

# Transforming Frontline Cardiovascular Patient Detection and Referral

PMcardio AI-powered ECG Platform

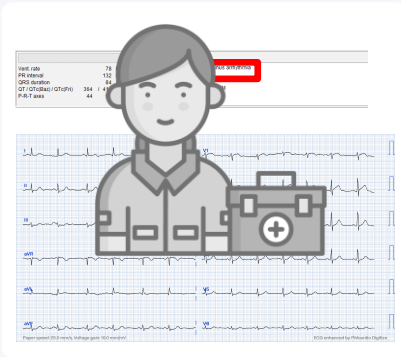
*Robert Herman, MD*



# Meet 49yo Ahmet: A common case of misdiagnosis and incorrect management leading to poor prognosis



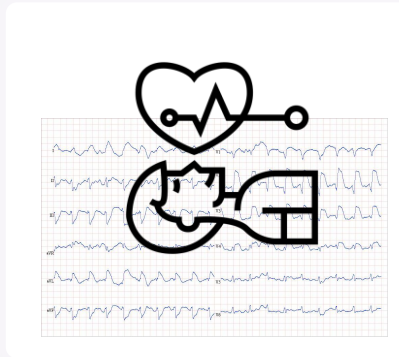
112 call



EMS ECG



Unsafe discharge



OHCA



Cathlab



Heart failure

Meet  
incor

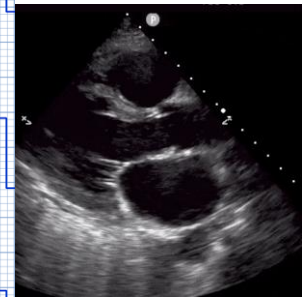
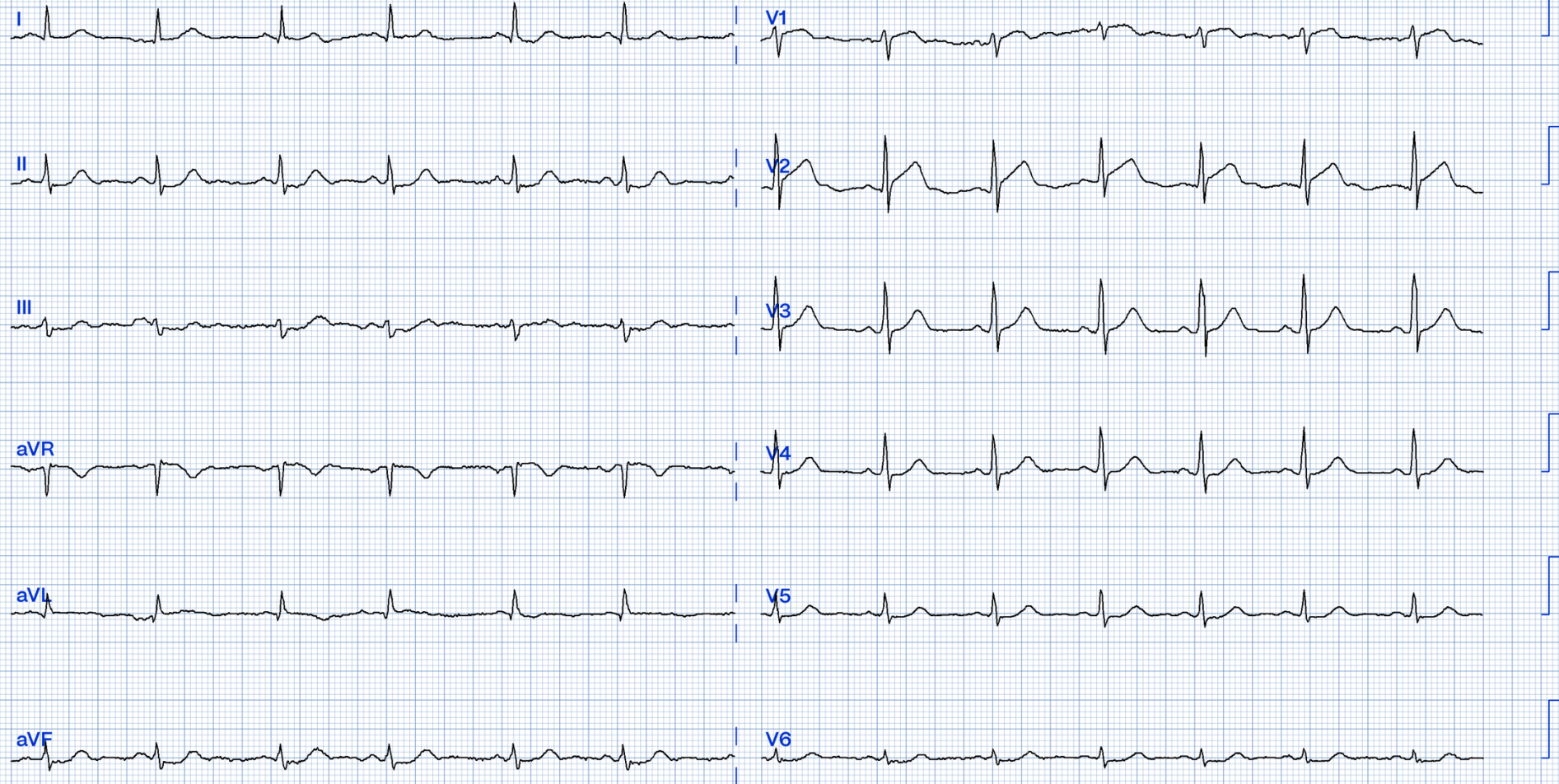


112 call

Vent. rate	78	BPM
PR interval	132	ms
QRS duration	84	ms
QT / QTc(Baz) / QTc(Fri)	364 / 414 / 397	
P-R-T axes	44	6 45

Normal sinus rhythm with sinus arrhythmia  
Normal ECG

Confirmed by SYSTEM, SYSTEM



art  
ure

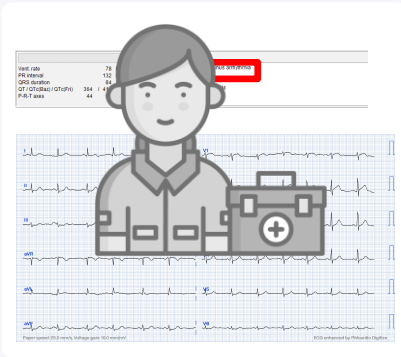
Paper speed: 25.0 mm/s, Voltage gain: 10.0 mm/mV

ECG enhanced by PMcardio Digitize

# Meet 49yo Ahmet: A common case of misdiagnosis and incorrect management leading to poor prognosis



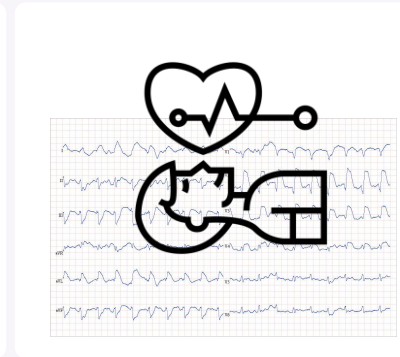
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Heart failure

Me  
inco



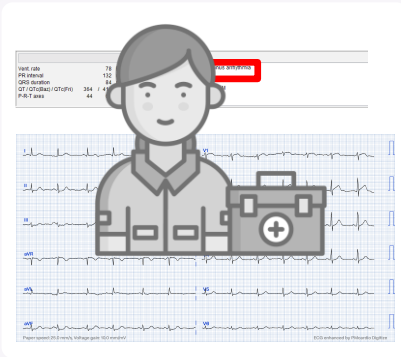
112 ca



# Meet 49yo Ahmet: A common case of misdiagnosis and incorrect management leading to poor prognosis



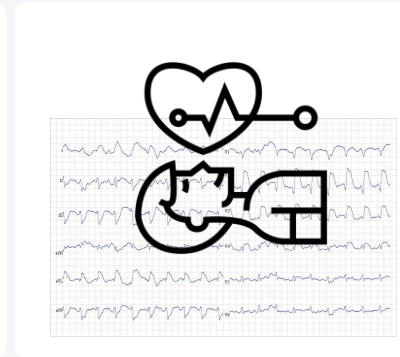
112 call



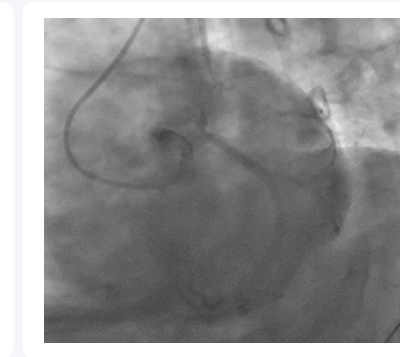
EMS ECG



Unsafe discharge



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Cathlab



Heart failure

# Meet 49yo A incorrect ma



112 call



EM

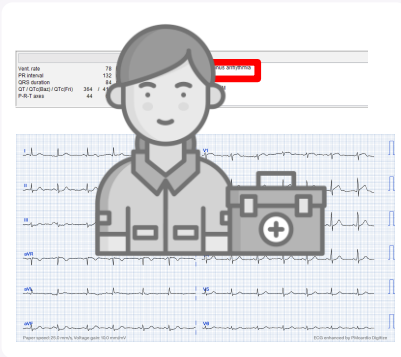


Heart failure

# Meet 49yo Ahmet: A common case of misdiagnosis and incorrect management leading to poor prognosis



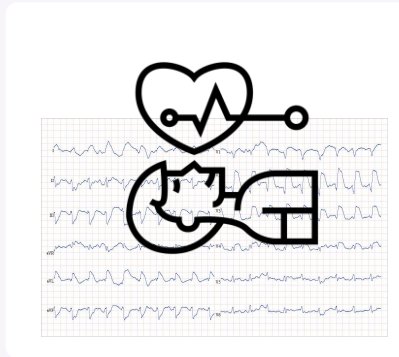
112 call



EMS ECG



Unsafe discharge



OHCA



Cathlab



Heart failure





Poor gatekeeping function of first-point of contact indicated by ED overcrowding<sup>1</sup>

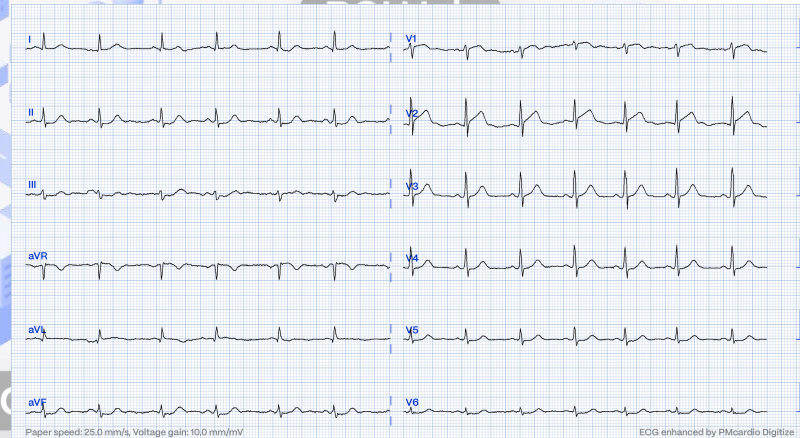
Pharmacy

Spoke



Inter-rater variability in detecting STEMI is 53% among non-cardiologists<sup>3</sup>

EMS



GP Clinic

Cardio C

Home Care



Only 17% of STEMI patients presenting to non-PCI centers get reperfusion in time<sup>2</sup>



Up to 50% of aortic stenosis cases are missed until post-mortem<sup>4</sup>

1) Sartini et al. Healthcare (2022); 2) Jollis et al. JAMA (2022); 3) McCabe et al. JAHA (2013); 4) Bevan et al. JAMA (2019)



Pharmacy



Spoke



Poor gatekeeping function of first-point of contact indicated by ED overcrowding<sup>1</sup>



EMS



PCI Hub



Inter-rater variability in detecting STEMI is 53% among non-cardiologists<sup>3</sup>



Cardio Clinic



GP Clinic



Only 17% of STEMI patients presenting to non-PCI centers get reperfusion in time<sup>2</sup>

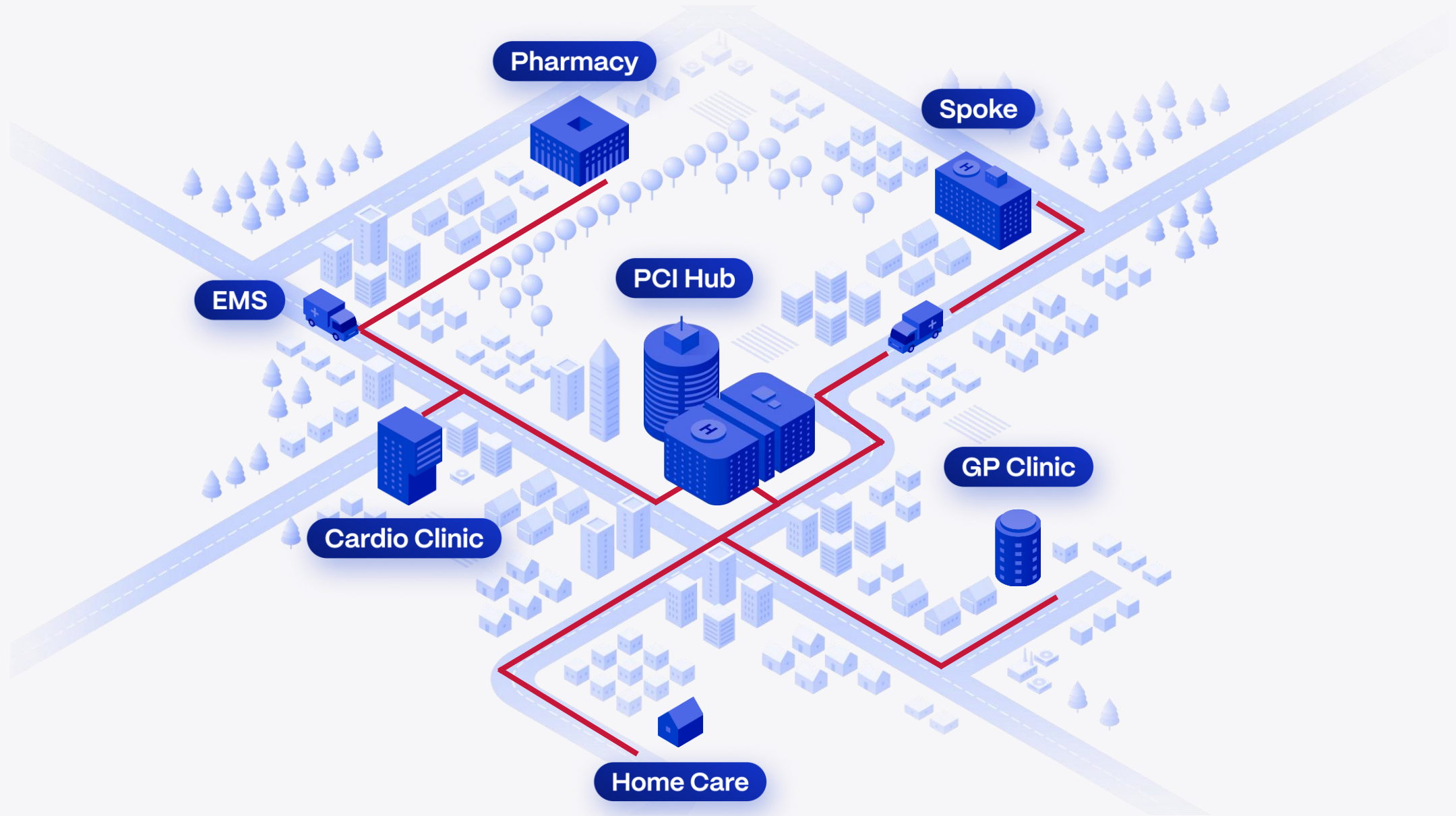


Home Care



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A cardiovascular diagnostics & care-coordination platform, **connecting all stakeholders within a health system** through AI-powered clinical pathways.

**STEMI/STEMI Equivalent**

**ACUTE** High confidence

**Care-coordination and notification functionality**

**STEMI/STEMI Equivalent**  
**ACUTE** High confidence

Immediately refer the patient to a PCI-capable centre & Activate Cath-Lab

**Deeply integrated within workflows and EHRs**

Recent reports

Q Search by name or creator...

- Report JROUR Today 09:14
- Report YRRE Today 09:17
- Report AWT Today 09:03
- Report YQW Today 09:07
- Report AED

**Enterprise-grade security and compliance**

Data residency

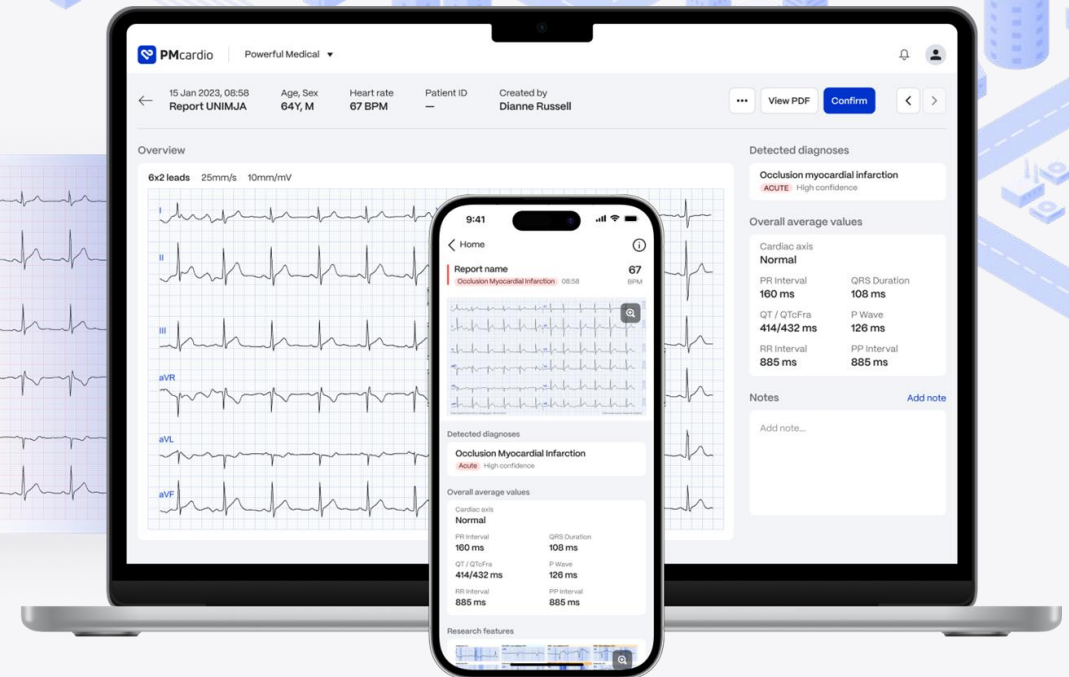
User administration

SLA

SAML SSO

PACS / CVIS

Audit logs





## In 12 months since EU MDR CE-certification and Launch

# 57,000

active healthcare professionals

# 1.1M

ECGs reviewed with PMcardio

# 16

countries

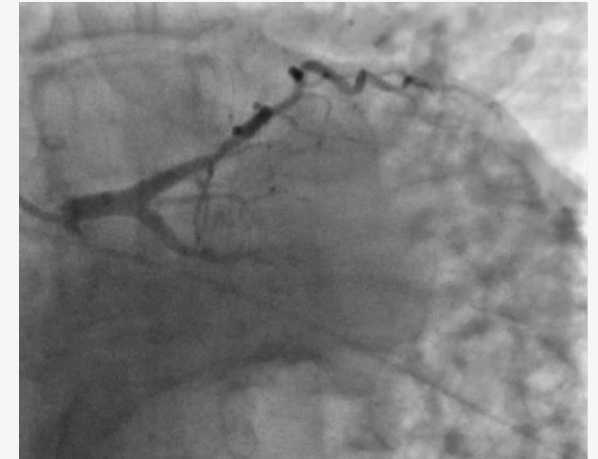
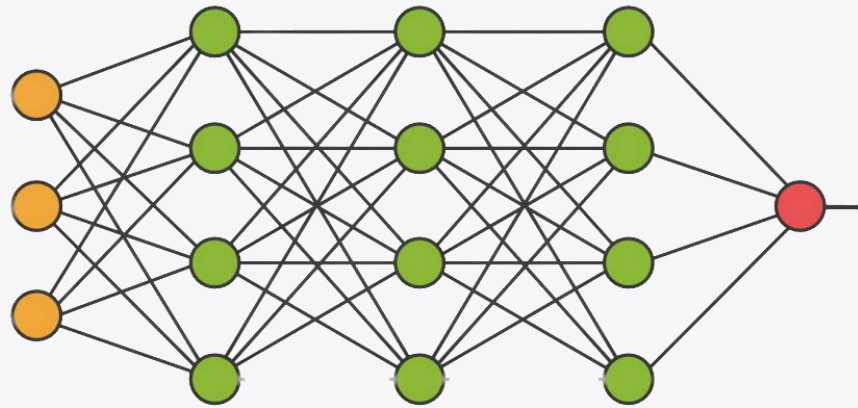
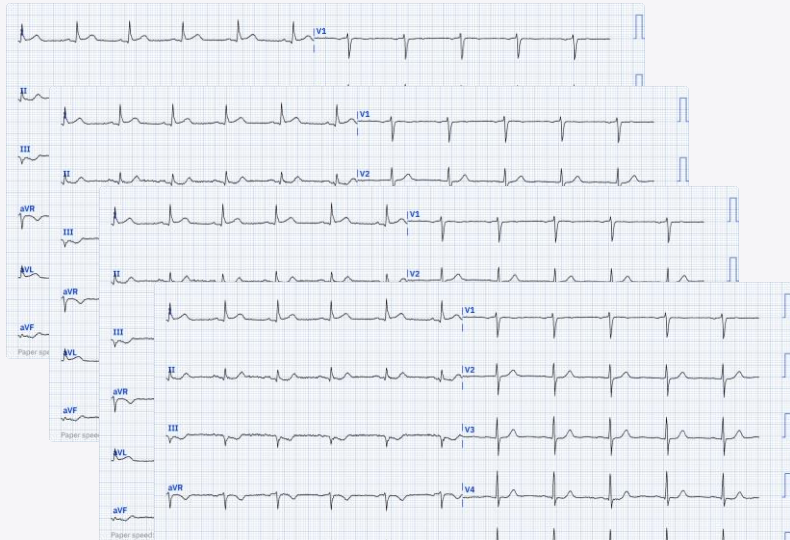


... and more languages available.



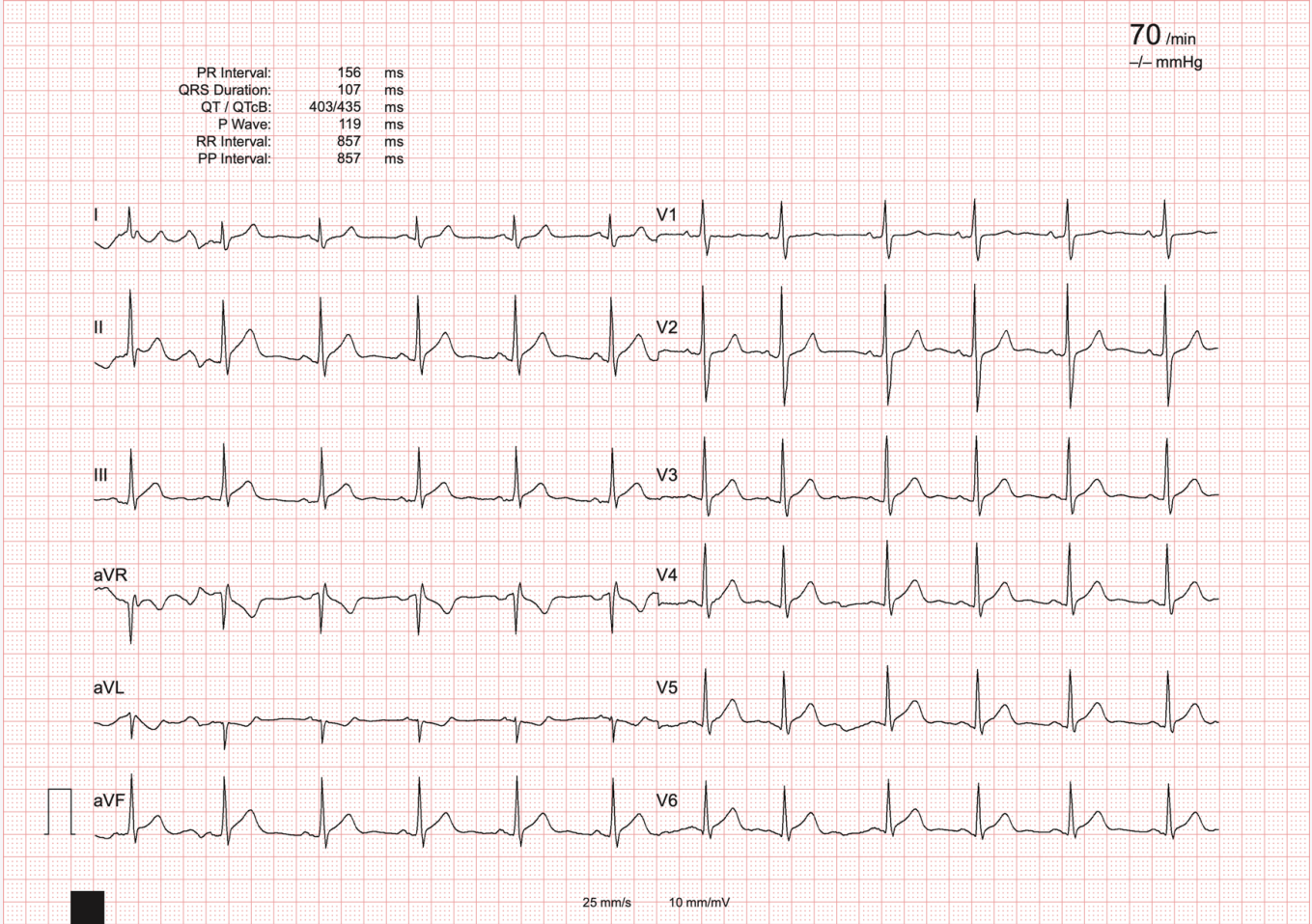
**5 reasons why all of this is  
not just theory...**

# Unbiased AI Model Development

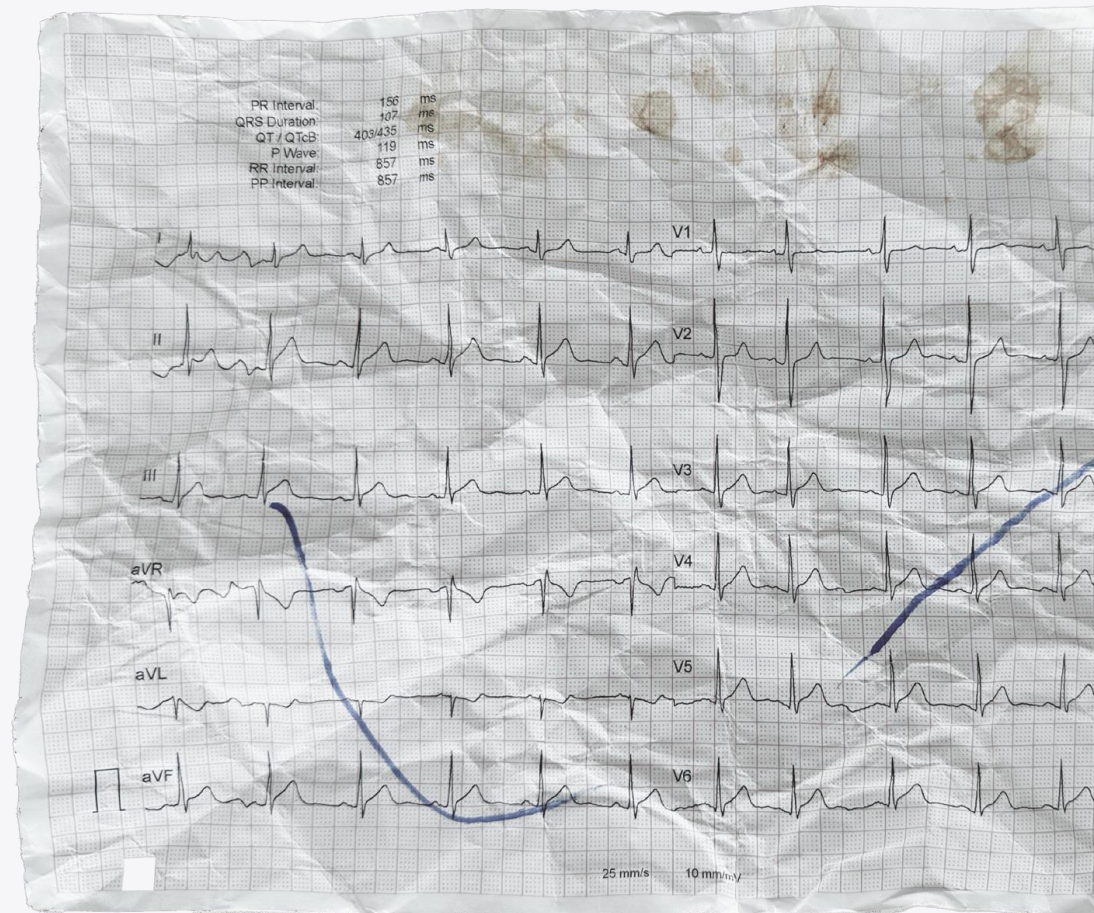


## Clinically adjudicated outcome

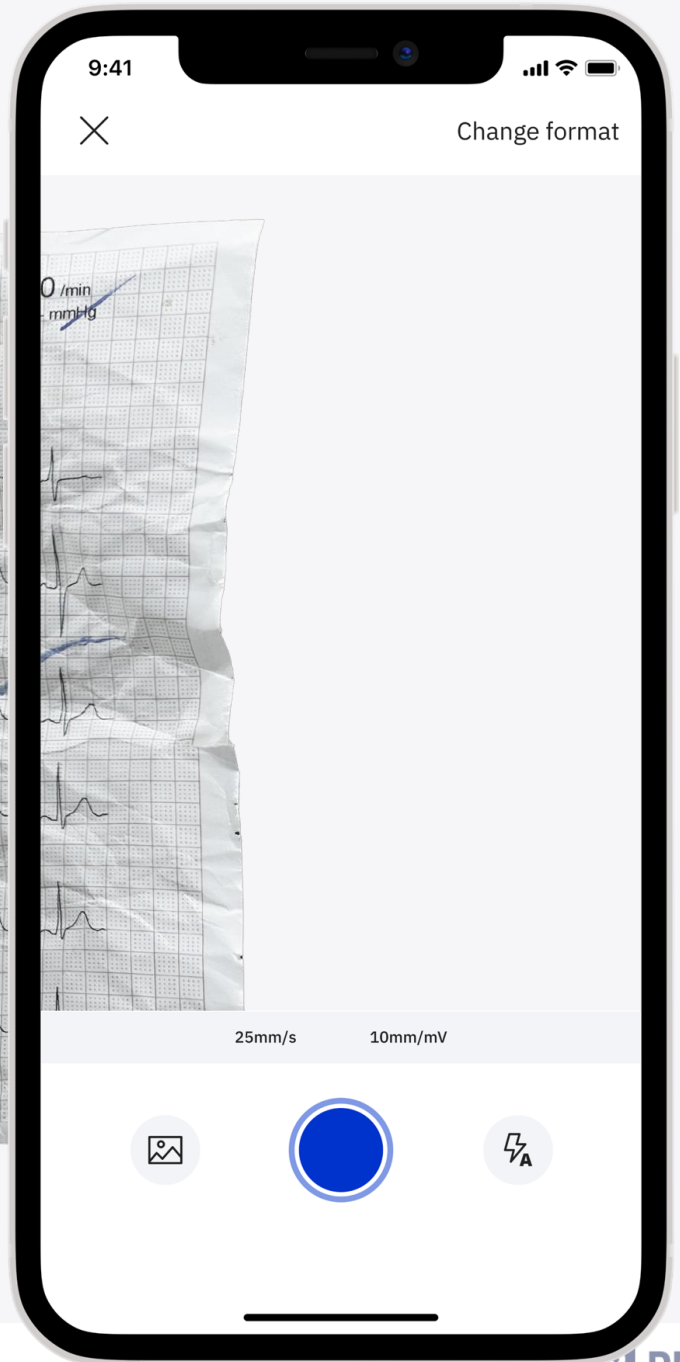
- Laboratory
- Angiograms
- Echocardiography







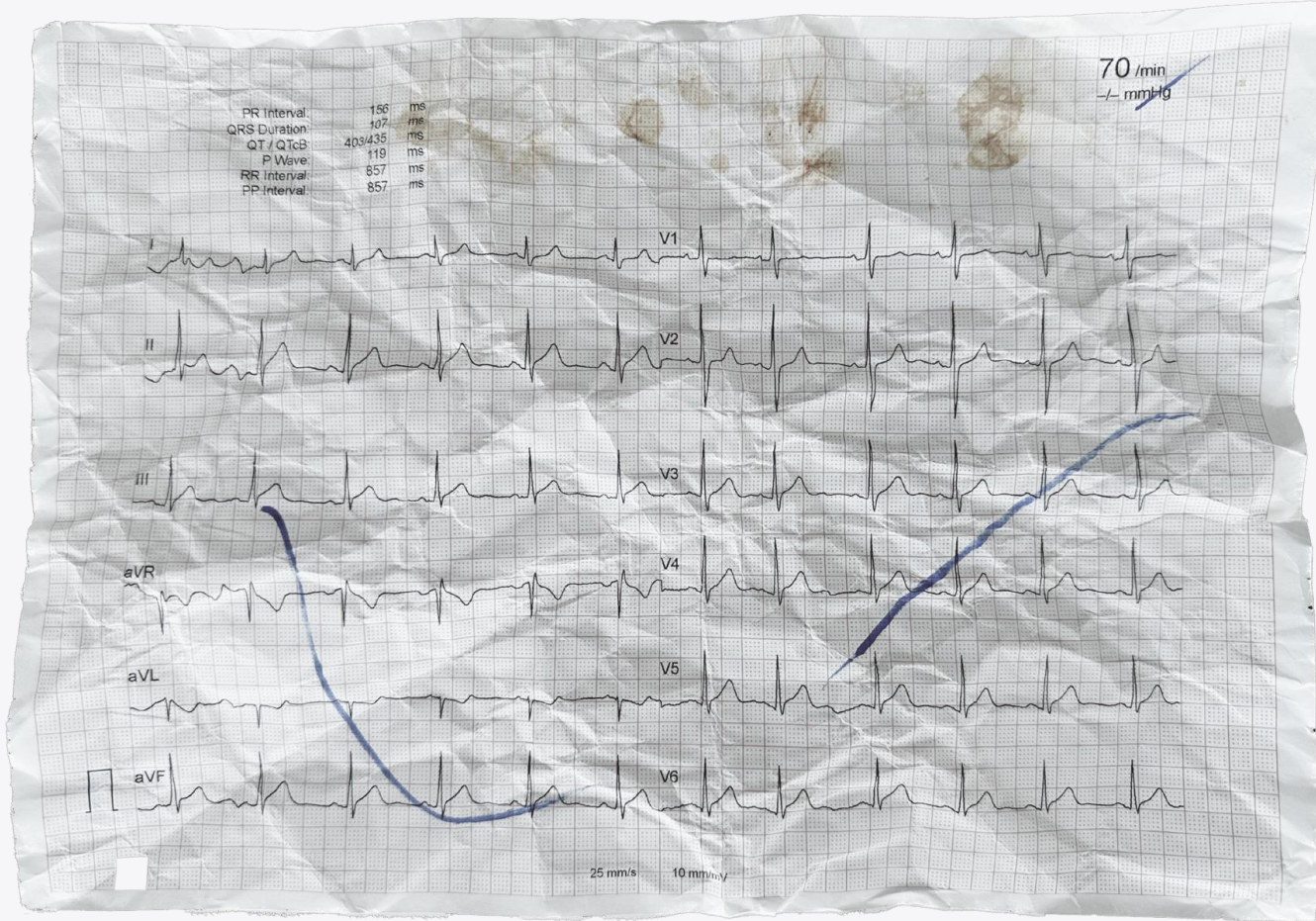
PR Interval:	156	ms
QRS Duration:	107	ms
QT/QTcB:	403/435	ms
P Wave:	119	ms
RR Interval:	857	ms
PP Interval:	857	ms



9:41

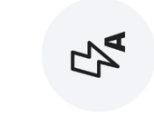


Change format



10mm/mV

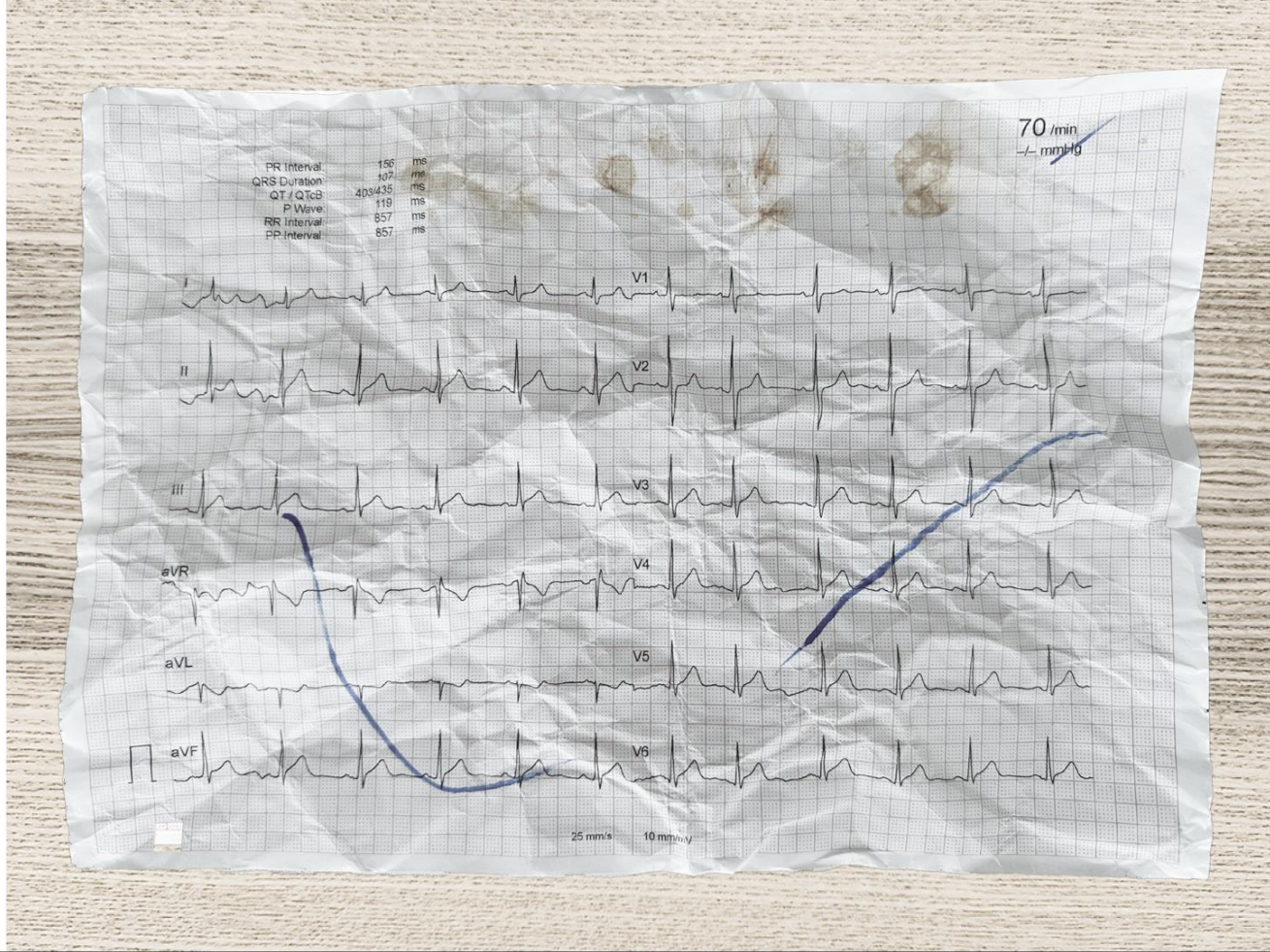
25mm/s



9:41



Change format

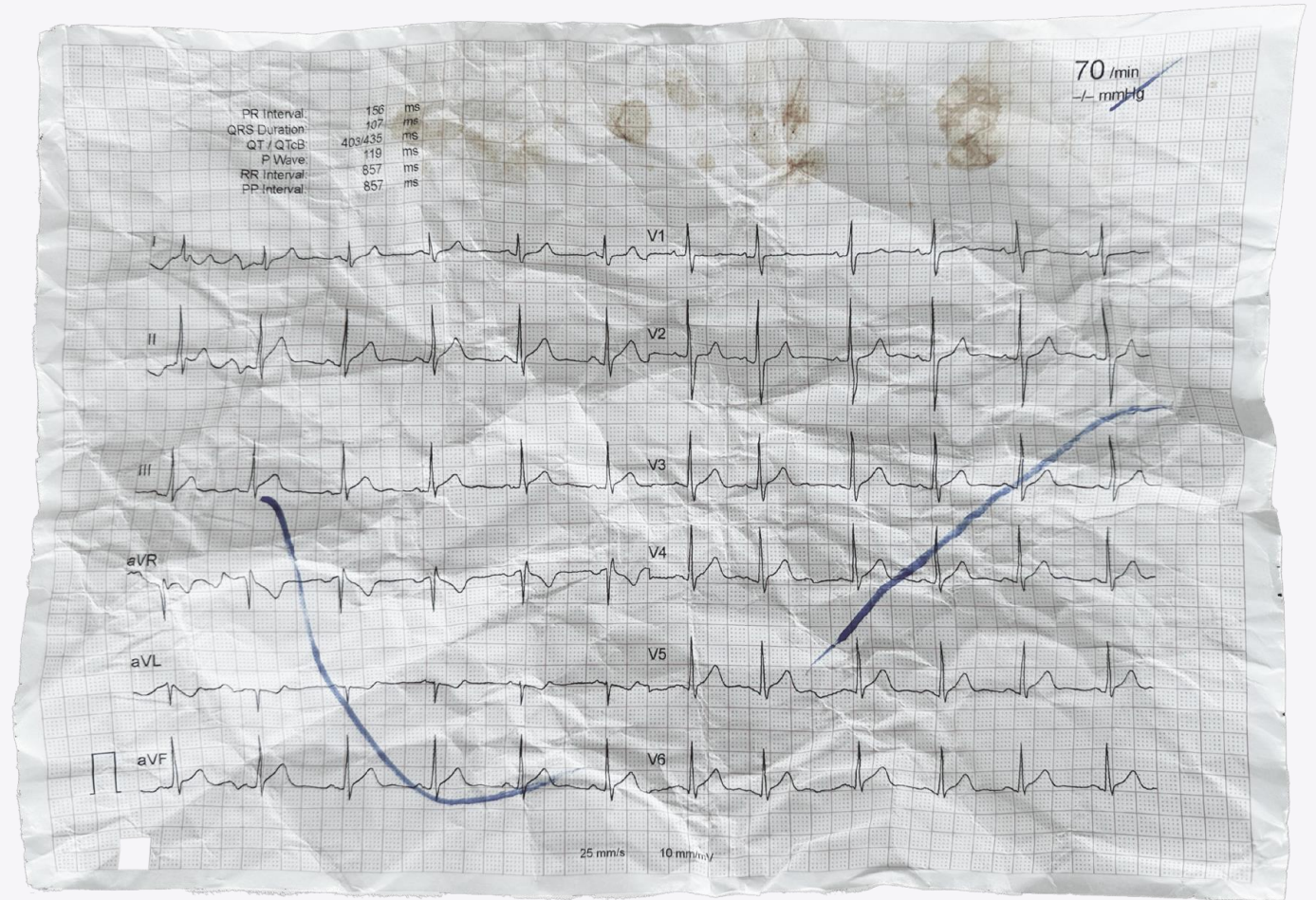
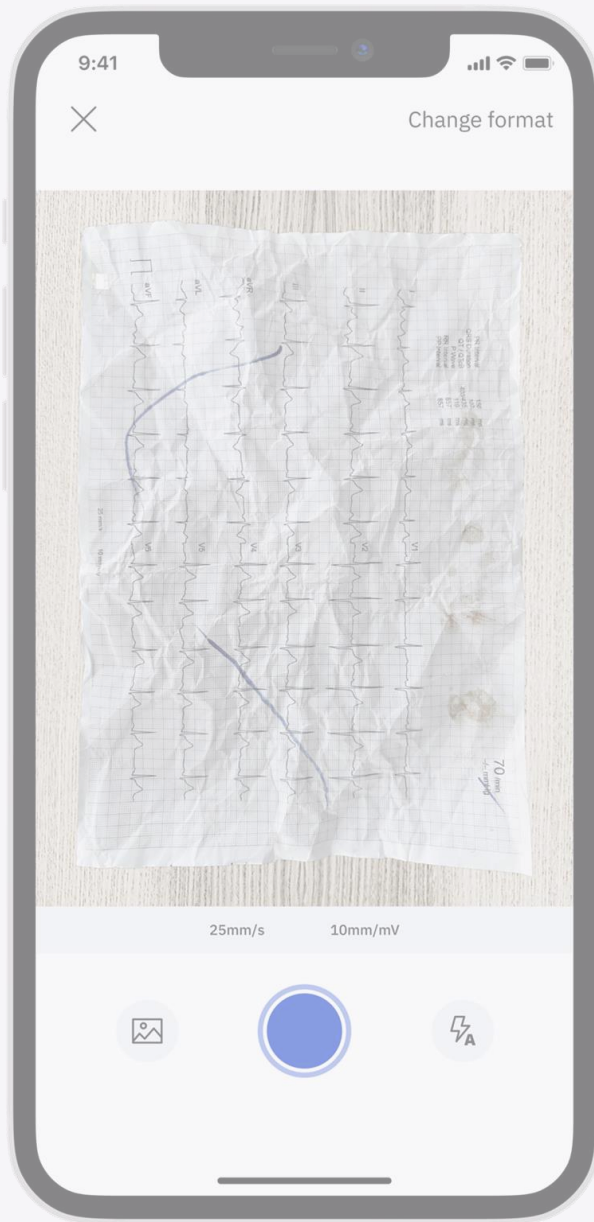


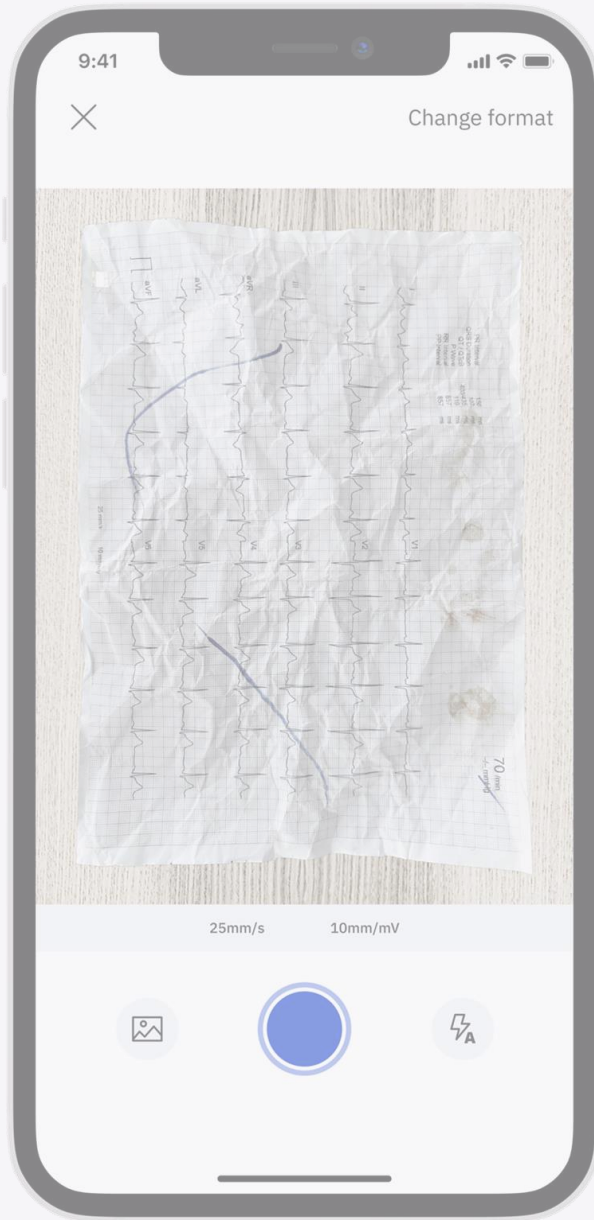
25mm/s

10mm/mV

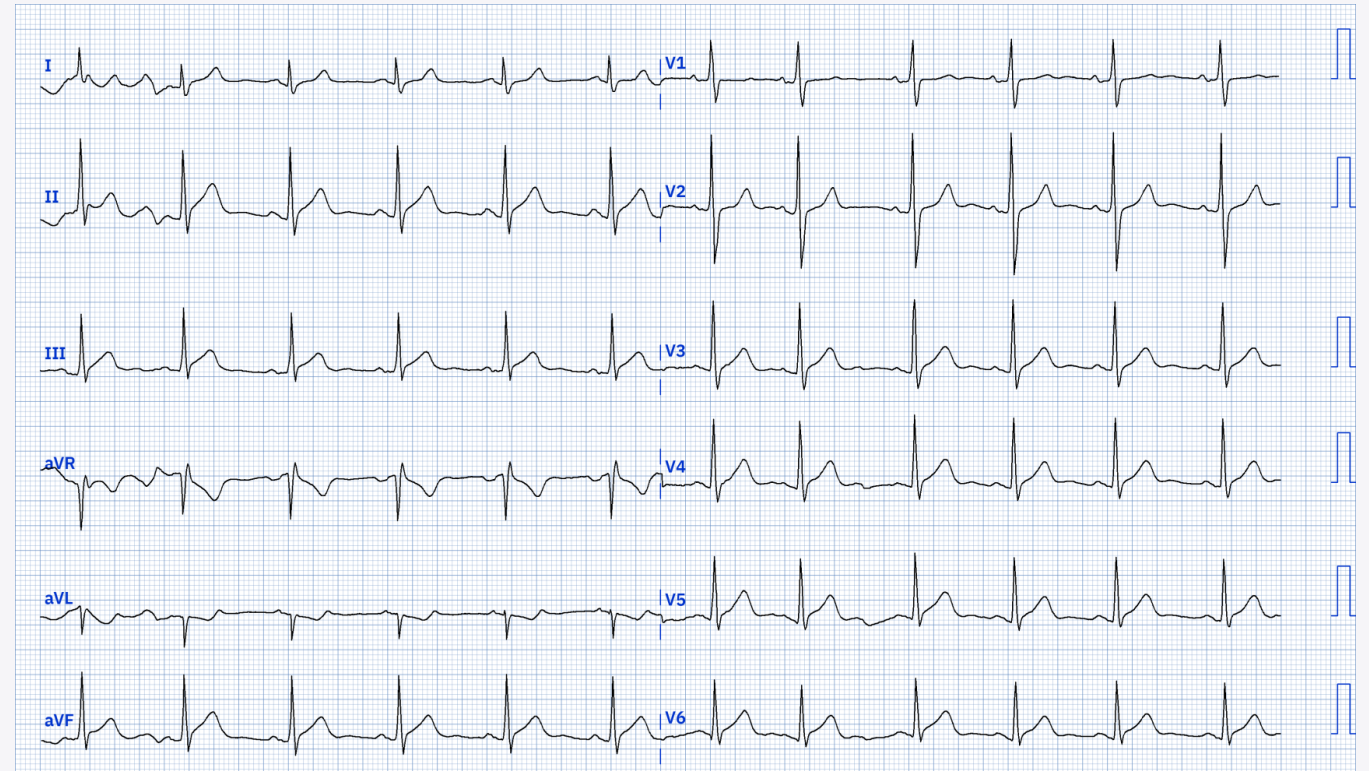


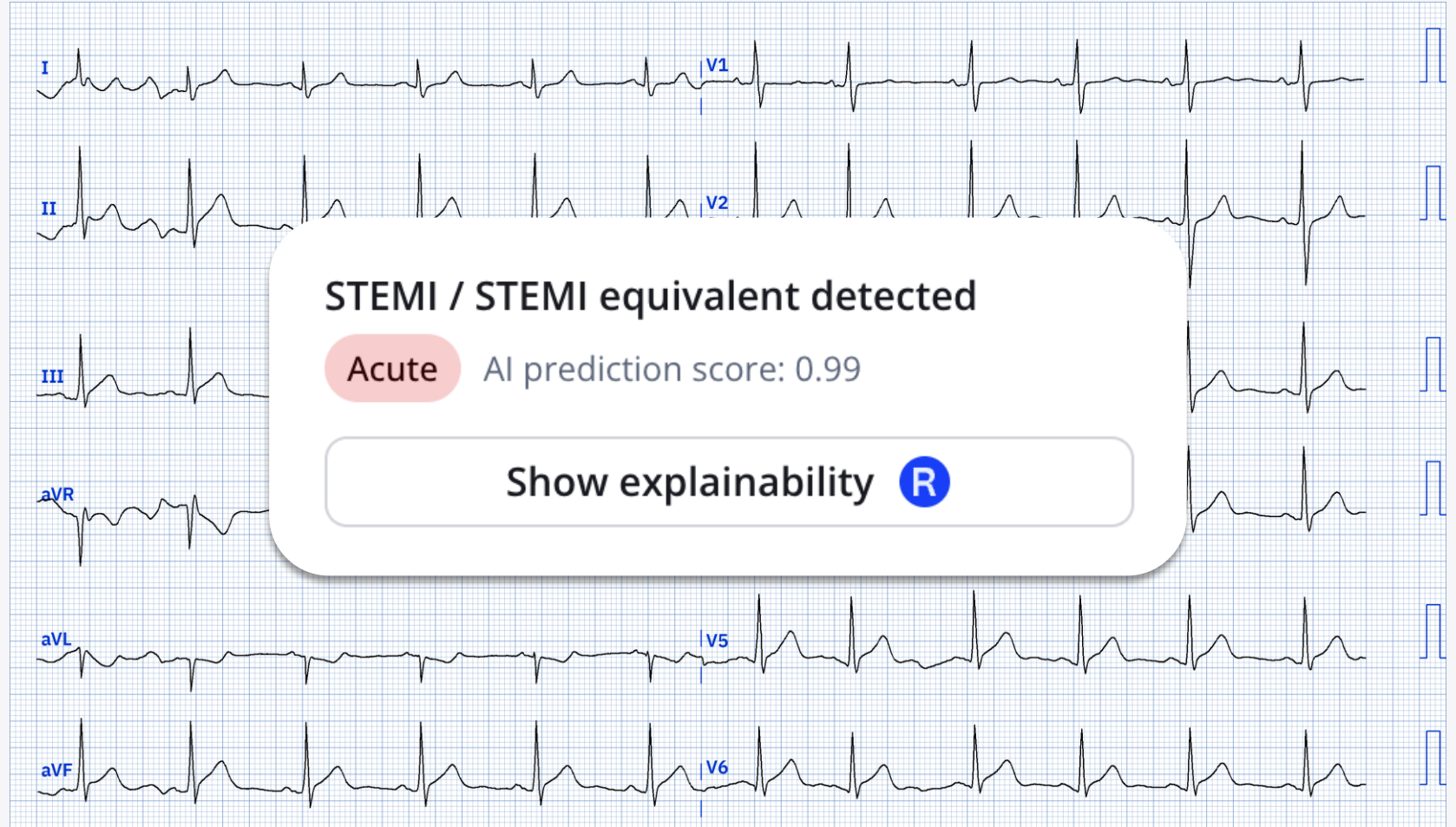
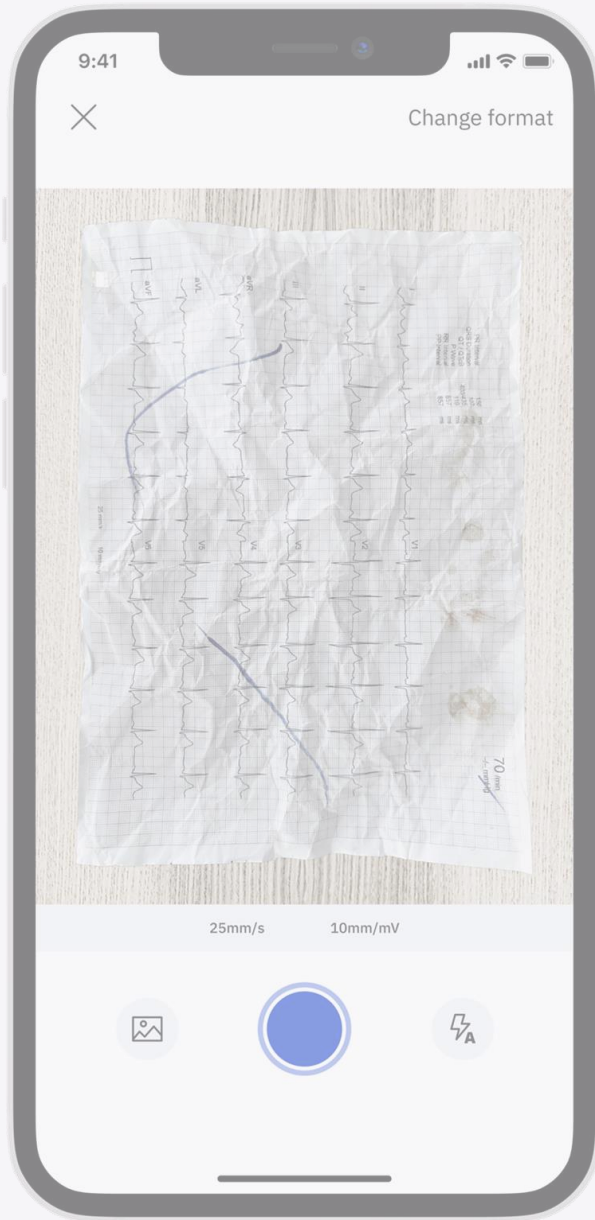
# Input Image





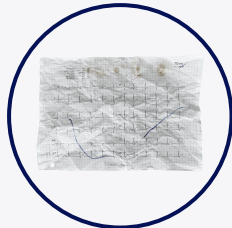
# Digital ECG Waveform





# Interoperability and accessibility

ECG images



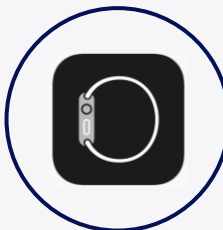
Digital ECGs



Implantables



Patches



Wearables



# Clinical Evidence



**58%**

reduction in false positive  
cath lab activations



**97%**

specificity in unselected all-comer  
chest pain patients without STE



3-month prospective implementation  
in the Emergency Department

**56%**

reduction in D2B times  
for STEMI equivalents

**+IELORA**



**74%**

sensitivity in detecting  
acute OMI



**73%**

positive predictive value in  
OHCA without ST elevation



**2X**

higher sensitivity compared  
to cardiologists



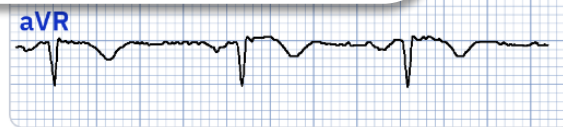
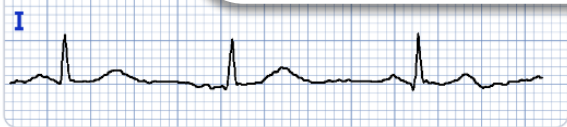


# Building trust with healthcare professionals through explainable AI solutions

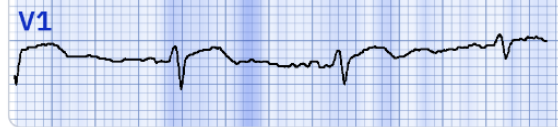
STEMI / STEMI equivalent detected

Acute AI prediction score: 0.99

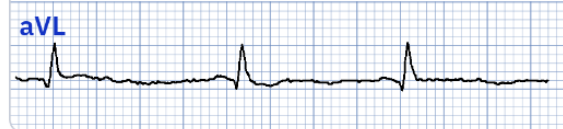
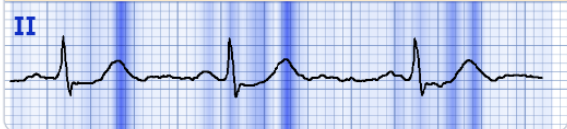
Show explainability 



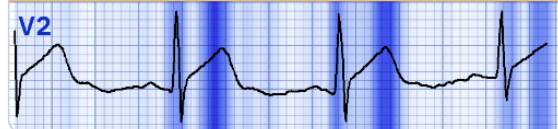
Low confidence (15%)



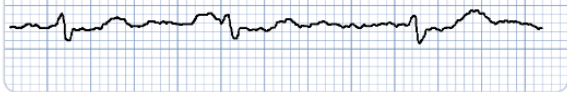
Low confidence (21%)



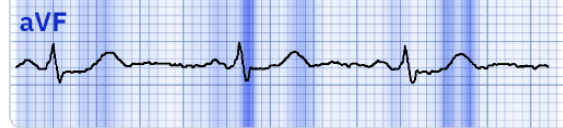
High confidence (64%)



III



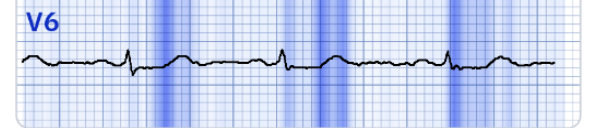
Low confidence (8%)



V3




Mid confidence (37%)




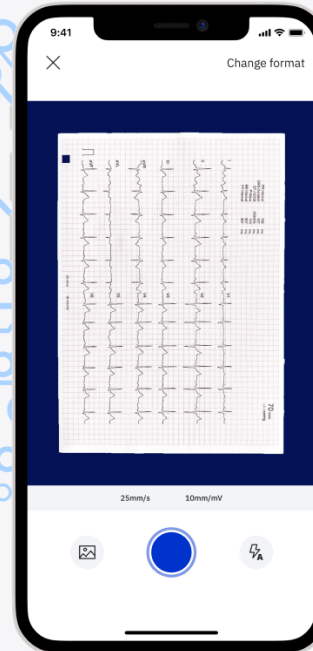
# Protocolized implementation and (clear) labeling


**⚠️ STEMI / STEMI equivalent**  
AI prediction score: 0.94

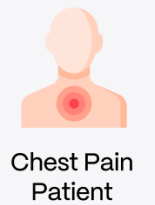
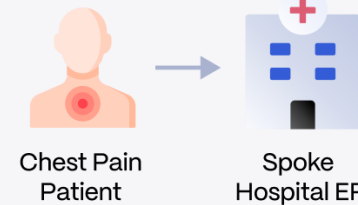
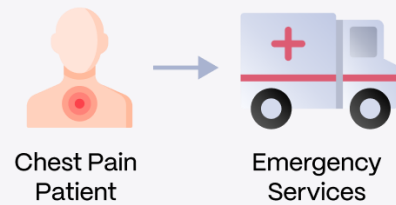
Immediate invasive strategy or equivalent management is recommended

Presentation added by Louise Russell, 15 Apr, 5:20 PM 

Show explainability 



  
**! Activate Cath Lab!**



**BYPASS EMERGENCY DEPT.**

# PMcardio is the definitive platform for AI cardiology, connecting all stakeholders through direct implementations and partnerships

## STEMI Pathway

FDA: De Novo 2025 | EU MDR: Class II(b) CE-Certified  
Representative & current partners

ZOLL   Heart  

## Heart Failure Pathway

FDA: 510(k) 2025 | EU MDR: Class II(b) 2025  
Representative & current partners

 NOVARTIS   Boehringer Ingelheim  CVS pharmacy 

## Arrhythmia Pathway

FDA: 510(k) 2025 | EU MDR: Class II(b) CE-certified  
Representative & current partners

iRHYTHM    

## Structural & Valvular Heart Disease

Representative & current partners

 GE HealthCare   



# Thank you for your attention!



**Robert Herman, MD**  
Cardiovascular AI Researcher

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robert@powerfulmedical.com

