BREAST TOMOSYNTHESIS

The Dawn of a New Gold Standard?

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The future of dense breast legislation with JoAnn Pushkin
I recently started the book, “The Immortal Life of Henrietta Lacks” by Rebecca Skloot. If you’ve gone through medical school, chances are you know who Henrietta Lacks is, or at least what HeLa is. In fact, it’s really likely you’re personally acquainted with Mrs. Lacks at least on a micro level. For those without the med school experience, here’s the quick explanation – Henrietta Lacks had a very aggressive cervical cancer. She also had very strange cellular activity, with her cells not dying after a few divisions like most people’s. Doctors were able to grow her cells in a lab and more than 60 years later, the descendants of those first cells are still being used today.

However, Lacks never gave her consent to have those cells cultured. Further, neither she nor her family was ever told about it. It wasn’t until many years later that the truth came to light. Legally, in the 1950s, consent wasn’t required for doctors to obtain cell samples, and in 1990 the Supreme Court ruled that corporations could develop and commercialize a person’s “discarded” cells without having to offer any form of reimbursement to the original owner. In Lack’s case, her sacrifice has helped hundreds of thousands of people over the years. From being used to develop a polio vaccine, AIDS research and much, much more. Lacks has probably had one of the most significant impacts ever on the medical field, but had no idea of it.

Lacks’ cells are also used in cancer research. But in the field, it’s equipment leading the charge, and it’s charges, or reimbursements, that sometimes get in the way. In this month’s issue we take a look at the role reimbursement plays in breast imaging (p. 68).

And we caught up with dense breast notification advocate JoAnn Pushkin to learn how her campaign is going. Pushkin, as a breast cancer survivor herself, has proven her dedication and is starting to see the fruits of her labor, with more and more states passing dense breast inform legislation year by year (p. 88).

A technology that ties into the dense breast debate is tomosynthesis (p. 78). Many are holding out hope that tomosynthesis will take cancer screening to a level never before seen. Others are optimistic, but still withholding final approval, in part due to lack of reimbursement – it seems so many things come back to that!

Another modality familiar to women, and certain to older women, is bone densitometers. Although reimbursement woe again rears its ugly head, there may be some bright spots, as the technology is being investigated over its use in other indications (p. 58).

In closing this month, I go back to the beginning – if you’re not familiar with Henrietta Lacks, do yourself a favor and pick up the book. The debt we owe to this woman is immeasurable, the least we can do is learn about her and acknowledge that debt.

Until next issue!

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- Siemens launches 7T MRI system designed for clinical use
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- Philips and MIT enter $25 million alliance, talk long-term goals
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Editor’s Choice
Antibiotic resistance: ‘A natural feature of most bacteria’

Posted online May 04, 2015, by Gus Iversen

While the proliferation of antibiotic resistance and “superbug” bacteria is credited to the clinical overuse of antibiotics, new research suggests the root of resistance may be of an older and more organic nature than commonly believed.

By looking at the microbiomes — the trillions of bacteria that call the human body home — of an isolated tribe of Yanomami Amerindians, a team of scientists has discovered something that could impact how health professionals view the nature of antibiotic resistance.

The tribe, which had been living in the mountains of southern Venezuela for over 10,000 years, was only discovered by Westerners in 2009. And yet, bacterial specimens taken from their skin, mouth, and intestines, revealed antibiotic resistance genes. The presence of those genes among the Yanomami people challenges the notion that random mutations within the microbes took place and succeeded specifically to meet the challenge of antibiotics.

Such a discovery may also indicate that antibiotics are not simply a human invention; bacteria evolved antibiotic properties independently — and thousands of years before — synthetic medicine.

“Our results bolster a growing body of data suggesting a link between, on one hand, decreased bacterial diversity, industrialized diets and modern antibiotics, and on the other, immunological and metabolic diseases — such as obesity, asthma, allergies and diabetes, which have dramatically increased since the 1970s,” said senior study author Maria Dominguez-Bello, associate professor of medicine at New York Langone Medical Center, in a statement.

Although bacteria from the tribe were successfully killed by each of 23 different antibiotics, the exposure activated “silent” resistance genes. Those genes could deactivate not only naturally occurring antibiotics but modern, synthetic drugs as well.

“We’ve seen resistance emerge in the clinic to every new class of antibiotics, and this appears to be because resistance mechanisms are a natural feature of most bacteria and are just waiting to be activated or acquired with exposure to antibiotics,” summarized study co-author Dr. Gautam Dantas, associate professor of pathology and immunology at Washington University.

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The Internet said so

The Internet is a hypochondriac’s dream. If you’re willing to dig deep enough, “Dr. Google” will fulfill your darkest diagnostic prophesies. I used to work at a veterinary clinic and I remember how frustrating it was for the doctors when a client would challenge their dog or cat’s diagnosis based on a few panicked Internet searches from the night before.

For researchers and physicians alike, the Internet has changed everything. In the ‘90s I remember researching Beatles songs online and having no idea which sources were credible music scholars and which were the sensationalist ramblings of conspiracy theorists. If I were in a library this would not have been a problem.

Internet access is the only prerequisite for being a reporter, but trustworthy sources must rise to the top. Just a month or two ago, Google unveiled a new feature for people researching diseases. If you do a search on Alzheimer’s, for example, it automatically returns a wealth of information on the disease itself, symptoms and treatments, in a column alongside the actual results. The information even cites its sources, which are limited to a handful of respected institutions (Mayo Clinic and National Cancer Institute, for example).

It’s in the spirit of a better-informed Internet that I announce a new feature to DOTmed Daily News: We now share links to the top health care industry headlines from around the Web. That means direct links to complex analysis and provocative content from the most trusted names in publishing, all curated on a daily basis to the interests of health care professionals.

“We’re also sharing local stories when they have a message that we think deserves a larger audience. We’re doing it for you... but we’re also doing it for every kid who ever told his friends that John Lennon and Tupac are working on an album together on a boat in the Bermuda Triangle because, “the Internet said so...”

Gus Iversen
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Telehealth program cuts costs by 27 percent for Banner Health

Posted online May 04, 2015, by Gus Iversen

In partnership with Royal Philips, Banner Health has drastically cut costs with a new telehealth program. By allowing patients with multiple chronic conditions to be treated from home, they have reduced hospitalizations by 45 percent while cutting costs by 27 percent.

The IAC program focuses on the top five percent of the most complex and highest cost patients. Those individuals account for 50 percent of the Arizona-based health network’s expenses.

Expenses relating to acute and long-term care cases were reduced by 32 percent, an improvement credited primarily to the decrease in hospitalizations. Before implementing the program, Banner Health had 11.5 hospitalizations per 100 patients per month. After enrollment those figures dropped to 6.3 hospitalizations per 100 patients.

The program provides a system through which intensivist PCPs, nurses, and a broader care team collect and analyze objective and subjective health data to identify early stages of deterioration and prevent adverse events.

“The results of our at-home telehealth pilot with Philips have been dramatic and are indicative of the exponential success such a program could have by engaging patients in their own care and building a strong support system around them,” said Dr. Hargobind Khurana, Banner Health’s senior medical director of health management, in a statement.

The program was launched in 2013 and aims to improve patient outcomes, increase care team efficiency, and prevent enrolled patients from entering the acute care environment (where costs are significantly higher).

“As we continue to expand this program, we anticipate seeing further proof that telehealth programs can address readmission rates, reduce costs, and improve the health and quality of life for patients with multiple chronic diseases,” said Khurana.

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Is dementia screening a good fit for telehealth? Most older adults think so

Posted online May 01, 2015, by Gus Iversen

Using the telephone as a first line of defense in screening patients for dementia could yield serious cost-saving benefits. A new study out of the Indiana University Center for Aging Research and the Regenstrief Institute found that 63 percent of seniors surveyed are comfortable with such a screening process.

There were two significant predictors in determining if a participant in the survey would be willing to be screened remotely. The first was belief in the benefits of catching cognitive decline at an early stage, and the second was having a friend or relative with Alzheimer’s disease.

The research itself was executed through a telephone survey, and found willingness percentages to be consistent across variables like gender, race, and age. Notably, a previous survey conducted by the same researchers determined 90 percent willingness from patients queried on the subject face-to-face.

In addition to keeping the physician’s office free for other patients, telephone screening would present a smaller burden on the patient. Of the 400 elderly people surveyed, none of them had a dementia diagnosis and only two percent reported having suspected memory problems.

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Accuray and MIM partner to develop adaptive therapy software

Posted online May 01, 2015, by Lauren Dubinsky

Accuray Incorporated and MIM Software Inc., an imaging solution software company, announced an agreement to further develop adaptive therapy software for the TomoTherapy and CyberKnife product portfolios. The software solution will combine both Accuray’s and MIM’s technology.

“We are excited to collaborate with MIM to enhance the ability of our precise, innovative tumor treatments to deliver even better tailored radiation therapy and improved outcomes for some patients,” Joshua H. Levine, president and chief executive officer of Accuray, said in a statement.

Accuray’s CyberKnife M6 Series, the latest version of the CyberKnife System, is a full-body stereotactic radiosurgery platform and its TomoTherapy H Series allows physicians to customize treatment plans for different radiation therapy patients.

MIM develops software for radiation oncology, radiology and nuclear medicine. The software is used to determine if changes in the patient’s anatomy during therapy could decrease the effectiveness of the treatment.

This is not the first time that Accuray has partnered with MIM — in 2012 the companies collaborated to develop PlanTouch. That solution allows physicians to remotely review and approve treatment plans on their iPads.

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 Welch Allyn acquires Scale-Tronix

Posted online May 04, 2015, by Gus Iversen

Diagnostic device company Welch Allyn announced the acquisition of medical scales and weighing system manufacturer Scale-Tronix, Inc.

The acquisition of the Scale-Tronix business is great news for Welch Allyn customers, said the company’s president and CEO, Steve Meyer, in a statement.

The 100-year-old company is optimistic that this transaction will further strengthen its position in the physical assessment products market, while expanding its reach into acute and ambulatory care settings around the world.

Scale-Tronix currently manufactures one of the most complete selections of patient scales and weighing systems in the medical field. The company states the Scale-Tronix medical scale has been designed with the input of clinicians to provide the needed ease of use, maximum patient comfort and safety, along with the highest degree of accuracy and repeatability.

All employees and contractors will be retained by Scale-Tronix and have been asked to remain with the company in their current capacity as it transitions the business into Welch Allyn. The company’s current products will continue to be developed and sourced by Scale-Tronix in the short term.

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OXFORD ACQUIRES MEDICAL IMAGING RESOURCES FOR $24 MILLION

Posted online May 01, 2015, by Gus Iversen

Through the just-announced acquisition of Medical Imaging Resources (MIR), Oxford Instruments (OI) Healthcare is diversifying its medical portfolio while taking a big stride into the mobile imaging market. Under the OI umbrella, MIR will represent a new segment of the company’s service sector.

DOTmed News spoke with Jeff Fall, president of OI Healthcare, and John Vartanian, president and CEO of MIR, about the agreement. Both executives were upbeat about the deal, saying there is a lot of synergy between the two companies and very little overlap in areas of specialty.

According to Vartanian, the selling price for MIR came out to roughly $20 million, with OI Healthcare also absorbing about $4 million in bank debt.

Since 1990, Vartanian’s company has specialized in the building and leasing of mobile medical imaging labs. The mobile labs – which are designed for MRI and CT systems from Siemens, GE, Philips, and Toshiba – are custom-made in MIR’s factories.

“Medical Imaging Resources complements OI Healthcare by providing products and services we do not currently offer,” said Fall in a prepared statement. “When coupled with MIR’s long-term commitment to quality and value it is a perfect addition to the OI Healthcare portfolio.”

Vartanian issued the following comments: “With the addition of MIR, OI Healthcare will strengthen the existing service foundations of the business: maintenance service contracts, spare parts sales, and refurbished system sales. The entry into the mobile imaging market will give OI Healthcare the most diversified product offerings of any independent medical imaging company in the U.S. market.”

MIR currently subcontracts a significant portion of the service work for its mobiles, but once trained, OI Healthcare staff in numerous states across the country could take over that workload and bring the cost margin in-house.

According to Fall and Vartanian, all MIR employees will be retained through the acquisition, and Vartanian will take on an executive role with OI Healthcare as their newly appointed director of business development.

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MRI may predict who is at risk for developing schizophrenia

Posted online May 18, 2015, by Lisa Chamoff

MRI scans that map the wiring of the brain could help predict whether people are at risk of developing schizophrenia, a new study has found.

“Dysconnectivity” in the brain has generally been considered a hallmark of schizophrenia, which causes hallucinations and delusions. Researchers from Cardiff University Brain Research Imaging Centre (CUBRIC), the Institute of Psychiatry, Psychology and Neuroscience at Kings College London, and the University of Bristol, used diffusion-weighted MRI to reconstruct the interconnections of the brain in individuals with less severe forms of the condition.

The study was published online in the journal Human Brain Mapping.

The team scanned 123 people who have had psychotic experiences and a control group of 125 people who had not. For the people who showed signs of vulnerability to schizophrenia, the researchers saw a reduction in the ability to transfer information from one part of the brain to another, particularly in core network hubs.

Dr. Mark Drakesmith, a researcher at CUBRIC and the lead study author, said that in looking at the overall architecture of the network of the brain, the study shows very similar network differences in individuals with some signs of vulnerability to schizophrenia, which suggests that these changes are present much earlier than when the full illness manifests.

The next step for the researchers is to identify which of the subjects transitioned to full schizophrenia and see what the brain networks of these individuals looked like before they became ill, Drakesmith said. “That will give us an even clearer picture of network features to look out for as a predictor of illness.”

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Raising the bar on EHRs: Getting the 21st Century Cures Act right

Posted online May 15, 2015, by John W. Mitchell

The nearly 400-page 21st Century Cures bill has had on- and off-again bipartisan support and is widely expected to be introduced in the near future. The legislation in draft form before the House Energy and Commerce Committee is attracting attention from many health care quarters, but there is much in the bill’s draft language that has raised eyebrows in the health care sector.

In its current form, the bill would broadly alter regulation of pharmaceutical and medical devices and set penalties for vendors who fail to meet electronic health records (EHRs) interoperability targets related to clinical research.

“This bill is an admission that our current system is flawed and represents an effort to deal with that issue,” Allison Murphy, legislative director for the Alliance for Natural Health – USA (ANH-USA) told DOTmed News. Adding that the bill, “seems to do little more than double down on our current pharmaceutical approach by throwing more money, not more innovation, at the problem.”

She said that ANH-USA, which has several physicians on its board, advocates nutritional and lifestyle changes to achieve population wellness goals. The alliance is particularly keen to see legislation addressing what it calls, “the number one cause of antibiotic resistance,” the non-therapeutic use of antibiotics in farm animals.

The American Hospital Association (AHA) also weighed in with concerns in a May 12 letter to Fred Upton (R-Missouri), chairman of the Energy and Commerce Committee. Although the AHA approved of the bill’s intent to share patient information for the purpose of pharmaceutical and medical device clinical study, it cautioned that such data sharing will still require an appropriate level of protection mandated under the 1996 HIPAA law.

The letter, signed by Rick Pollack, executive vice president of the AHA, raises concerns that, “the discussion draft is too broad in its use and disclosure of personal health information,” noting that the 21st Century Cures legislation does not currently require patient consent to share data for clinical research.

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IBM Watson partners with 14 top cancer centers to personalize treatment for cancer patients

Posted online May 06, 2015, by Lauren Dubinsky

IBM Watson Health announced that it will be partnering with over a dozen top cancer institutes in an effort to use the super computer Watson’s cognitive capabilities to help physicians to select personalized treatment options for patients faster.

Most patients in the U.S. who are diagnosed with cancer receive surgery, chemotherapy or radiation treatment, but sometimes those treatments are not effective and ultimately do more harm than good. Now that genetic sequencing is becoming more affordable and accessible, some patients are benefiting from treatments that target their specific cancer-causing genetic mutations but selecting those treatments is a challenge.

“Determining the right drug combination for an advanced cancer patient is alarmingly difficult, requiring a complex analysis of different sources of Big Data that integrates rapidly emerging clinical trial information with personalized gene sequencing,” Dr. Norman Sharpless, director of the University of North Carolina Lineberger Comprehensive Cancer Center, said in a statement.

It takes physicians weeks to understand patients’ genetic profiles, translate DNA insights and compile relevant information from medical literature to cater treatment options to each of their patients.

It only takes Watson a few minutes to finish the genetic material and medical literature review process and generate a report detailing the patient’s case and potentially effective drugs based on the patient’s DNA profile. After that, the physicians can review the report and decide whether targeted therapy or standard care would be the best option.

The institutes will be using Watson Genomic Analytics, which is a cloud-based service for evidence gathering and analysis. In the first phase of the program, they will apply Watson to the DNA data of patients with different types of cancer including lymphoma, melanoma, pancreatic, ovarian, brain, lung, breast and colorectal cancer.

As the institutes use Watson to help physicians, its rationale and insights will continue to improve. More cancer centers are expected to join the program later in the year.

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SPECT can help distinguish PTSD from traumatic brain injuries: study

Posted online May 04, 2015, by Lauren Dubinsky

It's difficult to differentiate between post-traumatic stress disorder (PTSD) and traumatic brain injury (TBI) since the conditions have very similar symptoms, but researchers at Thomas Jefferson University, UCLA, University of British Columbia and Amen Clinics found that SPECT imaging can solve that challenge.

“The need for a diagnostic tool to reliably distinguish PTSD from TBI in Veteran populations is urgent,” Dr. Theodore Henderson, a Denver-based psychiatrist, said in a statement.

It’s important to distinguish PTSD and TBI because the treatments for each condition are very different. In fact, the treatments for PTSD can be dangerous if they are administered to TBI patients and vice versa.

The researchers had 196 veterans — 36 with PTSD, 115 with TBI and 45 with both — undergo SPECT exams both at rest and during a concentration task. They found that SPECT could differentiate PTSD from TBI with 94 percent accuracy.

Along with his colleagues in Denver and at Harvard Medical School, Henderson has developed a treatment for TBI but its success hinges on the ability to target the area of injury in the brain. SPECT imaging enables them to see the location of those areas.

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St. Jude Medical completes acquisition of Spinal Modulation, Inc.

Posted online May 05, 2015, by Lauren Dubinsky

St. Jude Medical, Inc. recently announced that the acquisition of Spinal Modulation, Inc. has been completed. St. Jude Medical claims that it is now the only medical device manufacturer worldwide that offers radiofrequency ablation, spinal cord stimulation and dorsal root ganglion (DRG) stimulation therapy systems for chronic pain.

Through the acquisition, the company will own Spinal Modulation’s Axium Neurostimulator System. It’s a form of SCS therapy and works by targeting the DRG, which contains the main sensory neurons that send pain signals from the peripheral nerves to the brain.

The system leverages an implantable medical device that sends mild electrical pulses to the DRG to disrupt the pain signals on the way to the brain. It currently has CE Mark in the European Union for chronic intractable pain management and TGA approval in Australia for managing chronic and intractable pain of the trunk and limbs.

The ACCURATE study is a prospective, randomized, multi-center, controlled study that evaluated the safety and efficacy of the system and the results will be presented at the 12th annual International Neuromodulation Society Congress. A PMA application seeking marketing approval in the U.S. has been submitted to the FDA.

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Royal Philips launches its 3-D navigation system, VesselNavigator

Posted online May 01, 2015, by Lauren Dubinsky

Royal Philips launched its VesselNavigator, which is designed to be used with Philips’ interventional X-ray systems. This is Philips’ latest innovation in live 3-D catheter navigation for the minimally-invasive treatment of vascular diseases.

During an endovascular procedure, image guidance is used to steer a catheter through major arteries or veins in order to locally place and deploy implants including stents. VesselNavigator can be used for all endovascular procedures, especially for the treatment of aortic aneurysms.

Endovascular aortic aneurysm repair is a very challenging procedure since it’s difficult to use conventional X-ray imaging to place the stent in the precise orientation. Because of that, it’s a longer procedure and requires more contrast medium.

The VesselNavigator works by combining the live interventional X-ray images with the pre-acquired 3-D MRI or CT images of the patient’s vascular structures. It generates 3-D color-coded images of the vessels that make it easier for the surgeon to move through the vascular network without the need for X-ray visualization and additional contrast medium.

Recent studies demonstrated that VesselNavigator can reduce the use of contrast medium by 70 percent and procedure times by 18 percent. Now patients who previously were unable to benefit from minimally invasive treatments will have access to this treatment option.

VesselNavigator is the new addition to Philips’ 3-D image-guided navigation portfolio for minimally invasive therapies. The portfolio also includes HeartNavigator and EchoNavigator for structural heart repairs, EP Navigator for cardiac electrophysiology interventions and EmboGuide for tumor embolization during cancer treatment.

VesselNavigator was developed along with the University Hospital Cologne in Germany and the University Hospital Ghent in Belgium. It is not available for sale in the U.S. and is pending 510(k) clearance.

Share this story: dotmed.com/news/25655
Researchers find wide variation in out-of-pocket cost of knee MRI

The out-of-pocket price of an MRI scan of the knee varies widely across outpatient imaging centers locally and around the U.S., with some imaging centers charging eight times more for the same procedure, according to a study in the May issue of the Journal of the American College of Radiology.

However, some imaging center leaders questioned whether the study and its methodology paint an accurate picture.

In March and April 2013, researchers from the Mayo Clinic in Rochester, Minn., contacted 122 outpatient radiology centers in 43 different locations in each state’s highest-population area, based on 2010 U.S. Census data. The centers were chosen at random using the ACR MRI Accreditation Program database and divided into three population brackets — 50,000 to 500,000, 500,000 to 1 million, and more than 1 million — to show price trends.

The researchers calling the centers posed as a 21-year-old college student who had recently hurt his knee playing football. Following a script, each caller asked the same essential question: “What is the best price for a non-contrast knee MRI with all discounts included if I am uninsured and paying completely out of pocket?”

They found that prices ranged from $259 to $2,042 across all the imaging centers. The median cost differences between localities ranged from a low of $325 in the Midwest to a high of $1,488 in the West. Within one locality in the South, the price of the procedure varied among imaging centers by nearly $1,600.

Among regions, the differences in median cost were not statistically significant. The median cost for the West, Northeast, Midwest, and South region was $690, $500, $550, and $550, respectively. The researchers found that the out-of-pocket costs tended to be higher in regions with smaller populations and lower in more highly populated areas.

The researchers wrote that determining the variability of pricing for an outpatient procedure was important due to the increase of people covered by high-deductible insurance plans.
Ultrasound with contrast for pediatrics with abdominal trauma superior to CT

Results from a recent British study indicate that children who suffer from blunt abdominal injury can effectively be diagnosed and managed with contrast enhanced ultrasound (CEUS). CEUS was deemed to be a lower cost alternative to follow-up CT and did a better job of identifying traumatic parenchymal lesions on internal organs in children with blunt force trauma to the abdomen.

“We were surprised that the accuracy of the technique was so robust, with follow up of targeted organ CEUS in children becoming the normal approach in our institution,” Dr. Annmaria Deganello, a consulting pediatrics radiologist at King’s College Hospital in London and lead researcher, told DOTmed News. “The results have completely altered our practices with no detrimental effect."

The finding is yet another recent change of practice in the ongoing effort to reduce radiation exposure in pediatric patients.

“Reduction in exposure to ionizing radiation in a young vulnerable population with the potential to reduce cancer risk; this is in line with the ALARA principle (As Low As Reasonably Achievable), which makes pediatric radiologists responsible for reducing the amount of radiation a child is exposed to, while maintaining safety and reliability of the diagnostic modality,” explained Dr. Deganello.

The retro-perspective study reviewed studies of nearly 800 pediatric patients from the ages of nine months to 20 years old, conducted over a 16-year period. About 15 percent of these patients had follow-up CT studies and about a third of those patients received CEUS. This study was an extension of an earlier study to examine the use of CEUS in focal liver lesions, which Dr. Deganello said made sense, given their area of specialty focus.

The King’s College study results were similar to the results of an Italian study published in March 2015. Dr. Deganello said the results of her study have not yet been published but have been presented at a recent U.S. conference and will be taught in a teaching course at the upcoming British Medical Ultrasound Conference.

AGITO sells GME business to FAMECO

AGITO Medical has sold the general trading segment of its business to FAMECO, a move which will enable the company to focus exclusively on its rapidly expanding imaging business.

DOTmed News spoke with Anders Fage Jensen, CEO of AGITO, who aptly summarized the transaction: “It means goodbye to the trading company AGITO and hello to the imaging company AGITO.”

Directly before the transaction, Jensen estimated half of the company’s turnover was parts, rental and services, while the other half was trading. Of the trading half, he said 44 percent was imaging. Jensen counts mobile imaging, spare part supplying, and imaging service contracting among the chief concentrations of the imaging business.

Five years ago — with 100 percent of its turnover derived from trading — AGITO was a different company.

Letting go of the GME business also means AGITO can stop utilizing warehouse facilities in France and centralize the business in the North of Denmark, where Jensen said the company recently took occupancy in a 4,000-square-meter space.

Meanwhile, the GME business should be right at home with FAMECO, a company specializing in high-quality refurbishing of major manufacturer laboratory instruments.

The financial details of the transaction were not disclosed.

New technology may allow more patients with implanted devices to undergo MRI exams

Researchers at the Martinos Center for Biomedical Imaging at Massachusetts General Hospital have developed a new technology that may allow more patients with pacemakers, defibrillators and spinal cord stimulators to undergo MRI exams.

The radiofrequency (RF) energy used in MRI can increase the electrical current induced in the lead’s nonmagnetic metallic wires and generate heat that can damage tissues. The FDA has approved a group of “MR conditional” devices but those can only be used with low-power scanners, instead of the new, more powerful MRI systems, according to the researchers.

The resistive tapered stripline (RTS) technology works by reducing the generation of heat when wires are exposed to RF energy. It disrupts the RF-induced current increase by abruptly altering the electrical conductivity of wires made from conductive polymers.

The researchers developed a deep-brain stimulation device with an RTS lead and tested it on a gel model that resembled an adult human head and torso. They found that the RTS lead generated less than half the heat produced by exposure to a powerful MRI-RF field compared to the commercially available leads.
Siemens pays $5.9 million to settle claims it overcharged U.S. government for imaging equipment

Posted online May 15, 2015, by Lauren Dubinsky

Siemens Medical Solutions USA, Inc. has agreed to pay a $5.9 million settlement to resolve allegations that it overcharged the U.S. government for medical imaging equipment.

Between February 2002 and December 2008, the U.S. Department of Defense (DoD) and the Defense Supply Center of Philadelphia (DSCP) entered into an agreement with Siemens called the DSCP Contract. Through that contract, those organizations — as well as the U.S. Department of Veteran Affairs (VA) — purchased medical imaging equipment and support products.

The government is claiming that Siemens did not provide the DoD with the largest discount for certain purchases under the contract. Instead, it alleges that Siemens gave the biggest discount to a private or commercial customer that purchased a similar product.

According to a statement from the DoD, when the overcharging was initially revealed, Siemens “issued mass discounts on multiple occasions to address the mis-billing on a prospective basis,” but that only further concealed it from the government.

The VA was also overcharged for certain orders made under the contract that had been converted to a newer model, according to the government’s claim. Some of the orders did not receive the larger discount that pertained to the newer model.

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World’s smallest pacemaker yielding positive interim results

Posted online May 19, 2015, by Gus Iversen

Findings unveiled at Heart Rhythm 2015 illustrate Medtronic’s Micra transcatheter pacing system (TPS) can be safely and effectively applied in patients with a slow heart rhythm.

With a size roughly 93 percent smaller than other permanent cardiac pacing systems that utilize a lead or require a chest pocket, the Micra system has dimensions similar to that of a vitamin capsule. It is implanted directly into the right ventricle of the heart using protractible nitinol tines, by way of the femoral vein.

While the system is not yet FDA approved, it did receive CE Mark in Europe. Share this story: dotmed.com/news/25757

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Study finds faster stroke treatment outside hospital than within

A study published this week in JAMA Neurology revealed that patients who suffer a stroke in the hospital are slower to receive imaging tests and clot busting drugs than if they had been at home and tended to by emergency personnel.

“We were particularly surprised by the length of time between stroke recognition and brain imaging with the in-hospital group,” Dr. Moira Kapral, a professor of medicine, staff physician and senior scientist with the University of Toronto Health System/General Hospital, told DOTmed News.

Kapral said that she and her co-researchers noticed it seemed to take longer than it should to get diagnosis and treatment organized for hospital patients who suffered strokes. She estimates that hospital strokes represent up to 15 percent of all strokes.

The study results showed that in-hospital patients waited an average of 4.5 hours from the time symptoms were recognized to undergo CT compared with 1.3 hours for patients brought to the emergency department.

The study looked at stroke patients admitted to regional stroke centers in the Toronto region over a nine-year period ending in March 2012. The study identified nearly 1,000 hospital stroke patients and nearly 29,000 patients whose stroke occurred outside the hospital. Kapral stressed that some of the delay can be explained by the more acute conditions of hospital patients.

“Our study found that patients with in-hospital strokes were different from those with community onset stroke in many important ways — they were older, more likely to have serious comorbid conditions like diabetes, heart failure and cancer, had more severe strokes, and were more likely to be ineligible for thrombolysis (clot busting drugs) because of medical or surgical contraindications,” said Kapral.

Still Kapral feels the study indicates a need for in-hospital stroke protocol changes. According to the doctor, some hospitals are now creating stroke codes similar to Code STEMI for myocardial infarction or Code Blue alerts. She feels hospital caregivers could benefit from training similar to that which is provided to paramedics and emergency department staff.

Royal Philips has a few big ideas for the future of health care. By inking a $25 million partnership with the Massachusetts Institute of Technology (MIT) and relocating its research hub to Cambridge, Mass., the company is making big investments in those visions.

DOTmed News spoke to Henk van Houten, executive vice president and general manager of Philips Research, about the kind of innovations the company will be focusing on. He said that although the details are still being defined, certain areas of interest have emerged.

Patient monitoring is one area in which the alliance hopes to pioneer change. Taking valuable diagnostics out of the general ward and into the real world has presented challenges to the health care industry, as data overload and alarm fatigue often dilute the value of the information.

With MIT, Philips hopes to create meaningful algorithms and actionable alerts that simplify patient monitoring. Part of that goal means, “tracking health deterioration prior to events happening,” according to van Houten. Seamless third-party data flow and interoperability are another part of that goal, pointing toward a future where patients can monitor their own health independently.

Siemens’ PETNET Solutions receives U.S. rights to prostate PET/CT agent

According to the American Cancer Society, prostate cancer is the second leading cause of cancer in men worldwide. In the U.S. alone, over 220,000 men are expected to be diagnosed this year.

An investigational PET/CT radiopharmaceutical called Fluclucilovine (18F) may play an important role in the future of that diagnosis.

Blue Earth Diagnostics (BED) is a private company based in the U.K., backed by Syncona Partners LLP, a subsidiary of the Wellcome Trust, that is developing and commercializing PET agents. In a just-announced agreement, it has granted manufacturing and distribution rights for Fluclucilovine to Siemens’ PETNET Solutions.

Although not yet FDA approved, there are clinical trials underway in the U.S. and several other countries to further understand the medical value of the isotope. Once the FDA approval is complete, Siemens’ PETNET Solutions will be the nation’s exclusive distributor.

The announcement came just weeks in advance of the annual meeting of the Society of Nuclear Medicine and Molecular Imaging (SNMMI), a major international event for people and organizations looking to advance the capabilities and availability of cutting-edge nuclear science.

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UK experts urge $2 billion for development of antibiotics

A report issued by the UK’s Review on Antimicrobial Resistance outlined the global demand for more resistant antibiotics and the consequences if meaningful action is not taken.

The committee, appointed by the British government, warned that drug-resistant microbes could kill 10 million people a year worldwide by 2050, and called for $2 billion over five years to be put into developing new antibiotics.

The report posits that one direction for development could be “resistance breakers” that could boost the effectiveness of already-existing antibiotics without the cost burden associated with the development of entirely new ones.

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Olympus unveils five new urology devices at AUA 2015

Attendees at the American Urological Association’s annual meeting had an opportunity to get the first glimpse of a variety of new urological developments being added to the Olympus medical portfolio.

Here are the names and vendor descriptions of the five items:

- **GLIDEWIRE Hydrophilic Coated Urologic Guidewire** — Olympus is now the exclusive distributor of the most-requested brand in guidewire, the Terumo GLIDEWIRE Urologic Guidewire.
- **ShockPulse — SE** — this next generation CyberWand, Dual Action Lithotripsy System with integrated suction and hand activation, fragments and removes stones even more efficiently.
- **UltraTrack Hybrid Guidewire** — this everyday guidewire combines the flexibility of a hydrophilic wire at the tip and a stiff body to maintain position and assist in device passage.
- **UroPass Access Sheath** — full portfolio. For establishing atraumatic passage, the hydrophilic-coated sheath and gradual tapered dilator tip eases placement and allows for multiple passage of endoscopes and retrieval devices. The sheath provides fast access through the urethra and to the kidney, enabling multiple passages of instruments safely.
- **200 Series Laser Fiber** This thin fiber balances a small diameter with the optimal laser energy transmission, allowing scope flexibility and improved irrigation. This slim fiber complements the full offering of lasers and laser fibers.

Share this story: dotmed.com/news/25743
Personalized medicine for heart disease can save U.S. health care system $607 billion in 50 years

Posted online May 08, 2015, by Lauren Dubinsky

Personalized and precision medicine (PPM) has the potential to reduce the incidence of heart disease by 50 percent and save $607 billion over a span of 50 years, but reimbursement concerns stand in the way, according to a “Personal View” article featured in The Lancet.

“Preventive, personalized, and precision medicine interventions targeted at reducing heart disease would have the greatest societal benefit, because heart disease is very common and has a relatively large effect on life expectancy,” Dr. Victor Dzau, president of the U.S. Institute of Medicine, said in a statement.

Dzau and his colleagues used a health simulation model to predict the impact that PPM interventions would have in the future. They focused on PPM interventions that improve screening and risk prediction technologies and determine the individuals at highest risk of developing certain diseases.

They found that these interventions can decrease the occurrence of cancer, diabetes, heart disease, high blood pressure, lung disease and stroke by 10 to 50 percent in the U.S. between 2012 and 2060. If the interventions reduced the incidences by 10 percent, it would lead to $96 billion in savings for diabetes and $70 billion for cancer.

Despite the potential PPM innovations have for making a positive impact, the current reimbursement environment is not conducive to them. The U.S. health care system currently prefers treatments that generate greater returns in the short-term instead of maximizing overall value, according to Dzau.

But Dzau and his colleagues believe that if reimbursement was based on a test’s value instead of cost, that would encourage manufacturers to develop preventive PPM diagnostic tests and bring them to market faster.

They added that private insurers favor interventions with immediate benefits and short payback periods but that the benefits of PPM innovations accumulate over a long period of time. They believe that their predictions demonstrate that developing a model that produces positive returns for private payors can benefit everyone.

Why do almost half of at-risk patients decline comprehensive cancer screening?

Posted online May 08, 2015, by Gus Iversen

A study published in Genetics in Medicine suggests that nearly half of all at-risk patients opt out of comprehensive cancer gene screening when given a chance to be screened for genes linked to cancer.

The study, conducted by the University of Pennsylvania, looked at multiplex testing — an alternative to targeting cancer tests that allows for the simultaneous analysis of alterations in multiple cancer-related genes.

A few weeks after publication, the availability of low-cost genetic testing for breast and ovarian cancer mutations became available online.

All of the 49 patients in the study had a family or personal history that made them at-risk for cancer. They were all counseled on the advantages (early detection) and disadvantages (worry, uncertainty) of comprehensive gene testing, and 16 went on to decline the testing.

Indeed, the most frequent reason study participants cited for foregoing testing were concerns about information overload and uncertainty about the results.

Part of the problem, according to the researchers, is that these tests can identify gene variants that may be precursors to some forms of serious and untreatable forms of cancer.

Introducing VitalBeam, Varian’s new linear accelerator

Posted online May 08, 2015, by Gus Iversen

Varian hopes its newest linear accelerator, the VitalBeam, will appeal to radiation therapy facilities looking for a state-of-the-art stereotactic radiotherapy platform, while also keeping an eye on the bottom line.

The system, which is still pending CE mark and approval, will be available in a basic package with an 80-leaf collimator for performing intensity-modulated radiation therapy (IMRT). The VitalBeam will offer up to three photon and six electron energy levels for flexibility in treatment. It will also be compatible with RapidArc, which can be added in the interest of reducing treatment time through higher dose delivery rates, an on-board kV X-ray system with cone beam CT capabilities, and a higher-resolution 120-lead collimator.

Kolleen Kennedy, president of Varian’s Oncology Systems business, described it as, “A flexible and upgradeable system that affordably meets the clinical needs of our customers today and as they grow in the future.”

VitalBeam will be available with low-dose megavoltage (MV) imaging using the accelerator beam for image guidance, and respiratory gating for motion management. It also features a streamlined treatment console with an easy-to-use graphical interface, and a guidance system that prompts therapists safely through the steps of even the most complex treatments.

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The global proton therapy market will hit $1 billion by 2019

In 2014, there were 141 operational proton therapy treatment rooms globally, but by 2019 that number will jump to 330, according to a new MEDraysintell report. In addition, the proton therapy world market is expected to hit $1 billion by 2019.

“There is a growing [amount] of clinical evidence regarding the efficacy of proton therapy, that will progressively be used to treat a broader number of indications,” Paul-Emmanuel Goethals, co-founder of MEDraysintell, told DOTmed News. “In addition, the emergence of lower-cost/compact PT systems, is allowing more centers to be installed.”

The high cost of the systems was the main hurdle that stood in the way of widespread adoption of proton therapy technology. To solve that, almost all of the proton therapy manufacturers offer or are developing compact proton therapy systems.

Today, 15 manufacturers make up the proton therapy market and in 2019 five of those companies, including Varian and IBA, will comprise 70 percent of the market. Among the companies, there is also an interest in carbon therapy — IBA and Toshiba recently partnered to promote Toshiba’s carbon therapy solutions outside of Japan.

The global particle therapy devices market, which is mostly composed of proton therapy devices, was worth $100 million in 2000 and grew at an annual growth rate of about 15 percent from 2000 to 2014. By 2030, the market is anticipated to reach anywhere from $3.5 billion to $6.6 billion with 1,200 to 1,800 particle therapy treatment rooms in operation.

About 14,500 patients worldwide were treated with particle therapy in 2014, at a cost of $400 million. By 2030, 300,000 to over 600,000 patients are expected to be treated with particle therapy.

However, by 2019 only 1 percent of the population that requires some sort of radiotherapy will be able to receive proton therapy because of the limited number of proton therapy facilities that will be installed globally by then, said Goethals. “Therefore, there is still much room for further growth,” he added.

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Imagining a less invasive surgery with MRI-powered millirobots

Injections of tiny robots called “millirobots,” powered by MRI scanners, might one day be able to treat hydrocephalus and other conditions. Researchers at the University of Houston have found a way to harness the energy from MRI scanners to power the millirobots to penetrate tissue.

In order to treat hydrocephalus, surgeons have to cut through the patient’s skull and implant pressure-relieving shunts. But hydrocephalus is an ideal candidate for this minimally-invasive approach since the ventricles are filled with fluid and connected to the spinal canal. The surgeon would use a hypodermic needle or lumbar puncture to inject the millirobots into the patient’s spinal canal and they would then be driven out of the body by the MRI energy Afterwards.

The researchers first used high-quality brain images generated from the MRI scanner to map out the routes for the millirobots. They then hacked the MRI and utilized its magnetic energy to push the millirobots to the desired location.

“The approach proposed here involves navigating individual millirobots to a target location and allowing them to self-assemble in a manner that focuses the stored magnetic potential energy as kinetic energy for tissue penetration,” the researchers wrote.

The researchers used the same principle behind the Gauss gun toy, which involves one steel ball separated from three other steel balls by a couple of high-powered magnets. When the steel ball is rolled toward the other balls, the one at the very end shoots off at a high velocity.

The millirobots are 3-D printed and composed of high-impact plastic and slender titanium rod spacers that separate two steel balls. The MRI’s energy is used to magnetize the steel balls and propel them forward.

So far, the researchers have tested the approach on phantoms inside of an unmodified clinical MRI scanner but the work is still conceptual at this stage. Going forward, they are working toward exploring its place in the clinical setting, miniaturizing the device, and optimizing the material components.

Are urinary catheters overused? Detailed new guidelines may suggest so

Since 2009, the CDC’s short list of appropriate and inappropriate urinary catheter uses has been the standard for determining patient candidacy, but new guidelines published in the Annals of Internal Medicine may provide a broader analysis of the situation.

“In general, because urinary catheters increase the patient’s risk of infection and other complications such as pain and scarring of the urinary tract, they should only be used when teams have no other way to assess a patient’s urine or his or her fluid status,” says Dr. Jennifer Meddings, lead author of the paper and an assistant professor of internal medicine at the University of Michigan Medical School.

While approximately one in five hospital patients today receive a Foley catheter, the new criteria suggest that far fewer should. The guidelines also point out that each day of catheterization increases the risk of complications, so in that sense less is sometimes more.

The guidelines, called the Ann Arbor Criteria for Urinary Catheter Appropriateness, include criteria for choosing between three different types of urinary catheters. Appropriate selection between different types of catheter was not addressed in the CDC guidelines published six years ago.

MEDNAX to acquire vRad for $500 million

A leader in U.S. pediatric physician services has struck a deal with a major teleradiology and telemedicine company. MEDNAX will acquire Virtual Radiologic Corporation (vRad) for $500 million.

“We believe vRad is an excellent platform for growth in teleradiology and the broader telemedicine market,” said Dr. Roger J. Medel, CEO of MEDNAX, in a statement. He described radiology as a “large but fragmented” industry with $18 billion in total revenue, that is evolving toward the principles of telemedicine.

“We believe the opportunities for organic growth at vRad and for cross-selling between the company’s and MEDNAX’s customer bases are compelling,” added Medel.

vRad currently generates roughly $185 million annually through its network of more than 350 U.S. board-certified and eligible radiologists. That network of radiologists provides coverage to over 2,100 health care facilities across the U.S. and internationally. Combined, they interpret more than 5 million diagnostic imaging studies annually, which are kept in vRad’s PACS system.

vRad’s management team is expected to remain with the company as part of MEDNAX.

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Pre-MRI counseling for pediatric patients reduces need for anesthesia: study

Posted online May 11, 2015, by John W. Mitchell

A three-year study indicates that children who received counseling from a certified child life specialist (CCLS) are more compliant with MRI scans. The researchers found the protocol reduced anesthesia use overall from 23 percent to 19 percent of patients, with a drop from 45 percent to 35 percent for children aged five to 10 years old.

Dr. Daniel Durand, adjunct assistant professor of radiology in the Johns Hopkins division of Pediatric Radiology, explained to DOTmed News that they (with director, Dr. Thierry Huisman and Mollie Young, CCLS) decided to conduct the study because of an observed strong correlation to anesthesia reduction when the pre-test education consultations were optional.

“For the first several years, we knew we had excellent results in the subset of children with whom our CCLS were engaging,” he said. “But we wanted her to engage with more children and elective referral was not going to allow us to do that as broadly as mandatory consultation.”

Seeking to expose children to less radiation, imaging protocols increasingly favor MRI (magnets) over CT (iodizing radiation). However, because an MRI scan can take close to an hour to complete, children are challenged to lie still for that long — even with standard comfort features such as DVD players and music. Consequently, anesthesia is often used, which results in a mean increased MRI time of 1 hour and 45 minutes.

“Anesthesia will always be necessary in some cases,” Durand said. “But the results indicate that more children can avoid the discomfort and risk of anesthesia — which may decrease stress and expense to the parent as well.”

No special equipment such as video goggles or other distraction devices were used in the study. Instead the CCLS provided information to the parents and children prior to the exam date. The children were educated about the test and taught coping skills (including having a parent in communication) to use if the patient felt anxious during the exam. Ultimately the CCLS decided if the child could tolerate the exam without anesthesia.

Share this story: dotmed.com/news/25706
Do new findings on gadolinium highlight unintended consequence of Stark law?

Three recent studies published online in Radiology indicate that patients who receive some available brands of gadolinium-based contrast agents (GBCA) retain residual amounts of heavy metal traces in their brains long after the scan.

The clinical implications of this discovery have not yet been fully determined, Dr. Emanuel Kanal, Director of Magnetic Resonance Services and Professor of Radiology and Neuroradiology at the University of Pittsburgh Medical Center, told DOTmed News. However, he believes the findings should serve as a wake-up call for more radiologist involvement in ordering diagnostic examinations.

“Now that we know gadolinium remains in the body with at least some of these agents, radiologists need to become more actively involved in the ordering process,” said Kanal. That means reviewing the patient history, determining whether the requested MRI study is indicated, whether it does indeed require administration of a GBCA, and if so, which agent and at what dose.

“The referring doctors cannot be expected to have expertise regarding these GBCA; that is the responsibility of the radiologist,” said Kanal.

But current legislation may be getting in the way of that level of radiologist involvement. According to Kanal, the Stark Amendment — a law which governs self-referrals in the way of that level of radiologist involvement. According to Kanal, the Stark Amendment — a law which governs self-referrals in which a doctor may have a financial interest — has left radiologists reluctant to get involved in the decision-making process.

“Because of the Stark Amendment, radiologists do not typically order either diagnostic tests or contrast administration on their own patients. As such, there has been a tendency to simply accept the referring physician’s orders,” said Kanal.

“That has to change,” he added. Until 2006 it was generally believed that gadolinium exited the body quickly. However, several studies have recently confirmed that gadolinium is retained long after it is administered.

Patients with severe kidney disease who receive multiple doses of some GBCAs have been shown to develop nephrogenic systemic fibrosis.

Kanal was the lead author in an editorial on gadolinium research published in the June issue of Radiology along with co-author, Dr. Michael F. Tweedle, of Ohio State University.

Scientists embed electrodes in yarn, paving the way for true wearable devices

Forget watches. An international team of scientists has developed a technique to embed graphene electrodes into fibers that are used in the textile industry, laying the foundation for the creation of lightweight clothing containing computers, phones, and even patient monitors.

The research, conducted by scientists from the Centre for Graphene Science at the University of Exeter, the Institute for Systems Engineering and Computers, Microsystems and Nanotechnology in Lisbon, the Universities of Lisbon and Aveiro in Portugal, and the Belgian Textile Research Centre, was recently published in the journal Scientific Reports.

Transparent and flexible electrodes are already widely used in plastics and glass, but this is the first example of a textile electrode being truly embedded in a yarn, Monica Craciun, a professor at the University of Exeter and co-author of the research, said in a statement.

The researchers grew graphene — which is strong, flexible, and the thinnest substance capable of conducting electricity — on copper foil using a method called chemical vapor deposition. The team then created a technique to transfer graphene from copper foils to a polypropylene fiber commonly used in the textile industry.

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Announcing the ‘Rosetta Stone’ of advanced prostate cancer

New research, “opens up the black box of metastatic cancer, and has found inside a wealth of genetic information that I believe will change the way we think about and treat [advanced prostate cancer],” said Dr. Paul Workman, chief executive and president of the Institute of Cancer Research (ICR) in London.

Research led by Workman’s institute has genetically mapped out metastatic prostate cancer and determined that 90 percent of men with the disease carry mutations in their tumors that could be targeted by new or existing cancer drugs.

By testing patients for these genomic aberrations, physicians could theoretically target these clinically actionable mutations with drugs or combinations of drugs.

The team in London partnered with researchers from eight academic trial centers from around the world. Together they conducted in-depth analysis of the genetic codes of metastatic tumors from the bone, soft tissues, lymph nodes, and liver of 150 patients with advanced prostate cancer.

They found that nearly two-thirds of the men in the study had mutations in a molecule that interacts with the male hormone androgen, which is targeted by current standard treatment. Those findings may suggest innovative hormone therapies could be developed.

Share this story: dotmed.com/news/25776
MRI has the potential to make breast cancer screening more personal: study

**Posted online May 12, 2015, by Lauren Dubinsky**

New research published in *Radiology* suggests MRI could potentially play a bigger part in a more personalized approach to breast cancer screening.

Contrast-enhanced MRI is already used as a supplemental screening tool for women at high-risk. In fact, the American Cancer Society's guidelines state that women with a 20 percent or higher lifetime chance of developing breast cancer should undergo both breast MRI and mammography screening every year.

For their study, researchers compiled breast MRI images from screenings conducted between January 2006 and December 2011. They looked specifically at high-risk patients ages 18 and over, with no history of breast cancer. They then evaluated the images for breast density and normal background parenchymal enhancement (BPE), which is when the background breast tissue shows up white on the MRI images.

The study found that the women with elevated amounts of BPE had a nine times higher chance of being diagnosed with breast cancer during the follow-up period compared to the women with low amounts of BPE, or none at all.

The researchers also found that mammographic breast density has no significant connection to cancer risk in this particular study. But BPE, on the other hand, may help physicians personalize screening and tailor treatment to each individual patient.

Previous studies have shown that dense breast tissue may put a woman at a higher risk of developing breast cancer, but researchers are uncertain that including dense breast tissue as a risk factor can improve upon current risk assessment methods.

Women at high risk of developing breast cancer have the choice of undergoing supplemental screening mammography with MRI, therapy that blocks estrogen activity in the breast or a mastectomy. BPE may now help those women choose the most effective option.

Going forward, the researchers are conducting a larger study in order to validate their findings. They speculate that BPE is associated with inflammation in the early stages of a disease, but they want to prove exactly why BPE might be a biomarker for breast cancer risk.

Share this story: dotmed.com/news/25714

Study confirms patient preference for receiving imaging results

**Posted online May 26, 2015, by John W. Mitchell**

A recent study that was conducted at the University of California San Francisco Medical Center and recently published in *The Journal of the American College of Radiology* examined a common communication process repeated many thousands of times a day across the country: informing patients about their imaging study results. The survey was designed to better understand how to improve service and communication to patients.

Nearly 2,500 CT and MRI patients at two hospitals were surveyed over the course of four weeks, with a response rate of 25 percent. The sample population was mostly white, with an average age of 52; at least half of those surveyed were college-educated. About two-thirds of patients surveyed said the referring physician was the best source for test imaging results. Surprisingly, half of those surveyed said they did not know radiologists were doctors, with only a third reporting they were aware that radiologists preform minimally invasive procedures, such as biopsy.

Perhaps an important limitation to the study's findings: no distinction was made between patients who had normal and abnormal findings in their imaging exams.

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Study shows link between PTSD and accelerated aging, early death

Posted online May 14, 2015, by Lisa Chamoff

Post-traumatic stress disorder is mainly considered a psychological disorder, but new research suggests that PTSD may have some biological risks as well, including accelerated aging.

Researchers at the University of California, San Diego School of Medicine had already been looking at other serious mental illnesses, including schizophrenia and bipolar disorder, and noted that these disorders potentially accelerated the aging process. The team decided to also look at whether there was a similar association for PTSD and conducted a comprehensive review of published empirical studies relevant to early aging in PTSD, going back to 2000. Their study was published in the May 7 online issue of American Journal of Geriatric Psychiatry.

The researchers collected evidence from 64 relevant studies that looked at biomarkers, such as leukocyte telomere length (LTL), earlier occurrence of medical conditions associated with advanced age, and premature death. Several studies found reduced telomere length — telomeres get shorter when cells replicate, an indication of the aging process in cells — as well as increased pro-inflammatory markers, such as C-reactive protein and tumor necrosis factor alpha, in people with PTSD. There was also an overlap between PTSD and other conditions associated with aging, including cardiovascular disease, type 2 diabetes, gastrointestinal ulcer disease, and dementia. Several studies showed a mild to moderate association of PTSD with early death.

Dr. Dilip Jeste, director of the Center on Healthy Aging and Senior Care at UC San Diego, and the study’s senior author, said the research could serve to change care for people with PTSD.

“It shows that the PTSD is not just a mental illness, it’s also a biological disorder that affects the entire body, not just the brain,” Jeste told DOTmed News. “It means that you should take care of your body also. That is true for everybody, but that is even more true for people with PTSD.”

Aging experts say the information could help people with PTSD to take steps to reduce stress and mitigate the biological effects of the disorder.

Share this story: dotmed.com/news/25733

Quantifying the value of pediatric telemedicine in rural communities

Posted online May 27, 2015, by John W. Mitchell

How valuable can remote consultation be to the care of pediatric patients? A study conducted by UC Davis and published in the journal Medical Decision Making has put a price tag on the outcomes achieved at a rural hospital using telemedicine for pediatric critical care examinations.

The new research has shown telemedicine consultations can reduce pediatric transfers by 31 percent. Connecting remotely helps identify children who have conditions serious enough to warrant transfer to an even higher-level care facility.

While there are costs associated with installing a telemedicine system, the study found that consultations conducted through them produced an average savings of roughly $3,641 per case. When potential transport costs are included, the savings average rises to $4,662 — and this does not take into account direct costs to the parents, such as gas, meals and hotels.

The study was conducted at eight rural hospitals between 2003-2009. It partnered health care economists and physicians to conduct the research. Although the cost savings were not very surprising, the results are timely, given the Affordable Care Act’s value-based goals.

Share this story: dotmed.com/news/25818
Fujifilm acquires VNA leader TeraMedica

Through the just-announced acquisition of TeraMedica, Inc., Fujifilm Medical System U.S.A., Inc. has taken a major stride into the vendor neutral archive (VNA) market.

The two companies are no strangers to one another, having already been in a business partnership. In March 2013, TeraMedica and Fujifilm entered into an agreement in which the health informatics company provided its VNA technology for integration with Fujifilm’s medical and imaging information management system.

“VNA technology serves a growing number of forward-thinking health care enterprises around the world, realizing the promise of truly integrated patient-centric health care,” Jim Morgan, vice president of medical informatics at Fujifilm, told DOTmed News.

“By achieving this across multiple health care applications, as well as IT systems and providers, it also is playing a crucial role in placing health care enterprises on the road to meaningful use.”

TeraMedica’s VNA is a central, shared system that allows all patient data to be viewed across different departments within the hospital. Breaking down the silos that traditionally hamper communication between departments is important for facilitating the kind of collaborative efforts that are intrinsic to health reform.

“Together, we will be able to deliver medical informatics solutions that acquire, analyze, interpret and present patient data in ways that are meaningful for providers in the most challenging environments,” said Morgan.

Among TeraMedica’s VNA customers is New South Wales in Australia — one of the largest health imaging exchanges in the world. The system enables them to share medical images and complete digital medical records across multiple local government health districts with 110 facilities that care for over 7 million patients.

VNA’s are emerging as a crucial component in managing a growing body of data in a consolidating provider marketplace, and Fujifilm’s acquisition will strengthen its position in the growing segment. Going forward, the company will be known as Fujifilm TeraMedica, Inc. To date, their software has been deployed at over 600 locations on six continents.

Ohio medical board disciplines radiologist for HIPAA violation

A radiologist who unlawfully accessed a colleague’s medical record has signed a consent agreement with the Ohio State Board of Medicine submitting to disciplinary action.

Dr. Aimee Hawley’s actions violated the federal Health Insurance Portability and Accountability Act (HIPAA), and have resulted in her medical license being put on probation — although she is permitted to practice during the probation period.

The consent agreement, which is publicly attached to her medical license, requires Hawley to agree to a reprimand and probationary punishment. According to the agreement she “intentionally accessed the electronic medical records of a physician colleague (and) further admits that she was not a treating physician, nor was she asked to consult, or provide diagnostic service."

Under the consent agreement Hawley agreed to several terms. These include: quarterly declarations to confirm compliance, face-to-face meetings as requested by the medical board, and attending medical ethics training, which includes submitting a written report on what she learned. She is also required to write a letter of apology to her physician colleague.

No reason was given for Hawley’s interest in the medical record.

Share this story: dotmed.com/news/25795
Government policy creates ‘medical deserts’ as 51 rural hospitals close in 10 years

Posted online May 13, 2015, by John W. Mitchell

The American Hospital Association put four of its members who manage rural hospitals before a Congressional Senate Appropriations subcommittee in the interest of reducing burdensome regulations and advocating special reimbursement policies for rural Medicare patients.

Tom Wolters — one of the four witnesses to testify — manages reimbursement for two rural Missouri hospitals and cited four factors detrimental to rural hospital viability.

“The four challenges I would like to highlight regarding rural hospitals are patient volumes, Medicare utilization, the cumulative impact of Medicare reimbursement cuts and the increasingly complex regulatory environment in which we operate,” Wolters told the subcommittee.

He noted that rural hospitals have significantly higher Medicare utilization than urban hospitals — 42.5 percent compared to 30 percent. Those patients are elderly, with more comorbidity conditions requiring longer hospital stays and more costly resources such as intensive care and imaging, said Wolters.

He noted that Medicare does not reimburse as well as commercial insurance — which is more prevalent in urban hospitals — and also said gathering the data and paperwork necessary for proper reimbursement is a time-consuming task big enough to keep vital members of the workforce occupied when their time could be better utilized helping with patients.

In his comments, Wolters cited three programs that Congress has renewed or extended to stabilize rural hospital funding. These include: the recently passed Medicare Access and CHIP Act of 2015 to eliminate the ongoing annual threat of Medicare payment reductions to doctors; the 30-month extension of the Medicare low-volume and dependent hospitals payment programs; and a six-month delay preventing post-payment review under the 2-midnight program which governs patients’ observation status. Share this story: dotmed.com/news/25719

ACR 2015: Dr. James Thrall on imaging in the era of precision medicine

Posted online May 20, 2015, by Lauren Dubinsky

Thanks, in part, to an initiative launched by President Obama in his State of the Union Address in January, precision medicine is emerging as a central topic in U.S. health care. At this year’s American College of Radiology conference in Washington, D.C., Dr. James Thrall of Massachusetts General Hospital gave an insightful lecture on how precision medicine will shape the role of imaging.

“I think doctors feel they are doing the right thing by ordering a CT scan or MRI for a patient who suffers from headaches. It makes the patient feel like the doctor is validating their pain,” Dr. John Mafi, a research fellow and practicing internal medicine physician at BIDMC, told DOTmed News. “But overtreatment can lead to harm through unnecessary exposure to radiation and other complications.”

The study analyzed 9,363 patients and excluded patients who were symptomatic for tumors, cancer or trauma. The study also noted that referrals from primary care physicians to specialists, such as neurologists, almost doubled to 13.9 percent of patients, which also increased costs.

Mafi is a proponent of lifestyle changes to help headache patients. He stressed that while no study has specifically been conducted on the relationship between physician counseling and relief of chronic headaches, he said other studies point in that direction. Share this story: dotmed.com/news/25736

Study shows overreliance on CT and MRI for headache has doubled in 11 years

Posted online May 15, 2015, by John W. Mitchell

A study out of Beth Israel Deaconess Medical Center (BIDMC) found that from 1999 to 2010 headache treatment protocols have become more dependent on the use of advanced imaging. Such tests expose patients to what is often unnecessary radiation, while also increasing health care costs.

“I think doctors feel they are doing the right thing by ordering a CT scan or MRI for a patient who suffers from headaches. It makes the patient feel like the doctor is validating their pain,” Dr. John Mafi, a research fellow and practicing internal medicine physician at BIDMC, told DOTmed News. “But overtreatment can lead to harm through unnecessary exposure to radiation and other complications.”

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Upcoming Events

AHRA 2015
Location: The Venetian, Las Vegas, Nev.
Dates: July 19-22
Years in existence: 43
Average attendance: 1,000+
Who should attend: Radiologists and physicians involved in medical imaging
About the event: Attendee sessions will feature topics ranging from best practices to latest technological advancements.

Healthy Aging Summit
Location: Washington, D.C.
Dates: July 27-28
Average attendance: 500+
Who should attend: Policymakers, researchers, clinicians, educators, and public health practitioners who want to learn how the social determinants of health impact healthy aging in the United States.
About the event: The Summit’s focus is on exploring the science on healthy aging, identifying knowledge gaps that need to be filled, and promoting the role of prevention in improving quality of life in later years.

NATCO 2015
Location: Louisville Marriott Downtown, Louisville, Ky.
Dates: August 5-8
Years in existence: 40
Who should attend: Transplant and procurement professionals as well as professionals involved in hospital development and administrative work
About the event: The educational event allows transplant and procurement practitioners to learn cutting-edge skills and collaborate with colleagues from all areas of their profession.

FIME 2015
Date: August 5 – 7
Location: Miami Beach Convention Center, Miami Beach, Fla.
Years in existence: 25
Average attendance: 50,000
Who should attend: Physicians, nurses, technicians, senior hospital executives
About the event: The annual FIME Expo is an opportunity for medical equipment professionals to showcase a diverse range of capital equipment, accessories and services.

ESMRMB 2015
Location: Edinburgh International Conference Centre, Edinburgh, UK
Dates: October 1 - 3
Years in existence: 32
Who should attend: Radiologists and physicists and others involved in MRI
About the event: This event will serve as a chance for radiologists and physicists from all over the continent to meet and discuss important industry topics involving magnetic resonance in imaging and biology. Continuing education opportunities will also be available.

SECTRA PACS WINS A GRAND SLAM IN KLAS

SECTRA PACS has been named, for the second consecutive year, Best in KLAS in the 200+ bed hospital segment. In addition, SECTRA PACS won Category Leader in Community PACS (hospitals under 200 beds) and Ambulatory PACS (imaging centers and radiology groups).

SECTRA PACS also won Best in KLAS in the new Global PACS category (non-US hospitals).

Head to sectra.com/bestinklas to learn why SECTRA PACS is Best in KLAS.
The birth of PACS

By Sean Ruck

Obviously, there was a time B.P. (before PACS). Unlike some of the other historical ages though, B.P. wasn’t all that far back, and HealthCare Business News had the opportunity to catch up with Dr. Eliot Siegel, the guy who was truly there from the start – not just someone in health care at the time, but the person literally there in the physical presence of the first PACS being installed and used over the last couple of decades in a hospital setting. To add to the intrigue, we caught up with Dr. Siegel just a couple of weeks after that first system was decommissioned. He was gracious enough to share a brief history of PACS from his truly unique perspective.

Siegel was just out of medical school training when he was asked to come in as the chief of the radiology department at the V.A. Coming in with a fresh perspective, he asked if the V.A. would be willing to support a filmless radiology department. Somewhat to his surprise, he was given a green light to figure out a budget and whether it was practical from a financial perspective. Some vendors were particularly reluctant to see the potential for a lot of problems. “No one was sure what would happen when radiologists had an unlimited ability to stack images, window level, and so on. We weren’t sure whether or not it was practical from speed and performance or an economic perspective for that matter,” Siegel says.

So the team traveled around the country speaking with experts about their experiences with workstations and interviewing vendors to see what they had. “We had some help from the Army, who also came to the same conclusion with about 60 people on their team, and the Hammersmith hospital that had about 12 people. All were in the process of writing specifications for going filmless,” Siegel says.

Information gathering

So all of a sudden there was the potential to go filmless in a hospital. Yet, there was also the potential for a lot of problems. “About a decade before PACS, the idea, building the new department without the capability to do film. “So we created a situation where we kind of forced ourselves to move away from film,” he says. “We weren’t even sure of the legality of reading without film.”

A hot potato?

PACS, like many cutting-edge technologies, partially owes its existence to the military. “They used military satellites and spy planes to capture information and then used computers to review that information,” says Siegel.

But translating military use into a civilian world is exceedingly costly. That was the case with PACS too, with workstations costing about a quarter of a million dollars. That all changed when Siegel found out about a workstation being developed with Mac-based technology. The price tag was still high by today’s standards, ringing in at $10,000 per workstation, but it was an accessible price point.

The V.A. bought their PACS in 1991, doing a tremendous amount of work with the OEM and other companies involved in the project. “We worked on network, storage and compression,” Siegel recalls.

Other details were also hashed out. “So the window level, zoom… all the things you take for granted nowadays, were developed then,” says Siegel.

The system was up and running by 1993, but was just a ghost of what hospitals use today. “We had no Ethernet, so we had to use a proprietary network,” Siegel says. And the storage used was paltry as well. “We had one terabyte at the cost of $800k and it had to last for five years.”

A teaching hospital

The V.A. going filmless showed the entire health care industry that it could be pulled off. “For quite a few years, we had visitors from around the world coming to learn from us,” says Siegel. “They asked, ‘How often are doctors coming down for a face-to-face? How did it change how we practice radiology?’”

The team also conducted a groundbreaking study on the costs and benefits associated with making the transition to filmless, and the results provided vindication.

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Healthcare is in the midst of a shift toward interoperability, data sharing and value-based care. At McKesson, we understand that diagnostic imaging should never be an island of information. That’s why we are focused on helping you fulfill the promise of your organization’s EHR, by helping you ensure images and information are available when and where they’re needed to provide the most effective, timely patient care. And that’s why we are introducing Conserus™ — a new way of looking at your enterprise diagnostic imaging needs. Conserus goes beyond a simple VNA and diagnostic imaging with customizable and scalable enterprise imaging solutions for healthcare facilities of all sizes and complexities. So regardless of your structure, McKesson can help take you to the next level of information sharing.

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Hospital Spotlight: Magee-Womens Hospital of UPMC

Magee-Womens Hospital of UPMC

Location: Pittsburgh, Pa.
Year founded: 1911
Number of beds: 118 Medical/Surgical Adult Beds, 77 NICU beds and 132 Labor and Delivery Beds
Number of employees: 2,400
President’s name: Leslie C. Davis
Noteworthy distinctions: Since opening the doors in 1911, Magee has striven to advance the understanding of women’s health and the practice of gender-specific medicine. The hospital’s first patients were 14 women and their infants brought in horse-drawn ambulances to a make-shift facility at the home of Christopher Lyman Magee. More than 500,000 babies have been born at Magee during the ensuing years and outpatient visits have grown to 200,000 a year.

The hospital’s focus on local women, regardless of ability to pay, has been fundamental to Magee’s growth and evolution as a national center for clinical programs in breast and gynecologic cancers, genetics, infectious diseases, and reproductive endocrinology. The philosophy has always been that each woman is unique and central to the delivery of medical care. The vision of personal and inclusive health care includes an emphasis on research that moves quickly from lab to bedside.

Specialties: Maternal-fetal medicine; obstetrics and gynecology; bariatric surgery; women’s cancer care; neonatal intensive care unit

Recent developments: Recently launched the MyMageePregnancy app, available via the hospital’s Facebook page. The app is designed to educate women about their baby’s development as well as the changes their own bodies are going through, taking a month-by-month look at the process of pregnancy. Features include pregnancy advice for all 40 weeks, a timeline to guide decision-making when it comes to prenatal tests, and guidance for choosing a pediatrician.

In January of 2014, Magee opened a new emergency department. Constructed to meet Magee’s growing patient volume, the design created a better experience for patients, staff and physicians. The new emergency department brought patients in closer proximity to key hospital services including imaging, the Women-care Birth Center, patient and operating rooms. Highlights of the new emergency department include:

• A private room designed to provide better care of sexual assault victims, created in consultation with Pittsburgh Action Against Rape
• Design consideration for bariatric and geriatric patients, such as lower beds, and floors specifically varnished to aid walkers
• Accommodations for emergency medical service (EMS), including wireless Internet and a dedicated break room
• An exam room with in-room obstetric ultrasound capability
• Dedicated parking for emergency department patients
• New, sophisticated surgical techniques for cancer patients who develop lymphedema
• The launch of a comprehensive pregnancy recovery center to provide concurrent treatment for opiate dependence and prenatal care and delivery — the program is one of the first in the country.
For our women’s health issue, HCBN caught up with Maribeth McLaughlin to learn a little more about one of the highly respected women’s hospitals in the country.

**HCBN: How did you get involved in health care?**

**MM:** I actually started my career 30 years ago this past May. Being a nurse was the only thing I ever wanted to be. I grew up with an uncle who was a veteran and had been wounded in the Korean War – he lived with us and was bedridden. He later developed MS. We had nurses in the house every day. I helped feed him and care for him, so that’s how I grew up and he had a big influence on me and my brothers and others, and we almost all ended up in careers in some form of health care.

**HCBN: What is unique about Magee-Womens Hospital?**

**MM:** It’s a tertiary care teaching hospital. We are a full-service hospital. We’re very focused on women’s health. We also have a research institute across the street that is totally dedicated to women’s and children’s health. The proximity of our hospital and research institute allows us to really translate research from the bench to the medical and practice side.

We are also very focused on patients and their families. We do practice patient and family-centered care (PFCC) methodology. We design all our care around teams that focus on the patient care experience. We shadow patients and closely monitor the care they have.

We conduct collaborative interdisciplinary rounds. In our high-risk NICU, we are using iPads and other technology to do unit transfers from the patient care units to the recovery floors so the patient can see the room they’ll be in and learn which nurses will be there. We have the physicians following for hand-off as well. Patients are also directly involved in helping us to develop our care pathways. These pathways help them to make decisions about their care plans and these plans are worked on in conjunction with their providers.

**HCBN: What does being a women’s hospital entail? Are there any set criteria to meet?**

**MM:** We’re over 100 years old and Magee-Womens has always been our title. It was established for women who were “lying in” or giving birth. Our focus has always been on women’s health. The services, however, definitely go beyond reproductive health. We also have expertise in geriatrics, bariatrics, women’s cancers, research and specializing care, to just name a few fields.

**HCBN: Are there any special ways you engage patients?**

**MM:** We have a lot of ways we’re trying to reach out, whether it’s through consumer education we provide before they get here, or our Facebook page, or even our pregnancy app that we’ve been expanding. While patients are here, we do patient rounding. And some of the other things we talked about — including them in pathway development, advisory committees.

Regarding the advisory committees, for example, for our NICU, we’ve had a parent advisory council as long as I can remember. When we designed our new NICU, we asked them what they liked, what they didn’t like — if they could improve things for the family. Some of the families that are involved on the advisory committee have children that grew up and are teenagers now.
Electronic attachment solutions manage RAC audits

By Lindy Benton

Earlier this year, CMS announced a limited return of the controversial recovery audit contractor program and also announced several new contracts with claims auditors.

In 2010, CMS expanded the RAC program from the three states where it was piloted. RACs collected $75 million that first year, a figure that rose to $141 million in 2011 and has exceeded $2 billion in each subsequent year. Those numbers have obviously led hospitals to complain that the growing financial and administrative burdens from auditors seeking medical records to deny payments for services already delivered is causing them hardships and siphoning organizational resources that should be devoted to patient care.

According to the American Hospital Association, two-thirds of the medical records reviewed by RAC auditors contain no errors, and hospital staffs say that auditors are second-guessing physicians’ medical judgments, and hospital coding experts and consultants suggest that the auditors are not interpreting standards clearly and that they are too quick to punish hospitals that don’t return documentation or appeals on time.

In regard to the audits, hospitals must respond to information requests efficiently and track the paperwork to ensure claims are verified. The process can be expedited when using electronic submission of medical documentation (esMD) compared to traditional paper-based processes.

When responding to the audit requests, electronic attachments solutions also can reduce the time it takes payors to process claims. The solutions help improve security of the records being exchanged and can eliminate the need for physical files to be shipped to support claims adjudication or audits.

From a claims perspective, electronic data exchange automates and streamlines adjudication, helping hospitals save money each year related to the identifying, processing, storing and tracking of attachments, as well as decreasing paper volume and increasing paid claims volumes. In most cases, electronic attachment and data exchange solutions are compatible with existing practice management and electronic health record systems, and they enable providers with the ability to create a secure electronic envelope containing all requested documents needed for medical record reviews.

When responding to RAC audit requests, one of the biggest issues is doing so in a timely manner. By the time a request is received, as many as 10 days, of the 45 available, have likely passed. Until recently, the process had been largely driven by the manual administration of tasks and compiling and compiling physical records.

Most hospitals still take a great deal of time to print, sort, package and mail documents to auditors to support original claims because they are not using solutions to avoid this practice. Additionally, since one patient record can physically fill a box or more, hospitals are left paying for the lion’s share of all materials, labor and shipping involved, which can be an enormous annual cost.

This is the primary reason for esMD, and a problem solved by electronic attachment solutions.

An example of an organization that has met this problem head-on successfully is Boca Raton Regional Hospital. The health system began transferring documents electronically to Medicare in August 2012. It was one of the first in the nation to do so as part of Medicare’s esMD pilot program.

Electronic document transfer has enabled the hospital to improve its revenue cycle management, streamline the secure exchange of health information, respond quicker to Medicare audits and eliminate paper and manual processes when adjudicating claims and responding to payers. Through the use of the solution, Boca Raton Regional Hospital is able to ensure that protected health information required for claims and coordination of care is electronically transferable and available in a secure electronic format. By automating the process, the hospital also has prevented the loss of at least $350,000 annually.

From a revenue cycle management standpoint, electronic attachment submissions have been very good for the organization, ultimately helping the hospital save millions. Boca Raton Regional Hospital has also seen a dramatic decrease in negative outcomes of audits since it began doing so in 2012.

The desktop electronic attachment solutions allow information to be gathered and uploaded securely using a variety of acquisition methods – mobile device capture, scanning images, print capture, screen capture, or file import. Rather than relying on a single acquisition method, information can be captured at its source by any contributor using the easiest method possible.

About the author: Lindy Benton is president of MEA|NEA, a provider of electronic attachment and data exchange solutions.

Share this story: dotmed.com/news/25894
Recognizing that financial sustainability requires a digital health strategy, health care organizations are scrambling to execute an array of digital initiatives, from mHealth to data analytics. But slapping a mobile phone app on top of a company’s core functions, or even hiring a chief digital officer, won’t make a company “digital.”

Whether it’s Oscar reinventing the health insurance business, ChenMed changing the care delivery model or Teladoc disrupting telemedicine, what makes “digital health” companies viable is that they bring digital thinking to the very heart of the enterprise. These players don’t need a digital department or a digital officer. Every facet of their work, from operations to HR to customer service, is already digital.

A unicorn with a human touch
Oscar, a New York-based health insurance company startup, pairs complex technology with elegant design to make health care simple, intuitive, and human. Through user experience, customer service, and innovative care options, Oscar attempts to expand the role of the traditional health insurance company to that of a trusted health services provider. Among its innovations are an intuitive and highly functional website — simply type in symptoms in plain English and receive a list of prospective treatment providers, make free calls to doctors, and realize greater price transparency across procedures and locations.

How has the company fared? Sixteen months after going live, Oscar has joined the elite group of startups known as unicorns, or those with billion-dollar valuations.

24-hour care—without the emergency room
Teladoc is a national network of U.S. board-certified physicians and pediatricians that allows people to resolve routine medical issues on demand, 24/7, via phone or online video consultations.

The company offers its customers phone or online video consultations anytime they need care, no matter where they happen to be — home, work, or on the road. Teladoc doctors can diagnose medical problems, recommend treatment, and even prescribe medication if necessary. Teladoc is an affordable alternative to costly urgent care and ER visits, and it minimizes the anxious time people typically spend in transit and in ER waiting rooms.

Heightened service for high-risk patients
ChenMed is devoted to elderly people who may have multiple chronic diseases. The company profits when its patients stay well and their health care costs stay low. To achieve these, ChenMed almost imitates a concierge medicine model, preventing the typical problems chronic disease patients face with a patient-centered emphasis on convenience and ease.

Personal mobility issues and lack of transportation often keep elderly patients from seeing their doctors. ChenMed supplies vans to take patients to and from its clinics. Once at the clinic, patients aren’t left for hours in the waiting room; they simply wave a card at the front desk and are automatically checked in. Examination rooms circle a central hub so that doctors can confer easily with assistants and specialists. The clinic has a pharmacy, so doctors give patients pills directly and answer any questions. Failing to take medicine often means people don’t achieve these, ChenMed almost imitates a concierge medicine model, preventing the typical problems chronic disease patients face with a patient-centered emphasis on convenience and ease.

A mobile-centric system enables doctors to see patients’ medical records and refer to clinical protocols. Most administration is centralized elsewhere, which allows staff at the clinic to devote their attention to treatment — and data analytics are used at each stage to see what is working and what isn’t.

What are the most recent outcomes of the ChenMed approach? Medicare patients at ChenMed spent nearly 40 percent fewer days in the hospital than the national average. That is no small feat, to say the least.

The advantage of the challenger
Instead of making small tweaks to an existing company business model, enterprises like Oscar, Teladoc, and ChenMed are founded in a world of new behaviors, inspired by new technology and liberated by new market dynamics. They’ve enjoyed rapid growth for being in tune with this reality.

They realize that the modern age is a time of scarce attention and abundant connectivity, where smartphones are our primary access point to everything; where even money is digital; where the interface layer is where the profit is; and where providing a slick, best-in-class human experience will create a sizeable competitive edge.

How incumbents can still succeed
Technology is not the oil that lubricates the company’s existing services, it’s the oxygen in which business ideas grow and change.

Modern businesses need to disrupt themselves at the very core, empowered by what new consumer behavior and advanced technology make possible. Health care companies in particular need to reevaluate their roles in catering to 21st-century consumers: payers need to use technology to become health partners, and banks need to become health care payment solution companies.

Why didn’t a national health insurance company invent Oscar? Why didn’t a leading geriatrics hospital start ChenMed, or a major health system launch Teladoc?

About the author: Bipin Thomas is a renowned global thought-leader on consumer-centric health care transformation.
Return on Investment

Manage your compliance rates

By Michael DeLuca

To contain supply costs, health systems are increasingly relying on aggressive sourcing tactics to negotiate steep supply discounts. While discounts can have a big impact, they are moot if the terms of the contract are not met. According to MedAssets, even the most efficient health systems have contract compliance rates of only 67 percent.

For that reason, increasing contract compliance rates is among the most significant ways health systems can contain costs and improve control over the supply chain. The average IDN is leaving millions of dollars in volume discounts and rebates on the table due to lack of contract compliance. Disparate data and manual methods have historically made it difficult for health systems to effectively manage compliance, but technology is improving and times have changed, and turning negotiated discounts into actual savings has gotten easier.

If you’re still feeling overwhelmed by the idea of tackling poor compliance rates, here are six reasons why now is the time for health system leaders to jump in with both feet.

1. Your Data Doesn’t Have to be Perfect
A common complaint or excuse is that the process of cleansing content in order to properly manage compliance is daunting and will take too long. It’s a valid concern. GS1 reports that the health care supply chain spends 24 to 30 percent of administration time every day on data cleansing and corrections. But there’s good news. Data doesn’t have to be perfectly clean and normalized on day one to implement a new content management system that will help you better manage compliance. There are technologies available today with advanced/enhanced search capabilities that can compensate for imperfections. These content management technologies will allow your requestors to find products at compliant prices upon integration, despite poor data.

2. Realize Big Returns
An effective content management system will quickly pay for itself. Some health systems can save as much as 12 percent on supplies – equating to millions of dollars – by improving contract compliance. Look for tools that allow you to influence compliant purchases at the point of sale. That means requestors will only see contracted items when they go to make a purchase. Another thing that will impact your ROI is the user experience with your e-procurement system. If your system isn’t user friendly, people won’t use it and you won’t make much progress in improving your compliance rates. Features like effective search capabilities, product photos and robust product descriptions are key.

3. Prepare for a Merger or Acquisition
Most analysts agree that the brisk pace of merger and acquisition activity will continue. That means a significant percentage of you reading this article will likely see your health system acquire or be acquired over the next 12 to 18 months. Integrating procurement systems after a merger or acquisition is complex and time consuming. New content management systems can sit on top of multiple ERP systems, meaning that your compliance rates don’t have to suffer while you wait months for the integration to get sorted out – and you won’t miss out on negotiated discounts and rebates in the meantime.

4. Mitigate Risk
In health care, tolerances for error are extremely low. If your procurement system has limited search capabilities, it can lead to incorrect purchases or delays. With the technology that’s available today, it’s unacceptable for those errors to occur at the hand of your procurement system. You need to ensure that users can find and purchase the right product for the right application. Look for e-procurement programs that present requestors with pictures and detailed descriptions of products, giving them the information they need to feel confident in their purchase request.

5. Increase Productivity
With enhanced search capabilities in your procurement system, your requestors will spend less time looking for and requesting the product they want to order. That means they’ll have more time to focus on their primary job responsibilities – whether that’s clinical staff delivering quality patient care or non-clinical staff keeping your system running smoothly. Enhancing and simplifying the purchasing experience can also help contribute to improved job satisfaction.

6. Control the Supply Chain
Modern content management systems will help improve the quality of your data over time, bringing real-time transparency and cost control to purchasing activity across the enterprise supply chain. As your real-time visibility of what’s being purchased improves, you will not only improve your contract compliance rates, you will also put yourself in a better position of leverage to negotiate future contracts that are more advantageous to your health system.

When it comes to containing the high cost of supplies, you can spend time squeezing dollars out of each and every contract, or you can get serious about successfully implementing those contracts to effectively capture the negotiated savings. If you chose the latter, you won’t regret it.

About the Author: Michael DeLuca is executive vice president of technology and client services for Prodigo Solutions, a health care supply chain solutions company helping hospitals gain control of supply chain spend through contract compliance and automation.

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Device helps eliminate human error in medication dispensing

MedPass is specifically designed to eliminate the margin of human error in administration of pills in hospitals and long-term-care facilities.

The MedPass system, with its individual locking pill-dispensers eliminates medication administering errors, so patients can rest assured that they receive the right pills, the right dosage, the right quantity, and from the right manufacturer.

With 2,863 white capsules, 7,501 white round pills, 1,948 yellow round pills and 826 yellow capsules on the market, identifying proper medications and dosages is becoming increasingly difficult. This device has a greater than 99.9% error detection rate and was created to ensure hospitals and long-term care facilities are dispensing the right medication to patients every time.

Next-generation jaundice meter

Dräger announced the release of its next-generation jaundice meter, the JM-105, a non-invasive bilirubinometer that provides fast, accurate, cost-effective and pain-free jaundice screenings for newborns. JM-105 can be used on children as young as 35-weeks’ gestational age.

The rise of non-invasive transcutaneous bilirubin testing (TcB) changed the way hospitals identified at-risk infants. Dräger’s new JM-105 is one of the most advanced transcutaneous monitoring products available, measuring the yellowness of subcutaneous tissue in newborns as young as 35-weeks’ gestational age. Providing instantaneous screening of bilirubin results.
Home-use APD system

Baxter announced the completion of CE marking approval for an automated peritoneal dialysis (APD) system that integrates with the company’s web-based treatment monitoring platform, SHARESOURCE.

By utilizing secure two-way connectivity, the HOMECHOICE CLARIA APD system allows providers to access timely and personalized data on patients’ home peritoneal dialysis (PD) therapies and make adjustments to the prescriptions as needed. It was designed for ease-of-use with a large, two-line display screen and a universal interface that can be programmed in 41 different languages.

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Continuous monitoring device for peripheral IVs

The FDA recently approved a new continuous monitoring device, ivWatch Model 400, developed by ivWatch LLC that has the potential to reduce medication dosing errors by rapidly spotting common adverse events before they become dire.

The device consists of an optical sensor and a patient monitor. The sensor uses visible and near infrared light to illuminate the tissue by the IV site, and then the patient monitor uses a proprietary algorithm to analyze the light reflected from the tissue. A clinician is then alerted if an adverse event has occurred.

The device underwent extensive testing with a focus on hardware and software, patient dynamics and clinician workflow. To date, it has more than 75 utility patent applications filed worldwide.

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New automated interface for device testing

A new approach to medical device testing in hospitals is available following the launch of the EQ2 Rigel SA Interface developed by Rigel Medical and EQ2.

A new module has been incorporated into EQ2’s HEMS Enterprise software to make it fully compatible with the automated Rigel analyzer.

This module enables the biomedical engineer to harness the 288’s full capabilities to capture valuable information at the point of testing in a hospital or health care center before sending the data automatically to the HEMS system to complete safety checks and link to the medical device’s inventory, test library, and performance history.
AHRA

Q&A with

David Fox

president of AHRA

HealthCare Business News spoke with the Association for Medical Imaging Management president, David Fox, to get the latest news from the association and his take on where imaging is and where it’s headed.

HCBN: What inspired you to get involved in medicine?

DF: Thinking back, I would have to say it was my passion to help people and to make a difference. As a lot of kids do, you start thinking about the future and what it holds for you and you start pointing in a direction. But maybe you don’t always know the answer to where you want to go or where you will go. I think I was fortunate enough to know in my teen years where I wanted to go.

I was drawn to the sciences early on. So when I went to college, I had a great college experience and spent some time with a bachelor’s in science. At the time, pre-med was where I was headed, but I took a step back to look at other avenues of helping patients. It was then that I decided to further my education with an MBA for hospital management.

HCBN: How did you get involved with, and get to where you are today in the AHRA?

DF: My involvement began very early on my professional path, with Joe Daniels as a mentor. As a young supervisor, Joe made a recommendation that I could enhance my career, but I would need some professional affiliations. Taking that advice, I joined in 1997 and I haven’t looked back.

Most of our membership consists of hospital directors and vice presidents. For most of our history, we were reactive and so I pushed for a role of being proactive and influencing the discussion. We needed to put ourselves in an area where we would understand the legislative impacts coming from Washington, and we’ve been working toward that goal.

The third leg for the priority stool was collaboration and inclusiveness. We want to ensure that we have a seat at the table with other organizations that have a role in imaging. As an association, we’re also working to be more inclusive, more embracing. We’re working with the other associations and getting in with the media in a proactive way as well.

HCBN: What has been your top priority, or priorities, as president?

DF: One of the top priorities was ensuring that the AHRA focuses on leadership and continuing education. For many years, I had felt we did an excellent job with education, but probably not as strong a job in developing leadership skills for our members. So as incoming president, and then as president, I led with a purposeful focus that developing leadership skills was a priority and it has worked. We have had accomplishments with continuing education in that area.

Another priority had to do with regulatory affairs and advocacy. It had been a missing component. My past involvement with the committee was of great benefit moving forward and we, as an association, needed a better presence. Most of our membership consists of hospital directors and vice presidents. For most of our history, we were reactive and so I pushed for a role of being proactive and influencing the discussion.

HCBN: What are the biggest challenges facing AHRA members today?

DF: Decline in reimbursement is the big one. Imaging, as far back as I can recall, has been a fee-for-service, premiere profitable
service line. Today, certain areas of imaging have become true cost centers. Some are still profitable, but as regulatory impact is felt more, it creates a need to justify what we’re doing in our department as it relates to the hospital’s bottom line. The fee-for-service is going away, but the way it has worked, you can look at it as if you’ve got a bucket and every time someone does something, you get money put into that bucket. How it’s moving now though, you get a bucket of money, based on your performance throughout the year, that will impact how much money you get to keep that’s in the bucket.

**HCBN:** How do you think the medical imaging field will have changed 10 years from now?

**DF:** I think that the technology we are using right now will work within better alignment with some of the ancillary support areas like respiratory and laboratory, because they provide treatment and diagnostic.

Pathology slides are not dissimilar from imaging work. It’s amazing about so much of the work is continuing to blur. I don’t, however, predict the loss of any imaging modalities. I think prevention medicine will have a big impact. Be mindful, we are predisposed genetically for heart disease and stroke, even some of the cancers. It goes back to nanotech to be able to identify whether you have the gene that causes that process to occur. Then you have environmental care, where if we’re not exercising and adhering to a healthy diet, clearly you invite the opportunity for disease. And then of course, there will always be trauma. But we’re looking to change and refine behavior habits, to preclude trauma and limit environmental impact.

We have a role to play as management and leadership in the industry.

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AHRA Exhibitors 2015

AHRA’s 43rd Annual Meeting and Exposition will be held July 19-22, 2015 at The Venetian Hotel in Las Vegas. Over 1,000 imaging leaders and 200 exhibitors will attend this premier educational event for radiology administration.

Listed here are many of the OEMs and top service companies you will want put on your “Must See” list. We also invite you to visit DOTmed in Booth 834 – we can show you how to get the most benefit from the world’s leading medical equipment marketplace, and you’ll get a free copy of HealthCare Business News magazine and our 2015 Buyer’s Guide.

AFC Industries, Booth #1732
At AFC Industries, the emphasis is on ergonomics and functionality. Why? Because the consequences of poorly designed objects and environments – especially at work– are serious and costly. Poorly applied ergonomics cause recurring discomfort, or a decrease in performance or output. At the extreme, the consequences can be permanent injury.

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Bayer HealthCare MVS & Radiology Division, Booth #729 & #829
Bayer Multi Vendor Service provides repair for ultrasound transducers, MRI coils, dry film printers, and CR systems. With industry-leading repair capabilities, quality, and customer care, MVS provides the best value in third-party service. Full range of offerings for Carestream CR Service and now DR Upgrade Solutions!

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Beekley Medical, Booth #1530
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GE Healthcare, Booth #1029
Invenia ABUS from GE Healthcare is the only FDA-approved technology specifically designed for breast cancer screening, and is used as an adjunct to mammography for asymptomatic women with dense breast tissue and no prior interventions. The Invenia ABUS is designed to enhance the consistency, reproducibility, and sensitivity of whole breast ultrasound, demonstrating a 55 percent relative increase in the detection of invasive breast cancers in women with dense breasts without prior breast intervention. To learn more please visit us at AHRA.

Oxford Instruments Healthcare, Booth #628
Oxford Instruments Healthcare specializes in providing quality CT & MRI equipment sales, maintenance service, mobile imaging solutions, quality parts, and biomedical support options to healthcare practitioners across North America. We focus on delivering world-class service and support for your CT & MRI systems. Our expertly refurbished equipment and parts undergo a comprehensive quality inspection to meet or exceed OEM specifications helping you save a substantial amount of money without compromising on quality. Visit us at AHRA to speak with a sales representative.

Rayence, Inc., Booth # 1825
Highlighting our AHRA booth this year is our new, recently FDA cleared, RU-3000 Digital Universal Radiography System. This unique U-arm features a compact design with dual telescoping arm movement that permits installation in settings having ceiling heights of just eight (8) feet. Its fully motorized movements for SID, arm rotation, height, and detector angle can be automatically programmed to user-specific radiographic positions utilizing the intuitive touch-screen located tube side, a hand held remote control, or by using the technologist workstation.

Samsung Health and Medical Equipment, Booth #1425
Samsung Health and Medical Equipment Group, a growing presence in the radiology field is committed to delivering fast, easy and accurate imaging solutions to healthcare providers. Samsung’s full range of imaging solutions includes Ultrasound, Digital Radiography, and Portable Computed Tomography (CT). Samsung aims to become a global leader in the medical imaging space and is investing heavily in developing innovative, advanced technologies that will improve the quality of people’s lives.
Sectra, Booth #1325
Sectra’s offerings include proven workflow solutions for radiology, mammography and pathology, the result of our 20 years of innovation in imaging. Visit our booth to see: Sectra PACS - optimized for a high production environment with stability and usability in focus.

Sectra DoseTrack - designed as a complete web-based solution for radiation dose monitoring. Sectra Image Exchange Portal - facilitates secure and swift image transfer between healthcare providers to ensure expedited and improved patient care. Sectra Digital Pathology - a complete solution to optimize pathologist workflow allowing for image review and image sharing, regardless of location.

Shimadzu Medical Systems, Booth #1217
Shimadzu Medical Systems USA (SMS), headquartered in Torrance, California and a subsidiary of Shimadzu Corporation, is a provider of medical diagnostic equipment including conventional, interventional and digital X-Ray systems. Shimadzu’s imaging portfolio includes “EDGE” technologies for Radiographic, RF and Cardiovascular systems.

Offering a complete line of the most competitive DR and DFR panels in the industry, Shimadzu is truly a “Panel Neutral” company that can accommodate the most demanding challenges in today’s marketplace. Regularly achieving both KLAS and MDBuyline awards, Shimadzu’s leadership is lowering lifetime cost and assuring imaging excellence guaranteeing our customers the maximum value on their investment.

Varian Medical Systems, Booth #1634
Varian Imaging Components medical x-ray tubes, digital detectors and imaging software and workstations are distributed by Varian locations in Charleston, South Carolina, Willich, Germany and Beijing, China. Varian specializes in rapid response to customer requirements by distributing replacement X-ray tubes and digital detectors through Independent Service Organizations and Original Equipment Manufacturers.

Varian manufactures cost effective replacement medical X-ray tubes for most diagnostic imaging modalities including computed tomography (CT), special procedures (cath lab / angiography), radiography / fluoroscopy (R/F), and mammography. Varian Imaging Components also offers digital detectors for DR and R/F applications.

WEST PHYSICS, Booth #1022
WEST PHYSICS is the leading nationwide provider of medical and health physics services. “WP” takes pride in offering the highest level of expertise, flexibility, and commitment to its customers. Our company has unparalleled expertise in Joint Commission (JC), American College of Radiology (ACR) and Intersocietal Accreditation Commission (IAC) CT, MRI and PET/SPECT physics consulting and testing. WP physicists have extensive experience in helping clients achieve successful accreditation and then subsequently maintaining that accreditation through implementation of superior quality control programs.

WP is also the leading provider of nuclear medicine auditing, consultation, program startup, and licensing services throughout the United States.
Best Practices

Q&A with Steve Baker
Founder and president
Radiology Protocols

HealthCare Business News spoke with Steve Baker, founder and president of Radiology Protocols in Iowa City, Iowa, about the modernization of radiology protocol management.

HCBN: Can you give us some background on what a radiology protocol is, and then tell us how radiologists and techs stay up to date on those protocols?

SB: A protocol is the detailed instruction set for performing a diagnostic imaging test, such as an MRI of the knee or a CT scan of the head. The three main pieces of information contained in protocols are positioning (i.e., body part and orientation of imaging plane), scan duration, and monitoring of radiation dosage. Protocols also contain hundreds of machine-specific technical settings that tell a scanner how to acquire images. These settings will vary depending on the imaging modality of the equipment vendor (and the specific scanner model). Protocols require periodic updates as new scanner hardware and software and new contrast agents become available.

It may be hard to believe, but many organizations still rely on physical three-ring binders and Post-It notes to keep current with machine protocols. Before operating the CT scanner, the radiology tech consults the binder, which contains the machine protocols, written out. Besides being cumbersome, that system can lead to inconsistent practice across an organization. Results will depend on which binders are up-to-date and which are not. When hospitals or organizations have multiple imaging facilities with different kinds of scanners from different vendors, this is a real problem.

HCBN: They really don’t use computers to store and sync that kind of information?

SB: Some do use electronic folders stored on a file server — mainly just a collection of Word documents — but they still need someone to update the information manually and then communicate to everyone that the protocol had changed.

HCBN: What are the consequences when a new protocol isn’t followed?

SB: Well, there’s a range. First, there’s the confusion that will be familiar to any radiologist or tech: when people aren’t sure if they have the latest protocol, there’s a lot of needless extra discussion. “Remind me again, what were we doing with this? I think we changed the protocol, but this looks the same…” That confusion is particularly hard on younger radiologists and inexperienced techs, but it’s frustrating to the veterans, too. Confusion wastes the time of the tech, doctor and patient.

Second, an image could be taken incorrectly and come back inconclusive or non-diagnostic, and the patient would have to come back for a rescan. That’s a waste of everyone’s time. It also means lost revenue for the hospital because insurance companies typically do not reimburse for rescans due to avoidable errors.

A worse outcome is if the tech takes the wrong images and the radiologist is led to make a misdiagnosis — that would be huge. One more rare possibility is being sued for malpractice because a patient received an unnecessarily high radiation dose during a CT scan. Scans performed with outdated protocols often deliver much higher radiation doses than scans performed with the latest dose-reduction protocols and software.

It may be hard to believe, but many organizations still rely on physical three-ring binders and Post-It notes to keep current with machine protocols.
**HCBN:** What’s the most frequent problem, of the ones you mentioned?

**SB:** Any tech or radiologist will be familiar with the flurry of communication before a scan — that’s certainly the most frequent issue. The next would probably be the problem of the unnecessary callback. There may be on-the-spot recognition that a scan didn’t follow protocol and has to be redone, and that screws up throughput and scheduling. But if the mistake isn’t caught until the radiologist reviews the image, and the patient has to be called back into the clinic, the hassle and cost of rescheduling is considerable. Callbacks in rural areas, where the imaging machines are few and far between, are really burdensome. I mean, imagine telling someone who drove for three or four hours to get here, “we messed up the protocol, so you’re going to have to come back again.”

The expense and the anxiety is a real problem — and it affects the clinic, too, in terms of patient satisfaction scores as well as disrupting patients’ lives.

**HCBN:** So what’s a better way of organizing this information?

**SB:** The solution is the development of a protocol management system that centralizes all of the updated protocols, as well as specific images for comparison, and then gives techs access to these from anywhere across the facility or organization — the current protocols can be accessed via a cell-phone, iPad, or any other wireless device. This is immediately helpful for the front-line radiologists and the people doing the scans.

Ideally the system would link protocols to data analytics, though, so you can plan the test, do the test, but also do quality assurance on the test. It gives full control over the whole process of imaging — something that is of interest to administrators as well as techs.

**HCBN:** Why does that control matter to administrators?

**SB:** Well, they can identify inefficiencies and see exactly where they’re losing money. They can see which exams aren’t getting reimbursed, and how much money they’re leaving on the table.

A well-designed system would also identify team members who are doing scans incorrectly or deviating from the protocol. Maybe it’s an individual who needs help, or maybe the protocol is wrong. That helps you provide the user with the relevant appropriateness criteria and a score when they place a radiology order. When you do that you’re going to ensure that your patient gets the right imaging study and that you get the highest reimbursement. Analytics will alert you if some members of your health care team are ordering inappropriate, unnecessary, or unreimbursed imaging studies.

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**Mandates are really driving a lot of the move to these systems. Hospitals know they’ll need radiology clinical decision support tools in place by January of 2017 or they won’t get reimbursed for imaging studies.**

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One very important protocol management system benefit is that it can improve patient outcomes and satisfaction rates. It can also reduce the frequency of orders for unnecessary imaging scans. Some studies suggest that up to 30 percent of radiology exams are unnecessary or duplicative, and health care reform is really going after that unnecessary care.

**HCBN:** Are there any studies that have shown any improvement of practice patterns after installing a system like this? It’s intuitive that it would be the case, but one wonders if this has been looked at scientifically.

**SB:** We don’t have any numbers yet, but we’re launching a pilot study to learn more across four to eight facilities, and we’ll measure the impact we have on these facilities in terms of process efficiency, adherence to imaging protocols, compliance with appropriateness criteria, reimbursement rates, and clinical performance metrics.

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A few years ago, performing advanced medical imaging in a remote Moroccan village with no hospitals and no running water would have been virtually inconceivable. Over the last several years, however, a trend toward increasingly portable ultrasound systems has begun to change that.

As ultrasound extends its reach into rural parts of the planet, it is also seeing increased usage within the confines of the most modern hospitals. “The handheld ultrasound will become one of the most important tools that doctors will be carrying in their pocket,” says Dr. Jagat Narula, professor of medicine at Icahn School of Medicine at Mount Sinai. He believes it’s only a matter of time before the modality sends the stethoscope into permanent retirement.

The unprecedented portability of handheld ultrasound, combined with the safety of the imaging (which uses no ionizing radiation or toxic contrast agents), the diagnostic value of the pictures, and the relative low cost of the exam, all help explain why reimbursement has been kinder to ultrasound in recent years than it’s been to MR and CT.

Meanwhile, premium ultrasound systems have evolved in their own right. What they lack in portability they make up for with revolutionary diagnostic value and ground-breaking therapeutic utility beyond the capabilities of their handheld counterparts. All of this adds up to an industry worth over $6 billion globally and rising.
Starting from scratch in remote African villages

Approximately 800 women die every day from preventable complications associated with pregnancy and childbirth — and 99 percent of those deaths occur in developing countries. That’s why Asa Nordgren co-founded Trice Imaging Inc., a company that designed a DICOM-compliant medical image-routing platform to bring potentially lifesaving diagnostics to the populations that most sorely lacked them.

When the project was first being developed in 2009, Nordgren says the concept of “connected health” was little more than “a bunch of PowerPoint presentations.” She and her team wanted to prove that modern technology could actually make ultrasound available in areas without physicians.

“We ultimately chose Morocco together with Qualcomm (which funded the project) because it’s a beautiful and fascinating country, but it’s also underserved when it comes to health care,” she says, adding that a rudimentary grasp of the French language goes a long way in communicating with the locals.

Her team built everything from scratch. “I basically had a physician’s phone number and that was it,” says Nordgren. Over the course of four weeks they drove a mobile ultrasound caravan to three different rural villages; Oulmes, Boulmane, and Ribat el Kheir, and worked in local “health houses” to assist midwives, nurses, and doctors, in conducting ultrasounds using SonoSite M-Turbo systems.

“One village had a health house that didn’t even have doors and windows, they had electricity that would go on and off and they had no running water,” says Nordgren.

Using smartphones and tablets donated by Sony, they encrypted and transferred the images via a 3G network to consumer tablets, where physicians reviewed them and sent back diagnoses within 24 hours.

Out of 575 women imaged, they discovered 94 high-risk pregnancies and were
able to take appropriate measures to ensure those women received medical care when it was time to give birth. The other 481 expecting mothers were cleared to give birth in the customary fashion of the culture.

Goodbye stethoscope, hello PUPEDs?

Ultrasound has not always had the luxury of mobility. “When it started, the systems were quite large, like a refrigerator,” says Mount Sinai’s Narula. Patients had to be brought to a lab much the way they would for an MR or a CT scan. The growth of handheld ultrasound has allowed the procedure to take on a more fundamental role in patient evaluation.

Incorporating handheld ultrasound into general examinations could reduce the overall cost of imaging care while also providing better outcomes and improving doctor-patient relationships, says Narula. “It is one of the most important ways of bringing medicine to the bedside, being able to get an accurate diagnosis, avoiding unnecessary imaging studies, and ensuring that what we identify is worthy of further investigation.”

Narula points out that the Greek origin of stethoscope can be translated as, “look inside the chest,” – and he believes it’s time to update the medical dictionary. “Ideally the ultrasound should be called stethoscope and the stethoscope should be called stethophone or something like that,” he says.

Philips Healthcare has initiated a consortium of health care leaders to drive the creation and implementation of mobile ultrasound solutions, and it counts Narula among the inaugural members. “One of the things we’re working on is credentialing for these handheld systems,” says Vitor Rocha, CEO of Philips Ultrasound. “How do you extend the use of these systems while ensuring high-level care?”

Narula says he has seen firsthand the ease with which student doctors can adapt to handheld ultrasound, “This is the generation of Playstation and they know how to handle gadgets.” On the other hand, he says, it’s the art of using a stethoscope that is being lost.

“I don’t think the people from the Western countries have any talent left in terms of identifying the heart sounds and murmurs the way we used to do in the previous years,” says Narula.

“We used to get significant one-on-one training with stethoscopes but that doesn’t happen anymore and our students today are incompetent at making diagnoses with it.”

Instead he says they’re more likely to suggest imaging exams.

“Teaching someone to do ultrasound is not that tricky, I’ve become pretty good at it myself,” says Nordgren with a laugh. “It’s reviewing them and reading them, and making the diagnosis – that’s where the scarcity comes in.”

Rocha and Narula both stressed that in a primary care setting, ultrasound would be intended for conducting a better initial examination – not replacing ultrasound as a specialty imaging modality. Narula calls his ultrasound-as-stethoscope a “portable ultrasound as a physical examination device (PUPED)” and believes the cost of the imaging should be included in the exam itself.

Medical students would be trained on the PUPEDs the same way they were once trained with stethoscopes, says Narula. He breaks down the schooling as follows:

First year students would learn what normal looks like, in their second year they would contrast that vision of normal with examples of what is abnormal. By the third and fourth year they would start using PUPEDs for algorithms where, “If I look at these five things I can make a diagnosis in 95 percent of cases right at the bedside without requiring a full-fledged imaging exam,” says Narula.

For the remaining five percent, more advanced imaging may be called for. “The echocardiography laboratories are afraid this will decrease the number of scans going to them – which it will,” says Narula, “but only the unnecessary ones.”

Premium systems: A different ballgame

While handheld ultrasound may take the spotlight, premium ultrasound systems are ensuring better outcomes for the most complex patients. These high-end systems also continue to hold the largest share of the market, according to Jon Brubaker, an industry analyst from MD Buyline.

Most of the quotes he sees pertain to the premium systems. “Cost-wise they are multiple times more expensive than hand-
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Cardiology and radiology accounted for over 25 percent of the overall ultrasound market in 2014.

Nodgren’s Trice Imaging is currently doing a project in rural Texas connecting 20 ambulances to hospitals via handheld ultrasound. “It has to do with getting the patient held systems,” says Brubaker, adding that the price can sometimes reach upward of $300,000. Cardiology and radiology accounted for over 25 percent of the overall ultrasound market in 2014, making them the largest individual segments.

Carestream, a leader in digital X-ray, announced at RSNA 2014 that it was going to delve into the ultrasound market. The company’s first two Touch Ultrasound systems received FDA approval this June. Its entry into the market is unusual, according to Brubaker, because where most newcomers target the lower-end segment, these are decidedly high-end offerings.

“Carestream is an innovator,” says Andrew Hartmann, the company’s general manager of global X-ray solutions, by way of explanation. “Innovation is cutting-edge, and cutting-edge is typically at the high end of imaging performance.”

Premium ultrasound systems – a segment dominated by companies such as Philips, GE, Siemens, Acuson, Terason, and Toshiba – provide better quality images than their handheld counterparts. They are also more useful to unique departments within the hospital, having specialized transducers that make them capable of highly specific configurations.

Fusion imaging, the merging of ultrasound with MRI or CT images, is a sophisticated tool gaining ground in the operating room. Meanwhile elastography, for soft tissue evaluation, may even bring the value of ultrasound to lung imaging – an area where it had previously been of little use due to the modality’s inability to penetrate air.

Rocha with Philips says premium ultrasound is also beginning to show promise as a treatment tool, and cites dissolving blood clots as one example.

Carestream plans to unveil lower-level versions of its ultrasound over time, all of which will feature exchangeable transducers that tell the system what kind of study is being conducted, a standardized user interface, and a physician log-in to access functionality preferences and implement them automatically.

“If you can have a platform that’s completely scalable from ultra-premium down to point-of-care — we know that works for our customers,” says Hartmann.

What is revolutionary is hard to accept

For Rocha, the relationship between handheld ultrasound and premium ultrasound is comparable to the relationship between smartphones and supercomputers. The question of which is more powerful may depend on how one measures productivity.

Carestream, a leader in digital X-ray, announced at RSNA 2014 that it was going to delve into the ultrasound market. The company’s first two Touch Ultrasound systems received FDA approval this June. Its entry into the market is unusual, according to Brubaker, because where most newcomers target the lower-end segment, these are decidedly high-end offerings.

“Carestream is an innovator,” says Andrew Hartmann, the company’s general manager of global X-ray solutions, by way of explanation. “Innovation is cutting-edge, and cutting-edge is typically at the high end of imaging performance.”

Premium ultrasound systems – a segment dominated by companies such as Philips, GE, Siemens, Acuson, Terason, and Toshiba – provide better quality images than their handheld counterparts. They are also more useful to unique departments within the hospital, having specialized transducers that make them capable of highly specific configurations.

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Cardiology and radiology accounted for over 25 percent of the overall ultrasound market in 2014.
Industry Sector Report: Ultrasound

info to the right health care facility, having the right staff ready when the patient arrives, and also knowing if there’s any point in bringing that patient in at all,” she says. Results of that project are expected to be published in August.

Nodgren says in Asian markets, where there is an aging population and the younger populations are moving to the city, elderly care has been disrupted. Meanwhile, traditionally Western diseases like obesity and cardiac disease are becoming more common in Eastern countries. These are areas where she thinks handheld ultrasound can make a big difference.

The projects Trice Imaging is involved with are not the only ones of their kind. As part of its Cape Town to Cairo roadshow, Philips Healthcare has unveiled its Visiq tablet ultrasound to address issues of maternal and infant care in remote areas. GE designed the Vscan Access specifically for midwives, general practitioners, paramedics, and clinical officers in developing regions of Africa and Southeast Asia.

There was a time when the capabilities of today’s handheld ultrasounds could outperform the refrigerator-size ultrasound machines of yore. It stands to reason then, that as time rolls on the capabilities we now associate with premium ultrasound systems will find their way into more portable, more affordable systems and, in turn, more parts of the world.

A couple of years ago an article appeared in an online publication called Ghana Magazine recapping conversations that had taken place on a Ghanaian radio show called Joy FM’s DriveTalk, suggesting many Ghanaian women expressed reluctance to having an ultrasound. The primary reasons cited for pregnant women to forgo imaging were cost concerns and also diminishing the excitement of meeting their babies for the first time when they entered the world.

When asked what is the main roadblock that keeps handheld ultrasound from becoming the stethoscope of tomorrow, Narula says, “What is revolutionary is hard to accept. A new generation has to adapt to that, and the issue here is the gap between what we used to do and what we should be doing.”

‘What is revolutionary is hard to accept. A new generation has to adapt to that, and the issue here is the gap between what we used to do and what we should be doing.’
### DOTmed Registered Ultrasound Sales & Service Companies

For convenient links to these companies, go to www.dotmed.com and enter [DM 25729]. Names in boldface are Premium Listings.

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### Industry Sector Report: Ultrasound

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DOTmed asked the leading ultrasound manufacturers to submit up to three of their top products to be featured in the section. To learn more about these systems and see other models not shown, please visit: www.dotmed.com/ultrasound

Alpinion Medical Systems / E-Cube 15
Mode: B-Mode, M-Mode, Color M-Mode, Anatomical M-Mode, Color Doppler, Power Doppler, Directional Power Doppler, PW Doppler with High PRF, CW Doppler, Triplex, SRI, X-Peed [Auto-Optimization], ECG, Tissue Harmonic Imaging, Tissue Doppler Imaging, Trapezoid, 2D steer, Panoramic, Auto IMT, Auto-trace Doppler. Scan Format: Curved, Linear, Phased.

Alpinion Medical Systems / E-Cube 9
Mode: B-Mode, M-Mode, Color M-Mode, Anatomical M-Mode, Color Doppler, Power Doppler, Directional Power Doppler, PW Doppler with High PRF, CW Doppler, Triplex, Tissue Doppler Imaging, X-Peed [Auto-Optimization], ECG, Tissue Harmonic Imaging, 3-D volume mode, 4-D volume mode, SRI-Spatial Compounding, Frequency Compounding, Trapezoid, 2-D steer, Panoramic, Auto IMT, Auto-Trace Doppler. Scan Format: Curved, Volume, Linear, Phased.

Alpinion Medical Systems / E-Cube Inno
Mode: B-Mode, M-Mode, Color-M Mode, Color Doppler, Power Doppler, Directional Power Doppler, PW Doppler, CW Doppler, Triplex, SRI, X-Peed [Auto-Optimization], ECG, Tissue Harmonic Imaging Scan Format: Curved, Phased, Linear. The E-Cube Inno offers large-scale performance in a small footprint. This portable system addresses imaging needs in a variety of care environments.

Esaote / MyLab Alpha
Whether imaging in the lab or at bedside, MyLab Alpha features powerful performance packed into a laptop-based, wireless system that goes where you go. Powered by new CrystaLine technology for greater image clarity and depth penetration, MyLab Alpha’s two onboard probe connectors and wide range of available transducers allows the system to be configured to provide a variety of traditional and advanced women’s imaging applications.

Esaote / MyLab Seven
MyLab Seven delivers high-end performance in a compact, efficient, and cost-effective system. Powered by new CrystaLine technology for greater image clarity and depth penetration, the system is ideal for breast exams and other women’s imaging applications. The large HD display, ergonomic interface, and four transducer ports facilitate efficient imaging, while wireless connectivity and battery backup allows the Seven to be easily transported around any facility.

GE Healthcare / Invenia Automated Breast Ultrasound (ABUS)
Invenia ABUS is the only FDA-approved technology specifically designed for breast cancer screening, and is used as an adjunct to mammography for asymptomatic women with dense breast tissue and no prior interventions. The system is designed to enhance the consistency, reproducibility, and sensitivity of whole breast ultrasound, demonstrating a 55 percent relative increase in the detection of invasive breast cancers in women with dense breasts without prior breast interventions.

GE Healthcare / Voluson E10
The Voluson E10 with our new Radiance System Architecture is our most advanced Voluson yet, delivering innovative OB/GYN imaging with clarity, speed, and flexibility. The system focuses on enhanced efficiency – utilizing the Voluson workflow, a familiar system design, and enhancements for automation, productivity, and connectivity. The Voluson E10 is designed to be the foundation of Voluson e4D technology – offering you the 4D imaging opportunities that you dreamed of having for OB/GYN exams and fetal echocardiography.

Hitachi Aloka / ARIETTA 70
ARIETTA 70 combines state-of-the-art features, unique probe designs, and a user-friendly interface into the definitive ultrasound solution for any setting. ARIETTA’s variety of probes and configurations deliver a true shared service resource capable of supporting almost any ultrasound exam. It shares a probe set with our Noblus bed-side scanner so mobile scanning can be addressed without purchasing redundant probes. With ARIETTA’s flexibility, you’re positioned to address more applications, more efficiently, and in more places.

Hitachi Aloka / SOFIA Automated Breast Tomography
SOFIA solves the economic and logistic challenges of whole-breast ultrasound by using a different acquisition technique than other automated systems. Its unique full-field radial scanning method allows an entire breast to be imaged in a single volume and in only 52 seconds. Its Hitachi Aloka scan engine provides high-resolution volume datasets for quick interpretation, while its ergonomic scan table and unique prone scanning position offer patients the utmost privacy and comfort during the short exam.

Hitachi Aloka / ProSound F37
The F37 Mode: B-mode, M-mode, D-mode, PW, HPWF-PW, CW, Flow mode, Power Flow mode (Directional Power Flow), eFlow mode, Directional eFlow mode, RT-3D(4D) mode Scan Format: 2D/3D/4D. The F37 is thoroughly simple and compact. A user-friendly diagnostic ultrasound system full of functional and ergonomic features, the F37 is ready to be your partner. The F37’s simple operational features provide an easy and smooth workflow. The necessary controls for routine examinations are intuitively laid out, with high priority on reducing the examiner’s operation steps. Imaging features inherited from higher-class models provide a work environment for concentrated examinations.
Longport / EPISCAN I-200

The EPISCAN I-200 is a high resolution ultrasound system that enables the rapid and high resolution imaging of soft tissue. The EPISCAN can help determine margins of skin cancers and aid in surgical planning and assess the impact of interventions. It can also visualize fillers and changes to the skin resulting from aesthetic treatments. Repeat imaging can be undertaken on the same site allowing changes with time to be imaged.

Mindray / TET Touch Enabled Ultrasound System

The TET, with its intuitive touchscreen, provides superior image quality for rapid and confident diagnosis at the point-of-care. Intuitive gesture controls and focused exams minimize the learning curve, with no need to navigate a knob cluttered keyboard. Simply select a focused exam preset and relevant functions become accessible, with a simple point, slide, or swipe. A rich application suite and an ergonomic profile make TET an excellent choice to meet the demands of the fast-paced POC environment.

Mindray / M9 Premium Compact Ultrasound System

With next generation technologies, the M9 provides a fully featured platform with premium image quality. Advanced signal processing combines with focused premium capabilities to raise the M9 to a new level of performance. Single-crystal transducers, with 3T™ technology, allow this compact system to deliver deeper penetration and higher resolution, ensuring diagnostic confidence, even in technically difficult patients. Whether mounted on the ergonomic cart or hand-carried, the M9 provides the versatility to support the shared service environment.

Mindray / DC-70 Cart-Based Ultrasound System

Based upon an all-new platform and innovative technologies transplanted from high end systems, the Mindray DC-70 cart system can help ensure diagnostic confidence and ease of use in the OB and shared service environments with superior image quality, a wide range of clinical tools, and excellent workflow. The innovative touch gesture function allows you to do more – all with the tips of the fingers.

Philips Healthcare / EPIQ 7

Modes: 2D, 3D/4D, MPR, Live xPlane, Panoramic Volume, PW, CW, color Doppler, CPA, contrast; Tissue Harmonic Imaging; stress echo; STIC/STIC; Strain and Shear wave elastography. Scan Format: Curved, volume, linear, sector. ETE A simple to use, reliable system that combines excellent image quality for fast, confident diagnosis, with advanced tools to help improve efficiency and workflow and allow for the very best standard of care.

Philips Healthcare / Affiniti

Modes: 2D, 3D/4D, MPR, PW, CW, color Doppler, CPA, contrast; Tissue Harmonic Imaging; stress echo; 2D-AIUS, STIC, strain and shear wave elastography. Scan format: Curved, volume, linear, sector, TEE A simple to use, reliable system that combines excellent image quality for fast, confident diagnosis, with advanced tools to help improve efficiency and workflow and allow for the very best standard of care.

Philips Healthcare / CLEARYVUE S50

Mode: 2D, M-mode; Anatomical M-mode, color, PW, and CW Doppler; Tissue Harmonic Imaging; Color Power Angio; 3D grayscale imaging Scan Format: Curved, linear, sector The ClearVue 550 with Active Array technology offers smart features, advances in ease of use and image quality designed to enhance diagnostic confidence.

Samsung / WS80A with Elite

The WS80A Elite is a high resolution, premium system designed to meet the needs of women’s healthcare. Leveraging our S-Vision hybrid beamformer technology and S-Vue™ transducers, it delivers exceptional image quality, while Realistic Vue™ and 3D ultrasound continue to advance volumic imaging.

Samsung / RS80A

The “RS80A” is a high resolution premium ultrasound system designed to meet the needs of the Radiology department. The system features our next generation “S-Vision Architecture” which provides exceptional image clarity and sensitive color Doppler. “RS80” also features advanced S-Vue transducers to ensure greater penetration and excellent image clarity on even the most challenging of patients. The “RS80” integrates Samsung’s innovative technologies featuring a 23 inch high definition LED display, tablet menu interface and the reliability of a solid state drive.

Samsung / HM70A

The “HM70A” is a high resolution ultrasound system delivering versatile portability in an efficient laptop design. The system features 128 channel Hybrid Beamforming technology which provides exceptional image resolution to meet the needs of a variety of ultrasound examinations. In addition to advanced beamformer capabilities, the “HM70A” also features innovative 3D/4D technology and sensitive Directional Power Doppler Imaging. Wide bandwidth Single Crystal Transducers insure optimal penetration and resolution even on the most challenging of patients. An optional height adjustable cart is also available. Though compact in size, “HM70A” offers console performance without compromise.

Siemens Healthcare / SC2000

The ACUSON SC2000™ ultrasound system PRIME enables users to perform real-time, full-volume color Doppler, 3D transesophageal ultrasound (TEE). The system provides real-time information in the OR – even on patients with arrhythmia – to support a faster, more precise surgical workflow, optimize patient outcomes, and minimize risk. Full volume color Doppler and fast, automated aortic and mitral valve measurements provided by Siemens’ eSie Valves™ quantification software allow surgeons to better visualize cardiac anatomy and assess blood flow during procedures, helping them make faster, more informed decisions.

Siemens Healthcare / X700

The ACUSON X700™ ultrasound system is engineered for the most critical innovation: confidence, in both your diagnoses and your investment. Leveraging the premium technologies of our higher-end systems, this core system delivers advanced imaging that’s compatible across a wide variety of our ultrasound system transducers. It’s a workhorse with thoroughbred DNA—so you get the flexible system you need today as well as the adaptability to meet the demands of tomorrow.

Siemens Healthcare / S3000

The ACUSON S3000™ ultrasound system is the ultra-premium system that provides the gateway to Siemens cutting edge pioneering technologies, now and in the future. Fully-featured system with advanced technologies for superior image quality and workflow efficiency. High density transducers, including the BC3 HD transducer with an expanded field-of-view and excellent resolution at depth even on third trimester patients. Multi-modality review allows you to view previous exams alongside real-time ultrasound for more accurate follow up examinations.

SIUI / Apogee 5800

• 19 inch Medical LCD monitor
• 10.4 inch touch screen
• Detachable heating cup for gel, temperature controllable
• Control panel up and down, left and right moveable
• Integrated control panel with keyboard
• Probe socket with hook
• Ultrasound
• Macro Fidelity (MFI)
• VS-Flow
• XBeam
• NanoView
• 4D Pro
• Elastography
• Panoscope
SIUI / Apogee 5500
- 19 inch medical LCD monitor
- 10.4 inch touch screen
- Detachable heating cup for gel, temperature controllable
- Probe socket with hook
- Ultrasound
- Macro Fidelity (MFI)
- Wideband-beam Emission Technology
- VS-Flow
- XBeam
- New 4D imaging tools (nSlice, Q-Cut, Opti-4D)

SIUI / Apogee 1000
- Monitor 90° left and right rotatable, multi-angle field of view
- 15 inch LCD
- Rolling ball: easy to use, precise operation
- Duplex built-in battery, standby time up to 1.5 hours
- Operation navigation guidance
- Weight: 5kg
- Ultracloud
- Nanoview
- VS-Flow
- TDI
- Continuous Wave Doppler
- Simpson auto tracing

Supersonic Imagine / Aixplorer®
Aixplorer is a next-generation, multi-application, ultrasound system with two patented technological breakthroughs in addition to impeccable B-mode image quality:
- ShearWave Elastography™ (SWE™): offers advantages in lesion characterizations by assessing quantitative, local tissue elasticity in real time.
- UltraFast™ Doppler: unites color Doppler with PW Doppler, rendering complete spectral Doppler analysis in seconds and simultaneous comparison of multiple sample volume.
- Mode: B-mode, Color Doppler, Color Flow, Color Power, Directional Color Power, Pulsed Wave Doppler, M-Mode, Contrast (CEUS), SWE, 3D B-mode and SWE
- Scan Format: Linear, trapezoid, convex, endocavity, micro convex, 3D-linear.

Terason / uSmart 3200T Ultrasound System
The uSmart 3200T offers cutting-edge technology, portability, razor-sharp image quality, and an intuitive user interface. Features include Dynamic Depth Resolution (DDR), exclusive second generation Enhanced Needle Visualization (ENV), Smart Gestures, Capacitive touch screen, Full-Screen mode, a Solid-State hard drive, application-specific presets, and uConnect remote capabilities. Weighing under 5 lbs., the system is ideal for almost any setting.
- Scan formats: Linear, Curved, Phased, Modes: 2D Digital Imaging, M-Mode, Power Doppler, Directional Power Doppler, Color, Doppler, Pulsed Wave Spectral Doppler, CW Doppler, Tissue Doppler, Tissue Harmonic, Imaging, Triplex (Simultaneous, real-time 2-D, Color Doppler and Spectral Doppler display)

Toshiba / Aplio™ 500 Platinum
The Aplio 500 Platinum gives clinicians a worry-free experience with advanced visualization capabilities, workflow automation tools, superior ergonomics and improved departmental efficiency. The system features Shear Wave elastography, a new tool to non-invasively measure tissue stiffness of the liver and potentially reduce expensive biopsies. In addition, Superb Micro-Vascular Imaging (SMI) captures low velocity blood flow without the need for contrast agents or more invasive modalities.

Toshiba / Aplio™ 300 Platinum
The Aplio 300 Platinum offers exceptional image quality in a small, versatile platform and is designed to be a clinical workhorse for all routine ultrasound exams. It features a high-resolution 19-inch monitor, an optional fourth transducer port, workflow automation tools, such as iStyle™ Productivity Suite and advanced imaging features, including Advanced Dynamic Flow™ (ADF), Differential Tissue Harmonics (D-THI), Precision Imaging and ApliPure™.

Toshiba / Xario™ 200
Xario 200 takes the worry out of providing high-quality patient care with a compact ultrasound system. With a small footprint and weighing just 165 lbs., the Xario 200 can easily fit into tight spaces and maneuver from room to room. Additionally, its 19-inch monitor moves in all directions, so clinicians can visualize images in more detail from any angle.

RECENTLY APPROVED
Carestream Health / Two Carestream Ultrasound Systems Available
Two CARESTREAM Touch Ultrasound Systems received FDA 510(k) Clearance and are now available for order in the U.S. Both systems offer a sealed, all-touch control panel with etched marking for primary controls to help users locate key functions without looking away from the monitor. A new architecture can provide enhanced spatial detail with increased frame rates for improved visualization of moving structures while optimizing image formation to reduce noise and artifacts.

NEW! Imaging Equipment
Top Brand Names
Ultrasound
C-arms
Bone Density
Pre-owned inventory also available for Bone Density, C-arms, CT and Ultrasound
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info@completemedicalservices.com
Industry Sector Report: Bone Densitometry

Reimbursement remains low but new indications breathe life into DXA

By Lauren Dubinsky

Among U.S. women age 55 and older, osteoporotic fractures have a bigger hospitalization burden than heart attack, stroke, or breast cancer, according to a recent Mayo Clinic study. Yet the reimbursement rate for the bone density test, dual-energy X-ray absorptiometry (DXA), is at an all-time low.

"Looking at the trends over the past six to eight or more years, we have not been headed in the right direction and that certainly is concerning," says Dr. Andrea Singer, lead author of the study and clinical director of the National Osteoporosis Foundation (NOF).

When compared to breast cancer and cardiovascular disease, patients don’t view osteoporosis as an important health risk. But it accounts for about 2 million osteoporotic fractures per year, which translates to 500,000 hospitalizations, 800,000 emergency room visits and 2.6 million physician office visits, according to the U.S. Department of Health and Human Services.

"Clearly osteoporosis and its consequences are significant, and yet it is under-recognized by patients as well as providers in terms of how prevalent it is and what impact it has on duration of life, quality of life and cost to the health care system," says Singer.

But the solution to this problem is not clear cut. With reimbursement floundering, many providers are opting to jump ship and as a result, patients have increasingly less access to these important DXA exams.

Many organizations including the NOF, National Bone Health Alliance (NBHA), International Society for Clinical Densitometry (ISCD), and the American Society for Bone Mineral Research (ASBMR) are making every effort to turn this trend around. However, no one is certain what the future of bone densitometry will hold.

In 2007, DXA reimbursement for physician practices stood at $139, but eight years later that has plummeted to $40. In addition, CMS has recently decided to bundle DXA with vertebral fracture assessment (VFA), which is a test that identifies vertebral abnormalities and gives physicians more information to diagnose osteoporosis.

If a physician performs DXA and VFA on the same day, those services will be billed together at a lower rate than if they were
billed separately. Donna Fiorentino, legislative council for ISCD, says this is a huge problem because VFA was already an underutilized procedure and now there is almost no incentive for it to be performed.

Many physician practices are discontinuing DXA service — from 2008 to 2012 there has been an 18.7 percent decline in physician practices performing DXA exams, according to the ISCD. The hospital reimbursement rate is $99 but they are also being affected by the bundling.

Since fewer practices are offering it, there has been a small shift to hospitals but it’s not enough to compensate for the loss, and hospitals are often far from patients’ homes. The ISCD found that there was a 12 percent decrease from 2008 to 2012 in older women with Medicare receiving DXA testing.

HealthCare Business News asked CMS what it thinks is a potential solution to fewer women undergoing DXA testing. The agency declined to comment on that, but suggested that interested parties submit comment to the forthcoming 2016 Physician Fee Schedule proposed rule.

In addition to fewer practices conducting the exams, many that still offer it are uncertain about the current screening guidelines. The U.S. Preventive Services Task Force recommends screening for osteoporosis in women 65 years and older and in younger women with a fracture risk equal to or greater than that of a 65-year-old white woman with no additional risk factors.

A new study conducted by the University of California Davis Health System investigating the use of DXA assessed the electronic health records of 51,000 women from 40 to 85 years of age who received health care in the Sacramento area.

It found that over a seven-year period more than 42 percent of eligible women from 65 to 74 years of age were not screened, nor were almost 57 percent of women older than 75. However, almost 46 percent of low-risk women between the ages of 50 to 59, and 59 percent of those from ages 60 to 64, were screened.

The researchers believe that this is because physicians usually think about age-related bone loss when women enter menopause at around 50, but fail to consider patients’ risk factors. The solution to that might be electronic health record systems that alert physicians at the point-of-care when screening is needed and when it can be postponed.

But there is not yet a widespread, viable solution for the declining number of physicians offering the service. However, some people in the industry believe that other bone density tests, including peripheral DXA, may help.

Is there another option?

Although DXA is the gold standard for bone density testing, it’s not the only modality that can assess bone density. Lone Oak Medical Technologies in Pennsylvania received FDA approval in 2012 for its peripheral DXA device, accudxa2, which measures bone density using the patient’s finger.

Peripheral machines measure the peripheral skeleton and assess the heel, forearm or finger but the traditional, central DXA machines are designed to measure central skeletal sites and assess the lumbar spine and hip.

In addition, the central machines are larger and more expensive, but the accudxa2 is the size of a breadbox and costs significantly less. In addition, reimbursement for each exam averages at about $30 throughout the U.S.

David Comley, vice president of Lone Oak Medical, believes that peripheral DXA is a cost-effective way for practices to screen for bone density. It can determine the patients who are at high risk so they can go on to undergo a central DXA exam and prevent those at low risk from undergoing the expensive test.

“"If you can screen out the people who are not at risk using a low-cost device and then make sure the people who are at risk get the
Industry Sector Report: Bone Densitometry

central test they need, that’s really a more efficient way of using both devices,” says Comley.

The other technology used for peripheral measurement is ultrasound, but Comley believes it is a less-effective option because it’s unable to reliably make the same reading consistently. Accudxa2 is designed with a laser positioning system that places the finger in the proper position so that when the patient comes back for a retest, it’s easy to place the finger in the same position.

NOF’s Singer says that central DXA scanning is the only gold standard for diagnosing osteoporosis and monitoring treatment.

New indications saving the market

GE Healthcare and Hologic, the two major players in the market, are turning some of their attention to body composition. Sports medicine is one industry that is particularly interested in order to help maintain a high level of physical performance and monitor injury recovery.

Among GE’s customers are the National Basketball Association (NBA) and National Football League (NFL) in the U.S., over 150 Division I college athletic programs in the U.S., the Gatorade Sports Science Lab, and Olympic programs in the U.S. and France.

The DXA exam provides information on the fat, lean, and bone mass in the arms, legs and core. It also provides quantification of visceral fat, which is the fat that surrounds internal organs.

In the NFL, the Green Bay Packers use GE’s Lunar iDXA system to assess symmetry in their players. Their concern is that if a player is right handed, he will have more muscle mass in the right leg versus the left leg but the DXA exam helps them even that out.

A New York University School of Medicine study from October investigated the use of DXA for measuring body fat percentage in 50 postmenopausal women who underwent a bone density exam. It found that DXA may be an effective approach to evaluating a patient’s metabolic health.

The conventional way to measure body fat is by using body mass index (BMI) but it doesn’t account for the patient’s age and gender. For example, a 25-year-old man who’s 5-foot-8 and weighs 150 pounds has the same BMI as a 55-year-old woman with the same height and weight.

The study revealed that 18.5 percent of normal-weight postmenopausal women had body fat that was above the 75th percentile and about 23 percent of overweight postmenopausal women had body fat that was normal.

“I don’t think many health care providers are aware of the gross inadequacy of BMI — the fact that it is neither age nor gender specific,” says Dr. Steven R. Goldstein, lead author of the study and professor of obstetrics and gynecology at NYU School of Medicine.

Goldstein started investigating this new indication for DXA because reimbursement is at such a low rate. Insurance does not provide reimbursement but his thought is that if patients are willing to spend around $200 a week on trainers, they will be willing to shell out the money to find out their body fat percentage.

What does the future hold?

Despite the dismal reimbursement situation, change may be on the horizon. H.R. 2462 was introduced in the House of Representatives that aims to improve Medicare osteoporosis testing.

Congressman Dr. Michael C. Burgess of Texas along with Representatives Linda Sanchez of California, John B. Larson of Connecticut and Marsha Blackburn of Tennessee introduced the legislation, which establishes a business case for administering DXA tests. The bill has already been endorsed by the ISCD, NOF, and American Association of Clinical Endocrinologists.

NOF’s Singer is confident that all of these efforts will eventually pay off. “We will be able to stem the tide and turn this trend around and get people back on board with the idea of appropriate utilization and availability of these tests,” she says.

When compared to breast cancer and cardiovascular disease, patients don’t view osteoporosis as an important health risk.

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GE Healthcare / Prodigy Advance
For dual-energy X-ray absorptiometry (DXA) assessment, Prodigy delivers — with its industry-leading precision and low-dose radiation. Prodigy provides precise data on soft tissue and bone composition, including bone-mineral density (BMD), lean- and fat-tissue mass, and percentage of fat. Prodigy also streamlines patient care and practice workflow.

GE Healthcare / iDXA
When assessing bone density, fracture risk, body composition, or pediatric development, Lunar iDXA provides a clear glimpse inside the body. It offers research-grade image resolution and exacting precision, providing a high degree of clinical confidence across body types. Lunar iDXA meets clinical needs today, and is an enduring platform for the future.

Hologic / Horizon DXA
Horizon™ DXA goes beyond accurately screening for osteoporosis. It combines a wealth of advanced, proprietary technologies to assess obesity and identify aortic calcifications, a significant predictor of cardiovascular disease. Our high-quality clinical images enable doctors to uncover the truth, so they can make informed diagnoses and treatment decisions in time to have a positive impact on every patient’s health and well-being.

Lone Oak Medical/accudxa2
The only portable, compact peripheral measurement device using Medicare approved Dual X-ray Absorptiometry to measure patients BMD. It has 99.6% repeatability, coupled with new laser positioning device that virtually eliminates positioning error. Printable report (results in under 2 minutes) gives patients T and Z scores that follow WHO guidelines. Touch screen operation, with easy to follow instructions, makes it user-friendly for any office personnel to use under a doctor’s supervision. Leasing and rental options.

Osteometer / DTX–200
The Osteometer DTX–200 is a portable DEXA scanner used to determine bone density in the distal section of the forearm, as an aid to the physician in diagnosis of osteoporosis and other medical conditions leading to reduced bone density and ultimately the determination of fracture risk. Made in the USA for over 25 years.

DOTmed asked the leading bone densitometer manufacturers to submit up to three of their top products to be featured in the section. To learn more about these systems and see other models not shown, please visit: www.dotmed.com/bone

DOTmed Registered HCBN July 2015 Bone Densitometer Companies

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Healthier Hospitals caps three years of powerful change

By Jeffrey Brown and Gary Cohen

We launched the Healthier Hospitals Initiative in 2012 to raise the bar in health care sustainability, challenging the entire health care sector to accelerate its progress as a whole. With the backing of 12 founding health systems, Health Care Without Harm, Practice Greenhealth, and The Center for Health Design set out to reduce the environmental impact of hospitals and health systems across the country and lead our nation on a path to a healthier future.

More than 1,200 hospitals stepped up to the plate, reducing energy use and waste, serving healthier food, leaner energy, less waste, safer chemicals and smarter purchasing.

Less energy and waste
U.S. hospitals emit 8 percent of our nation’s greenhouse gas emissions and create 28.4 pounds of waste per hospital bed per day. It’s no surprise that energy and waste were key areas addressed throughout our work. Together, we reduced health care greenhouse gas emissions by 73,600 metric tons, the equivalent of removing 15,600 vehicles from U.S. roads. We also recycled 445,722.39 tons of materials from hospitals across the country, totaling 45,000 garbage trucks by weight.

Reducing energy use in hospitals and increasing recycling and re-use are paramount to improving the sector’s environmental footprint. They also make good business sense. A typical hospital’s annual energy bill runs $1 million to $3 million, depending on its size and location. Hospitals and health care facilities also face much higher disposal costs than most industries.

We spend billions of dollars annually to treat diet-related, chronic diseases—$147 billion to treat obesity alone, another $116 billion to treat diabetes, and hundreds of billions to treat cardiovascular disease and cancer.

Most agree: promoting healthier, more sustainable food choices is a critical step toward reversing negative trends.

Our Healthier Foods Challenge was designed to bring healthier, more sustainable food to hospitals across the nation. We created incredible momentum around this issue as organizations stepped up to model healthy behavior and reduce diet-related chronic diseases.

Together, we scaled back sugar-sweetened beverages and are now spending more than $68 million — nearly 70 percent of our beverage budget — on healthy drinks. We also decreased the average amount of meat served per meal and are spending more on local and sustainable food.

Safer chemicals
Patients and staff are exposed to everyday products like furnishings, cleaners, and medical devices that contain chemicals linked to health issues. Through our Safer Chemicals Challenge, we worked with hospitals to replace these products with safer alternatives.

Hospitals transitioned to PVC- and DEHP-free devices, purchased more “green”-certified cleaning products and more furnishings (such as chairs or exam tables) without halogenated flame retardants, formaldehyde, perfluorinated compounds and PVC.

We also launched a market transformation strategy to make it easier for hospitals to access products without chemicals of concern. We leveraged increased demand to drive manufacturers to offer safer products in the marketplace. In 2014, we celebrated a major victory when five leading U.S. health systems — Advocate Health Care, Beaumont Health System, Hackensack University Medical Center, Kaiser Permanente, and University Hospitals Health System — announced decisions to no longer purchase any furniture treated with toxic flame retardants. These health systems spend roughly $80 million a year on furnishings. Their decision is a game-changer for the health care industry and the health care supply chain.

Healthier Hospitals successfully connected hospitals and the power of the aggregate, bringing our collective purchasing power and powerful data to the table to drive change. As more hospitals recognize the direct link that environmental impact has with the health of their patients, we recognize that our journey is too powerful to end here.

About the authors: With more than 25 years of experience in environmentally preferable operations, Jeffrey Brown serves as a driving force for sustainability in health care. As executive director of Practice Greenhealth, Brown is a key player in a national movement to increase environmentally preferable operations in health care facilities.

Gary Cohen has been a pioneer in the environmental health movement for 30 years. He is co-founder and president of Health Care Without Harm and Practice Greenhealth. He was instrumental in bringing together the NGOs and hospital systems that formed the Healthier Hospitals Initiative. Cohen was executive director of the Environmental Health Fund for many years.

Share this story: dotmed.com/news/25906
New recurring revenue models backed by technologies

By Oleg Ganopolskiy

Recent headline-making breaches, including of Anthem and others, underscore the importance of security in the health care sector, especially as the industry looks for more affordable and efficient ways to provide higher levels of service to their customers.

One of these ways is by shifting to the cloud and adopting recurring revenue models that allow for broader innovation and flexibility in the way health care organizations can package and offer their services.

However, as more organizations move their data to the cloud to meet these needs, patient privacy is a top-of-mind challenge.

HIPAA (Health Insurance Portability and Accountability Act of 1996) compliance has become increasingly important for any software that "touches" patient information.

HIPAA requires a third-party audit to verify that the administrative, physical, and technical protections required for medical care businesses are in place. With the addition of PCI DSS certification — another rigorous security standard for organizations that accept credit cards — a company ensures that it meets the highest safety standards for adoption of recurring revenue.

These certifications validate the safeguards in place and add an important level of trust for health care and other companies looking to shift their critical back-end systems to the cloud.

Health care providers are able to take advantage of these technologies to reap the benefits of recurring revenue: higher growth curves in terms of both sales and profits, while adding predictable sales streams.

For example, a global maker of big-ticket medical equipment began marketing its newest models of CAT and MRI machines. But the manufacturer encountered a slow market for the products. Only hospitals in urban centers could afford the price tag, and they were not eager to replace existing machines already in use.

Regional hospitals, which wanted the equipment, didn’t have the capital to make the investment. The challenge became how to tap this market.

So the equipment manufacturer leased them to regional hospitals on a pay-per-use basis, one of the many iterations of the recurring revenue model.

The manufacturer was able to react to meet the needs of customers, and adjust its pricing structure accordingly.

All sides of the equation benefit under this recurring revenue scenario.

The manufacturer shifts from selling devices to services, and adds regional hospitals to its market for the new machines.

Regional hospitals preserve capital while their patients receive care locally, saving the time and expense of traveling to distant big city hospitals. Payors, such as insurance companies and government agencies, benefit too, because the recurring revenue generated by leasing helps to stabilize the overall expense of health care.

Providers that adopt cloud-based case management strategies can generate recurring payments when recommended treatments continue over a long period of time.

For example, a provider could pinpoint a course of physical therapy through secured medical records, and then recommend a fitness center to provide the treatment.

The provider then generates recurring sales by managing the subscriptions to the fitness center.

The more that customers trust their provider, the increased likelihood that they’ll participate in suggestions for improved health and fitness sent their way.

The health care company that can harness the power of recurring revenue can often see dramatically increased earnings because it can align products and pricing with proper health care while protecting patient privacy.

What’s more, patients get more choices, increasing their level of satisfaction and making them less likely to opt out of recommended therapies.

Many businesses benefit from HIPAA certification, even those enterprises that don’t have direct interaction with patients. Responsible companies doing business in the health care sector all realize that the data flowing to or from them must be secure, and in fact, even more secure than what’s expected of many other industries. HIPAA certification provides an added measure of assurance.

The bottom line: with the proper security measures in place, customers can trust new technologies such as cloud billing and its inherent advanced monetization models.

HIPAA compliance coupled with recurring revenue is a winning combination for health care companies looking for new formulas for success and customer service.

About the author: Oleg Ganopolskiy is VP of Operations at Aria Systems where he ensures that all systems provide the highest level of security, compliance, performance, capacity and reliability.

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Imaging center managers deal with an array of change

By John W. Mitchell

Once a profitable business, standalone imaging centers are now struggling. What’s particularly unfortunate is that they’re fading just as the recognized need for more health care services increases. In order for an imaging center to have a chance of remaining profitable, management has to be proactive, creative, and on top of their game.

HealthCare Business News spoke with Davis Graham, executive director and CFO at Manatee Diagnostic, in Bradenton, Florida, about trends in imaging center management. Graham offered a cynical laugh and cited a “new truth” in effect since the implementation of the Affordable Care Act.

“I belong to a health care advisory group through our chamber of commerce. A friend on that committee coined the term ‘the 6350 health insurance policy.’ This means patients now have an average out-of-pocket of $6,350. Patients are price shopping,” he says.

Graham is a guy who thinks a lot about what is going on in health care. He is currently near completion of a master’s degree in health and medical informatics from Brandeis University, and by his own count he studies on average more than 350 pages a week about the changes unfolding in the American health care system — all this while managing Manatee, a family-owned independent outpatient imaging center that performs nearly 300 imaging tests a day.

“What we have right now in health care is a slave relationship,” Graham states. “Pricing is not set by the people who provide the service; it is set by the government and the insurance companies. This is ironic when you consider that the quality of any health care experience is defined by the physician-patient relationship.”
Graham says that his center is having a banner year for volumes, but is also seeing its lowest reimbursement rates ever.

Graham and others in the business have to not only manage to keep overhead costs down and patient throughput up, but they also have to give greater attention to the patient experience if they plan to obtain full reimbursement amounts.

To that end, many imaging centers are providing better pricing transparency, increased follow-up and follow-through with patients, and hiring professionals with strong customer service and team skills or providing the training to existing staff to get them those skills.

**Cashing out, going under, or teaming up**

Management issues were a common theme among several insiders interviewed. Mike Mabry, executive director of the Radiology Business Management Association (RBMA), says that according to a 2014 survey conducted by the group, of the estimated 2,500-plus freestanding imaging centers, about 525, or 21 percent, are either contemplating selling the business or closing, in large part due to the pains caused by reimbursement cuts.

While some centers soldier on alone, others seek out partners and work to fill a need. With hospitals also feeling the reimbursement pinch, some are teaming up with freestanding facilities instead of outright acquiring them. This transition can be seen at Bloomington Radiology in Normal, Illinois, which has evolved from a private practice radiology imaging center to a group that now serves two health systems in the community.

“We wear several hats with our hospital partners to take care of all of our patients,” explains Bill Wilson, practice administrator at Bloomington Radiology. “For example, some of our radiologists are in a joint venture with one of the area health systems at another outpatient imaging facility, Ft. Jesse Imaging Center.” He says Ft. Jesse Imaging is the only full-service freestanding imaging center in a county with approximately 145,000 residents.

“We also provide considerable imaging interpretation for private practices,” adds Wilson.

Bloomington Radiology operates out of a large outpatient medical office building that houses private and hospital-based services for urgent care, rehab, wound care, and a private orthopedics practice.

“From a business standpoint, since the early 2000s, outpatient imaging has evolved from being a very profitable venture to a tight margin, but clinically critical, [with a] service line that has to be care-fully managed to control expenses. We also have to build volumes by providing good service to referring physicians and patients,” says Wilson.

He says that while a few CT and MRI competitors have dropped out of the market, Bloomington has seen its volumes increase 10 to15 percent across all modalities this year. But he adds, they are located in a remarkably stable economic market with a predominantly white-collar, college-educated workforce possessing a higher-than-average household income.
Important industry trends
RBMA’s Mabry says there are major challenges for imaging center managers, ranging from new reimbursement systems to reduced payments and the need for greater price transparency.

Of special concern is the MITA Smart Dose XR-29 regulation that goes into effect Jan. 1. The regulation, covered extensively by DOTmed News, is intended to reduce radiation exposure. To do so, facilities will likely need to upgrade software or even replace machines to avoid Medicare payment cuts. Federal program payment penalties are 5 percent on the technical component in 2016, increasing to 15 percent in 2017 and beyond for diagnostic CT procedures performed under the Medicare program. This regulation was created when President Obama signed the Protecting Access to Medicare Act of 2014 on April 1, 2014 (Section 218).

According to Wayne Webster, principal at Proactics Consulting, the XR-29 regulation applies only to Medicare patients in an outpatient setting.

“There is no requirement to meet the XR-29 standard beyond the reduction in Medicare reimbursement,” said Webster. “Upgrading or replacing a non-compliant CT scanner is an option. But most are waiting to analyze the impact on revenue from the reduction in Medicare reimbursement.”

He adds that the new regulations do not apply to inpatient units or non-Medicare patients. And he said the regulation offers no technical, measurable standard to demonstrate the reduction in CT dose. Webster projects $360,000 in Medicare CT revenues will result in a loss of $18,000 in 2016 with the 5 percent cut, and a loss of $54,000 in 2017 under the 15 percent reduction for noncompliance with XR-29.

According to a white paper published by the Medical Imaging & Technology Alliance (MITA), the law requires providers to report any CT scan that is not compliant with XR-29 smart dose standards. The white paper explained that providers will most likely be required to provide documentation from the equipment manufacturer to identify whether a machine is compliant or not.

“A decision to upgrade non-compliant CT equipment should take into consideration many factors, such as complexity of your equipment, your clinical usage and ultimately the cost/benefit of upgrading,” states the MITA white paper.

Manatee Diagnostic’s Graham doesn’t have a dog in the XR-29 fight. He has or is in the process of upgrading all of the center’s CTs. But philosophically, he doesn’t think penalties are the way to bring about change.

“I think it works better to get accrediting organizations like The Joint Commission to implement appropriate government safety regulations,” he said. “In order to assess penalties, you have to really make sure the proper investigation is done.”

Other issues Mabry says to note are the delay of the implementation of ICD-10 and the fact that the Medicare Advisory Commission that informs Congress continues to recommend that Medicare move to a single payment regardless of site of service (hospitals versus freestanding centers).

“These are significant developments and it’s not clear, exactly, how some of these changes will impact imaging operations,” Mabry says. “The change to the merit-based payments is a good example. It will affect all physicians, but it’s a one-size-fits-all approach that may not translate well to radiologists and could put them at risk for payment cuts. It may mean significant reduction in radiology compensation. The system may work better if it compares data specifically to a radiologist peer group.”

He also predicts that the new pricing transparency will be a big issue for hospitals, whose charges traditionally run higher than outpatient imaging centers.

New pricing transparency will be a big issue for hospitals, whose charges traditionally run higher than outpatient imaging centers.

Hospitals focus to better compete with freestanding centers
Doug Wetmore, an owner at Ivy Ventures in Richmond, Virginia, also cited price transparency and price shopping as an emerging trend. Ivy works with hospitals and hospital systems across the country to improve outpatient market share – especially for imaging. Clients include Bon Secours Health System, LifePoint Hospitals, Resurrection Health Care, Tenant, and Intermountain Healthcare.

“With more patients having first-dollar responsibility, imaging has become a highly price-sensitive and commoditized service,” says Wetmore. “This is the first time I’ve seen it on this scale since I’ve been in business.”
Wetmore also says that he believes the market will favor those outpatient imaging centers that best align themselves in an integrated delivery model. He explains CMS is looking for efficiency through value-based purchasing, which is unfamiliar territory for many outpatient imaging operations. Ivy works with their clients to increase the number of scans conducted every day as imaging centers have fixed costs.

“We work to really improve service to referring physicians because every extra scan drops to the bottom line,” says Wetmore.

**Large practices go their own way**

These are the types of strategies that Eric Worthan, CEO of Panorama Orthopedics and Spine Center in Denver, one of the largest orthopedics practices in the West, speaks of when he discusses the current state and future of imaging management. The specialty group is composed of 35 orthopedic surgeons, has three locations and operates seven digital radiology machines, one MRI with a second coming online in early 2016 and a third planned for 2017. The group does not provide CT, as Worthan said they don’t have high enough patient volume to justify the capital investment or maintain proficiency.

“We want to be a vertically integrated network because it’s good for the patient, enhances quality and reduces costs,” he explains. “This is very difficult for imaging competitors to replicate in our market. We’re now negotiating directly with insurers and accountable care networks. We’re a stable provider in the market who is going to be here no matter what. We have doctors who want to join us and keep the practice private.”

Worthan said they are buying out an imaging center in the market, have seen a few others sell to hospitals and others enter into joint ventures with hospitals. He noted that because imaging is not their primary business, they are diversified enough with their revenue streams to absorb diminishing radiology reimbursement. They also have a unique ability to motivate insurance companies when setting rates.

“Imaging is a critical piece of information; our doctors must have it. But if I can’t get what I think is a fair reimbursement rate, we can always drive up costs by directing the business to the hospitals.”

For Panorama, the reasons for expanding imaging capability in the face of declining reimbursement is not so much a monetary issue, but one of providing better care to patients.

“Probably the main reason the practice has grown is that we have worked hard to eliminate the fumbled hand-offs common in health care that frustrate patients and physicians and can negatively impact outcomes,” he said.

This integration strategy – to be the direct provider through a patient’s surgery as well as their pre- and post-op care – extends to partnering with building an 80-bed skilled nursing facility to care for patients after their surgery.
Industry Sector Report: **Mammography**

**What role does reimbursement play in breast imaging?**

*By Lisa Chamoff*

In 2009 there was a huge outcry after the U.S. Preventive Services Task Force (USPSTF) released its breast cancer screening recommendations, which stated that women between the ages of 50 and 74 should receive screening with mammography every two years, while women in their 40s should discuss the benefits of regular screening with their physicians.

In April, the criticism was renewed when the USPSTF came to largely the same conclusion, giving biennial screening of women ages 50 to 74 a “B” recommendation, while screening for women in their 40s was given a “C” recommendation, with the caveat that screening in this age group may benefit few women and could even cause them harm, leading to more false positives and unnecessary biopsies.

A “B” recommendation from the USPSTF means the task force believes there is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial, while the “C” recommendation means that the USPSTF recommends “selectively offering or providing this service to individual patients based on professional judgment and patient preferences” and that, “there is at least moderate certainty that the net benefit is small.” The USPSTF did not provide an “A” recommendation for mammography.

In some ways, the landscape in the breast imaging field is the same as it was six years ago, but in many ways it’s very different. The recommendations come as technology to measure breast density, along with newer modalities — including tomosynthesis (which is delved into separately in this issue), automated whole breast ultrasound, molecular imaging, and MR — that go beyond the gold standard of mammography, have advanced. Clinicians, while anticipating nasty fallout from the recommendations, are also utilizing this new technology and launching programs to help better inform women of their options.
For some women, screening requires looking beyond mammography.

Four out of 10 women have dense breast tissue. Dense breasts make a woman up to six times more likely to develop breast cancer. And they make it very difficult to detect cancer with standard mammography.¹

Now there is another option for women with dense breasts. The new GE Invenia® ABUS (Automated Breast Ultrasound System) demonstrates a 55% relative increase in invasive cancer detection* over mammography alone for women with dense breasts.² It looks at dense breasts differently to find cancer that mammography may not see. The result: Enhanced confidence for physicians and patients.

To learn more about Invenia ABUS, call 888-202-5528, scan the QR code below or visit www.gehealthcare.com/inveniaabus.

* Increase in sensitivity was associated with a decrease in overall specificity.
Giving the recommendations an ‘F’

Many radiologists are worried that with the institution of the Affordable Care Act, which only requires private insurers to cover procedures with a “B” recommendation or higher from the USPSTF, many fast-growing cancers in younger women will go undetected. If the USPSTF’s screening guidelines are finalized, 17 million women between the ages of 40 and 49 could lose insurance coverage for mammography, according to a report released in May by consulting firm Avalere Health.

Dr. Kirsten Bibbins-Domingo, an internist at San Francisco General Hospital and a member of the USPSTF, says that the group’s 2009 recommendation, particularly its “C” recommendation for women in their 40s, was “widely misunderstood.”

“Since 2009, the Task Force has taken steps to clarify what a ‘C’ recommendation is – it is not a recommendation against screening,” Bibbins-Domingo says. “Rather, it means that, for this age group, screening may benefit a few women, while others may experience significant harms. Also, much has been written about the balance of benefits and harms of mammography in the past five years that relates to our recommendation, specifically that people know it is a good test but not a perfect test.”

“The decision by the task force had many variables,” Tu says. “A lot of that was economic, and the expansion of patients eligible for insurance coverage. We have patients who are the most vulnerable in the health system able to get health care. We have decreased the amount of access for mammograms. It’s almost like giving someone a benefit and indirectly taking that away.”

Dr. Linda Greer, a radiologist and medical director of the HonorHealth Breast Health and Research Center in Arizona, “But you know a huge chunk of the population will say, ‘I can’t afford that.’ It’s scary to think that a lot of women will opt to not [get screened] because of the coverage.”

Greer, who started practicing in 1996, says she has seen an increase in women under 50 being diagnosed with breast cancer. She notes that a very small percentage of women have a BRCA mutation and the vast majority have no known family history.

“To sit there and say we’ll screen the high-risk patients, you’re going to miss a huge chunk,” Greer says. “Sixty percent have zero known risk factors. Then you’re going to miss 60 percent because we don’t know enough.”

Dr. Raymond Tu, chairman of radiology at United Medical Center (UMC)/Not-for-Profit Hospital Corporation (NFPHC) in Washington, DC, says this is a big issue for low-income populations.

“We have patients who are the most vulnerable able to get care. We have decreased the amount of access for mammograms. It’s almost like giving someone a benefit and indirectly taking that away.”

Bibbins-Domingo says the group’s recommendations will remain in draft form, which does not affect coverage requirements, while the task force deliberates on their final recommendation.

“Insurance companies may, and do cover for or against these types of screening,” Bibbins-Domingo says.

Even manufacturers, normally silent on these issues, are speaking out.

“We strongly recommend annual screening,” says Jennifer Okken, senior
Looking to SAVE and still give your system a NEW LOOK?
Manager for women’s health at Siemens Healthcare. “We’re typically silent on these recommendations, but this one has come to our attention.”

Navigating breast density

Breast density is another issue that has been receiving a lot of attention recently. Since 2009, 22 states have enacted density reporting legislation, with North Dakota being the most recent after Gov. Jack Dalrymple signed the law in early April. In February, U.S. Sen. Dianne Feinstein, D-Calif., introduced the Breast Density and Mammography Reporting Act of 2015, which would require breast density reporting in all states and would also direct the U.S. Department of Health and Human Services to conduct research in support of clinical guidelines and best practices for the use of mammograms and supplemental screening for women with dense breasts. The bill was referred to the Senate Committee on Health, Education, Labor, and Pensions.

While some doctors recommend additional screening for women with dense breasts, there is still uncertainty even in states where reporting is required. "We looked at the literature and decided that was the best," Imel says.

Automated whole breast ultrasound did receive a boost earlier this year, with reimbursement code changes. There used to be only one code for ultrasound reimbursement, and doctors were doubling their professional fee to read the exams. But the language of the Current Procedural Terminology code was changed in January to create two codes — one for “limited,” representing the targeted hand-held ultrasound, and one for “complete,” more in line with supporting the whole breast ultrasound scanning, provided by systems such as Siemens’ ACUSON Automated breast volume scanner, says Ernie Liu, product manager for women’s health at Siemens.

"Oftentimes it's cut, cut, cut, so this is refreshing," Liu says.

Measuring density

The breast density determination at Marion General Hospital is currently based on the radiologist’s observation, though the facility is planning to start using Philips Healthcare’s Spectral Breast Density Measurement Application, which received FDA approval for use with their MicroDose SI full-field digital mammography system in December 2013. The application uses photon-counting technology to acquire spectral data of the adipose and fibroglandular tissue within a single exposure of a low-dose mammogram.

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Industry Sector Report: Mammography

In collaboration with researchers at the University of California, Irvine, to examine how spectral breast imaging can improve breast density measurement, potentially helping clinicians more accurately gauge breast cancer risks and monitor changes over time.

“Through this study, UC Irvine and Philips are looking to set an industry standard for objectively measuring breast density. While this doesn’t exist today, it will be increasingly critical as we move toward further personalizing breast cancer screening, and enabling patients to become more engaged in their own care,” said Gene Saragnese, CEO of imaging for Philips, in a statement announcing the collaboration.

Other breast density measurement software includes Hologic’s Quanta breast density software and VolparaDensity from Volpara Solutions. While Volpara’s density measurement software works on all systems, the company entered into an agreement earlier this year with GE Healthcare to distribute VolparaDensity, which measures breast density from mammography and tomosynthesis images. The distribution agreement also includes VolparaAnalytics, which collects data from mammography and tomosynthesis systems and prepares reports, and VolparaDoseRT, which measures the radiation dose administered to the patient.

Kristin Bravo, global marketing director for automated breast ultrasound at GE, says the VolparaDensity software provides an objective way to evaluate a mammogram and quickly see if there’s a need for supplemental screening with a product such as GE’s Invenia ABUS automated breast ultrasound system, which received FDA approval in June 2014. It’s possible for women to get a mammogram and supplemental screening in the same day, Bravo says.

Clinicians have responded positively to GE’s partnership with Volpara.

“We’re just starting to see customers who are ramping up and including it in clinical practice,” Bravo says.

Density as destiny?

Studies have consistently shown that having dense breasts increases a woman’s cancer risk. A study published in September 2014 in the journal Breast Cancer Research, which...
compared six density assessment methods, including Volpara, determined that fully automated measurement software provides valid alternatives to visual measurement with the American College of Radiology’s Breast Imaging Reporting and Data System (BI-RADS) and the semi-automated Cumulus for quantifying density in full-field digital mammography. The study also showed a strong connection between breast density and breast cancer risk.

However, according to a new study, published in May in Annals of Internal Medicine, not all women with dense breasts are at such a high risk for developing cancer and then having that cancer missed that they need additional screening.

“Their overall message is consistent with where we believe we’re going to end up, which is that volumetric density is going to go into a full risk model and the results from that risk model will dictate screening intervals and be part of the decision on adjunctive imaging,” says Ralph Highnam, Volpara’s chief executive officer, in response to the Annals of Internal Medicine study.

New research has also found that contrast-enhanced MRI, which is already used as a supplemental screening tool in mammography for women at a high risk of developing cancer, can also help predict cancer risk. Researchers looked at normal background parenchymal enhancement (BPE), or when the background breast tissue shows up white, on the MRI images, as well as breast density. The study, published in the journal Radiology in May, found that the women with elevated amounts of BPE had a nine times higher chance of being diagnosed with breast cancer than the women with low amounts of BPE, or none at all. Breast density didn’t affect the cancer risk.

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**HealthCareBusiness News | July 2015**

**DOTmed NEW EQUIPMENT GUIDE MAMMOGRAPHY/ BREAST IMAGING**

**Carestream / Aspire Comfort Paddle**

Carestream’s Vue PACS and Vue Mammography workstations allow readings of traditional mammograms, breast ultrasound, breast MRI, digital breast tomosynthesis (DBT) and general radiography exams from a single workstation. Carestream’s DBT module offers improved workflow capabilities and specialized tools for comparing 2D and 3D datasets, along with the display of DICONOM-compliant 2D synthetic views. A new slabbing tool combines slices of a DBT series, while allowing the user to choose different rendition modes and slab thicknesses.

**Fujifilm / Aspire Cristalle**

The Aspire Cristalle, a patented mammographic paddle designed to dramatically improve patient comfort, allows technologists to ensure even compression for optimal imaging of the breast. The comfort paddle gently contours to the shape of the breast, to provide precise and adequate compression for excellent tissue separation. The new paddle is now available with the Aspire Cristalle.

**GE Healthcare / Invenia Automated Breast Ultrasound (ABUS)**

Invenia ABUS is the only FDA-approved technology specifically designed for breast cancer screening, and is used as an adjunct to mammography for asymptomatic women with dense breast tissue and no prior interventions. The system is designed to enhance the consistency, reproducibility, and sensitivity of whole breast ultrasound, demonstrating a 55 percent relative increase in the detection of invasive breast cancers in women with dense breasts without prior breast interventions.

**Hologic / Selenia Dimensions 2D/3D Mammography System**

The Selenia Dimensions mammography system provides superb image quality, high productivity and a variety of advanced applications. Its Genius™ 3D Mammography™ exam strives to set new standards for earlier detection of breast cancers, clearer lesion images, and fewer false positive recalls and biopsies. That’s less patient anxiety and more business efficiency and savings. Our scientific advances are designed to put you at the forefront of mammography technology and early detection:

- C-View™ software drives the low-dose Genius 3D Mammography exam, delivering superior performance to 2D mammography at a comparable patient dose.
- I-View™ software for Contrast Enhanced 2D imaging increases sensitivity for enhanced precision in breast cancer detection.

**Hologic / SecureView Diagnostic Workstations**

The SecureView diagnostic workstation and options offer flexible, interactive and comprehensive diagnostic tools designed to help radiologists see more clearly and work more efficiently. Unique workflow features including personalized ReportFlows and an ergonomic keypad enhance all aspects of breast imaging review. This diagnostic workstation provides efficient reading tools for 2D and 3D (tomosynthesis) exams, along with standardized display of images for all digital mammography vendors.

**Dilon / 6800® Gamma Camera**

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**Fujifilm / Aspire Cristalle**

Over 9,000 global customers put their trust in Fujifilm Digital Mammography Systems. Aspire Cristalle combines Fujifilm’s extensive research, expertise and experience to offer a new, advanced digital mammography system that intelligently optimizes image contrast and dose across all breast types through a combination of innovative detector engineering and intelligent image processing. Cristalle features automated controls designed to increase detector life, help improve throughput, and ensure consistently high-quality images. Fujifilm’s renowned uptime is backed by 24/7 remote monitoring and diagnostic services.

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Hologic / MultiCare Platinum and Affirm Biopsy Solutions
Both the MultiCare® Platinum breast biopsy prone table and the Affirm™ upright biopsy system on the Selenia Dimensions® system offer exceptional image quality, pinpoint accuracy and precise, efficient operation using leading-edge targeting and guidance technology. The easy-to-use Affirm™ breast biopsy guidance system for stereotactic and tomosynthesis interventional procedures is a next-generation system designed to enable swift accuracy in an all-in-one system. It’s revolutionizing the industry and how you look at biopsy. Affirm accurately targets subtle lesions fast through its pioneering technology.

Kubtec / XPERT 40
Kubtec XPERT 40—designed for imaging cores and surgical specimens—is the most versatile tool in 2D specimen radiography. Compact and mobile for easy transport between biopsy suite and operating room, the XPERT 40 offers an optional touch screen monitor and integrated optical camera for side-by-side comparison with 2D images. Enjoy wireless connectivity, DICOM compliant image acquisition and analysis software and Single-Click-Send of multiple images with annotations to PACS.

Kubtec / XPERT 20
Kubtec’s XPERT 20 digital radiography biopsy imaging system is designed for high resolution imaging in limited spaces and to increase efficiency in the biopsy suite. With a tiny footprint, yet the largest detector size in its class, XPERT 20 is available as a bench model or mobile cart. Enjoy rapid image display, wireless connectivity, Single-Click-Send of multiple images to PACS, DICOM compliant software, and optional touch screen monitor interface.

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- High Spatial Resolution: 1.6 MM for unprecedented understanding of tumor biology
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Philips Healthcare / IntelliSpace Breast
A high-performance workstation that provides a comprehensive picture of multi-modality breast exams.
- Advanced viewing & processing capabilities for mammography, ultrasound, and MRI on a single workspace
- Review prior images and reports to capture patient history
- Vendor neutral solution
  * Multi-modality options powered by IntelliSpace Clinical Applications.

Planned / Nuance Classic
Intelligent design adapts to any imaging environment. Flex AEC (48 detectors) operates automatically and independently to optimize image quality. The unit is fully motorized with isocentric rotation and an Auto-Load bucky system. Nuance Classic is available with CR interface.

Planned / Nuance Excel
Planned Nuance Excel combines ultimate imaging performance with excellent user ergonomics. Amorphous Selenium technology utilizes direct digital capture with 85 micron pixels to provide high resolution imaging at a very low dose. The 24x30cm field of view is ideal for high throughput facilities. The unit is equipped with MaxView, a positioning tool to help capture more breast tissue in the imaging field. Stereotactic Biopsy Device is available.

Siemens Healthcare / ACUSON S2000™ Automated Breast Volume Scanner (ABVS)
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- Efficient operation and analysis tools.

Siemens Healthcare / MAMMOMAT Inspiration with Tomosynthesis Option
Siemens offers a Breast tomosynthesis add-on option for MAMMOMAT Inspiration and MAMMOMAT Inspiration Prime Edition digital mammography systems. Tomosynthesis algorithm reconstructs multiple 2D breast images into an approximation of a 3D image to enable detection of tumors hidden by overlapping breast tissue. In tomosynthesis mode, the MAMMOMAT Inspiration X-ray tube rotates in a circular motion around the breast to acquire an image every two degrees while moving through an angular range of 50 degrees; the resulting 25 projections are reconstructed as 3D digital breast tomosynthesis images.

Siemens Healthcare / MAMMOMAT Inspiration Prime Edition
The MAMMOMAT Inspiration Prime Edition digital mammography system lowers patient radiation dose up to 30 percent without compromising image quality by replacing the standard scatter radiation grid with a new algorithm for progressive image reconstruction.

Three Palm Software / WorkstationOne
WorkstationOne supports images from all digital breast imaging sources, including digital breast tomosynthesis. WorkstationOne helps the radiologist to be as efficient as possible with a simple yet customizable workflow. Included are expert tools for 2D and 3D images, such as: the systematic masking technique; “all pixel” viewing; cine, 3D icon and slab rendering for tomosynthesis.

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Feature: Tomosynthesis

Tomosynthesis: A new gold standard?

By Lauren Dubinsky

Traditional 2-D mammography has long been the gold standard for breast cancer screening but tomosynthesis has been gaining interest ever since the first commercial system received FDA approval in 2011. Most physicians are excited about this new technology’s potential to reduce recall rates and detect more invasive cancers, but the U.S. Preventive Services Task Force still views it as investigational.

The drawbacks of 2-D mammography are that breast cancers can be missed because they are hidden behind normal breast tissues, and normal breast tissues can superimpose on one another and create “summation shadows” that appear to be cancer but are not, says Dr. Daniel Kopans, professor in the department of radiology at Harvard Medical School, director of breast imaging at Massachusetts General Hospital, and widely considered to be the “father of breast tomosynthesis.”

“Reading a 2-D mammogram is like holding a book with clear pages up to the light — you can see the words, but they are superimposed on one another making it difficult to read,” wrote Kopans. “[Tomosynthesis] allows you to read each page individually.”

The University of Pittsburgh was one of the early adopters of tomosynthesis in 2006 for research, and it is also one of the first that implemented it in the screening setting in 2012. Dr. Margarita Zuley, professor of radiology at the university, is hopeful that tomosynthesis will impact interval cancer rates and mitigate some of the harms of 2-D mammography including false positives.

But despite those benefits, a few challenges remain in the way of widespread adoption. CMS is now providing coverage for the procedure, but many private insurers have not followed suit and there is not yet a standard approach to acquiring an image.

The reimbursement puzzle

Nov. 5, 2014, marked a major achievement for tomosynthesis when CMS announced that it would reimburse an average of $50 per exam. But a 2-D mammography exam is still required prior to the tomosynthesis exam.

Hospital administrators are satisfied with the rate of Medicare reimbursement, but radiologists do not share that sentiment, says Jennifer Okken, women’s health product manager at Siemens Healthcare. Since tomosynthesis takes three times as long for them to read compared to 2-D mammography, they believe that reimbursement should be higher.

Most private payors are not completely on board with reimbursement yet. A few small and local private insurers are providing coverage, but no large private insurers have joined them.

“Patients are very confused by it because most insurance carriers are not covering it currently,” says Zuley. “Facilities are stuck either eating the cost of this new technology or charging patients directly, neither of which is an optimal solution.”

She believes that the lack of reimbursement from private insurers is one of the reasons why tomosynthesis has not been widely adopted yet.

“There needs to be universal reimbursement so people can afford to buy the equipment,” she adds.

It’s mostly the large academic hospitals that are offering the service, but Siemens has noticed interest from some community hospitals.

“It obviously takes community hospitals a little bit longer to get the funding and the budget for [tomosynthesis] but we are seeing a trend toward a very competitive market,” says Okken.

Three vendors are currently dominating the tomosynthesis market and all of their systems acquire both 2-D and 3-D mammograms. Hologic was the first to the market with the introduction of its Selenia Dimensions mammography system in 2011.

GE was next, after it received FDA approval of its SenoClaire 3D Breast Tomosynthesis system in September 2014. Then Siemens received approval in April for its tomosynthesis add-on to its MAMMOMAT Inspiration digital mammography system.

To date, Hologic has sold 1,800 systems in the U.S., with at least one in every state, and it’s available in over 50 countries, spanning five continents. Several of Siemens’ tomosynthesis add-ons have already been installed and several more are scheduled for installation within the next few weeks.

The systems acquire images in different ways. The Siemens system has a 50-degree angulation and takes 25 projections every 2 degrees. The Hologic system has a 15-degree angulation and acquires 15 projections every degree, and the GE system has a 25-degree angulation and about every 3 degrees acquires about 9 projections.

Siemens’ Okken says that’s a big problem. “The challenge is that the technologies on the market are so different and the detection rate is proving to be different based on the technical differences of the equipment,” she adds.

The FDA requires each patient to undergo separate screening programs for each device because the FDA had to approve them as three separate technologies.
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tomosynthesis
\'to-mo\'sin(t)-th*-s*s\'

DEF: Tomosynthesis is a diagnostic imaging technology that fuses x-ray CT reconstruction with digital imaging processing easily obtaining multiple coronal images from a single acquisition. It is frequently referred to as 3D Tomosynthesis as a result of the depth perception associated with a looping file of the acquired slices.

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**Feature: Tomosynthesis**

Okken believes that the technology needs to be standardized, and to do that the vendors need to adjust their angulations to match. She believes that as more studies are published, the larger angulation is going to be shown to correlate with a higher detection rate.

**Where’s the proof?**

Many institutions, including the University of Pittsburgh, Yale University Cancer Center, and University of Pennsylvania, have been investigating the technology. Over the past few years, a plethora of studies have been published comparing tomosynthesis and 2-D mammography.

Last June, a study was published in the Journal of the American Medical Association that compared 281,187 traditional mammography exams with 173,663 tomosynthesis exams using Hologic’s system.

It found that tomosynthesis is associated with a 41 percent increase in the detection of invasive breast cancers and a 29 percent increase in the detection of all breast cancers. It also revealed that tomosynthesis reduces the number of women recalled for additional imaging by 15 percent.

A recent study conducted by Lund University in Sweden that involved 7,500 women between the ages of 40 and 74, found that tomosynthesis detects 40 percent more breast cancers than traditional 2-D mammography.

Kopans has little doubt that tomosynthesis will replace 2-D mammography for screening in the next few years. He believes that the major impediment is the fact that the USPSTF consists of individuals without breast cancer expertise.

USPSTF’s draft guidelines, which were issued in April, suggested that tomosynthesis is not ready to be used as an adjunctive screening test. “The only way for [tomosynthesis] to find more early cancers is to use it for screening,” Kopans wrote. “The only way for [tomosynthesis] to reduce recall rates is to use it for screening.”

But even though tomosynthesis has many benefits over 2-D mammography, both Zuley and Kopans agree that it is not a perfect test.

“I think that tomosynthesis is an incremental step in the right direction, in that we are reducing harms and improving the benefits, but it is not a giant leap forward,” says Zuley.

In the same way that 2-D mammography screening doesn’t find all cancers and doesn’t find all cancers early enough, tomosynthesis is not going to put an end to all breast cancer deaths, wrote Kopans. He does believe that tomosynthesis will drive down the death rate but that other modalities including ultrasound and MRI will need to be used in conjunction with it to maximize cancer detection.

*Abstract Preview: Radiologist Reading Time in Digital Breast Tomosynthesis (DBT) comparing the consistent versus sporadic use of a five shape breast marking system. Alex Merkulov, MD, Department of Diagnostic Radiology, University of Connecticut Farmington, CT; unpublished data, June 2014.*
HealthCare Business News spoke with Dr. Elizabeth A. Morris, president of the Society of Breast Imaging, about her experience with tomosynthesis and what direction she thinks the technology is headed in.

HCBN: How do you think the healthcare industry as a whole feels about tomosynthesis? Are they more excited or more uncertain about it?

EAM: I think they are excited. The preliminary studies that have come out have clearly shown that it overall increases cancer detection and decreases recall rates. There is a learning curve for radiologists associated with implementing tomosynthesis, but it appears that there is a great benefit to women.

Critics of screening mammography are saying that mammography does not pick up enough cancers and it causes too much harm by having patients recalled for additional views. Tomosynthesis is able to address these specific criticisms of screening digital mammography.

HCBN: As a physician, what has been your experience with tomosynthesis?

EAM: I get a much better view of what is in the breast than with a full-field digital mammogram. I would much rather read a tomosynthesis exam, because I have increased confidence that I have evaluated all of a patient's breast and that if there is a cancer hiding in dense breast tissue I will have a better chance of seeing it.

HCBN: CMS is now providing reimbursement for tomosynthesis, which was a huge hurdle, but are there any hurdles still in the way of widespread adoption?

EAM: I would say that there is little resistance to widespread adoption other than the fact that it takes a long time for people to convert their existing base of mammographic units over to units capable of tomosynthesis. It's expensive, so people are not going to do that overnight; it's going to be a process.

HCBN: The USPSTF believes there is insufficient evidence to use tomosynthesis as a screening modality for breast cancer. What are your thoughts about that?

EAM: The JAMA trial had over 400,000 women and was a multi-center trial that showed an increased cancer detection rate and a decreased recall rate. It's a definitive trial in my view. Additionally, it is only one of hundreds of trials that have been performed in many different countries most of which support the use of tomosynthesis.

The ACR and SBI do not agree with the Task Force that there is insufficient evidence. The radiologists who perform breast imaging have quickly grasped its potential and the installed base of tomosynthesis units is increasing dramatically. I think that the Task Force is in the very, very small minority of people who think there is currently not enough evidence.

HCBN: Do you think tomosynthesis will replace 2-D mammography as a screening tool in the near future?

EAM: I see tomosynthesis eventually replacing 2-D mammography. But first of all there has to be access, which means that centers have to convert over to tomosynthesis. In addition, there has to be reimbursement for it. I personally think that there is enough evidence from the trials already to show that it's superior over full-field digital mammography and I think most people in breast imaging feel that way. There is this feeling that maybe we need a big, randomized, controlled trial.

I personally think that it would be unwise to put off a decision to embrace tomosynthesis before the results of such a trial as it will be expensive and we may have to wait a long time for results. The whole field is moving toward tomosynthesis, not only in the U.S. but in Europe as well. We need to figure out better ways to validate new technology rather than mount these types of trials.

Share this story: dotmed.com/news/26048
Each month, we visit Dr. Blaufox’s Museum of Historical Medical Artifacts to take a look back at the medical equipment that cleared the way for what patients encounter in doctors’ offices and operating rooms of today. Some equipment may be recognizable, while other featured inventions have since become obsolete or have had their usefulness discredited.

The picture and description appear courtesy of Dr. M. Donald Blaufox, M.D., Ph.D, from his website: www.mohma.org.

**Category:** Obstetrics and Gynecology  
**Estimated Date:** 1880  
**Name:** Obstetrical Delivery Set  
**Manufacturer:** G. Kern and Tiemann & Co.

**Description:** 18” x 14” Leather pouch contains: steel Simpsons perforator 12” no mark; blunt hook and crotchet 12” no mark; vectis 13” with ebony handle; Thomas’ forceps, 12” labeled Kern, with composition or bone handle; and Jenks forceps 13.5”, marked Tiemann with bone handle. Part of a paper label is under the strap and reads, “SK CUED.” This pouch was probably carried by a physician at a time when all that could be offered in the case of a delivery problem was to remove the baby destructively. A nice example of the terrible decisions early physicians had to face in complicated deliveries.
At the time of her foundational work on the physiology of erythrocytes (red blood cells), pathologist Winifred Ashby had years of experience and education over her research colleagues and even most U.S. physicians.

Winifred Mayer Ashby was born on Oct. 3, 1879, in London, England. When she was 14, her family relocated to the U.S. and settled in Chicago. Ashby went on to graduate from Northwestern University and the University of Chicago. In 1905, she received a master’s degree from Washington University in St. Louis. She then traveled to the Philippine Islands, where she spent a couple of years studying malnutrition in children.

Once she returned to the U.S., Ashby taught high school chemistry and physics. In 1914, she did laboratory work at Rush Medical College and Illinois Central Hospital. Three years later, during her time at the Mayo Clinic, she was awarded a prestigious immunology and pathology fellowship. This is where Ashby engaged in pioneering research on the life span of red blood cells.

At the time, the consensus among medical professionals was that red blood cells lived for around two to three weeks. To the surprise of the many leading physicians of her time, Ashby’s findings contradicted this assumption.

While at the Mayo Clinic, Ashby did a lot of work on assessing the compatibility of various blood types for transfusions. To zero in on the life span of a red blood cell, she used the serologic technique (the study of serum and other body fluids). Ashby first mixed various types of blood, diluted them, and then spent several hours painstakingly counting the remaining red blood cells under a microscope. Her research proved that human red blood cells circulate in the body for up to 110 days.

Despite her meticulous research, Ashby’s results were largely disputed and ignored until the 1930s. It took a long time for other researchers to replicate and confirm her conclusions. She was wrongly criticized by her peers, but Ashby was the first individual to accurately define the life span of a human red blood cell. Her technique became known as “differential agglutination” or simply as “the Ashby method.” Eventually, scientific advances replaced the use of the method. Nevertheless, it was a widely used technique in medical and research institutions for 50 years.

Her findings enabled clinicians to develop a better understanding of how red blood cells function in healthy and sick individuals. The research also made it easier to diagnose anemia and other hemolytic diseases. Ashby’s work proved to be particularly vital to the storage and transport of large quantities of blood that were needed during World War II.

In 1921, she earned a doctorate degree from the University of Minnesota. She stayed at the Mayo Clinic until 1924 and then moved on to a job at St. Elizabeth’s Hospital in Washington D.C. At Elizabeth’s, Ashby oversaw various research projects and worked in bacteriology and serology laboratories. In 1949, she retired to a cottage in Virginia. During her career, Ashby made significant contributions to several studies on functions of the central nervous system. She also published a lot of her own work on the standardization of tests for syphilis.

Ashby reportedly continued to work even after she retired, writing papers from her cottage until she was 93 years old. She passed away at the age of 95 on July 19, 1975, after a cerebrovascular accident. In addition to her conducting pioneering research, Ashby also played the piano and was considered to be a gifted composer by friends and colleagues. Share this story: dotmed.com/news/25892
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For JoAnn Pushkin, getting legislation that would require health care providers to inform women if they have dense breast tissue and to discuss the challenges dense breasts can deliver, is just one more fight. Pushkin has a personal understanding of both the confusion and the elevated risks inherent with dense breasts—she is a breast cancer survivor.

“All the advocates are, “ she explains. “And most were model patients like I was. I never missed a mammo, ate right . . . yet one day, I felt a lump.”

Pushkin headed to the doctor for diagnostic exams. But instead of finding the lump, she found a marked lack of support. “The nurse came in and told me, ‘You can get dressed.’ I said, ‘What? But I have a lump!’”

The nurse explained that due to Pushkin’s dense breasts, the lump would be very hard for them to find on a mammogram. “The ultrasound performed after clearly showed the tumor,” Pushkin says.

Pushkin did some research and realized there was a lot of confusion—both from patients and professionals alike, regarding dense breast screening. In 2010, she started advocating for legislation requiring notification to women with dense breast tissue. By then, Connecticut had become the first state requiring patients to be informed, but it didn’t go very far in the efforts. “It was just general information about breast density—it didn’t actually require them to tell women with dense breasts that they had them,” says Pushkin.

So for New York, Pushkin pursued a more detailed legislative requirement, lobbying to require the dense breast notification as well as informing women with dense breasts as to the risk factors and screening challenges. “When I called the state office and told them about the implications of dense breast tissue and how tumors can be missed about 50 percent of the time by mammography, they thought I was crazy,” she says. But her perseverance paid off and women in New York now get the notification and education. Other states, like Washington State for example, have fought against legislation on the grounds that it could cause increased anxiety in women and because there’s no consensus on guidelines.

Still, 22 states have passed some level of legislation and six more have active bills. At some point, Pushkin predicts it’ll be all 50 states with a reporting requirement in place—from the federal level. The national requirement can happen either through federal legislation or federal regulation. “We’re more likely looking at a regulatory change,” she says.

Pushkin says that the federal standard would ideally handle the four components that every density notification should include: women should be clearly told if they have dense breasts, they should be told the limitations of mammography in finding tumors in dense breast, that dense breasts are an independent risk factor for breast cancer, and it should tell them to speak to their provider about benefits of supplemental screening.

Pushkin thinks that patient awareness will improve, but she also thinks methods to screen for breast cancer will improve, too. “In 10 years, we may see contrast-enhanced mammography or abbreviated MRI as the norm, especially for women with dense breasts. Mayo Clinic’s decision to perform molecular breast imaging every other year in women with dense breasts is interesting and those results will be available. What is needed are more clinical trials to establish the effectiveness and outcomes of these strategies,” she says.

Pushkin says that after the New York law went into effect and women began to get their letters, they started calling her with questions, not knowing what to do next. To address that, she co-developed an educational website with a radiological expert and a radiological tech. It describes each technology, how it works, benefits and drawbacks as well as addressing FAQs and density legislation details for both patients and referring physicians. Legislators are also using www.DenseBreast-info.org to better understand the issue as they contemplate notification legislation.

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