

Negative Predictive Value (NPV)

Negative predictive value refers to the probability that a person with a negative test result does not have the tested disease. NPV allows for clinicians to explain to patients the likelihood of a negative result being truly negative. The formula to calculate NPV is True Negatives (TN) divided by the sum of True Negatives (TN) and False Negatives (FN), or $NPV = TN / (TN + FN)$.



PLAY PICMONIC

Proportion of Negative Tests that are Truly Negative

[Proportion of Negative tests that are Truly Negative with Tin](#)

A negative test result does not always mean a patient has the disease; a false negative may still occur. More false negatives will lower the NPV.

Probability that Person with Negative Test is Healthy

[Probability-spinner showing Negative-tests as Healthy or Diseased](#)

This refers to the probability of NOT having a disease out of all the people who tested negative for it.

Formula

(TN) True Negatives

[True Negative with Tin](#)

A true negative is a person who does not have a disease and tests negative for the disease. TN will be the numerator in the formula.

Divided by /

[Divide](#)

True negatives (TN) will be the numerator that is divided by the calculated denominator below.

All Negative Test Results

[All Negative](#)

The denominator is the sum of all negative results for a given test. This will include people who have a disease but test negative for the disease, otherwise known as a false negative.

(FN + TN)

[Fin Plus Tin](#)

Add the number of true negatives to the number of false negatives to obtain the denominator in the equation.

Considerations

Varies Inversely with Prevalence

Up-arrow Disease with Down-arrow NPV

Prevalence is the amount of patients who are currently affected by a disease. A common disease will have a high prevalence, while a rare disease will have a low prevalence. As the prevalence and pretest probability of a disease increase, the negative predictive value decreases. This inverse relationship is in contrast to the direct relationship shared by positive predictive value and these two factors.