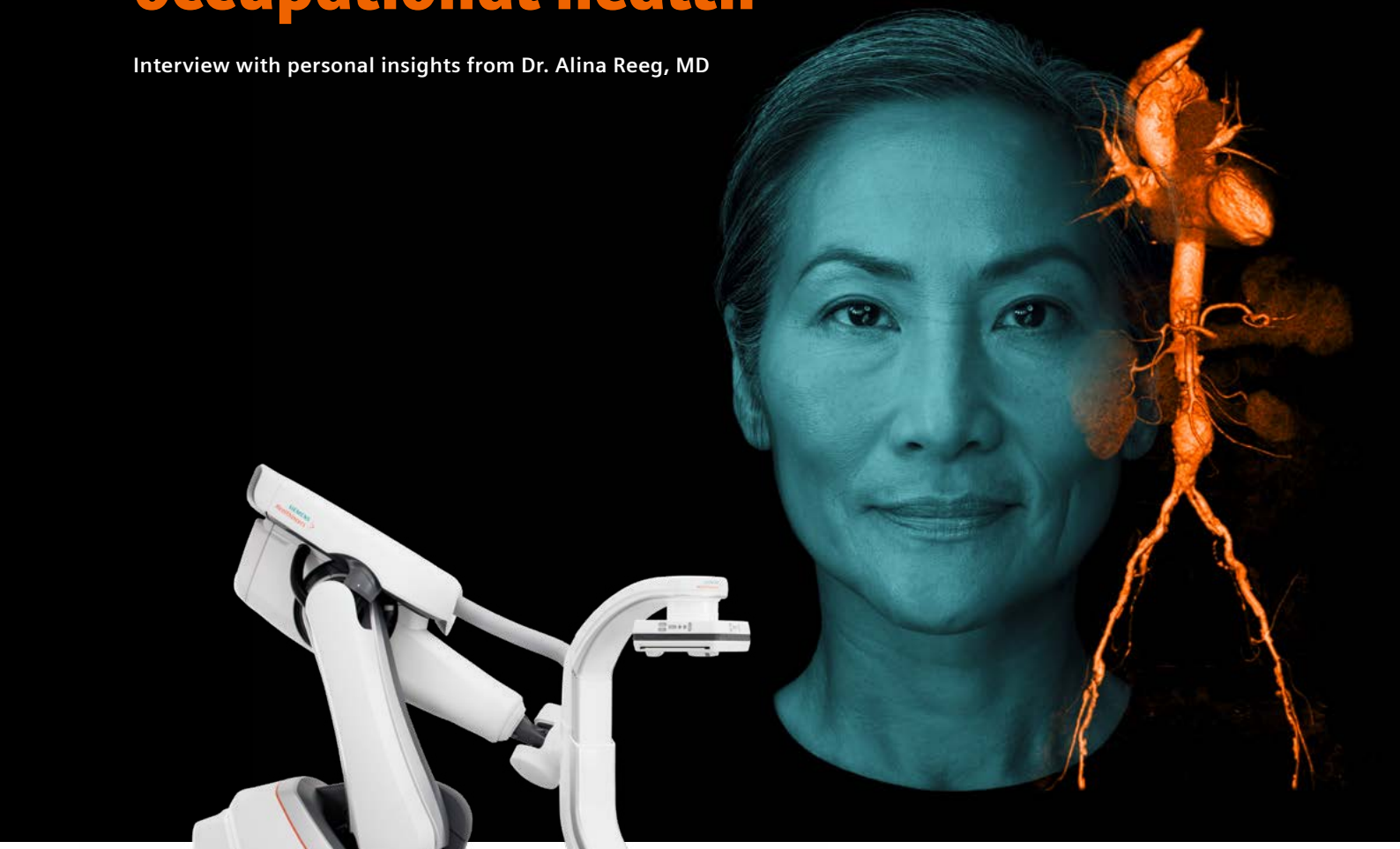
Interview

Discover the importance of establishing a radiation protection culture to enhance occupational health

Interview with personal insights from Dr. Alina Reeg, MD



SIEMENS Healthineers

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Radiation exposure is a critical concern in medical imaging and treatment, affecting both patients and especially healthcare professionals. Actions must be taken to enhance radiation safety and to introduce and embed a radiation safety culture into an organization. Understanding the implications of radiation dose and implementing strategies with consistent communication, education and standardization is essential to minimize exposure for hospital staff. A perfect example of chronic radiation awareness shows the Lucerne Endovascular Milestone Approach (LEMA), introduced by Prof. Maani Hakimi and his team at Lucerne Cantonal Hospital in Switzerland.

Exposure to ionizing radiation can lead to various health issues, ranging from acute effects like skin burns, and radiation sickness to long-term consequences such as cataracts, cancer, or genetic mutations. Alina Reeg, MD, a assistent surgeon in the team of Prof. Hakimi,



About Lucerne Cantonal Hospital

With around 7,000 employees the Lucerne Cantonal Hospital (LUKS) is one of the largest hospital groups of Switzerland, treating about 43,000 inpatient and 618,000 outpatients.

The Hybrid OR is equipped with the robotic imaging system ARTIS pheno to perform endovascular and complex pelvic trauma procedures.



"LEMA makes it possible to divide the entire EVAR procedure into single procedure steps, including the preoperative planning through to the postoperative follow-up."

Alina Reeg, MD
Lucerne Cantonal Hospital, Switzerland

emphasizes the importance of awareness and education among medical professionals who work with chronic radiation daily, for example in the hybrid operating room. She advocates for spreading this knowledge across all relevant medical professionals to ensure comprehensive safety measures.

Reeg says: I think one advantage of learning about focusing on radiation dose especially in endovascular operations, is that after many years of professional experience you really internalize it and it's not just something you learned, but that it has really become a mindset.

Dr. Reeg highlights that the primary concern is the cumulative effect of radiation exposure over time. Even low doses, when accumulated, can pose significant health risks.

Reeg says: I think that the focus on using low dose programs is extremely important, especially for female surgeons who deal with radiation: Since radiation is known to impair fertility and also poses a risk of breast cancer.[1]

This underscores the need for monitoring of radiation doses during the procedure because, if you know the dose area product at each procedural step you are able to interfere and adjust. At the Lucerne Cantonal Hospital Prof. Hakimi and his team developed the Lucerne Endovascular Milestone Approach to standardize EVAR procedures and to monitor dose levels.

Reeg says: LEMA makes it possible to divide the entire EVAR procedure into single procedure steps, including the preoperative planning through to the postoperative follow-up. This enables me, especially as a young surgeon, to work with a certain standard that I can adhere to, even during the procedure. In addition, LEMA also enables other doctors at other hospitals to compare the dose values achieved during an EVAR procedure.

She also points out the importance of using advanced imaging technologies that are designed to optimize radiation dose without compromising imaging quality. She mentions that continuous advancements in technology

[1] https://pubmed.ncbi.nlm.nih.gov/35587823/

play a significant role in reducing radiation exposure while maintaining high standards of medical imaging.

Case Flows is a supportive feature and technical highlight to standardize procedures and therefore optimize radiation dose.

Reeg says: Case Flows, a feature of the robotic imaging system ARTIS pheno, have a lot of potential to make things easier for the surgeons and to provide support, especially in difficult cases. For me as a young surgeon, Case Flows provide support during the clinical workflow to operate the angiography system and to keep the radiation dose low.

Case Flows reduce system interactions during the procedure by saving and combining system settings into one step. A single user interaction replaces the adjustment of up to six system settings.

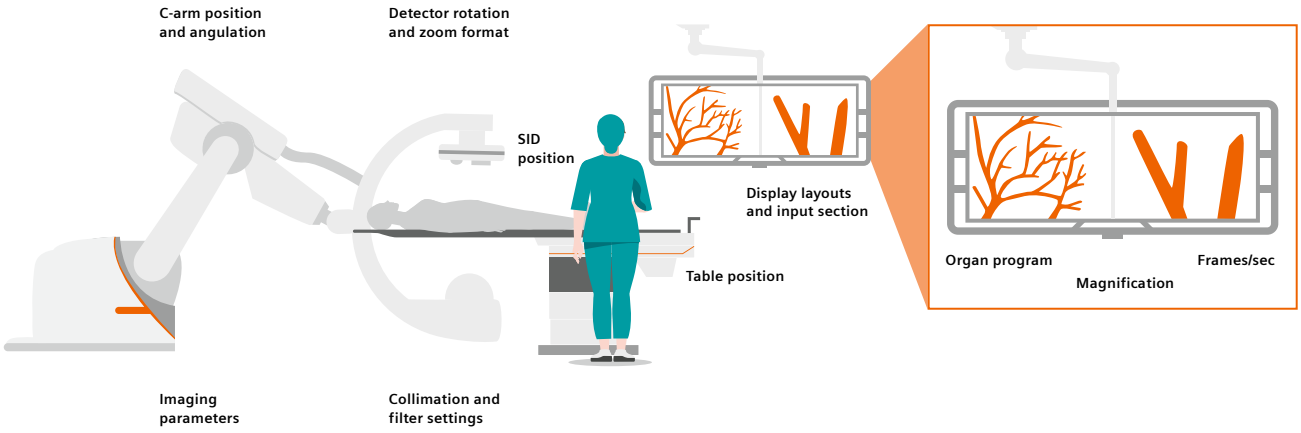
› Learn more about Case Flows and dose reduction: Portfolio and Partner – Siemens Healthineers.

Especially for young surgeons the standardization of procedure steps offers an enormous degree of security and guidance.

Reeg says: I face the challenge of having to consider many factors simultaneously, including patient-specific factors such as pre-existing conditions and the patient's anatomy. Additionally, I need to consider material aspects like the stent grafts. On top of that, I have to manage the operation of the angiography system and the associated radiation dose.



Alina Reeg, MD with Prof. Maani Hakimi and his team, Lucerne Cantonal Hospital, Switzerland.



Case Flows offers support. The surgical procedure is embedded as a workflow within the Case Flows, allowing me to receive suggestions for the next step after completing the first one. This guides me through the operation and enables me to make targeted deviations when I deem them necessary.

Besides technical features that can reduce radiation dose, continuous training for healthcare professionals on radiation safety is vital. This includes understanding the principles of radiation protection, such as time, distance, and shielding.

› Learn more about our offerings for training: Hybrid Operating Room Training – Siemens Healthineers.

Key aspects for establishing a radiation safety culture as Lucerne Cantonal Hospital has done it, are promoting education and awareness about the health risks, which can be caused by radiation exposure and how they can be minimized. Ensuring the safety of both patients and healthcare professionals is paramount in delivering effective and safe medical care.

Reeg says: Dealing with low-dose radiation in everyday life gives me a feeling of security.

"Dealing with chronic low-dose radiation in everyday life gives me a feeling of security."

Alina Reeg, MD
Lucerne Cantonal Hospital, Switzerland

The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Because there is no "typical" hospital or laboratory and many variables exist (e.g., hospital size, samples mix, case mix, level of IT and/or automation adoption) there can be no guarantee that other customers will achieve the same results. The customers are employed by an institution that receives financial support from Siemens Healthineers for collaborations.

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The opinions expressed in this article are solely those of the featured physicians and may not reflect the views of Siemens Healthineers.

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