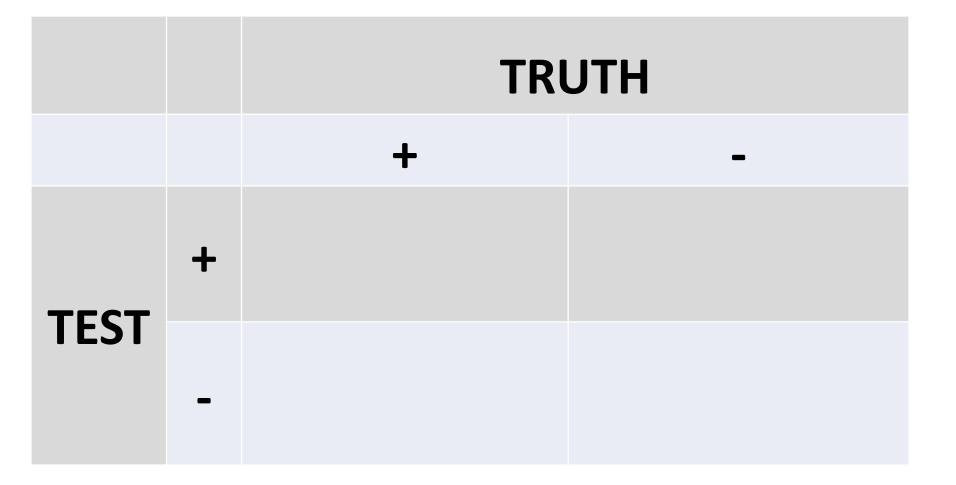


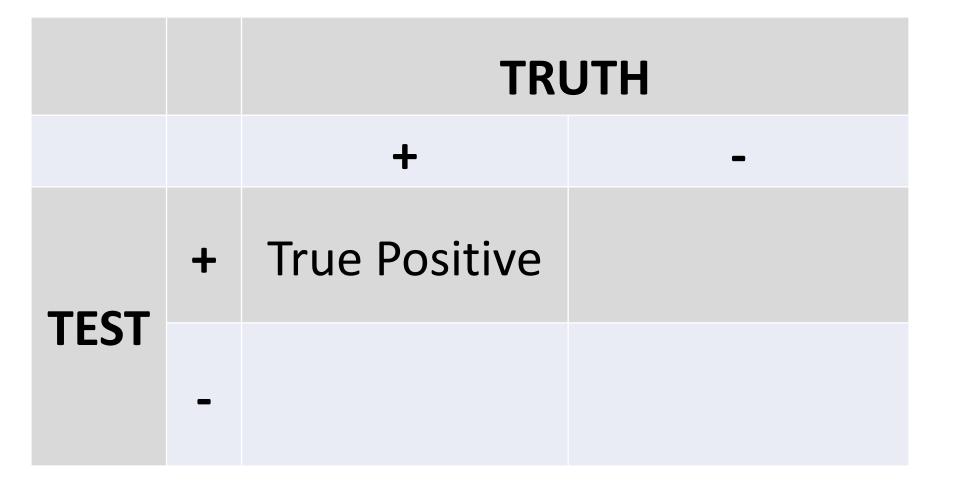
July 13, 2021

Agenda

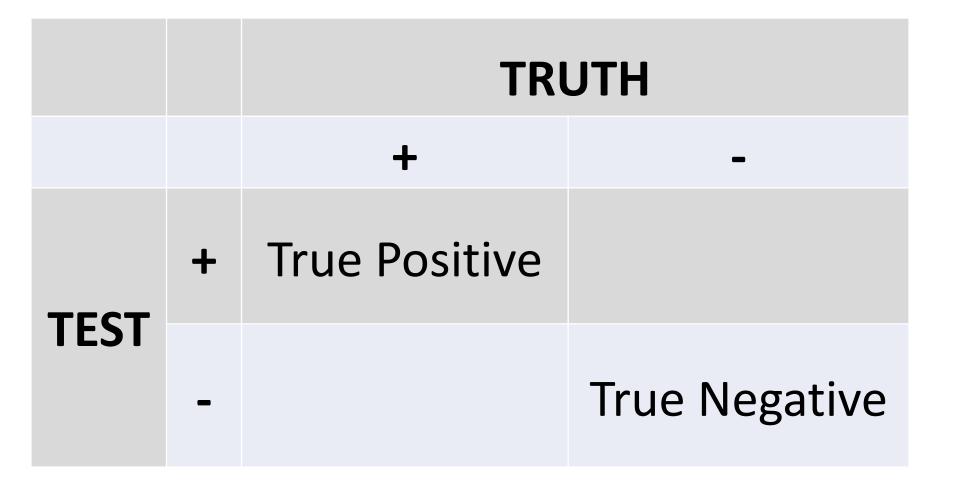
- Why Pre-Test Probability Matters
- Case Discussions
- Open Discussion



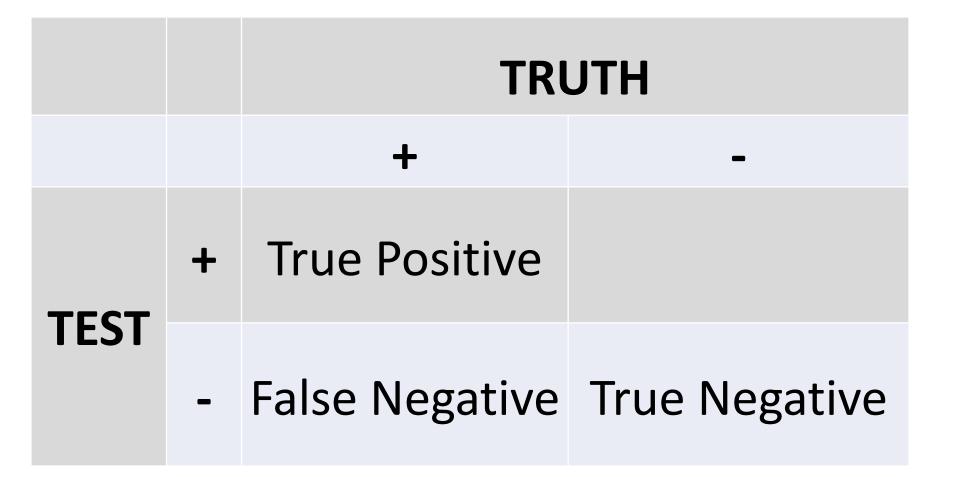




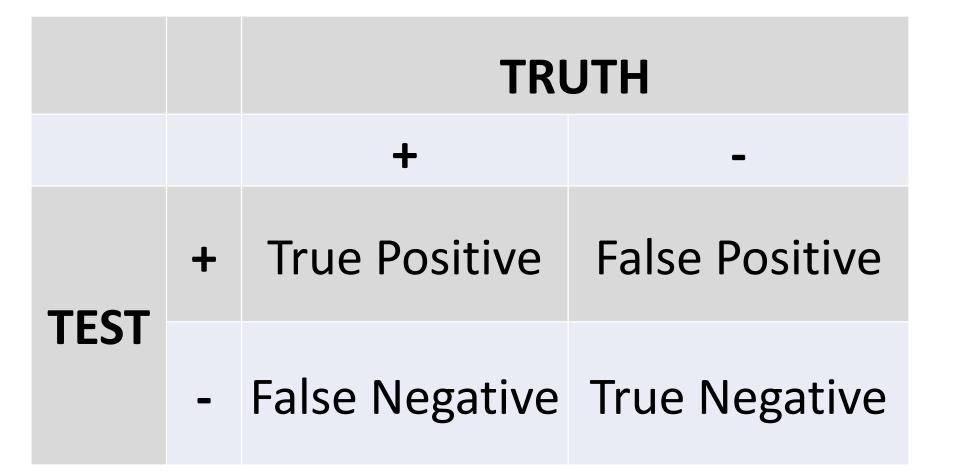




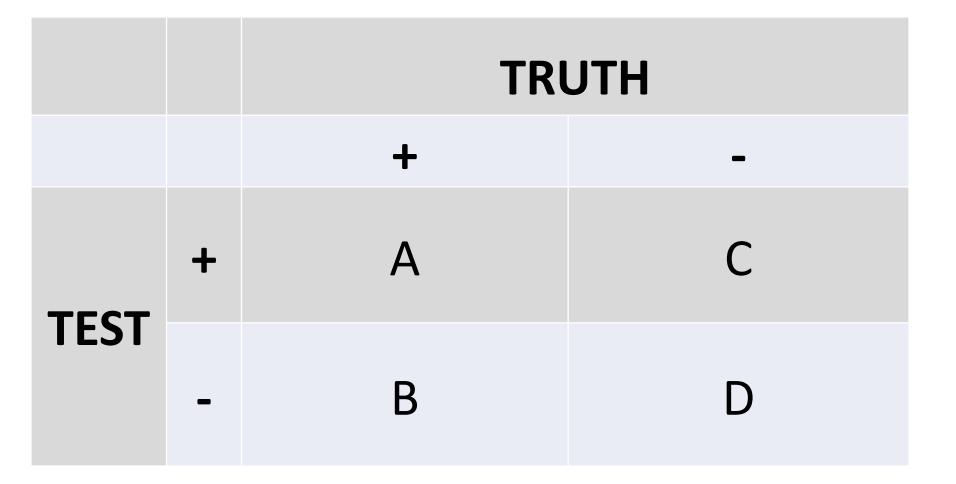














Sensitivity

Probability that a test will be POSITIVE if the patient is truly POSITIVE

True positives/All real positives or

		TRUTH		
		+ -		
TEST	+	А	С	
	-	В	D	

A/A+B



Specificity

Probability that a test will be NEGATIVE if the patient is truly NEGATIVE

True Negatives/All real Negatives Or

Image: image:

D/D+C

Positive Predictive Value

Probability that a patient with a POSITIVE test is truly POSITIVE

A/A+C

		TRUTH	
		+	-
TEST	+	А	С
	-	В	D



Negative Predictive Value

Probability that a patient with a NEGATIVE test is truly NEGATIVE

D/D+B

		TRUTH	
		+	-
TEST	+	А	С
	-	В	D



But what's that about pre-test

- Sensitivity and Specificity are all about the test characteristics
- But PPV and NPV depend on the test characteristics and the population prevalence!

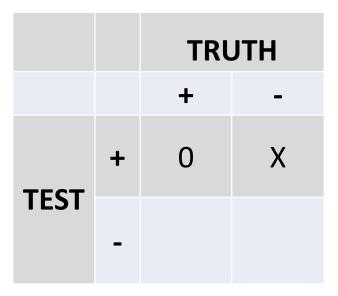


An Example

POSITIVE PREGNANCY TEST in a cisgender MAN

Cisgender man presents to the ED with abdominal pain and the ED abdominal pain order-set is initiated. The patient's pregnancy test comes back POSITIVE. How do I interpret this?

Population prevalence: 0% The test must be a FALSE POSITIVE



An (COVID) Example

			TRI	JTH
Probability that a			+	-
patient with a POSITIVE test is		+	144	3
truly POSITIVE ce: 15%	TEST	-	6	847

PPV = A/A+C = 144/(144+3) PPV = 98%



An (COVID) Example

SARS-CoV-2 Test Sensitivity 96% Specificity 99.6%

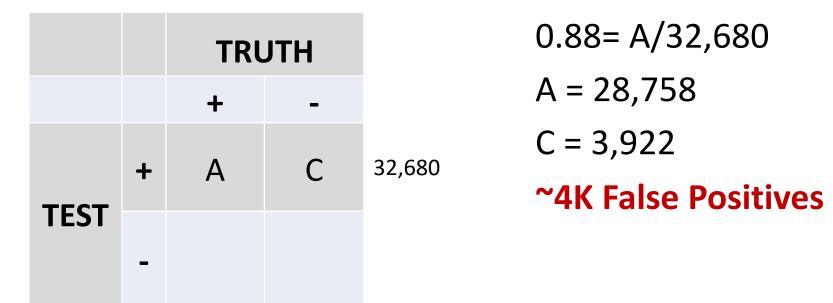
1000 people tested Population prevalence: 3%

		TRUTH		
		+	-	
TEST	+	29	4	
	-	1	966	



FINAL EXAM

PPV of 88% (Sens 96%, Spec 99.6%, Prevalence 3%) You do 1 million tests and 32,680 come back positive. How many of those were false positives?





PPV = A/A+C

Take Aways

- All this to say, no test is perfect
- Population prevalence matters
- The lower pre-test probability, the more FALSE POSITIVES you will see
- This is a big problem for SARS-CoV-2 testing, especially asymptomatic
- This is a HUGE simplification there are several other factors that influence pre-test probability too (symptoms, risk factors, etc.)

