Top Ten Things to Know
Fourth Universal Definition of Myocardial Infarction (2018)

1. This follow up to the Third Definition of Myocardial Infarction (2012) includes new concepts in differentiating myocardial infarction (MI) from myocardial injury, electrical remodeling and arrhythmias, and the use of imaging as a diagnostic tool.

2. Provides updated information regarding the definition of Type 1-5 MI, high-sensitivity cardiac troponin assays and rule-in/rule-out protocols.

3. This document includes new sections on Takotsubo syndrome, myocardial infarction with non-obstructive coronary arteries (MINOCA), chronic kidney disease, atrial fibrillation, regulatory perspectives on myocardial infarction, and silent or unrecognized myocardial infarction.

4. Discusses universal definitions of myocardial injury, myocardial infarction, coronary procedure-related myocardial infarction and prior or silent/unrecognized myocardial infarction, including differences in cardiac biomarkers, electrocardiographic (ECG) changes and clinical features.

5. Type 1 MI is caused by atherosclerotic coronary artery disease and precipitated by plaque rupture or erosion resulting in an occlusive or non-occlusive thrombus.

6. Type 2 MI is caused by a mismatch between oxygen supply and demand and does not include plaque disruption. In patients with coronary artery disease, an acute stressor may result in myocardial injury due to insufficient blood flow to the myocardium.

7. Type 3 MI describes MI after a patient death when suspicion of an acute ischemic event is high, even though biomarker evidence is lacking. This category allows separation of fatal MI events from other cardiac or non-cardiac causes.

8. Type 4 and type 5 MI are related to coronary procedures. Type 4a, 4b and 4c MIs are associated with percutaneous coronary intervention (PCI). Type 5 MI is associated with coronary artery bypass grafting.

9. The use of invasive imaging techniques including echocardiography, radionuclide imaging, cardiac magnetic resonance imaging and computed tomographic coronary angiography can be useful in the diagnosis of acute MI because of the ability to detect wall motion abnormalities or loss of viable myocardium.

10. Arriving at a diagnosis of MI using the criteria in this document requires the integration of clinical findings, patterns on the ECG, laboratory data, and observations from imaging procedures, all viewed in the context of the time horizon over which the suspected event unfolds.