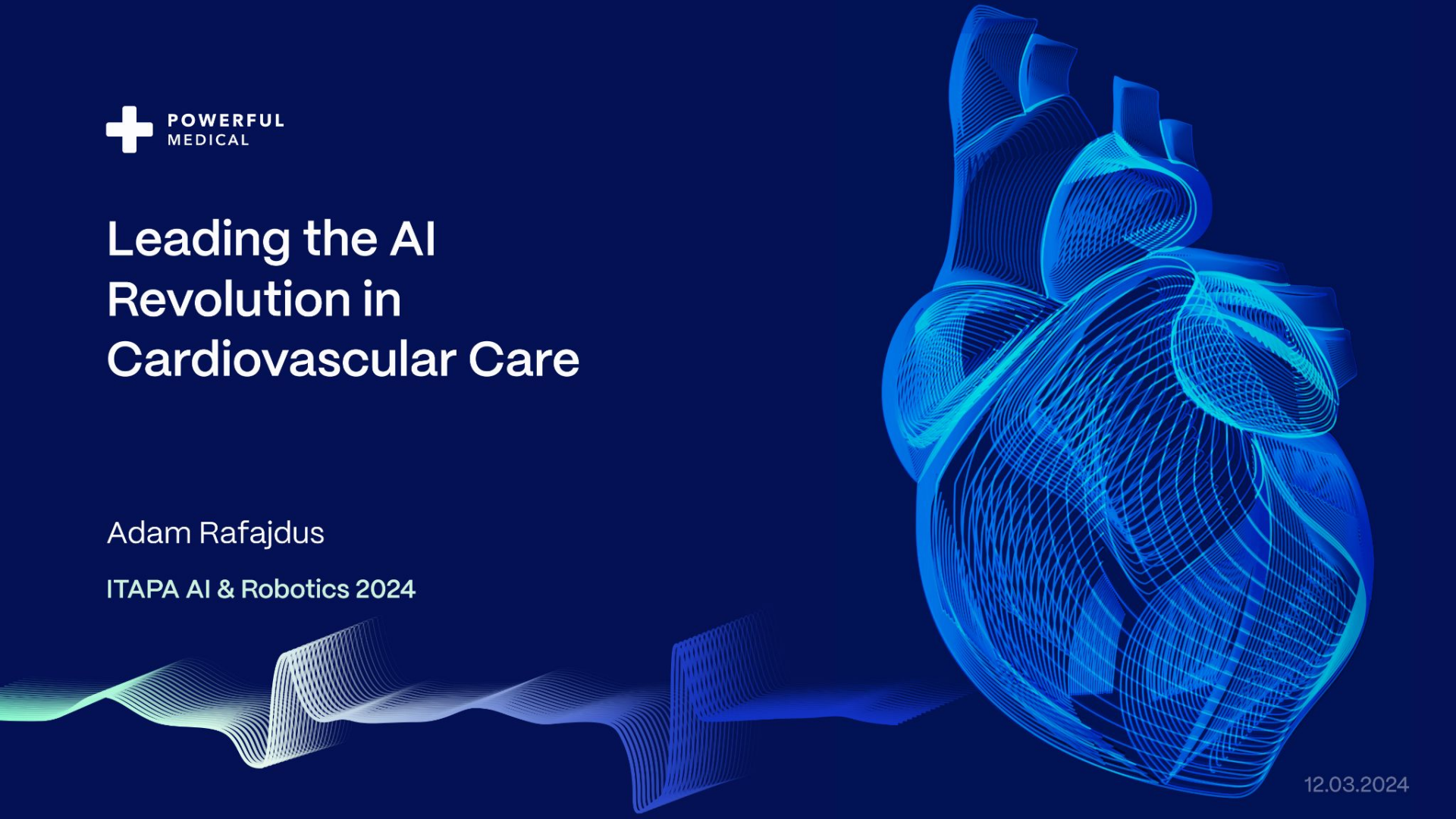
POWERFUL MEDICAL

# Leading the AI Revolution in Cardiovascular Care

Adam Rafajdus

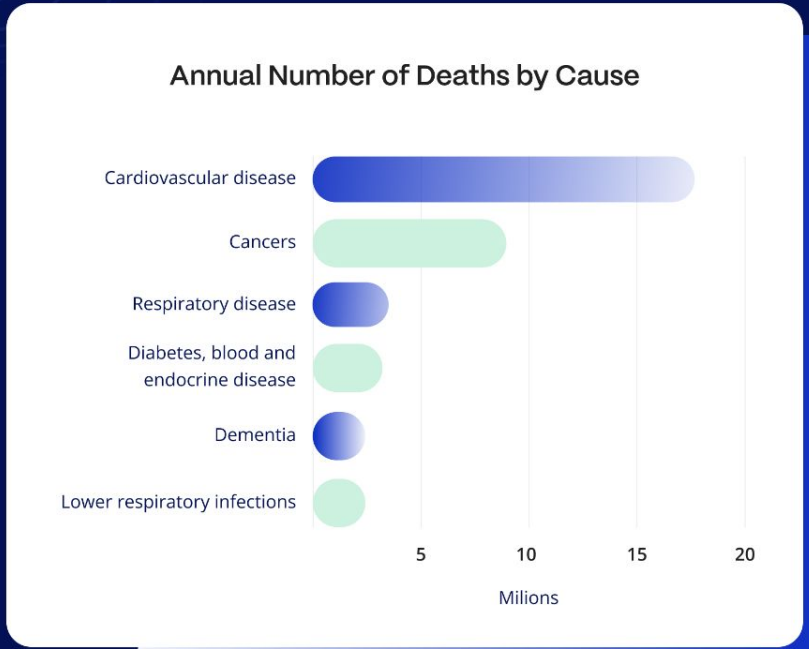
ITAPA AI & Robotics 2024



12.03.2024

PROBLEM

# Cardiovascular diseases are the leading cause of death both worldwide and in Slovakia



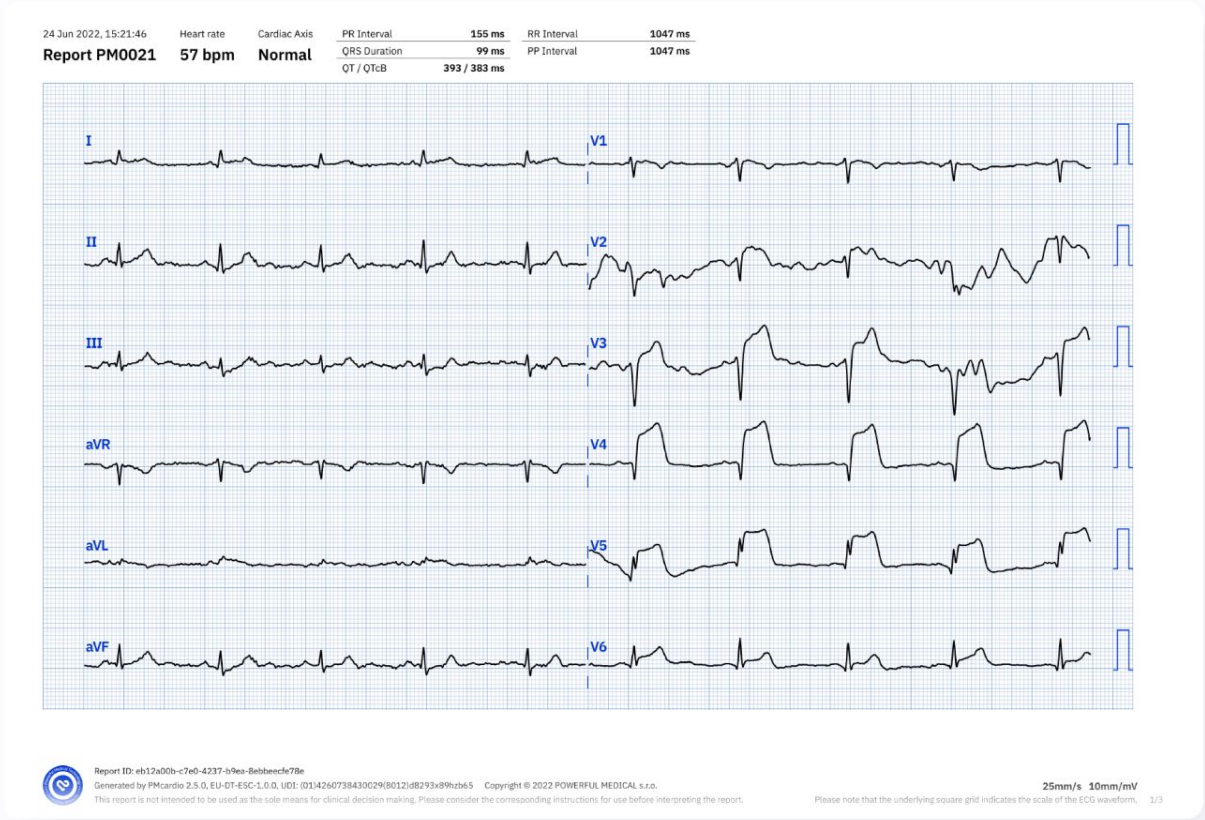
PROBLEM

A good cardiologist
can detect roughly 40 cardiac
diseases from an ECG.

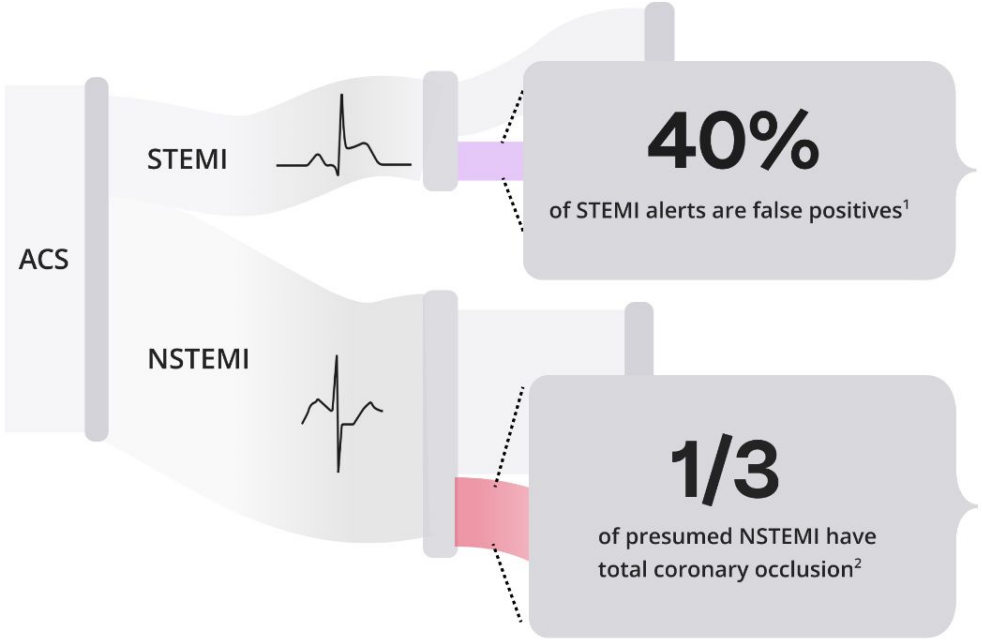
However, 9 in 10 ECGs
are performed by
non-cardiologist doctors.

There is a global shortage of
skilled physicians.

**Is there anything we can do about it?**



# Patients presenting with acute coronary occlusion need emergent angiography in under 90 minutes to prevent irreversible damage




results in...

**$135k**/year
in cancelled cath lab activation costs[3]

**18.2**%
annual healthcare professional turnover rate[4]

results in...

**10.3**h
average delay in time to coronary angiography[5]

**2x**
higher 1-year all-cause mortality

1) DM Larson et al. (2002), *JAMA*; 2) AR Khan et al. (2017), *European Heart Journal*; 3) Assumes 1.5k per cancelled activation;
4) R Filimonczuk (2019), *DICardiology* ; 5) R Herman et al. (2023), *European Heart Journal*

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# PMcardio – AI powered ECG interpretation and care coordination platform

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SOLUTION

## We've built a flexible AI solution that works with every ECG device

- **AI-powered diagnostics:** Offers accurate diagnoses for 39 conditions.
- **Digitization**: Facilitates the reading of paper-based ECGs, making historical data accessible.
- **Personalized treatment recommendations**: Analyzes individual patient data to enhance care quality.
- **Predictive capabilities**: Foresees potential health issues, allowing for proactive healthcare measures.
- **Training**: Utilizes expert annotations and data from millions of ECGs for high reliability and precision.
- **Security and compliance**: Ensures patient data protection in accordance with healthcare regulations.

**EU MDR Certification**
EU MDR Class II(b) granted

Case study

# AI-augmented chest pain patient assessment pathway in emergency department triage

**68%**
Reduction in false positive STEMI alerts & consultations

**100%**
Detection rate in true positive STEMI patients

**30%**
Reduction in STEMI alert activation time

**10.3h**
Average faster time to PCI in STEMI equivalents

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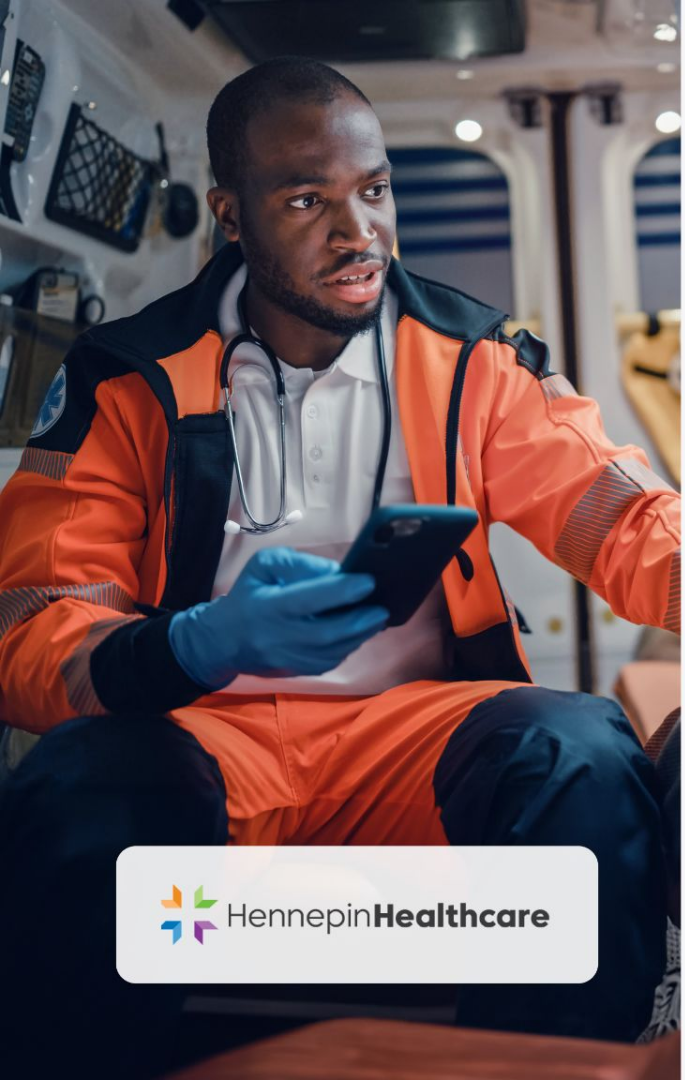


Case study

# Improved STEMI diagnosis enabling rapid activation of cath labs from the pre-hospital setting

**58%**
reduction in false positive cath lab activations

**100%**
true positives STEMI cases detected

**$112K**
potential saving on false positive cath lab activations

**27.5%**
reduction in false positive diagnosis compared to conventional ECG machine

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**330k+**

**patients screened** through the AI ECG platform since launch

**35k+**

**healthcare professionals** using our technology

**10+**

**medical publications** in peer-reviewed journals

**30+**

**international clinical research network** of leading institutions

**50+**

**interdisciplinary team** of physicians, AI researchers, software engineers and regulatory specialists

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**AI Team Lead**

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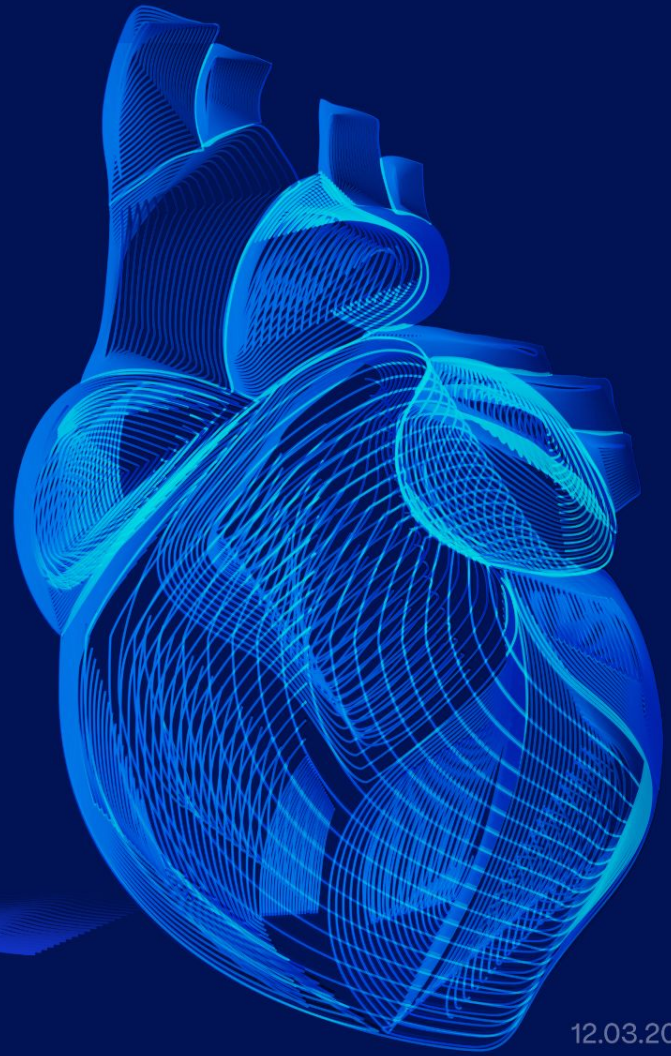

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