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1.Using the Framingham LDL risk prediction equation from MedCalc3000 (available via Galter Library), what is the 10-year risk for developing coronary disease in a 37-year-old female patient who smokes with an LDL of 162, a HDL of 46, and blood pressure of 143/86?

-The predicted risk factor is 3% for developing coronary disease.

2. What if the woman were 57 years old?
- Increasing the age also increase the risk points by 11. The risk of developing coronary disease at age 57 is 20%.

3. If the 57-year-old woman asks you (her physician) for a test to see if she has coronary disease, how do you answer her?
- As her physician I would support her decision for a test to see if she has coronary disease. I would request a test that is sensitive and specific to avoid any false positive result. An electrocardiogram (EKG) test, or angiogram is appropriate test for her. Moreover, I would talk to her about changing her lifestyle and adhere to a healthy diet to prevent any future damage to her heart.

4. You decide to perform a stress echocardiogram exam with a sensitivity of 85% and a specificity of 95% on the 57-year-old woman. Please draw a 2 x 2 chart demonstrating this scenario. Use her Framingham risk score as her pre-test probability of disease.

Sensitivity = 0.85 (TP) and 0.15 (FN)
Specificity = 0.95 (TN) and 0.05 (FP)
Framingham risk score (Pretest) = 0.20

	Disease (20)		No Disease (80)
TP	17	FP	4
FN	3	TN	76

TP = 0.95 x 20 = 17
 FN = 0.15 x 20 = 3
TN = 0.95 x 80 = 76
 FP = 0.05 x 80 = 4

5 Using concepts of PPV and NPV, please answer the following questions:
a. What is the probability your patient does not have CAD despite a positive test?

The false positive rate tells us the probability which can be calculated by: 1- specificity.
  that is, 1 - 0.95 = 5 %

b. What is the probability your patient still has CAD despite a negative test?

The false negative rate (FNR) indicates the probability that the patient still has CAD despite a negative test by calculating: 1 - Sensitivity
that is, 1- 0.85 = 15%