

Rector's Office
Auenbruggerplatz 2, A-8036 Graz

Gerald Auer
Public relations and event management

gerald.auer@medunigraz.at
Tel. +43 316 385 72023
Fax +43 316 385 72030

Press release
For immediate publication

Made in Styria: Continuous temperature measurement with a patch
Med Uni Graz researchers introduce an important medical innovation

Graz, 28 April 2022: An elevated temperature or even a fever? Body temperature provides doctors with important information regarding their patient's health status. Body temperature measurement is only possible at certain points in time during the medical examination and is also very time-consuming. As a result, continuous temperature data that would permit a quicker reaction in the event of an emergency is not available. A new, recently certified non-invasive temperature measurement system developed in Styria delivers continuous data on body temperature and may be able to fill this gap. Med Uni Graz researchers were involved in the clinical trial, which they see as a further step toward individualized medicine.

Development of body temperature measurement in Styria

In the healthcare sector, body temperature measurement is part of the daily routine and usually conducted and documented by nurses with an axillary contact thermometer or a tympanic thermometer. This takes a considerable amount of time. Since these measurements represent specific points in time, continuous temperature data cannot be collected in this way. "Continuous measurement of temperature could greatly benefit particularly vulnerable patients," say Johannes Boyer and Robert Krause from the Med Uni Graz Division of Infectious Diseases.

SteadyTemp®, a new, recently certified temperature measurement system developed in Styria, can deliver continuous data on body temperature and make this data available in a digital format. Johannes Boyer and Robert Krause were involved in clinical trials of this new temperature measurement system. The two researchers compared these new measurement methods to established temperature measurement methods. The project was funded by the FFG as part of the Emergency Call for research into COVID-19 in 2020 (<https://projekte.ffg.at/projekt/3853428>) and the trial results were recently published. Based on the data obtained in the trial, the temperature measurement system SteadyTemp® was certified as a medical product.

Innovative temperature measurement with a patch

The SteadyTemp® system consists of a temperature sensor integrated into a patch and an app that visualizes and processes the collected data. The patch with an integrated temperature sensor is placed on the body and can be used for several days. The data saved in the sensor is read by an end device (e.g., smartphone) and is available in a digital format. Since there are no comparable non-invasive methods established for temperature measurement, the trial was conducted in the intensive care unit, where continuous temperature measurement via a bladder

catheter tube is part of the routine. Continuous values from the tubes in the bladder were compared to the measurements with the new SteadyTemp® measurement system and the conventional measurement method employing an axillary contact thermometer. "Here it appeared that the patch was as precise as the established axillary measurement. At the same time, continuous temperature measurement is able to capture the development in the individual's temperature," the two researchers report.

The great benefit of continuous temperature measurement

Each person is an individual, and so is his or her body temperature. "Studies in recent years have indicated that there are a broad range of normal temperatures. This is substantiated by continuous measurement, which reveals the individual's temperature level," summarizes Robert Krause. Continuous temperature measurement might also be important for particularly vulnerable groups of patients such as the elderly or the immunosuppressed, who frequently do not exhibit an adequate temperature rise to the level defined as fever in the event of infectious disease. Detection of relative changes in temperature may be of great benefit to patient care.

Optimized work routine for greater safety

The coronavirus pandemic represents an enormous challenge for healthcare workers, who went to great lengths to provide all required services. Thanks to the ease in reading the body temperature from the SteadyTemp® patch and the automated data transfer to electronic patient documentation, the new temperature measurement system can make patient care much easier. "Furthermore, the precise allocation of temperature data to the respective patient ensures optimal data quality," conclude the researchers.

Further information and contact

Robert Krause
Medical University of Graz
Department of Internal Medicine
Division of Infectious Diseases
Tel.: +43 316 385 81796
E-Mail: robert.krause@medunigraz.at

For publication

Investigation of Non-invasive Continuous Body Temperature Measurements in a Clinical Setting Using an Adhesive Axillary Thermometer (SteadyTemp®)

[Investigation of Non-invasive Continuous Body Temperature Measurements in a Clinical Setting Using an Adhesive Axillary Thermometer \(SteadyTemp®\) - PubMed \(nih.gov\)](#)

Profile of Robert Krause

Robert Krause is professor of infectious diseases at the Medical University of Graz and conducts research in the area of fungal infections in immunosuppressed patients and the critically ill. His working group also focuses on sepsis, infections associated with foreign bodies, gastrointestinal infections, antibiotic stewardship and (re-)emerging infections. This last area includes pathogens such as hantaviruses or SARS-CoV-2.