Top Ten Things To Know
The Universal Definition of Myocardial Infarction

1. Myocardial infarction (MI) remains a major cause of death and disability worldwide. Each year, an estimated 785,000 persons will have a new MI in the US alone, and approximately 470,000 patients will have a recurrent MI.

2. In 2000, the First Global MI Task Force presented a new definition of MI, which implied that any necrosis in the setting of myocardial ischemia should be labeled as MI.

3. Standards developed in 2000 were further refined by the Second Global MI Task Force, leading to the Universal Definition of Myocardial Infarction Consensus Document in 2007, which emphasized the different conditions which might lead to an MI.

4. However, the development of even more sensitive assays for markers of myocardial necrosis mandates further revision, particularly when such necrosis occurs in the setting of the critically ill, after percutaneous coronary procedures or after cardiac surgery.

5. The ECG is an integral part of the diagnostic work-up of patients with suspected MI and should be acquired and interpreted promptly after clinical presentation. However, the ECG by itself is often insufficient to diagnose acute myocardial ischemia or infarction, since ST deviation may be observed in other conditions.

6. Imaging techniques can be useful in the diagnosis of acute MI because of the ability to detect wall motion abnormalities or loss of viable myocardium in the presence of elevated cardiac biomarker values.

7. The preferred biomarker overall and for each specific category of MI is cardiac troponin (cTn) (I or T), which has high myocardial tissue specificity as well as high clinical sensitivity. An increased cTn concentration is defined as a value exceeding the 99th percentile of a normal reference population (upper reference limit, URL).

8. Myocardial infarction is determined by the specified cTn value, and at least one of the five following diagnostic criteria:
   (1) Symptoms of ischemia
   (2) New (or presumably new) significant ST/T wave changes or LBBB
   (3) Development of pathological Q waves on ECG
   (4) Imaging evidence of new loss of viable myocardium or regional wall motion abnormality
   (5) Identification of intracoronary thrombus by angiography or autopsy

9. The universal classification of MI complements the initial ECG classification of MI (as STEMI vs. non-STEMI), which should still be clinically used upfront to dictate immediate reperfusion strategy.

10. The consensus document describes the increasing capabilities of imaging techniques to assess myocardial perfusion, viability, myocardial thickness, thickening and motion, and fibrosis (all of which help in the diagnosis and characterization of MI), and included brief discussions on the utility of different imaging modalities.