

# **Adherence to quality indicators for ST-elevation myocardial infarction and its relation to mortality: a hospital network analysis from the Belgian STEMI database.**

**Short title: Quality indicators for STEMI networks**

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## ABSTRACT

Background: To assess the adherence to established quality indicators (QIs) for ST-elevation myocardial infarction (STEMI) at the hospital-network level and its relation to outcome.

Methods and results: The data of 7774 STEMI patients admitted to 32 STEMI networks during the period 2014-2018 were extracted from the Belgian STEMI database. Five QIs (primary percutaneous coronary intervention use, diagnosis-to-balloon time (DiaTB)<90 min, door-to-balloon time (DoTB)<60 min, P2Y12 inhibitor and statin prescription at discharge and a composite QI score ranging from 0 to 10) were correlated with in-hospital mortality adjusted for differences in baseline risk profile (TIMI risk score).

The median composite QI score was 6,5 (IQR 6-8). The most important gaps in quality adherence were related to time delays: the recommended DiaTB and DoTB times across the different networks were achieved in 68% (IQR 53-71) and 67% (IQR 50-78), respectively. Quality adherence was better in networks taking care of more high-risk STEMI patients. The median in-hospital mortality among the STEMI networks was 6.4% (IQR 4.1-7.9 %).

There was a significant independent inverse correlation between the composite QI score and in-hospital mortality (correlation coefficient: 0.36, P= 0.041). Stepwise regression analysis revealed that among the individual quality indicators, prolonged DiaTB was the most important independent outcome predictor.

Conclusions: Among established STEMI networks, the time delay between diagnosis and treatment was the most variable and the most relevant prognostic QI, underscoring the importance of assessing quality of care throughout the whole network.