

Quick Risk Test ¹

Target audience: Medical students and medical professionals

¹ Reproduced from Jenny MA, Keller N, Gigerenzer G. Assessing minimal medical statistical literacy using the Quick Risk Test: a prospective observational study in Germany. *BMJ Open* 2018;8:e020847. doi:10.1136/bmjopen-2017-020847

1. A test's sensitivity is a central criterion for its quality as a diagnostic tool.

The sensitivity is

- A) the proportion of people with a positive test result among those who are sick.
- B) the proportion of people with a negative test result among those who are sick.
- C) the proportion of people with a positive test result among those who are healthy.
- D) the proportion of people with a negative test result among those who are healthy.

2. A test's specificity is a central criterion for its quality as a diagnostic tool.

The specificity is

- A) the proportion of people with a positive test result among those who are sick.
- B) the proportion of people with a negative test result among those who are sick.
- C) the proportion of people with a positive test result among those who are healthy.
- D) the proportion of people with a negative test result among those who are healthy.

3. Which test characteristic quantifies the probability that a person with a positive test result actually has the disease?

- A) Positive predictive value
- B) Negative predictive value
- C) Specificity
- D) Sensitivity

4. Which test characteristic quantifies the probability that a person with a negative test result does not have the disease?

- A) Sensitivity
- B) Positive predictive value
- C) Negative predictive value
- D) Specificity

5. A medical test's manufacturer tells you the sensitivity and the specificity of its test. You would like to tell your patient the probability that they are sick if they have a positive test result. Which measurement do you need for your calculation?

- A) Mortality
- B) Prevalence
- C) Coherence
- D) Latency



6. Mammography is often used as a screening test to detect breast cancer early. The probability that a woman has breast cancer is 1%. When a woman has breast cancer her probability of receiving a positive mammogram is 90%. When a woman does not have breast cancer her probability of nevertheless receiving a positive mammogram is 9%. What is the best estimate for the number of women with a positive screening mammogram who actually have breast cancer?

- A) 9 in 10
- B) 8 in 10
- C) 1 in 10
- D) 1 in 100

7. In a medical publication you read that screening with mammography lowers the probability of dying from breast cancer by 20%. This number is

- A) a relative risk reduction.
- B) an absolute risk reduction.
- C) a specific risk reduction.
- D) an evident risk reduction.

8. A patient asks you about the benefits of cancer screening. Which criterion should you consider here?

- A) 5-year survival rate
- B) Incidence
- C) Mortality rate
- D) Prevalence

9. Imagine two groups of people who all die of cancer at age 70. In group A, cancer is detected via screening at the age of 60. In this group, the 5-year survival rate is 100%. Group B is not screened. In this group, cancer is detected at age 68. Everyone dies at age 70. Thus, the 5-year survival rate is 0%. Which bias explains why both groups have different 5-year survival rates?

- A) Selection bias
- B) Overdiagnosis bias
- C) Lead-time bias
- D) Performance bias

10. A higher screening rate results in more positive diagnoses. In screening, if anomalies are discovered, which because of their extremely slow growth would never cause symptoms or an early death, this is called

- A) selection bias.
- B) attrition bias.
- C) lead-time bias.
- D) overdiagnosis bias.