

Protecting people from hospital germs: VDE and action alliance Patient Safety honor new approach

- **Around five percent of patients become infected with hospital germs during a hospital stay**
- **Christina Scherzer and her team have developed a new type of catheter that is continuously disinfected by light during use in the body**
- **For this concept, the bioengineer receives the 2024 Award for Patient Safety in Medical Technology from the German Society for Biomedical Engineering within VDE (VDE DGBMT) and the Action Alliance for Patient Safety (APS)**

(Frankfurt a. M., 11.12.2024) Hospital germs, especially multi-resistant pathogens, are a major burden for patients and the healthcare system. One of the most common causes of infection is invasive medical devices such as catheters. In cooperation with three other scientists at Munich University of Applied Sciences, Christina Scherzer has developed a concept that uses photodisinfection - i.e. light of a specific wavelength - to effectively keep catheters germ-free. For this innovation, the bioengineer will receive the 2024 [Award for Patient Safety in Medical Technology](#) (German), which is endowed with EUR 5,000 and donated by Dr. med. Hans Haindl.

"It all started with the question of what can be improved in the hospital"

The development began in 2018 at the Technical University of Munich in an interdisciplinary course in which teams were tasked with identifying potential improvements and developing technical solutions during an observation phase in the hospital. Christina Scherzer explains: "In our team, we quickly reached the point of tackling the issue of nosocomial infections in hospitals. What fascinated me most was the dynamic that resulted from the transfer of

knowledge from disciplines such as computer science, industrial design and biomedical computing to medical technology."

Various publications had already confirmed the antimicrobial properties that light of certain wavelengths has. On this basis, Christina Scherzer and her colleagues developed the concept of a new type of catheter that actively and continuously disinfects itself during use in the body. "The successful validation of the idea and the positive reactions of the medical staff gave rise to the enthusiasm to put the concept into practice."

Prototype in development: clinical trial for urinary tract catheters planned for the end of 2025

In-depth research followed at Munich University of Applied Sciences from September 2022. The challenge: to determine a wavelength that achieves the desired effect, is technically durable with the available material properties and does not harm humans. The start-up Puray, which was jointly founded at the beginning of 2024, is now working on developing a urinary tract catheter that is due to enter clinical trials at the end of 2025. Further products such as ventilation tubes and ventricular drains are in the pipeline. "We are delighted with the award and are doing everything we can to make our solutions available to people in hospitals soon," says Scherzer.

2nd and 3rd place: Radiation-free diagnostics for infants and augmented reality in the intensive care unit

Matthias Schaufelberger (Karlsruhe Institute of Technology), who has developed an approach for the radiation-free diagnosis of craniosynostosis, was awarded second place. This can occur in infants and small children and lead to head deformities. Schaufelberger uses radiation-free 3D surface scans and computer models with new classification algorithms to evaluate them in order to avoid radiation exposure from computer tomography imaging.

Third place goes to Romy Alm (Münster University of Applied Sciences), who simplifies support for the use of extracorporeal membrane oxygenation (ECMO) to support heart and lung function in various diseases. An incorrectly attached sensor, a pump failure and other errors have so far been rectified by cardio technicians who are not always directly available on site. Alm has developed an AR (augmented reality) application that connects intensive care nurses with perfusionists and helps them to solve problems immediately and improve patient care via AR remote assistance.

About the German Society for Biomedical Engineering within VDE (VDE DGBMT)

The German Society for Biomedical Engineering within VDE (VDE DGBMT) is the scientific and

technical society for medical technology in Germany. It was founded in Frankfurt am Main in 1961.

The DGBMT in the VDE brings together experts from all areas of technology applications in medicine and deals with the entire range of topics in biomedical technology. It organizes conferences and workshops for expert audiences and is the sponsor of two international scientific journals: Biomedical Engineering and Current Directions in Biomedical Engineering published by Walter de Gruyter. Position papers, statements and expert contributions discuss current topics independently and neutrally. In addition, the DGBMT awards promotional prizes for young scientists, for scientific excellence and innovation, and for patient safety in biomedical engineering. Last but not least, it represents German biomedical engineering in international bodies.

For more information, visit www.vde.com/dgbmt

About the VDE

VDE, one of the largest technology organizations in Europe, has been regarded as a synonym for innovation and technological progress for more than 130 years. VDE is the only organization in the world that combines science, standardization, testing, certification, and application consulting under one umbrella. The VDE mark has been synonymous with the highest safety standards and consumer protection for more than 100 years.

Our passion is the advancement of technology, the next generation of engineers and technologists, and lifelong learning and career development "on the job". Within the VDE network more than 2,000 employees at over 60 locations worldwide, more than 100,000 honorary experts, and around 1,500 companies are dedicated to ensuring a future worth living: networked, digital, electrical.

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The VDE (VDE Association for Electrical, Electronic & Information Technologies) is headquartered in Frankfurt am Main. For more information, visit www.vde.com

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