GLOBAL HEART

The Fifth Universal Definition of Myocardial Infarction: Towards a Truly Global Definition

VIEWPOINT

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ABSTRACT

The Fifth Universal Definition of Myocardial Infarction (UDMI) represents an important step towards a more globally applicable and equitable approach to diagnosing myocardial infarction (MI). The revised definition introduces three clinically meaningful categories - primary, secondary and procedure-related MI. For the first time, it also provides pragmatic diagnostic criteria for resource-limited settings where cardiac biomarkers and imaging may be unavailable. Additional advances include the incorporation of sex-specific cardiac troponin thresholds and greater recognition of non-atherosclerotic causes of MI, addressing important diagnostic inequities affecting women. Proposed alignment with ICD-11 coding offers opportunities to improve global surveillance, quantify diagnostic disparities and better characterise the burden of MI across diverse healthcare settings. Together, these changes move towards a truly universal definition that supports more equitable diagnosis and care, while reinforcing the need to expand access to essential cardiovascular diagnostic testing worldwide.

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The Fifth Universal Definition of Myocardial Infarction (UDMI), launched at the European Society of Cardiology (ESC) Congress 2026, represents an important shift towards a definition of myocardial infarction (MI) that is not only universal in terminology, but more globally applicable in practice (1). Developed by a global task force representing 12 countries across five continents, including representation from low- and middle-income countries (LMICs), the new definition replaces the previous numerical classification with three clinically meaningful categories—primary, secondary, and procedure-related MI. These categories more closely align with the underlying pathophysiology and clinical pathways through which patients are evaluated and managed. Although the working diagnosis of MI is based on clinical assessment of symptoms, the electrocardiogram (ECG), and cardiac troponin measurement, additional imaging is required to determine the aetiology and confirm the diagnosis.

Importantly, for the first time, the UDMI provides specific guidance for diagnosing MI in low-resource settings. This guidance for diagnosing MI in LMICs in the Fifth UDMI is a reflection of an ongoing challenge wherein many diagnostic tools are inaccessible or unaffordable to large parts of the world's population, particularly in LMICs. These disparities are substantial. In Uganda, only 43% of surveyed healthcare facilities had access to cardiac troponin testing, and only 55% to ECGs (2). Access to invasive coronary angiography remains even more limited across many low-resource settings. Even where diagnostic tools are available, out-of-pocket costs may place them beyond the reach of many patients (3).

The global burden of ischaemic heart disease remains substantial, with LMICs having a disproportionate burden of cardiovascular disease and premature cardiovascular mortality (4). Yet the settings experiencing the greatest burden often have the least access to the diagnostic tests required to identify and treat MI. This inequity can translate to underdiagnosis with implications for individual patient care, and also to the under-reporting of disease burden on a global scale.

The Fifth UDMI, for the first time, provides important guidance for the diagnosis of MI in low-resource settings when cardiac biomarker testing and cardiac imaging are limited. The new definition allows a ***presumptive diagnosis of MI*** in resource-limited settings. The criteria are as follows: the diagnosis can be presumed in a patient with symptoms consistent with acute myocardial ischaemia, where either new ischaemic changes or pathological Q waves develop on the ECG. These deliberate, pragmatic criteria may limit specificity but recognise and seek to overcome the issue so that the absence of advanced diagnostic testing does not, by itself, prevent the diagnosis of MI. However, there still is a limitation when neither ECG nor cardiac biomarkers are available, and thus, there is an imperative to increase ECG and cardiac biomarker access for LMICs.

Further, the diagnostic criteria of MI in low-resource settings should not diminish ongoing initiatives to expand access to reliable and affordable diagnostic testing in LMICs. In 2023, the United Nations high-level meeting on universal health coverage for non-communicable diseases highlighted the goals of the World Heart Federation and its partners to close the diagnostic gap by improving access to diagnostic tests, such as affordable point-of-care cardiac troponin testing and telemedicine-supported ECG interpretation. The Fifth UDMI provides an approach to the diagnosis of MI that can be applied while these disparities in diagnostic capacity continue to be addressed.

The move from a numerical classification of MI to three clinical categories may also have unique advantages in healthcare settings with variable access to cardiac testing. When a diagnosis of MI is made in a low-resource setting, the clinical presentation should allow the clinician to determine the type of MI as either primary (spontaneous onset of symptoms), secondary (onset of symptoms in the context of an alternate medical condition with supply-demand imbalance) or procedure-related (within 30 days of a cardiac procedure). The proposed alignment of the Fifth UDMI with ICD-11 codes—which distinguish primary, secondary and procedure-related MI—provides further opportunity to measure and address global disparities in the diagnosis and care of MI. Importantly, the proposed coding framework can also identify MI diagnosed without cardiac imaging, when at least ECG evidence is available. At present, instances of limited access to cardiac imaging in many healthcare systems are difficult to quantify. Capturing whether imaging contributed to an MI diagnosis could provide insight into disparities in access to diagnostic care. As such, the Fifth UDMI will enable not just the diagnosis of MI in LMICs but also improved assessment of gaps in diagnoses.

The Fifth UDMI also addresses another important source of diagnostic inequity: biological differences between women and men. Sex-specific 99th percentile upper reference limits (URLs) for high-sensitivity cardiac troponins are now incorporated into the diagnostic criteria for myocardial injury. This reflects the biological fact that women have lower circulating troponin concentrations than men (5). Including sex-specific thresholds is an important step to preventing the systemic underrecognition of myocardial injury and MI in women. This change also has implications for LMICs as high-sensitivity cardiac troponin testing becomes more available. Expansion of diagnostic technology provides an opportunity to implement sex-specific diagnostic standards from the outset. Inclusion of non-atherosclerotic causes of MI—spontaneous coronary artery dissection (SCAD), coronary vasospasm and coronary embolism—in the primary MI classification is also important to address historical inequities. SCAD, in particular, disproportionately affects women, and recognition of these mechanisms within primary MI ensures that an appropriate acute diagnostic and treatment pathway is followed (6). Proposed mechanism-specific ICD-11 coding will likely enable, for the first time, the recognition of these historically under-recognised, non-atherosclerotic types of primary MI, including in LMICs (Table 1).

Table 1 What is new in the Fifth Universal Definition of Myocardial Infarction and implications for low-resource settings.

FOURTH UDMI	FIFTH UDMI	RELEVANCE TO LOW-RESOURCE SETTINGS
Numerical types 1–5	Three clinical categories: primary, secondary, procedure-related MI	Simplifies diagnosis worldwide, including in all resource settings where the clinical presentation can be used to determine the category
Sex-specific 99th percentile URL recommended but not mandated	Sex-specific 99th percentile URL included in the diagnostic criteria for myocardial injury, used in the diagnosis of all three clinical types of MI	Reduces systemic under-recognition of myocardial injury and MI in women—where cardiac troponins are introduced or available in low-resources settings, consider the availability of sex-specific assays
Diagnosis requires biomarkers and ECG	New criteria of presumed MI in low-resource settings; symptoms plus new ischaemic ECG changes or pathological Q waves	Enables diagnosis of MI where cardiac troponin testing and cardiac imaging may be unavailable
Not aligned with ICD codes	ICD coding	Enables global surveillance and comparison of MI burden across all resource settings, including the capturing of MI where cardiac imaging has not been performed

The Fifth UDMI represents an important step towards a definition that can be applied more consistently across diverse healthcare settings. For the first time, resource availability is explicitly recognised, with criteria included that allow a presumed diagnosis of MI where biomarker testing or cardiac imaging is unavailable. With the concurrent incorporation of proposed ICD-11 codes, the Fifth UDMI aims to be truly universal and allow a more accurate capture of the incidence of MI across all resource settings. The Adoption of the Universal Definition of Myocardial Infarction (ADOPT-UDMI) programme aims to promote the adoption of this new definition worldwide by supporting education, evaluation and research. Anyone can get involved by contacting adopt.udmi@ed.ac.uk or the corresponding author; all contributions are welcome. Be part of a global network. Promote adoption through education. Help us understand how adoption influences care and outcomes around the world.

COMPETING INTERESTS

SZ has received honoraria from Novartis, Boston Scientific, Amgen and Novo Nordisk, unrelated to the submitted work. LKN has received grants from Roche Diagnostics, Medtronic, Boehringer-Ingelheim and consulting fees from Medtronic and Bristol-Myers-Squibb, unrelated to the submitted work. NLM has received consulting fees and honoraria from Roche Diagnostics in the last 36 months. TG has received payments from Novartis and Mineralys Therapeutics. DM has no competing interests to declare.

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