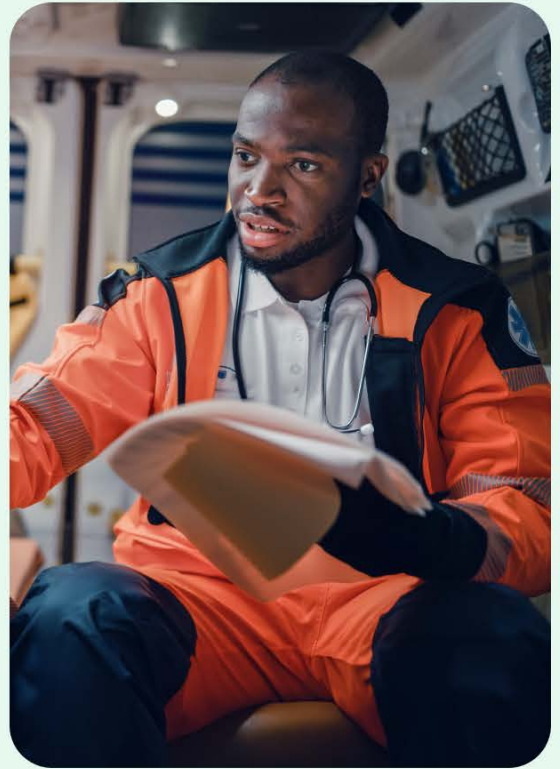


Artificial Intelligence Improving STEMI Alert Accuracy

Artificial intelligence models continue to demonstrate immense potential to identify high-risk patients, and enhance clinical care coordination accuracy and efficiency.

In this retrospective cohort study, **PMcardio OMI** (an AI ECG model) **reduced 58% of false positives** in a 2-year cohort of pre-hospital STEMI activations triggered by Hennepin County EMS. The use of AI in the pre-hospital setting could not only **reduce unnecessary medical interventions** but also lead to **significant cost savings**.

Unnecessary cath lab activations (which are later cancelled by cardiologists) contribute to physician burn-out and health system costs. The improvement in activation relevancy using AI translates to an approximate cost saving of \$100,000 per year.



58%

reduction in false positive
cath lab activations

100%

true positives detected
on STEMI cases

\$112K

annual savings on false
positive cath lab activations

Current Issues with Pre-Hospital STEMI Diagnosis

Emergency Medical Service providers are often the first point of contact for patients with new-onset chest pain. A 12-lead ECG is performed, directly in the field, to facilitate prompt identification of patients with STEMI. Based on the recent ACC and ESC guidelines, STEMI patients should be referred to a primary PCI capable center within 90 minutes from first medical contact. In these patient cases, health systems recommend pre-hospital cath lab activation to reduce time to life-saving intervention.

Pre-hospital ECG diagnosis of STEMI may be challenging due to the frequent presence of mimicking patterns, such as normal variant ST-elevation, left ventricular hypertrophy or early repolarization changes. False positive cath lab activations are a significant cause of healthcare professional burnout and have financial implications that result in unnecessary costs.



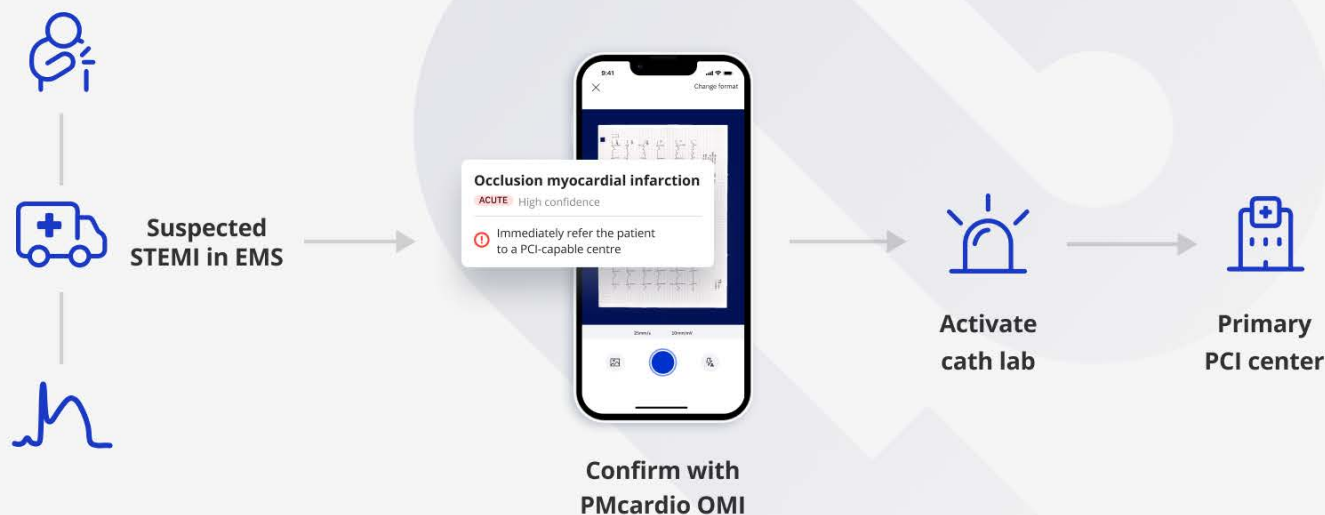
Hennepin Healthcare is an integrated system of care that includes a **Level I Adult and Pediatric Trauma Center**, an acute care hospital, along a clinical network of primary care clinics. Its Emergency Medical Services, with an extensive fleet of ambulances, cover 266 square miles, serving over 700,000 residents of Minneapolis and 14 neighboring communities since 1894.

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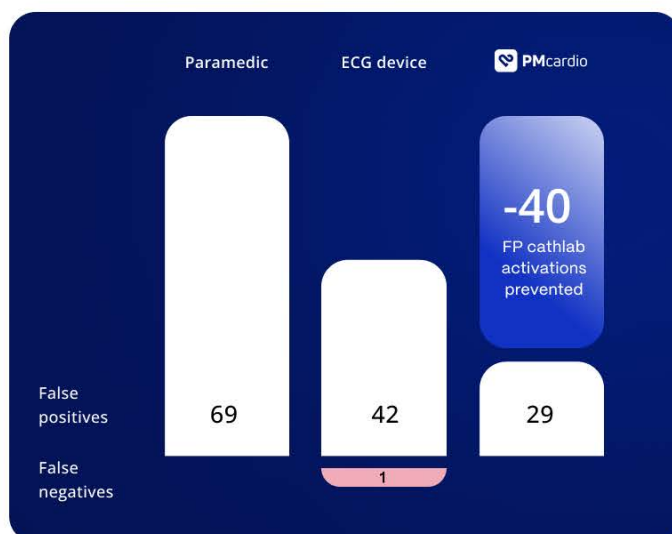
AI-Augmented Cath Lab Activation Pathway

The PMcardio OMI AI ECG model was trained to detect angiographically confirmed acute coronary occlusion from any image of a 12-lead ECG, regardless of ST elevation. The AI model demonstrated robust performance in differentiating typical STEMI from mimics, preventing unnecessary cath lab activations for patients, who do not need immediate intervention.

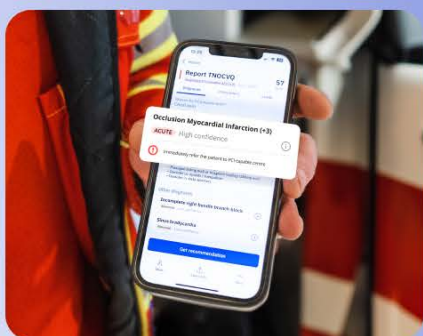


Reduction in False Positive Cath Lab Activation

A cohort of 117 patients, initially ruled-in as STEMI by Hennepin County EMS providers and transferred to Hennepin County Medical Center between 2021 and 2023, was retained in the analysis. Paramedic performance in detecting true STEMI (angiographically confirmed) was compared to conventional automated ECG device interpretation of STEMI (X-series, Zoll) and an AI model (PMcardio OMI, Powerful Medical). Out of 117 patients initially ruled-in as STEMI by EMS, **only 48 (41%) met the primary definition of STEMI** (true positives) based on coronary angiography (CAG).



In a comparison of diagnostic performance, paramedics reported 69 false positives, whereas the conventional automated ECG device identified 42 false positives, while missing 1 true STEMI patient. The PMcardio OMI AI model recorded 29 false positives and demonstrated superior performance in ECG interpretation of pre-hospital suspected STEMI patients, with a significant 58% reduction of false positives, while not missing any true STEMI patient.



About PMcardio

PMcardio is an ECG interpretation platform empowering clinicians to diagnose cardiac abnormalities at the first point of contact. Its OMI AI model is trained to detect acute coronary occlusion without relying on ST-elevation. This ensures streamlined triage and enhanced clinical care coordination across the healthcare system, leading into improved patient outcomes.

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