by adopting the following three steps:*

- > Stop assigning CTs of the abdomen/pelvis to any radiologist who has an error rate higher than 3 percent on this type of study.
- > Ensure that the radiology information system (RIS) warns the radiologist assigned to the case of the high risk of error and of the two most common causes of error (i.e., the failure to diagnose appendicitis and diverticulitis).
- > Force concurrence by having the RIS automatically assign high-risk cases to a second radiologist, whose only job is to rule out appendicitis and diverticulitis.

CTs of the abdomen/pelvis now account for less than 13 percent of clinically significant radiologic errors at the hospitals that adopted these steps, down from 30 percent.

*Based on a Radisphere analysis of five years of error data across more than 100 hospitals and facilities and the subsequent error analysis after the implementation of predictive risk assessment and quality management programs.

Objective peer review and auditing. As important, Moore says, is true peer review. “If you have a smaller hospital, with two or three radiologists who are best friends, unbiased peer review can be difficult to obtain,” he says.

With Atlanta Medical Center South’s new approach, all radiologists have 2 percent of their reads selected at random for peer review. Each radiology study is anonymized and assigned to a second radiologist, who does a second complete report. The two reports are then anonymized again and assigned to a third radiologist, who objectively rates them for concurrence or disagreement. The results are then shared with the radiologists, the facility, and the referring physicians.

Each radiologist’s performance is also reviewed against predetermined hospital standards for patient safety, timeliness, and critical results communication (i.e., to avoid malpractice claims). Examples of standards include:

- > Final reports: All reports are delivered 24/7 using standardized templates and diagnostic checklists to ensure consistency and accuracy.
- > Timeliness: ED final reads are turned around within 30 minutes, inpatient reads within 90 minutes, and outpatient reads within 24 hours.
- > Communications: Consults and critical findings are provided within 60 minutes.
- > Specialization: All complex and high-risk imaging is read by subspecialists.
- > Diagnostic accuracy: Peer review is proactively performed on a statistically valid sampling of all studies to maintain a <2 percent error rate.
- > Utilization: Utilization data are analyzed by physician, site, and modality to ensure a <10 percent follow-up imaging rate.
- > Patient safety: Compliance with radiation dose reporting is 100 percent.

Atlantic Medical Center South’s Radiology Performance, Q1 2013

| Performance Metric | Radiology Quality Institute Standard* | Atlanta Medical Center South Performance |
|--|---|---|
| Final reports | 100% final reports (no preliminary reads) | 100% final reports (no preliminary reads) |
| Turnaround time (by priority level) | | |
| > Stroke protocol | <20 min | 10 min |
| > Hyperacute | <30 min | 19 min |
| > STAT | <60 min | 19 min |
| > Routine | <24 hours | 8 hours 57 min |
| Turnaround time (by place of service) | | |
| > Emergency department | <30 min | 25 min |
| > Inpatient | <90 min | 4 hours 19 min |
| > Outpatient | <24 hours | 7 hours 43 min |
| Communication | | |
| > Consultations 24/7 | <60 min | 33 min |
| > Critical finding communication† | <60 min | 25 min |
| Specialization | | |
| > MRI subspecialist reads | 100% | 99% |
| > PET subspecialist reads | 100% | N/A |
| Diagnostic accuracy | | |
| > Prospective double-blind peer review | >1% | 2.3% |
| > Clinically significant error rate | <2% | 0% |
| Utilization | | |
| > Follow-up imaging rate | <10% | 8% |
| > Mammography recall rate§ | 8-14% | 11.2% |

*The Radiology Quality Institute’s complete set of performance standards is available at radiologyqualityinstitute.com.

† Average time until a critical finding is acknowledged by the referring physician.

§ The mammography recall rate is calculated on an annual basis in January for the previous 12 months and represents the average rate across all clients. This recall rate is based on the number of instances that a patient is called back for additional studies as a result of having screening mammography performed.

Source: Radisphere, 2013. Used with permission.

This quarterly report from 2013 shows Atlanta Medical Center South consistently bettering, in some cases by a considerable margin, standards set by the Radiology Quality Institute.

Continuous measurement and reporting. In addition, Atlanta Medical Center South now gets monthly performance reports (see exhibit above) that show the radiology service’s performance against national benchmarks for accuracy, turnaround times, utilization, etc.

“We have a more efficient department because we are accountable to meet predetermined benchmarks, which are set in accord with performance registered in a national database; there are set

turnaround times for each area of service—inpatient, outpatient, ED, stat, or routine,” says Moore. “We get monthly performance standards reports in dashboard form. Without that, you really don’t know how you’re doing, it’s just anecdotal.”

Accountability Propels Volumes

Hospitals looking to boost their radiology market share can improve their reputation among referring physicians and patients by adopting a performance-based radiology approach.

What's the best argument for convincing orthopedic surgeons to let your hospital handle their imaging? It's to say: "We have radiologists with advance training in musculoskeletal imaging who will read your MRIs in less than four hours." Also, improved throughput is a major differentiator. Consistently turning ED studies around in less than 30 minutes

(and accurately measuring and reporting that) will generate dividends in ED costs and reputation.

What's the best way to reach parents of children, 90 percent of whom need some form of imaging when they show up in the ED? It's to tell them: "We have pediatric radiologists who will diagnose your child

in less than 30 minutes." Patients also benefit from several other outputs of performance-based imaging, including lower variable costs and shorter waiting times for imaging equipment/results. ☞

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Hospital ABC

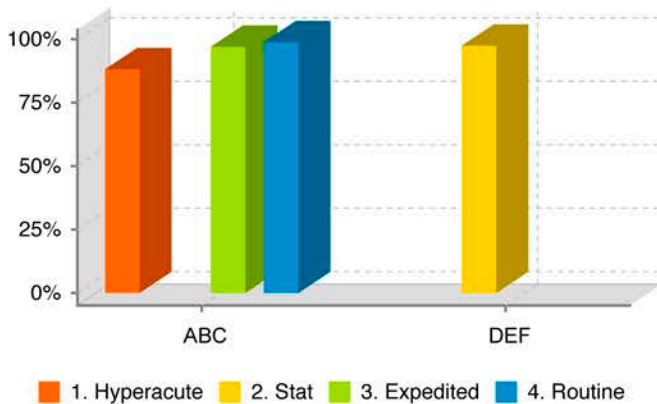
Quarterly Report 2nd Quarter 2012 compare to 2nd Quarter 2013

SERVICE LEVELS

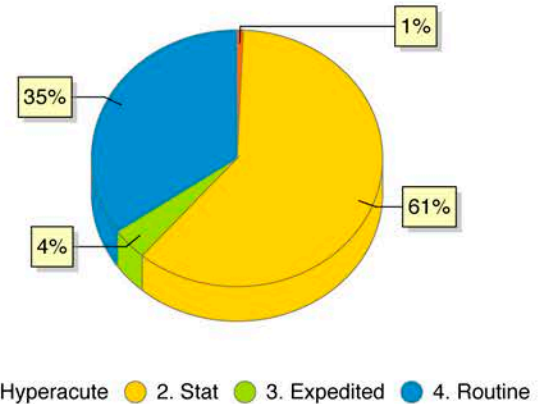
Average Turn Around Time (excludes MG)

| Priority | Target TAT | Avg TAT | Made % | Made | Late | Total |
|--------------------|------------|---------|------------|---------------|------------|---------------|
| 1. Hyperacute | 00:30 | 00:16 | 88% | 237 | 32 | 269 |
| 2. Stat | 00:60 | 00:19 | 97% | 22,851 | 603 | 23,454 |
| 3. Expedited | 04:00 | 01:25 | 97% | 1,514 | 47 | 1,561 |
| 4. Routine | 24:00 | 04:27 | 99% | 13,249 | 166 | 13,415 |
| Grand Total | | | 98% | 37,851 | 848 | 38,699 |

Made % By Priority



Volume By Priority



Critical Findings

| | | | | | |
|----------------------------|--------------|---------------------------------|-------------------------------|--------------------------------|-------------------|
| Total Study Volume: | 38,699 | % of Total Study Volume: | 2.57% | % called within 1 Hour: | 98% |
| Place of Service | Total | Avg. Tat | % Called within 1 hour | Called % | Volume Mix |
| ED | 700 | 00:10 | 99% | 100% | 70% |
| Inpatient | 147 | 00:21 | 98% | 100% | 15% |
| Outpatient | 146 | 00:27 | 92% | 100% | 15% |
| | 993 | 00:14 | 98% | 100% | 100% |

* Critical Finding Turn Around Time is 1 hour

MR Read by Sub-Specialist

| Read by Sub-Specialist | Total MR | % Read by Sub-Specialist |
|------------------------|----------|--------------------------|
| 1,376 | 1,478 | 93.10% |

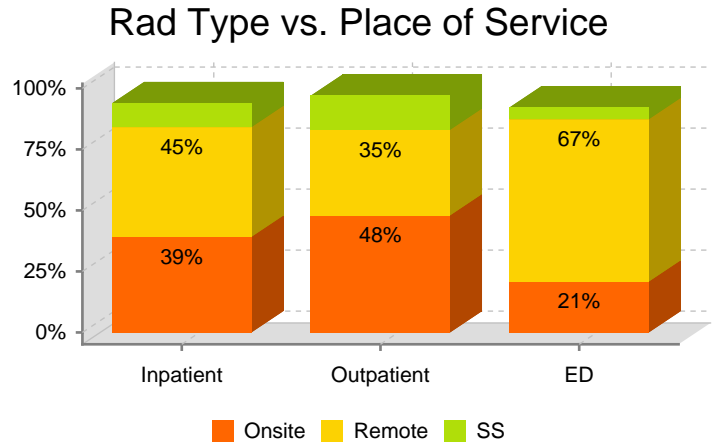
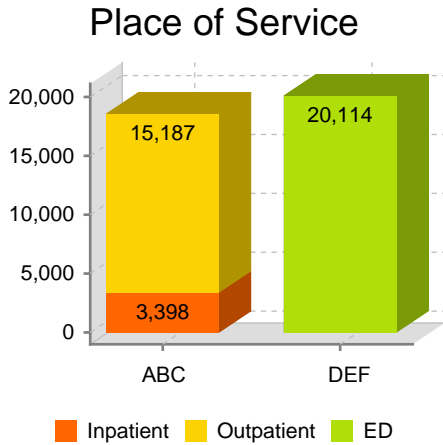
Remote Consults

| | | | |
|------------------------------------|--------------------|------------------------|-------|
| Total Study Volume: | 38,699 | Consult Volume: | 118 |
| % of Total Study Volume | 0.30% | Average TAT: | 02:42 |
| Top 5 Consults Referring MD | Specialty | Volume | |
| Dr. Einer | Unclassified | 5 | |
| Dr. Baista | Emergency Medicine | 5 | |
| Dr. Arne | Emergency Medicine | 3 | |
| Dr. Bwen | Emergency Medicine | 3 | |
| Dr. Bll | Family Medicine | 2 | |

PLACE OF SERVICE & RADIOLOGIST TYPE

Volume by Place of Service & Volume Read by Onsite, ED and Sub-Specialist

| Place of Service | Total | Volume Mix | Onsite | ED | Sub-Specialist | Total |
|------------------|---------------|-------------|--------|-----|----------------|-------------|
| Inpatient | 3,398 | 9% | 39% | 45% | 10% | 100% |
| Outpatient | 15,187 | 39% | 48% | 35% | 14% | 100% |
| ED | 20,114 | 52% | 21% | 67% | 5% | 100% |
| Total | 38,699 | 100% | 33% | 52% | 9% | |



Average Turn Around Time by Place of Service

| Place of Service | Avg. TAT | % Made | Made | Late | Total |
|------------------|----------|------------|---------------|------------|---------------|
| ED | 00:19 | 98% | 19,619 | 495 | 20,114 |
| Inpatient | 02:09 | 96% | 3,255 | 143 | 3,398 |
| Outpatient | 03:40 | 99% | 14,977 | 210 | 15,187 |
| Total | | 98% | 37,851 | 848 | 38,699 |

REFERRING PHYSICIANS

Top 50 Referring Physicians with Specialty

| Referring MD | Specialty | Volume | % of Total Study Volume |
|-----------------------|----------------------------------|--------|-------------------------|
| Vang, Sai | Unclassified | 1112 | 3% |
| Hubbard, Robyn | Family | 884 | 2% |
| Walther, Rynne | Unclassified | 822 | 2% |
| Paley, Christine | Personal Emergency Response Atte | 678 | 2% |
| Bezanson, Hannah | Unclassified | 672 | 2% |
| Gengerke, Jason | Unclassified | 633 | 2% |
| Thomas, Michelle | Family Medicine | 613 | 2% |
| Barnett, Mathew B | Nurse Practitioner | 607 | 2% |
| Tarazon, Jennifer | Family | 586 | 2% |
| Isaak, Sandra J | Family | 575 | 1% |
| Levine, Dennis | Nurse Practitioner | 575 | 1% |
| Dempsey, Michael | Unclassified | 565 | 1% |
| Huong-schleif, Shu T. | Nurse Practitioner | 563 | 1% |
| Wilkinson, Janis | Physician Assistant | 534 | 1% |
| Perry, Lorilee | Nurse Practitioner | 519 | 1% |

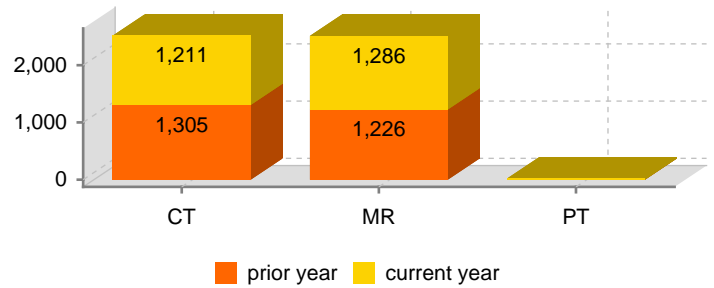
| | | | |
|-------------------------------------|-----------------------------------|-----|----|
| Johnson, Marc | Sports Medicine | 436 | 1% |
| Martin, John A | Occupational Medicine | 422 | 1% |
| Community Care, Family Health | Unclassified | 420 | 1% |
| Habibe, Alex O | Internal Medicine | 383 | 1% |
| Warner, Gregory C | Pulmonary Disease | 368 | 1% |
| Varshney, Anuj | Orthopaedic Surgery | 350 | 1% |
| Bolt, Laurie | Nurse Practitioner | 342 | 1% |
| Nguyen, David | Internal Medicine | 340 | 1% |
| Bayardo, Carlos | Family Medicine | 320 | 1% |
| WOLOWODIUK, OLEH | Family Medicine | 284 | 1% |
| P qtj 'Uj qtg'Medical, Plaza Dinuba | Unclassified | 277 | 1% |
| Community Care,"UCampus | Unclassified | 260 | 1% |
| Chatrath, Bhupinder S | Hematology & Oncology | 254 | 1% |
| Melashenko, Kenneth | Family Medicine | 241 | 1% |
| Raber, Dustin | Family Medicine | 240 | 1% |
| Allyn, Lancy D | Specialist | 239 | 1% |
| Mai, Kenny T | Orthopaedic Surgery | 222 | 1% |
| Csiszar, Jeffrey W | Specialist | 209 | 1% |
| Au, Alvin Y | Hepatology | 208 | 1% |
| Community Care, F Clinic | Unclassified | 202 | 1% |
| Nagavalli, Sudesh | Internal Medicine | 202 | 1% |
| Ashok, Seetharam | Urology | 192 | 1% |
| Sahasranam, Prem | Endocrinology, Diabetes & Metabol | 192 | 1% |
| Do, Thong | Nephrology | 181 | 0% |
| Beddoe, Randy | Family Medicine | 169 | 0% |
| Wickremasinghe, Asela D | Internal Medicine | 167 | 0% |
| Urrutia, Daniel | Family Medicine | 164 | 0% |
| Scherer, Thomas | Surgery | 162 | 0% |
| Rashid, Saquib | Critical Care Medicine | 160 | 0% |
| Rubio, Agustin | Family Medicine | 155 | 0% |
| Community Care, Kings Clinic | Unclassified | 153 | 0% |
| Locke, Susan | Internal Medicine | 147 | 0% |
| Lauck, Thomas | Family Medicine | 145 | 0% |
| Royter, Vladimir | Neurology | 144 | 0% |
| Community Care, Ke Clinic | Unclassified | 141 | 0% |

OUTPATIENT GROWTH FOCUSED ON HIGH TECH MODALITIES

Modality Focused CT & MR & PT

| Modality | 2Q2012 | 2Q2013 | YoY | Benchmark* |
|--------------|-------------|-------------|--------------|-------------|
| CT | 1,305 | 1,211 | -7% | -5% |
| MR | 1,226 | 1,286 | 5% | 5% |
| PT | 0 | 20 | - | - |
| Total | 2531 | 2517 | -0.6% | 0.5% |

* Benchmark is based on Radisphere clients



Top 10 High Tech Orders by Specialty

| Specialty | CT | | | | MR | | | | PT | | | |
|-----------------------|-------------|------------|------|------|-------------|-------------|------|------|----------|-----------|-----|-----|
| | 2Q2012 | 2Q2013 | YoY | BM. | 2Q2012 | 2Q2013 | YoY | BM. | 2Q2012 | 2Q2013 | YoY | BM. |
| Family Medicine | 344 | 260 | -24% | -20% | 386 | 386 | 0% | 2% | 0 | 1 | - | - |
| Unclassified | 154 | 189 | 23% | - | 206 | 269 | 31% | - | 0 | 1 | - | - |
| Internal Medicine | 131 | 137 | 5% | 5% | 76 | 56 | -26% | -7% | 0 | 0 | - | - |
| Hematology & Oncology | 180 | 183 | 2% | -8% | 8 | 5 | - | - | 0 | 13 | - | - |
| Neurology | 10 | 8 | - | - | 197 | 111 | -44% | -41% | 0 | 0 | - | - |
| Orthopaedic Surgery | 14 | 14 | - | - | 95 | 150 | 58% | 50% | 0 | 0 | - | - |
| Specialist | 82 | 55 | -33% | -12% | 37 | 32 | - | - | 0 | 0 | - | - |
| Surgery | 60 | 70 | 17% | 19% | 14 | 16 | - | - | 0 | 0 | - | - |
| Sports Medicine | 6 | 27 | - | - | 23 | 77 | 235% | 221% | 0 | 0 | - | - |
| Urology | 52 | 52 | 0% | -7% | 4 | 4 | - | - | 0 | 3 | - | - |
| Total | 1033 | 995 | | | 1046 | 1106 | | | 0 | 18 | | |

* YoY and BM.(Benchmark) is shown for values greater than 50 only. Benchmark is based on Radisphere clients

Top 5 Referring MD Specialty on CT & MR & PT

| Modality | Referring MD | Specialty | 2Q2012 | 2Q2013 |
|--------------|---------------------------|------------------------|------------|------------|
| CT | Chatth, Bhupinder S | Hematology & Oncology | 177 | 175 |
| CT | Ash, Seetharam | Urology | 44 | 43 |
| CT | Csiar, Jeffrey W | Specialist | 40 | 37 |
| CT | Community Care, Family He | Unclassified | 30 | 32 |
| CT | Johon, Marc | Sports Medicine | 6 | 27 |
| MR | Varsey, Anuj | Orthopaedic Surgery | 62 | 93 |
| MR | Rter, Vladimir | Neurology | 119 | 91 |
| MR | Johon, Marc | Sports Medicine | 21 | 58 |
| MR | Melaenko, Kenneth | Family Medicine | 36 | 46 |
| MR | ai, Kenny T | Orthopaedic Surgery | 20 | 39 |
| PT | Chatath, Bhupinder S | Hematology & Oncology | 0 | 12 |
| PT | Asok, Seetharam | Urology | 0 | 3 |
| PT | Dectro, Jacqueline G | Family Medicine | 0 | 1 |
| PT | Rasd, Saquib | Critical Care Medicine | 0 | 1 |
| PT | Au, Alvin Y | Hepatology | 0 | 1 |
| Total | | | 555 | 659 |

ED UTILIZATION

| CT Stats | | | |
|-------------------------|-------|-----|-----|
| Specialty | Total | Min | Max |
| Emergency Medicine | 2,401 | 28 | 295 |
| Unclassified | 873 | 1 | 272 |
| Nurse Practitioner | 478 | 10 | 175 |
| Family | 406 | 118 | 150 |
| Internal Medicine | 295 | 1 | 180 |
| Personal Emergency Resp | 192 | 192 | 192 |
| Occupational Medicine | 159 | 159 | 159 |
| Specialist | 1 | 1 | 1 |
| Obstetrics & Gynecology | 1 | 1 | 1 |
| Surgery | 1 | 1 | 1 |
| Family Medicine | 573 | 1 | 288 |
| Physician Assistant | 98 | 3 | 95 |
| Sports Medicine | 30 | 8 | 22 |
| Student in an Organized | 10 | 10 | 10 |

| MR Stats | | | |
|--------------------|-------|-----|-----|
| Specialty | Total | Min | Max |
| Internal Medicine | 6 | 6 | 6 |
| Unclassified | 3 | 1 | 2 |
| Emergency Medicine | 10 | 1 | 3 |
| Family Medicine | 3 | 1 | 2 |

| Top Referring MD For MR | | |
|-------------------------|--------------------|--------|
| Referring MD | Specialty | Volume |
| McNaton, John | Emergency Medicine | 3 |
| Mwry, George | Emergency Medicine | 2 |
| Arbula, Joaquin | Emergency Medicine | 2 |
| Bon, Scott L | Emergency Medicine | 1 |
| Dan, Richard | Emergency Medicine | 1 |
| Arne, Ikechukwu | Emergency Medicine | 1 |

| Top Referring MD For CT | | |
|-------------------------|--------------------|--------|
| Referring MD | Specialty | Volume |
| Tomlinson, Imamu O | Emergency Medicine | 295 |
| Aepe, Ikechukwu | Emergency Medicine | 239 |
| Bauta, Roger | Emergency Medicine | 224 |
| Kirhner, Michael N | Emergency Medicine | 209 |
| Ben, Scott L | Emergency Medicine | 194 |
| Bulrd, Timothy C | Emergency Medicine | 181 |
| Homan, Mark | Emergency Medicine | 157 |
| Bouon, Harold Michael | Emergency Medicine | 126 |
| Arbula, Joaquin | Emergency Medicine | 118 |
| Wiln, William | Emergency Medicine | 109 |
| Don, Richard | Emergency Medicine | 89 |
| Ener, David B | Emergency Medicine | 88 |
| Maughton, John | Emergency Medicine | 81 |
| Mry, George | Emergency Medicine | 77 |
| Hepoulos, Angelo | Emergency Medicine | 73 |
| Osha, Takashi | Emergency Medicine | 48 |
| Nyen, Chau H | Emergency Medicine | 34 |
| Tistle, Richard | Emergency Medicine | 31 |
| Teke, Milton R | Emergency Medicine | 28 |

| CT MR Studies | | | | |
|------------------|-------|----|-------|-----------------------------|
| Study | CT | MR | Total | % of CT & MR Combined Total |
| Brain | 2,308 | 15 | 2,323 | 42% |
| Abdomen/Pelvis | 1,862 | 0 | 1,862 | 34% |
| Chest | 377 | 0 | 377 | 7% |
| Facial Bones | 228 | 0 | 228 | 4% |
| Lumbar Spine | 78 | 3 | 81 | 1% |
| Soft Tissue-Neck | 62 | 0 | 62 | 1% |

| | | | | |
|-----------------------------|-----|---|-----|----|
| Thoracic Spine | 29 | 0 | 29 | 1% |
| Pelvis | 21 | 0 | 21 | 0% |
| Lower Extremities | 18 | 1 | 19 | 0% |
| Orbits | 15 | 0 | 15 | 0% |
| Upper Extremities | 12 | 0 | 12 | 0% |
| Neck | 11 | 0 | 11 | 0% |
| Knee | 6 | 0 | 6 | 0% |
| Sinuses | 4 | 0 | 4 | 0% |
| Temporal Bones | 4 | 0 | 4 | 0% |
| Ankle | 2 | 1 | 3 | 0% |
| Hip | 2 | 1 | 3 | 0% |
| Internal Auditory Canals | 1 | 0 | 1 | 0% |
| Gallbladder | 0 | 1 | 1 | 0% |
| Hand | 1 | 0 | 1 | 0% |
| Foot | 1 | 0 | 1 | 0% |
| Wrist | 1 | 0 | 1 | 0% |
| Lower Extremities Bilateral | 1 | 0 | 1 | 0% |
| Shoulder | 1 | 0 | 1 | 0% |
| Cervical Spine | 460 | 0 | 460 | 8% |
| Abdomen | 12 | 0 | 12 | 0% |
| Mastoids | 1 | 0 | 1 | 0% |

ED**End to End Cycle Time**

| Priority | Total | Avg Order to Scan | Avg Scan to Send | Avg Receive to Validate | Avg TAT | Total |
|--------------------|---------------|--------------------------|-------------------------|--------------------------------|----------------|--------------|
| CR | 12,288 | 00:26 | 00:08 | 00:07 | 00:17 | 00:59 |
| CT | 5,518 | 00:35 | 00:24 | 00:06 | 00:23 | 01:30 |
| MR | 22 | 00:55 | 00:59 | 00:08 | 00:34 | 02:37 |
| US | 2,261 | 00:29 | 00:33 | 00:09 | 00:21 | 01:34 |
| Grand Total | 20,089 | 00:29 | 00:15 | 00:07 | 00:19 | 01:12 |

HOSPITALIST UTILIZATION

CT Stats

| Specialty | Total | Min | Max |
|-------------------|-------|-----|-----|
| Internal Medicine | 17 | 17 | 17 |
| Hospitalist | 7 | 7 | 7 |
| General Practice | 5 | 5 | 5 |
| Community Health | 3 | 3 | 3 |
| Family Medicine | 1 | 1 | 1 |

MR Stats

| Specialty | Total | Min | Max |
|-------------------|-------|-----|-----|
| Internal Medicine | 6 | 6 | 6 |
| Hospitalist | 3 | 3 | 3 |
| General Practice | 3 | 3 | 3 |
| Family Medicine | 1 | 1 | 1 |
| Community Health | 1 | 1 | 1 |

Top Referring MD For CT

| Referring MD | Specialty | Volume |
|---------------------|-------------------|--------|
| Macaranas, Dominic | Internal Medicine | 17 |
| Palav, Swapna S | Hospitalist | 7 |
| Wells, J. Darrick D | General Practice | 5 |
| Gabriel, San | Community Health | 3 |
| Verma, Yash Pal | Family Medicine | 1 |

Top Referring MD For MR

| Referring MD | Specialty | Volume |
|---------------------|-------------------|--------|
| Macaranas, Dominic | Internal Medicine | 6 |
| Palav, Swapna S | Hospitalist | 3 |
| Wells, J. Darrick D | General Practice | 3 |
| Gabriel, San | Community Health | 1 |
| Verma, Yash Pal | Family Medicine | 1 |

PT Stats

| Specialty | Total | Min | Max |
|-----------|-------|-----|-----|
|-----------|-------|-----|-----|

Top Referring MD For PT

| Referring MD | Specialty | Volume |
|--------------|-----------|--------|
|--------------|-----------|--------|

CT MR PT Studies

| Study | CT | MR | PT | Total | % of CT, MR, PT Combined Total |
|-------------------|----|----|----|-------|--------------------------------|
| Brain | 10 | 11 | 0 | 21 | 45% |
| Chest | 13 | 0 | 0 | 13 | 28% |
| Abdomen/Pelvis | 6 | 0 | 0 | 6 | 13% |
| Lumbar Spine | 0 | 3 | 0 | 3 | 6% |
| Upper Extremities | 2 | 0 | 0 | 2 | 4% |
| Facial Bones | 1 | 0 | 0 | 1 | 2% |
| Pelvis | 1 | 0 | 0 | 1 | 2% |

Source: Radisphere, 2013. Used with permission.