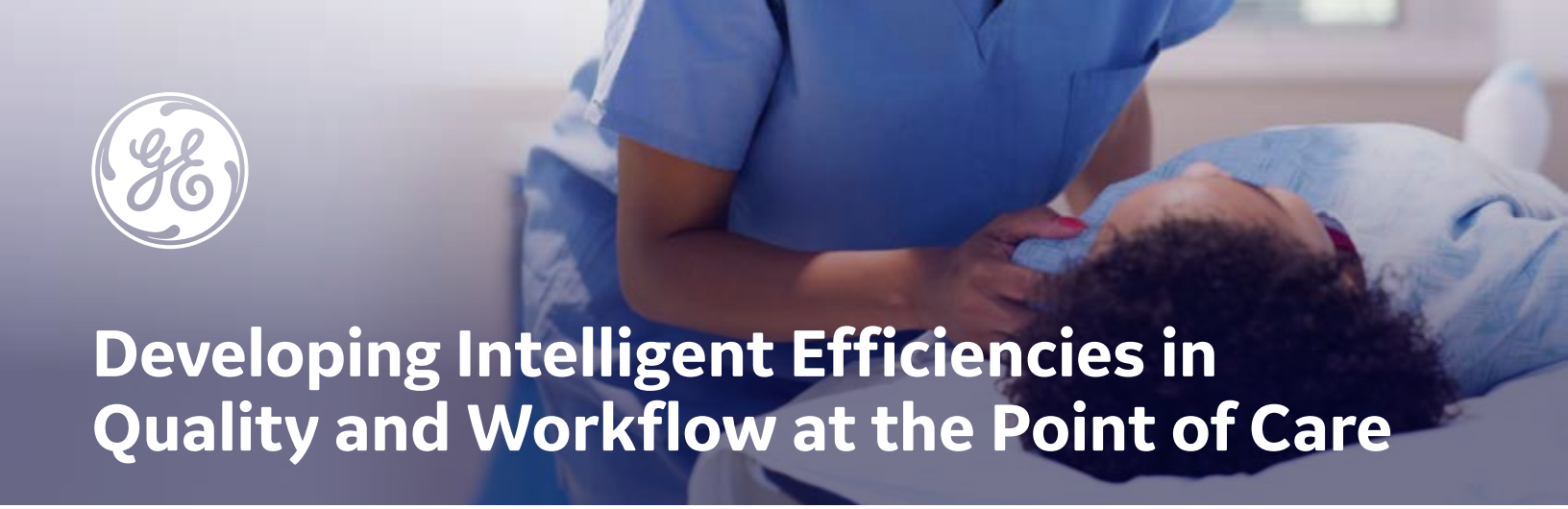

Developing Intelligent Efficiencies in Quality and Workflow at the Point of Care

As healthcare providers are continually pressured to do more with less and without sacrificing quality care for their patients, the COVID-19 pandemic has given rise to even more challenges to overcome. To prevent the spread of the virus in hospital facilities, teams modified daily operations to include additional appointment time for each patient, additional protocols for disinfection between patients, as well as changing scheduling to limit the number of patients in waiting rooms.

To continue providing patient care, the healthcare industry adapted quickly to the environment by utilizing new and existing technologies to provide telehealth options and communicate with patients when in-person availability was limited. Seen as an enormous success, many of these changes will likely continue, and new tools are being introduced to bring clinicians even more efficiency at the point of care.

The introduction of groundbreaking new technologies in radiology, as well as new features and artificial intelligence (AI) based radiology applications for existing technologies are making a difference in radiologists' daily lives by offering them more of something they value—time. When radiologists spend less time on administrative tasks, they have more time to spend caring for their patients and more time focused on making informed clinical decisions. Intelligent efficiencies at the point of care can be delivered via new detector hardware, AI-based software tools, across modalities and clinical specialties and in servicing or workflow changes. From tools that can triage patients for suspected pneumothorax to developing mammography-guided biopsy techniques, expanding the capabilities of imaging technologies is creating more time for clinicians to spend with patients and provide quality care.

Filtering Critical Findings and using AI at the Point of Care

The availability and adoption of AI applications in healthcare is quickly growing, and impacts are evident in workflow improvements, as well as improvements in triage, diagnostics and patient management. AI based tools can help alleviate time demands on radiology workflows, as well as provide clinical decision support to reading physicians.

Cardiothoracic imaging is one example where an embedded AI application can quickly help identify patients with pneumothorax. Part of GE Healthcare's Critical Care Suite, it works by employing an AI algorithm to prioritize the most critical cases for the radiologist. Providing yet another efficiency improvement in X-ray at the point of care, the AI-based tool can also automatically orient each image properly, so the technologist does not have to do that extra work before sending the image into the PACS. This can save enormous amounts of time.

Quickly reviewing the images taken against the imaging protocols that were ordered, the AI tool ensures the correct images are taken, and calls attention to any image imperfections, such as a clipped lung, which is a common image error. Using these AI tools, the technologist is able

"More and more, ultrasound is being used instead of MR for rotator cuff tears to show the rotator cuff cable."

to correct any errors while the patient is still in the room. These solutions, though minor can help save a great deal of time for the technologist and reduce the need for retakes by getting the right image for each patient at the point of care at the right time.

Characterizing Liver Disease, Anatomy and Pathology with advanced and AI Tools in Ultrasound

Similarly, AI applications have also been developed for other modalities, such as ultrasound. These intelligent improvements have expanded its utility to provide more clinical information that supports speed, precision and accuracy in the evaluation and diagnosis of liver disease, which can reduce the need for biopsies. Contrast enhanced ultrasound (CEUS) is one of the reasons ultrasound is being integrated as part of the multi-modality assessment of liver lesions. Techniques, such as GE Healthcare's 2D Shear Wave Elastography to non-invasively measure tissue stiffness and the new tool, Ultrasound-Guided Attenuation Parameter (UGAP), to enable quantification of liver steatosis that aids in early identification and monitoring of patients with non-alcoholic fatty liver disease (NAFLD). UGAP offers the ability to quantify the level of steatosis during an exam and provide a numerical finding, capturing an accurate picture of the patient's current state of disease, and how it changes over time. As well as AI-based Auto Leasion Segmentation to help eliminate the need to measure lesions manually. There are multiple benefits for using advanced tools such as this to help ensure consistency between users as well as consistency in the longevity of patient follow-ups.

Expanding Clinical Applications in Ultrasound

"GE Healthcare is committed to helping our customers become more intelligently efficient with new technologies that are expanding the capabilities of imaging to help them do more at the point of care," Anders Wold, President and CEO of GE Healthcare Ultrasound explained in a recent address at the 2020 Radiological Society of North America conference.

With its ability to precisely characterize lesions without the need for radiation dose, as the patient experiences in CT, ultrasound will likely see increased utilization across more clinical areas.

"More and more," explained Dr. Marnix T. van Holsbeeck, Director of Musculoskeletal Radiology and Director of Radiology in the Department of Orthopaedic Surgery at the Henry Ford Health System in Michigan, who recently began using GE Healthcare's LOGIQ™ E10 Ultrasound platform, "ultrasound is being used instead of MR for rotator cuff tears to show the rotator cuff cable. Tears that extend through the cable are more devastating and more rare, but with the new technology in ultrasound, we can more easily make the diagnosis."

Overall, innovations in the LOGIQ E10 Series offers clinicians an intelligently efficient workflow, an alternative to MRI, where there can be some difficulty scanning the area of interest. Another example, in younger patients, Dr. van Holsbeeck sees this advanced ultrasound technology playing a bigger role, reducing the need for sedation that is typically needed before an MR exam, and offering clearer images of certain areas, such as crystallization in the meniscus, that would be difficult to see with MR or CT. And leveraging the power of AI, the speed and ease of exams can be improved, and fewer steps needed to achieve excellent image optimization.

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"In the current COVID-19 environment and requirements for shorter appointments to allow physical distancing, time has become our most precious asset."

Making a Difference in Interventional Image Guided Therapies and Minimally Invasive Surgeries

"It's like having an assistant in the room with me," is how one radiologist described his experience with a new interventional platform developed for image-guided therapy procedures. Innovations in image-guided therapies are enabling interventionalists and surgeons to advance minimally invasive procedures, providing their patients with better outcomes, faster recovery, less pain and fewer complications. From advances in robotic imaging platforms to CT-like interoperative imaging and contrast enhanced image-guided biopsies, significant workflow improvements are a welcome benefit for clinicians.

As a leader in the industry, GE Healthcare, in collaboration with clinicians, completely redesigned its robotic driven angiography system for image-guided therapy with more ergonomically designed features and controls. Because oftentimes clinicians have sub-optimal workplace setup, the new system, Allia™ IGS 7* was designed with a focus on ease-of-use to enhance user-experience and improve workflow efficiency.

"Interventionalists and surgeons face multiple challenges in performing these new and complex procedures," explained Jan Makela, President and CEO of Imaging at GE Healthcare. "They require diverse patient access, flexible working positions and the use of advanced image-based guidance tools. Our goal is to provide them with intelligent and efficient solutions that allow them to focus on the patient, and on the procedure."

Reshaping the Mammography Experience with Contrast-enhanced Image-guided Biopsy

Another area where workflow efficiencies are enabling faster, accurate diagnoses and changing care and outcomes is in women's health. Contrast-enhanced image-guided biopsies are having a sweeping impact in the fight against breast cancer. Developed by GE Healthcare, this mammography-guided biopsy technique is made possible through SenoBright™ HD CESM, GE Healthcare's diagnostic breast exam with iodine-based contrast that provides high sensitivity for more accurate breast cancer diagnosis. By highlighting areas of unusual blood flow to localize lesions that need to be biopsied, CESM biopsy – Serena Bright[1]– provides excellent image quality to help improve clinical confidence.

"In the current COVID-19 environment and requirements for shorter appointments to allow physical distancing, time has become our most precious asset," said Dr. Anat Kornecki, Breast Imaging Lead, Breast Care Program, St. Joseph's Health Care London and Scientist with Lawson Health Research Institute in London, Ontario. "This new mammography-guided biopsy technique is a gamechanger, and patients tell us it's a very tolerable experience. It provides a familiar setting, familiar technology and a more comfortable option compared to MRI biopsies, which are longer and conducted with patients lying face down. Ultimately, this may help provide women with answers quickly."

For more information on all of GE Healthcare's Intelligently Efficient Solutions, visit the GE Healthcare Experience

*Allia IGS 7 is not yet CE marked. May not be marketed or placed into service until it has been made to comply with CE marking. Product may not be available in all countries and regions and cannot be placed on the market or put into service until it has been made to comply with all required regulatory authorizations. Refer to your sales representative for more information.

1. Serena Bright™ is not yet CE marked. May not be marketed or placed into service until it has been made to comply with CE marking. Check your local GE Healthcare representative for availability in your country.

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