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GE HEALTHCARE
SPECIAL SUPPLEMENT

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Supporting Diagnostic and Therapeutic Decision-Making Along the Patient Pathway

Making the right decisions, patient by patient, day by day is at the core of what every healthcare provider must do. These decisions often have to be made fast, under the pressure of extremely high workload, complex bureaucracy and long working hours.

Quick and easy access to information is critical here, and digitalization can contribute significantly to improving decision-making along the whole patient pathway. With modern and connected healthcare solutions, the complete patient history and previous tests become available anytime to be able to decide on the right next steps.

This kind of data-based clinical decision support is predicted to have substantial impact as we move towards value-based care that focuses on improving outcomes, increasing efficiency and reducing costs. In the U.S., the Centers for Medicare & Medicaid Services (CMS) are increasing their emphasis on the use of clinical decision support (CDS) tools, recognizing their role in reducing care costs and improving care quality.

- Clinicians who have already adopted CDS systems report these tools can help significantly in diagnostic and therapeutic decision-making by: Providing access to relevant patient information and to diagnosis-specific order sets, increasing diagnostic support
- Enabling adherence to evidence-based guidelines, risk stratification, and treatment options
- Stimulating provider-patient discussions about appropriate care

Siemens Healthineers offers a variety of products in its portfolio to support clinical experts in regards to diagnostic and therapeutic decision-making. For instance, the AI-Rad Companion, a family of AI-based reading assistants,

supports radiologists in routine tasks. The first application of this tool targeted Computed Tomography examinations, supporting the thoracic examination comprehensively by addressing lung parenchyma and lung nodules, the heart, the aorta, and vertebras[1]. The semi-automation of these reading processes with repetitive tasks and high case volumes helps to ease the daily workflow – so that experts can focus on more critical issues.

Now, the portfolio expands into the field of Magnetic Resonance Imaging with solutions for morphometry analysis and prostate biopsy support[2]. AI-Rad Companion Brain MR can perform a volumetric analysis of the brain and generates a result table where deviations compared to a normative database are marked.

With AI-Rad Companion Prostate MR[3], the outer contour of the gland in an MRI scan can be automatically segmented for the radiologist to subsequently mark suspected areas. When the scan is transferred to the urologist, the annotated MR images may be fused with the ultrasound images for guidance during the biopsy. In 2020 more new extensions of the AI-Rad Companion will be launched to free radiologists from the burden of performing routine activities.

Siemens Healthineers solutions not only help to ease routine activities, but also support decision-making in multidisciplinary teams so they can find the best individual treatment options.

The AI-Pathway Companion[4] uses Artificial Intelligence, including Natural Language Processing, to bring together data on a patient's disease and treatment status and present it via an intuitive graphical user interface. The digital assistant also draws the physicians' attention to the appropriate guideline-based recommendations to provide treatment in accordance with medical evidence.

The first application of the AI-Pathway Companion called prostate cancer is designed for oncology and prostate treatment. Further applications for lung cancer and cardiovascular are currently in development and will follow. The AI-Pathway Companion applications helps to match the data available for the individual patient with the guidelines to identify the possible treatment approach and facilitate the appropriate disease management.

We at Siemens Healthineers know that digitalization can make lives of caregivers and patients easier. However, it is neither efficient nor sufficient to add one isolated solution to the other. Healthcare providers can benefit even more if they use a platform that inherits the global expertise of a reliable partner with healthcare domain know-how based on a large installed base and long-term experience.

The teamplay digital health platform of Siemens Healthineers is bound to act as a scalable backbone giving a kick-start into digitalization, improving operational efficiency and reducing costs by providing the right data at the right time.

Moreover, caregivers become future-ready by getting the chance to apply latest innovations like AI to support decision-making and better care along the entire patient pathway. ■

Learn more about innovative digital health solutions and the possibilities of AI at https://www.siemens-healthineers.com/digital-health-solutions

Siemens Healthineers AG (listed in Frankfurt, Germany: SHL) is shaping the future of Healthcare. As a leading medical technology company headquartered in Erlangen, Germany, Siemens Healthineers enables healthcare providers worldwide through its regional companies to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, improving the patient experience, and digitalizing healthcare. Siemens Healthineers is continuously developing its product and service portfolio, with AI-supported applications and digital offerings that play an increasingly important role in the next generation of medical technology. These new applications will enhance the company's foundation in in-vitro diagnostic, image-guided therapy, and in-vivo diagnostics. Siemens Healthineers also provides a range of services and solutions to enhance healthcare providers ability to provide high-quality, efficient care to patients. In fiscal 2019, which ended on September 30, 2019, Siemens Healthineers, which has approximately 52,000 employees worldwide, generated revenue of €14.5 billion and adjusted profit of €2.5 billion. Further information is available at www.siemens-healthineers.com.

REFERENCES

1.The AI-Rad Companion Chest CT (MSK) is pending 510(k) clearance, and is not yet commercially available in the United States. Its future availability cannot be ensured

2 AI-Rad Companion Brain MR is pending 510(k) clearance, and is not yet commercially available in the United States. This product does not fulfill all the essential requirements according to the European Medical Device Directive (93/42/EEC) and its national implementations. It is not commercially available in the European Union. Its future availability cannot be ensured.

3.AI-Rad Companion Prostate MR is pending 510(k) clearance, and is not yet commercially available in the United States. This product does not fulfill all the essential requirements according to the European Medical Device Directive (93/42/EEC) and its national implementations. It is not commercially available in the European Union. Its future availability cannot be ensured.

4.The AI-Pathway Companion products are not commercially available in all countries. Their future availability cannot be guaranteed.