

Why AI is proving to be a force for good in cardiovascular health

Two experts in the field of cardiology say that AI will transform life for patients with suspected heart problems because it can improve diagnosis with timely and accurate referrals.

Hearth disease is a leading cause of death in the UK, causing one in four deaths and affecting an estimated 7 million individuals yearly.

Can you explain how the typical journey of a cardiac patient begins?

JB: Patients with heart disease can present with different symptoms, including chest pain, palpitations, dizziness and shortness of breath. If symptoms are mild, the beginning of their journey would be to see their GP, who, typically is the gatekeeper to specialised care. If the GP decides their condition needs further investigation, they will be referred to a cardiologist. When symptoms are severe, patients would go to the hospital's A&E department or be taken to emergency care by ambulance.

cardiac cases, even if entirely innocent. In other cases, they can overlook conditions that could have serious and potentially fatal consequences — if not dealt with in time.

To address this challenge and need, we have developed a diagnostic tool called PMcardio which can digitise and analyse any ECG within seconds — and diagnose up to 38 cardiovascular diseases — be it in a primary or emergency care setting. It uses our certified AI technology to harness knowledge from millions of previous patients providing outputs with unmatched precision and speed.

What advantages does this device offer to healthcare professionals?

RH: By combining the precision of AI ECG interpretation and the contextual analysis of the patient's symptoms and medical history, it can recommend the referral decision and treatment plan — as if the healthcare professional had a cardiologist sitting right next to them.

PMcardio is MHRA registered, MDR CE-certified and has been launched commercially in the UK, accessible in the form of a simple smartphone application. It is available for healthcare professionals in the NHS and is being used in several practices throughout the country.

How can AI technology influence the cardiac patient journey from the perspective of cardiologists?

JB: Cardiologists know the importance of appropriate timing and efficiency in providing the best care for patients. We are often inundated with referrals of concerned patients, mainly seeking reassurance.

If a diagnostic solution is available that is quick and tailored to each individual patient and can streamline the referral pathway, it can dramatically improve patients' outcomes and wellbeing. This means that cardiologists and emergency services can triage patients optimally and address the appropriate treatment to those in most urgent need.

Which research and development initiatives will have the most significant impact on the care of cardiac patients?

RH: We are developing technology that can predict potential risks of cardiac patients before symptoms become visible, so they can change their lifestyles and/or be given preventative treatment.

Our AI algorithms will allow for an analysis of seemingly normal ECGs and detect any occurrences of arrhythmia or precursors to heart attacks. This will turn PMcardio from a detection tool to a prevention tool, making it crucial for physicians to have access to this technology.



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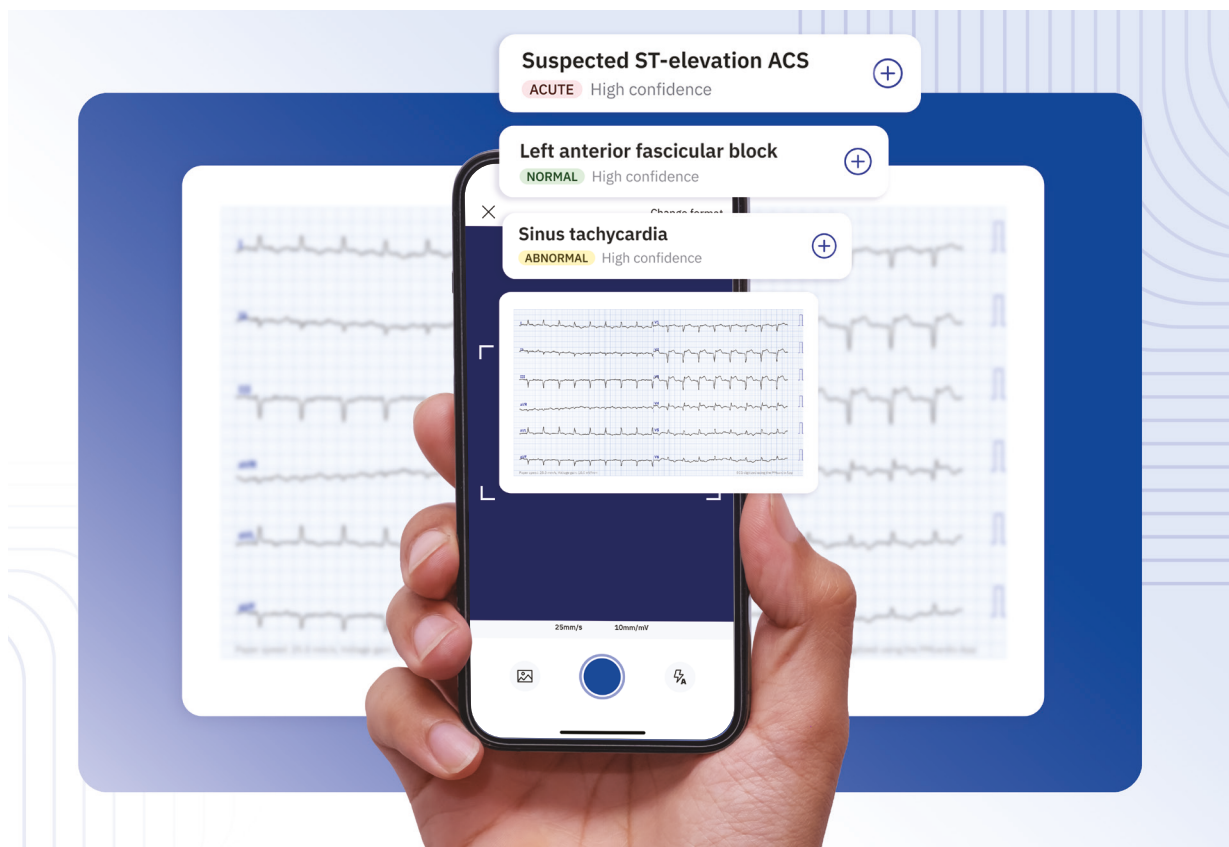


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What diagnostic tools aid in the diagnosis and management of cardiac patients at the first point of contact?

RH: The GP reviews the patient's medical history and performs clinical examinations. They record an ECG (an electrocardiogram, a test which detects the heart's rhythm and electrical activity), which is one of the most-performed and accessible diagnostic tests available at the first point of contact, also used by paramedics for patients in A&E.

What are the obstacles at the first point of contact, and how can technology solve this?

RH: A major obstacle is that ECGs can be difficult to interpret. GPs who do not specialise in cardiology tend to be cautious and refer the patient further. However, the problem with that is that emergency and cardiac departments are often overwhelmed with suspected



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