PRESS RELEASE

Suspected Heart Attack: How Quickly Can a Definitive Diagnosis Be Made?

New Institute director Prof. Jasper Boeddinghaus makes his debut at UKB with two high-profile publications in the journal *The Lancet*

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Bonn, August 31, 2026 – How quickly can a reliable determination be made in people with acute chest pain as to whether a heart attack is present or can be ruled out? Two major international research studies address this question, and their findings were presented last weekend at the European Society of Cardiology (ESC) Congress in Munich. A key figure in this effort is Prof. Jasper Boeddinghaus, who recently moved from the University Hospital of Basel to the University Hospital of Bonn (UKB), where he is establishing the new Institute for Clinical Cardiovascular Science. The international "PRESC1SE-MI" study was published simultaneously in the renowned journal **The Lancet. A second paper has already been accepted for publication there and will appear shortly.**

Acute chest pain is one of the most common reasons for presenting to an emergency department worldwide. More than 30 million patients are examined in emergency departments around the world each year. For the treating teams, this often raises the critical question: Is this actually a heart attack, or can it be safely ruled out?

At the heart of the diagnostic process is cardiac-specific troponin, a biomarker whose concentration in the blood provides evidence of damage to the heart muscle. International guidelines recommend the so-called 0/1-hour algorithm as the preferred strategy for rapid evaluation when a heart attack is suspected. This involves measuring the troponin level upon admission and again after just one hour.

One of the largest randomized trials in cardiovascular medicine

In the PRESC1SE-MI study, an international research team investigated how safe and effective the introduction of this accelerated procedure is compared to the previous 0/3-hour approach under real-world conditions in emergency departments. The large randomized study included over 67,000 patient visits at 19 hospitals in ten countries. The researchers examined two primary endpoints: death or a new type 1 heart attack within 30 days, and the length of stay in the emergency department. Boeddinghaus is the co-principal investigator and first author of the paper published in *The Lancet*.

The results show that, with regard to the combined safety endpoint of death from any cause or a new type 1 heart attack within 30 days, the 0/1-hour protocol was not inferior to the 0/3-hour protocol. However, the two individual components showed contrasting results, which the

researchers believe require further investigation. At the same time, the second troponin measurement was performed nearly two hours earlier, on a median basis, with the faster protocol. This did not, however, result in a shorter length of stay in the emergency department: the median stay was 309 minutes in both groups.

Thus, the study also demonstrates that faster laboratory diagnostics alone do not automatically lead to faster care. According to the researchers, other diagnostic and organizational processes in the emergency departments play a decisive role as well.

Data from more than 110,000 patients analyzed
Immediately following the PRESC1SE-MI study, the results of a second major research project were also presented at the ESC Congress, with Boeddinghaus himself delivering the presentation in Munich. For this systematic review and meta-analysis, individual patient data from all available randomized trials comparing the 0/1-hour protocol with the 0/3-hour protocol were pooled and re-evaluated according to uniform criteria. In total, the analysis includes 110,933 patient visits from five randomized trials, 46 study centers, and 14 countries.

This comprehensive analysis also shows that, on average, repeating the troponin measurement earlier does not, on its own, shorten the length of stay in the emergency department or increase the proportion of patients who can be discharged directly from the emergency department. Short-term serious events were rare overall. The researchers therefore conclude that the decision to adopt a 0/1-hour algorithm should not be based solely on the expectation of speeding up emergency department workflows. Rather, diagnostic and organizational factors must also be taken into account.

The study has already been accepted for publication by *The Lancet* and is scheduled to appear in September.

Publication: Jasper Boeddinghaus, Paolo Bima et al.: Safety and efficacy of the 0/1-hour pathway for myocardial infarction in the emergency department: an international, pragmatic, stepped-wedge, cluster-randomized, controlled trial; The Lancet; DOI: https://doi.org/10.1016/S0140-6736(26)01654-5

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Image material:

Caption: Suspected heart attack: How quickly can a definitive diagnosis be made?

Image credit: Heart Center at UKB / Felix Heyder

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About the University Hospital Bonn: As one of Germany's leading university hospitals, Bonn University Hospital (UKB) combines excellence in medical care and research with high-quality teaching. Every year, UKB treats more than half a million outpatients and inpatients. Around 3,500 students are enrolled in medicine and dentistry, and over 600 individuals receive training in healthcare professions annually. With around 9,900 employees, UKB is the third-largest employer in the Bonn/Rhein-Sieg region. In the „*Focus* hospital rankings", UKB is rated the top university hospital in North Rhine-Westphalia and has the second-highest case mix index (an indicator of treatment complexity) of all university hospitals nationwide. In 2025, UKB secured nearly €100 million in third-party funding for research, transfer, and teaching. For the fourth consecutive year, the F.A.Z. Institute recognized UKB as both "Germany's Training Champion" and "Germany's Most Desirable Employer." For current figures and further information, please refer to the annual report at: geschaeftsbericht.ukbonn.de