The role of the radiologist in a patient-centered practice sounds simple: Get the right data to the right person at the right time to assure the patient gets the right treatment.

If only it were that easy.

Technology provides opportunities for interoperability that would have been unimaginable even a few years ago. However, increased interoperability can bring with it increased risks. Although more information can be shared over wider networks than ever before, those “cyber” affiliations carry with them cyber threats.

Research by the Ponemon Institute indicates one out of four organizations will suffer a data breach in the next 24 months, with an average containment cost of $4 million – and health care is not immune to these breaches.

Evgueni Loukipoudis, CTO and CIO at McKesson Imaging and Workflow Solutions, points out that last year, for the first time, a hacker attacked an infusion pump and gained the ability to modify medications.

“More and more, healthcare systems are becoming the target of cybersecurity attacks,” said Loukipoudis.

But when organizations place a priority on protection from cyber threats, they sometimes force compromises that make healthcare professionals uncomfortable.

Access to information is vital. Yet today, that information flows over potentially vulnerable internet and intranet channels. Creating a fortress attitude around this information flow could prevent it from reaching its destination in a timely manner.

“There is a very fine balance in dealing with these two components at the same time,” Loukipoudis said.

While there is a need to assure that individuals have the appropriate authority to access information, the rigors of such a system can prove detrimental to patients.

“If you don’t have authorized access to data, but you need that data because it is a matter of life or death for the patient, you need break-the-glass functionality,” added Loukipoudis.

Practical challenges must be considered when trying to resolve this dilemma – and one of the most serious is cost.

As an example, most health care institutions today use IT infrastructures that were built and expanded over time, often with off-the-shelf platforms and components.

“Those components are often the target of the attack,” Loukipoudis said. “They are readily available and used by the thousands.”

Unfortunately, many healthcare institutions have various challenges when updating those components with the most recent patches that resolve newly discovered vulnerabilities. Newer IT infrastructure capa-

Beyond Imaging: Radiology’s Solutions for Patient-centered Practices

McKesson Helps Protect Patients from Cyber Threats

By Michael Hart

When it comes to diagnosing breast cancer, time is of the essence. That’s why Barco developed the Coronis Uniti® – a fast and accurate display system for detecting the subtlest details in a patient image. And it facilitates an easier workflow, allowing you to view 3D mammography, 2D mammography, breast MRI and breast ultrasound all on the same screen in perfect grayscale and precisely calibrated color. So you can see and know more, with greater clarity and higher confidence for better patient outcomes.

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HOVR is the first under-desk device that produces unconscious movement without the loss of cognitive productivity – perfect for combating the radiologist and office worker “sitting disease.” HOVR provides motion without changing position, interrupting work, or the flow of thought and concepts. HOVR was developed with support and validation from the University of Illinois at Chicago and the Mayo Clinic where it received NEAT™ certification. Preliminary studies have shown that using HOVR increases calorie expenditure by about 20 percent when compared to sitting. More importantly, the movement produced by HOVR counteracts many of the problems associated with extended sitting or standing. It can be mounted under a desk or suspended from a portable stand, which allows the benefits of movement wherever you do your work – at your desk viewing radiologic images, at the kitchen table or even on the couch while you relax at night.

**COMPUTED TOMOGRAPHY**

LuxBright AB
BOOTH 8402

**Next Generation X-ray Tubes**

Through disruptive, nanotechnology innovations, LuxBright, an emerging x-ray tube manufacturer based in Gothenburg, Sweden, has created a line of next generation field emission and micro-focus x-ray tubes for medical, security and testing applications. By inventing and refining – the key components of a Coolidge tube, LuxBright tubes are designed to reduce radiation exposure while improving image quality. LuxBright tubes offer a longer lifetime and lower power consumption by operating at pulsing mode and implementing a new micro-focusing mechanism compared to conventional x-ray tubes. It’s x-ray... reimagined. Prototypes are available for sale to do device testing and design. Larger scale production should be available in 2017 for some select customers.

**DICOM COMPLIANT SYSTEMS**

Materialise
BOOTH 7989

**Image Processing for 3-D Printing**

Implement 3-D printing in your hospital with assistance from the experts Materialise Mimics® inPrint, the backbone of 3-D printing in hospitals. Materialise Mimics inPrint is the latest innovation from Materialise addressing the current challenges of medical image processing for 3-D printing. This new software platform breaks down technical barriers and enables the efficient transformation of DICOM images into accurate 3-D models for clinicians to simulate or evaluate treatment options. The easy-to-use software provides robust image segmentation and 3-D modeling and print preparation tools to address the entire medical 3-D printing workflow. It also includes unique capabilities to ensure accuracy and traceability of your printed models. Transform your images into better treatment with Materialise Mimics inPrint.

**EDUCATIONAL PRODUCTS AND LITERATURE**

ARRS
BOOTH 1307

**Practice-based Approach to Prostate MRI**

The American Roentgen Ray Society (ARRS) online courses are designed to provide in-depth information on specific topics and are available to view on a computer at the users’ convenience. Delivered by renowned subject specialists, the “Prostate MRI: A Practice-Based Approach” online course provides the latest advancements and techniques in the rapidly growing field of prostate MRI. With this course, users receive the PI-RADS version 2 updates; gain insights into emerging focal therapies; review the most commonly used components of a multiparametric prostate MRI examination; identify the appearance of a normal prostate, benign entities, low-grade tumors and “significant” cancers with multiparametric MRI; and distinguish between significant and insignificant prostate cancers and clinical outcomes.

**ELECTRONIC AND INFORMATION SYSTEMS/SERVICES**

OnBase by Hyland
BOOTH 6343

**Vendor Neutral Storage Platform**

OnBase Vendor Neutral Archive (VNA) provides healthcare organizations with a single storage platform that standardizes and centralizes medical imaging studies and other patient data from multiple vendor PACS, integrated in context with the EMR. OnBase can capture and archive point-of-care ultrasound without the need for order or accession numbers. Because the OnBase VNA solution is built on the OnBase ECM platform, it leverages core business process management capabilities like workflow automation and retention policies.

**IMAGE Information Systems Europe GmbH**

**PORTABLE RADILOGY WORKSTATION**

**Multi-Platform Channeling Practice Management System**

ImagineSoftware, a leader in billing automation software and revenue cycle management applications, offers the industry’s first intelligent, multi-platform channeling practice management system, ImagineBilling™. Integrated features such as automated workflows, extensive audit trails, document management, denial mitigation, dual ICD-9 and ICD-10 capabilities, auto-coding, fax reporting, client-driven dashboards and more, provide results that have been proven to consistently outperform industry benchmarks. Streamlining the billing/collections workflow, improving staff productivity and growing practice profitability to reduce the life-cycle of claims, ImagineBilling increases efficiency and builds value while applying high quality standards to data integrity. Simplify radiology billing and get paid more, faster with ImagineBilling.
The newly integrated portable medical speech recognition solution makes it ideal for reporting purposes. MED-TAB v.2 operates on the Android operating system and is available with the IMAGE zero footprint DICOM viewer iQ-4VIEW or PORT-RAY for reading.

The information for these new products and services was provided by the manufacturers. Inclusion in this publication should not be construed as a product endorsement by RSNA.

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**Lexmark Healthcare**
**BOOTH 3300**

**Innovative Connectivity Solutions**
Lexmark Healthcare PACSGEAR connectivity solutions make it easy to capture, integrate and share vital documents and media with your team. Our innovative technologies enable you to access data, film, video, visible light and other media across any department and from any Electronic Health Record (EHR)/PACS. Healthcare organizations rely on complete views of their patients’ information to enable more informed decisions. Connecting all documents and images to the EHR/ PACS eliminates information silos and enhances patient outcomes, boosts clinical productivity and accelerates business growth. Access to this information when and where it’s needed is vital. With PACSGEAR connectivity solutions you can capture, view, and share medical images and results across the enterprise; easily scan documents and create electronic forms from any department to any EHR/PACS; quickly import and localize images (JPEG/AVI/MPEG) and DICOM CDs/DVDs; connect images and video across OR/surgery, speech pathology, wound care, dermatology ED and more; and provide order and worklist information for non-scheduled departments.

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**eRAD**
**BOOTH 1320**

**State-of-the-Art RIS Tools and Features**
eRAD will introduce more than 100 new features in its MU2-Certified RIS. In addition to real-time insurance verification, native speech recognition, comprehensive mammography tracking and reporting, and patient and physician portals, eRAD debuts state-of-the-art tools that have a real impact on costs and efficiency. What can eRAD RIS now do for patients? It can auto-identify them at reception, capture their signatures, securely request and receive a text-picture of prescriptions and insurance cards. It is also capable of 24/7 online self-scheduling and automated text, email or voice appointment reminders. What can eRAD RIS do for the practice? Radiologists can use the integrated RADAR Nudge to securely communicate with referring physicians (with images and reports attached), techs and other RIS users to strengthen collaboration. Custom default values and validation rules make the workflow fast and efficient. Inbound fax processing, teaching folders (not just for radiologists), a utilization management workflow and much more are present in eRAD’s dynamic RIS.

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**MAGNETIC RESONANCE**
Metrasens, Inc.
BOOTH 2304

**MRI Safety Management**
MRI-Safety-Manager™ is the latest addition to the Ferroguard Assurance ferromagnetic detection system (FMD) by Metrasens, a global leader in magnetic sensing technologies for safety and security. Ferroguard Assurance provides the comprehensive tools necessary for safety and a simple management system to demonstrate regulatory compliance. MRI-Safety-Manager now provides real-time monitoring of Zone IV door status and ferromagnetic activity and MRI safety education for your team available right in your control room together with fast and sophisticated reporting of ferromagnetic items entering Zone IV. MRI-Safety-Manager has been designed to assist facilities in meeting the rapidly evolving MR-safety recommendations and is the only system that will specifically assist with reporting of unintentional ferromagnetic item entry as required by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO).

LMT Medical Systems GmbH
BOOTH 1742

**MRI Incubator System for Newborn and Premature Babies**
The MR Diagnostics Incubator System nomag® IC developed by LMT Medical Systems GmbH makes gentle and time-saving MRI examinations possible for newborns and premature babies. The nomag IC meets high neonatal requirements. Newborns can lay comfortably protected in the incubator which features an independent...
MR-conditioned gas and power supply, in addition to temperature and humidity control. The trolley is also compatible with 1.5T and 3.0T appliances from Siemens, GE and Philips. A range of additional products contribute to the optimal and efficient use of the MR Diagnostics Incubator System nomag IC, including a 16-channel neonatal head array coil, a 12-channel neonatal body array coil, MR-compatible ventilation and an ambulance trolley.

**QUALITY ASSURANCE/SAFETY CONTROL AND RADIATION**

**Signascreening**

**BOOTH #8417**

**Personalized Compression Paddle for Mammograms**

First-time exhibitor Signascreening will showcase the Sensitive Sigma Paddle, which helps enable personalized compression for better quality mammograms without unnecessary discomfort for patients. To get the best image quality during a mammogram with the least amount of radiation, the breast needs to be compressed, making it flat and motionless. Over-compression causes discomfort and unnecessary pain for the patient and under-compression leads to blurred images and more retakes. The Sensitive Sigma Paddle has multiple pressure sensors that measure each breast. Based on breast size and tissue stiffness, the Sensitive Sigma Paddle calculates the pressure to achieve an optimal compression of 75 mmHg and allows for a highly reproducible procedure that cannot be achieved with force-standardized or completely non-standardized mammography. Investigational in the U.S., the Sensitive Sigma Paddle is CE-marked and available in most European countries.

**QualiTest**

**BOOTH #4008**

**DICOM Testing and QA Services**

QualiTest is the world’s second largest pure play testing and quality assurance company. As a member of the DICOM Standards Committee, QualiTest serves medical radiology device manufacturers worldwide. As global experts in radiology device verification and validation, QualiTest’s testing services deliver high quality while controlling costs, ensuring that clinical regulatory guidelines are met and leveraging industry knowledge with unique testing tools and a global talent pool. QualiTest’s Virtual Radiology Environment (VRE) is a comprehensive scalable testing solution for radiology systems. VRE is test ready through use of automation accelerators to increase DICOM and HL7 test coverage and reduce efforts and cost by up to 80 percent, including utilization of a test data repository pre-stuffed with over a terabyte of indexed, de-identified radiology records. VRE simulates all data flows in and out of a PACS and allows for the simple, single execution of point-to-point tests, as well as full IHE profiles.

**Radcal Corporation**

**BOOTH #2328**

**X-ray Measurement System iOS App**

As a premier provider of diagnostic radiation test instruments, Radcal continues to incorporate the latest user interface technology into our systems. Radcal announces the release of Accu-Gold iOS, an application that enables industry professionals to make, store and transmit measurements from the convenience of their iPhone or iPad. Available on the App Store, the application interfaces wirelessly with Radcal’s complete line of Accu-Gold systems. These systems encompass the most extensive x-ray sensor offering in the industry performing dose, dose rate, kV, filtration and other measurements. Accu-Gold systems support all x-ray modalities including radiography, fluoroscopy, mammography, CT and dental applications. Accu-Gold iOS lets you use your iPhone or iPad as a familiar interface that is especially convenient for those already using those devices for other QA or maintenance functions.

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ucts are strong yet lightweight, offering a high degree of protection. DR Panel Protection features include custom utility ports; patented positive lock to prevent panel pop outs; easy one-hand operation; a grid or carbon fiber panel for weight distribution; multiple handle orientations – long, short, and dual; various sizes; three layers of impact protection; and patient-friendly rounded edges. All panel protection products have been tested for strength and durability by an accredited independent laboratory.

Lunit, Inc.
BOOTH 4074
Data-driven Imaging Biomarker for Mammography

Data-driven Imaging Biomarker (DIB) is a novel AI-powered imaging modality derived from cutting-edge deep learning technology applied with large-scale medical image data. The high level of Lunit’s deep learning technology has been well demonstrated, ranking top five at ILSVR 2015, the world’s largest and most prestigious image recognition competition. Letting the machine define important diagnostic features by itself without guidance from previously established medical criteria (defined by humans) is key to Lunit’s technology. Although in the early stages of development, Lunit’s DIB for mammography is designed to detect and localize lesions, suggest their BI-RADS categories and provide their malignancy probabilities. These functions will not only facilitate the general interpretation process of radiologists, but also elevate the overall performance of breast cancer screening. The focus is to increase detection accuracy in dense breasts, an aspect of breast cancer screening widely regarded to be the most challenging.

Rayence Co., Ltd.
BOOTH 8126
Digital Floor-mounted Tube X-ray System

Rayence Co., Ltd., a worldwide leading manufacturer of digital flat panel detectors and now radiographic equipment solutions, is showcasing the XR-S™ Digital Radiography System — a floor-mounted tube DR system capable of x-ray tube auto tracking and multi-image auto stitching. Requiring no special ceiling or electrical preparation, it can be installed in rooms with ceiling heights of just eight feet and 208 to 240VAC line voltage. Its fully motorized tube column tracks vertical detector movements while the table bucky automatically tracks longitudinal x-ray tube movements. Coupled with Smart Stitching™ software, automatic stitching of up to three images is attained with a touch of a button with no special detector positioning, programming or accessories required. The XR-S is a fully featured floor-mounted tube system and well-suited for all x-ray exam types as well as imaging environments, especially orthopedics, imaging centers and urgent care.

ULTRASOUND

SuperSonic Imagine
BOOTH 8133
Upgraded Ultrasound System Platform

SuperSonic Imagine, specializing in ultrasound imaging, has released a new upgrade of Axioliner® — UltraFast™ — an ultrasound system that is the foundation of several innovations currently used in medical imaging. Building on the existing platform, this new software release includes enhanced performance and improved workflow and efficiency. Upgraded features include new breast package, TriVu real-time simultaneous mode with B-mode, ShearWave™ Elastography (SWE®) and color flow imaging; extended Angio PLaneview UltraSensitive™ imaging (PL.U.S.); and a new research package. As the innovators of SWE for tissue stiffness quantification and Angio PL.U.S., for visualization of small vessels, SuperSonic Imagine brings another first to ultrasound imaging with TriVu. This product is unique on the market and only possible with the UltraFast platform.

Edan Instruments, Inc.
BOOTH 5145
Innovative Compact Ultrasound System

The remarkable Acclarix AX8 compact ultrasound system delivers unexpected levels of innovation and performance. Born of a vision to deliver meaningful innovations that solve real clinical challenges, the Acclarix AX8 features definitive image quality, distinctive design, intelligent workflow and intrinsic quality. This fully featured system has a high fidelity and high channel count architecture that provides exceptional image quality. A full complement of transducers enables the versatility to address a variety of applications. Easy to learn and use, the Acclarix AX8 features customizable, gesture-controlled touch screens to prioritize functions and personalize workflow. A sleek, compact design, battery operation, 15-inch HD tilt-swivel monitor and completely self-collimated panel make it ideal for use in general imaging or point-of-care environments. Unique and progressive, the Acclarix AX8 has been engineered to easily accommodate upgrades, protecting your investment for years to come.

Dicom Systems
BOOTH 1508
DICOM Modality Work List

Dicom Systems has released the next generation of Enterprise Class DICOM Modality Work List (DMWL) that enables mass-customization and versatility of modality workflows for thousands of imaging modalities including visible light imaging and secondary capture workflows across small and large imaging enterprises. Utilizing DICOM web STOW-RS, QIDO-RS and WADO-RS, mobile devices and other secondary capture devices become DMWL nodes like any other imaging modality. A mobile device such as an iPhone or iPad can query the patient list and contribute content to the imaging archive. On the backend, the Dicom Systems Workflow Unifier receives the content, transforms the images into DICOM objects, and makes them available for viewing in any Enterprise viewer. Leveraging DICOM, HL7, DICOM web and HL7, the Workflow Unifier allows the inclusion of visible light image capture devices in DMWL workflows which have historically been off-limits for non-traditional imaging equipment.

HealthMyne
BOOTH 4165
Quantitative Imaging Decision Support Platform

HealthMyne’s Quantitative Imaging Decision Support (QIDS)™ platform delivers image quantification, analytics and clinical information from the EMR and radiation therapy systems into the radiologist’s primary workflow; provides curated medical content, analysis and reporting to optimize clinical collaboration between the radiologist and oncologist to enable precise patient management, and supports data mining for clinical, translational and commercial research. QIDS is a powerful platform that brings multiple stakeholders together to deliver new clinical value that goes “Beyond Imaging.”

Spok, Inc.
BOOTH 3225
Integrated Healthcare Communication and Collaboration Suite

Spok Care Connect™ is an integrated suite that solves multiple challenges across different hospital areas and departments. It includes a solution that securely and rapidly transfers test results from radiologists to the right physicians and caregivers on mobile or other communication devices, expediting treatment. It has the ability to take a radiologist’s dictation directly from the RIS and send an encrypted message, which securely delivers ePHI directly to a mobile device carried by the ordering physician. Once the ordering physician reads and acknowledges the radiologist’s findings, the Spok solution will write the results back to that patient’s record in the EHR. It can also bring in numerous levels of escalation in the event the intended recipient does not interact with the message in a specified time frame.

Beyond Imaging: Radiology’s Solutions for Patient-Centered Practices

CONTINUED FROM PAGE 18

Ironically, he pointed out, hosted public clouds have proven to be safer than private clouds when it comes to storing and sharing information. The number of serious incidents on public clouds is relatively small, compared to those on privately managed infrastructure.

Loukipoulos said that because public cloud infrastructure has factored in the recurring investments required for cyber-security-related updates while those who maintain their own have not. That could lead to a shift toward adopting public infrastructure,” he said, “because the safety is, by fact, guaranteed.”

Resolving these challenges is the reason for McKesson’s focus on broader risk management frameworks, both pre- and post-market, that prevent the alteration of data or the context in which it is presented. “We want to assure that data is presented correctly to that final physician who needs it to make a decision,” Loukipoulos said.

Those new frameworks include the development of threat models and the ability to execute “ghost scans” and systems that incorporate incident reports, alerts and even recalls.

“Access to data is the thin ice that we all must walk on,” Loukipoulos said.
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