Exploring accuracy concepts

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Introduction

The purpose of this class activity is to: 1) apply the metrics of analytical accuracy presented in class, and 2) to start to consider the overlap and distinctions between accuracy and value.
You will be divided into small groups.
Please discuss the questions and the case listed below with your group.
Try to arrive at a consensus position and be prepared to explain your collective reasoning to the class.

Questions

Question 1:
The area under the ROC curve for two different assays is 0.6 and 0.3.
Which assay is more accurate?

Question 2:
The results of a study (*Giannitsis E et al. 2010 Clin Chem*) evaluating the performance characteristics of a high sensitivity cardiac troponin assay for the diagnosis of NSTEMI are presented in the two-by-two contingency table below:

NSTEMI	hs-cTN > 14 ng/L (99th%)	hs-cTN <= 14 ng/L (99th%)
Diseased	125	11

Healthy	117	250

Based upon these data estimate the following:

Metric	Estimate	Metric	Estimate
Prevalence:		NPV:	
Sensitivity:		LR$^+$:	
Specificity:		LR$^-$:	
PPV:		DOR:	

Question 3:

A 50 year old man with a history of HTN, HLD, T2DM, and obesity presents to the ED with squeezing chest pain, shortness of breath, and dizziness.
On physical exam he is pale, diaphoretic, and in apparent discomfort.

A STAT ECG was obtained and is shown below:
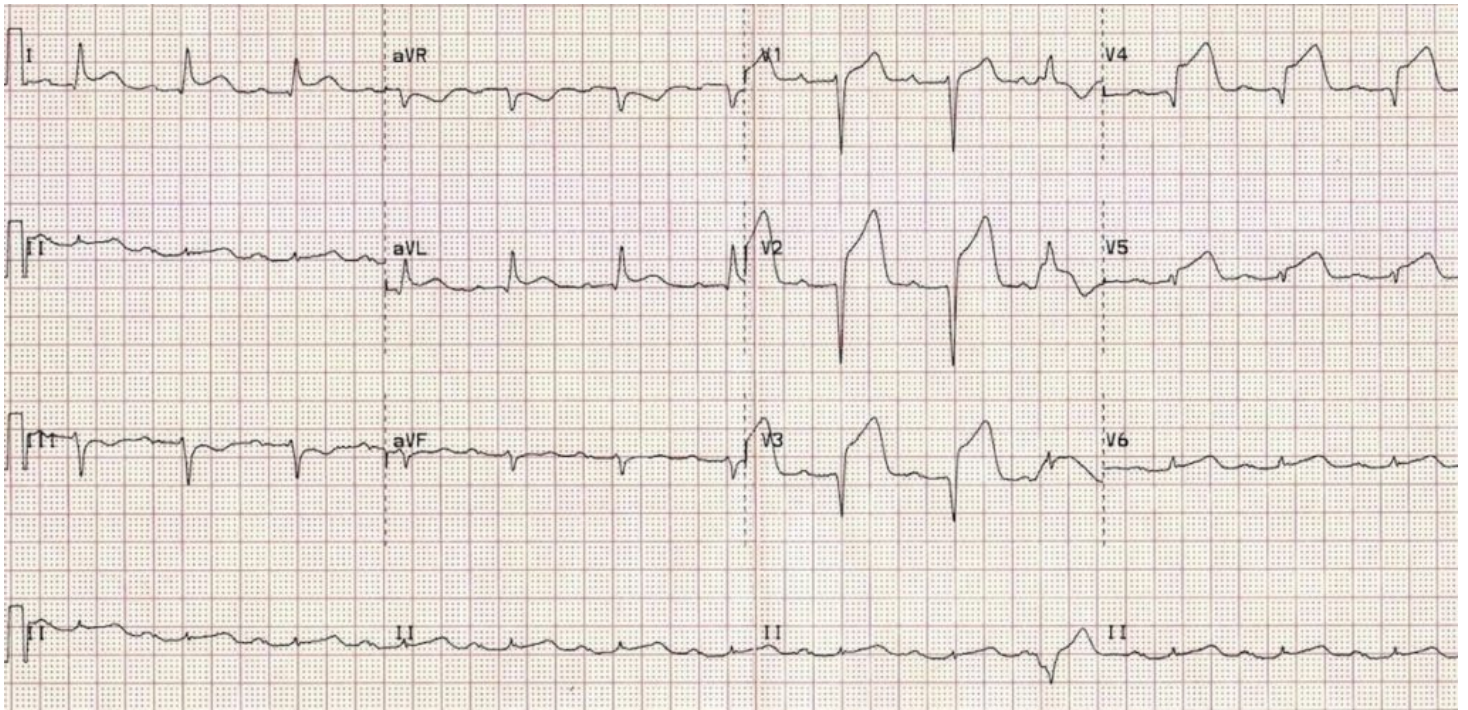
What is the most appropriate next step in management?

A. Order CK-MB
B. Order LDH
C. Order conventional cardiac troponins
D. Order high sensitivity cardiac troponins
E. Cardiac catheterization