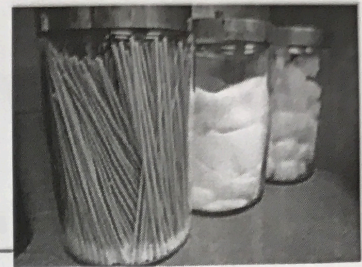
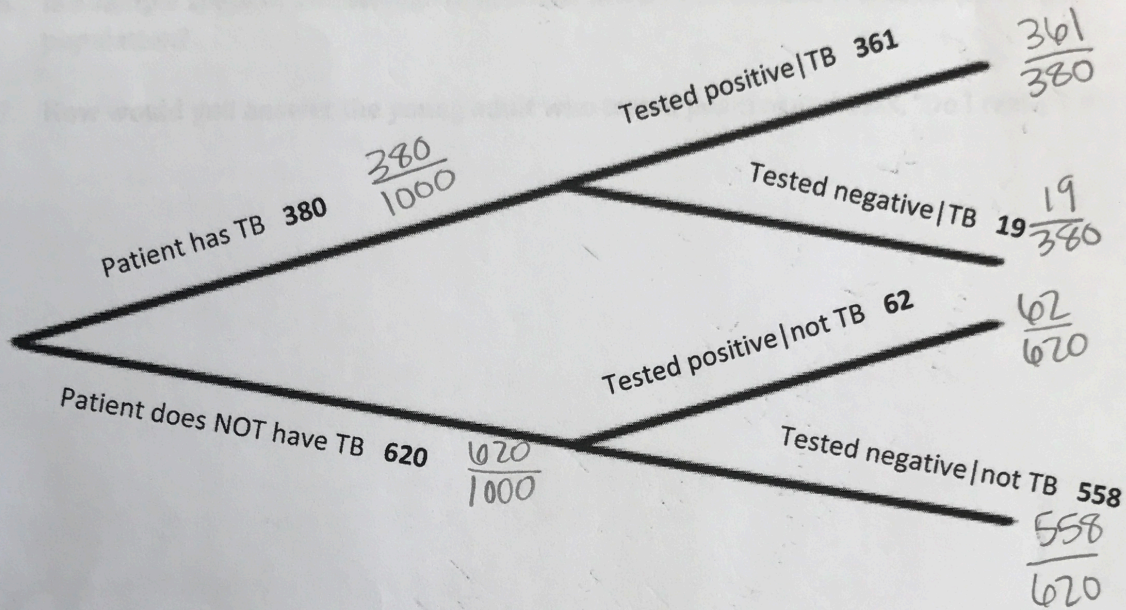


9.1 TB or Not TB?

A Develop Understanding Task



Tuberculosis (TB) can be tested in a variety of ways, including a skin test. If a person has tuberculosis antibodies, then they are considered to have TB. Below is a tree diagram representing data based on 1,000 people who have been given a skin test for tuberculosis.



- Use your knowledge to write several probability statements about this test (based on the numbers provided).

$$\text{Tested pos.} - \text{no TB} = \frac{62}{620} *$$

$$\text{Has TB } \frac{380}{1000}, \text{ No TB } \frac{620}{1000}$$

4 total

- Look over the statements you wrote. Put an asterisk (*) next to those that are conditional probability statements (statements based on margin "row" or "column" percentages). If there are not any, add some now.

- Part of understanding the world around us is being able to take information, make sense of it, and then explain it to others. Based on your statements above, what would you say to a friend regarding the validity of their results if they are testing for TB and only get a skin test? Be sure to use data to best inform your friend.

Use full sentences to answer

Use Full Sentences to answer

Other questions to consider....

4. In this situation, explain the consequences of errors (having a test with incorrect results).
5. If a health test is not 100% certain, why might it be beneficial to have the results lean more toward a false positive?
6. Is a sample space of 200 enough to indicate whether or not this is true for an entire population?
7. How would you answer the young adult who tested positive and asks, "Do I really have TB?"

Core Standards Focus:

HS.P.6: Find the conditional probability of A given B, the Partition of 2's outcomes that are related to A, and interpret the answer in terms of the model.

HS.P.7: (+) Analyze decisions and strategies using probability concepts (e.g., probability of winning a game, probability of a player making a free throw at the end of a game).

Related Standards: HS.P.1, HS.P.4, HS.P.5

Learning Objectives:

Students will be able to...
1. Interpret the results of a health test and explain why it is important to know how to read and understand data in the health care field.
2. Use a tree diagram to determine whether or not a certain test is reliable.
3. Explain why a sample space of 200 is not enough to indicate whether or not this is true for an entire population.
4. Answer the young adult who tested positive and asks, "Do I really have TB?"

Teacher (Should be able to):

1. Use a tree diagram to determine whether or not a certain test is reliable.
2. Explain why a sample space of 200 is not enough to indicate whether or not this is true for an entire population.

1. What information do you need to answer this question?
2. In the TB test above, what are the possible outcomes?
3. Do you think the test is reliable or accurate based on the data that results?
4. What other information do you need to know?

