We are exploring sensitivity and specificity this week. This can let you know the limitations of a test for a disease. More and more labs, hospitals, and public health agencies are moving to molecular methods to test for disease, but often for screening tests we use test like EIA or other rapid immunogenic tests.

**Your goal:**

Select a disease

* Find the prevalence of that disease in the US
* Find a screening test for that disease and the manufacturer’s reported sensitivity and specificity
* Apply that proportion to a random population of 100,000 people
* Calculate the predictive positive value and the predictive negative value
* Answer the question: Does it make sense to screen for this disease using this test and based on the natural history of the disease why or why not?

**Example: How to work the math alone**

Disease X occurs at a prevalence of 10 per 100,000 population.

Screening test Y has a sensitivity of 95% and a specificity of 80%.

Step 1:

|  |  |  |
| --- | --- | --- |
|  | Disease (+) | Disease (-) |
| Test (+) | 95% | 20% |
| Test (-) | 5% | 80% |
|  | 10 | 999,990 |

Step 2:

|  |  |  |
| --- | --- | --- |
|  | Disease (+) | Disease (-) |
| Test (+) | 9.5 | 199,998 |
| Test (-) | .5 | 799,992 |
|  | 10 | 999,990 |

From this point, you can easily calculate the predictive positive and the predictive negative values. The real challenge is going to look at the natural history of the disease, cost of the test, treatment of the disease and determine if screening is appropriate. If it is appropriate or not, you have to provide researched justification as to why it is not or is and if there are certain groups it would be best to screen or prioritize why or why not.

All research should be cited and appropriately supported.

The initial post must be between 350 - 500 words and is due on Thursday of Week 1.

By Saturday 11:59 pm Pacific Time you must respond to at least two of your fellow students. These responses must include a journal, news, or website article that critically reflects and pertains to the points of the initial post. You can either agree, disagree, or elaborate using these sources.