

Clinical Epidemiology and Quaternary Prevention

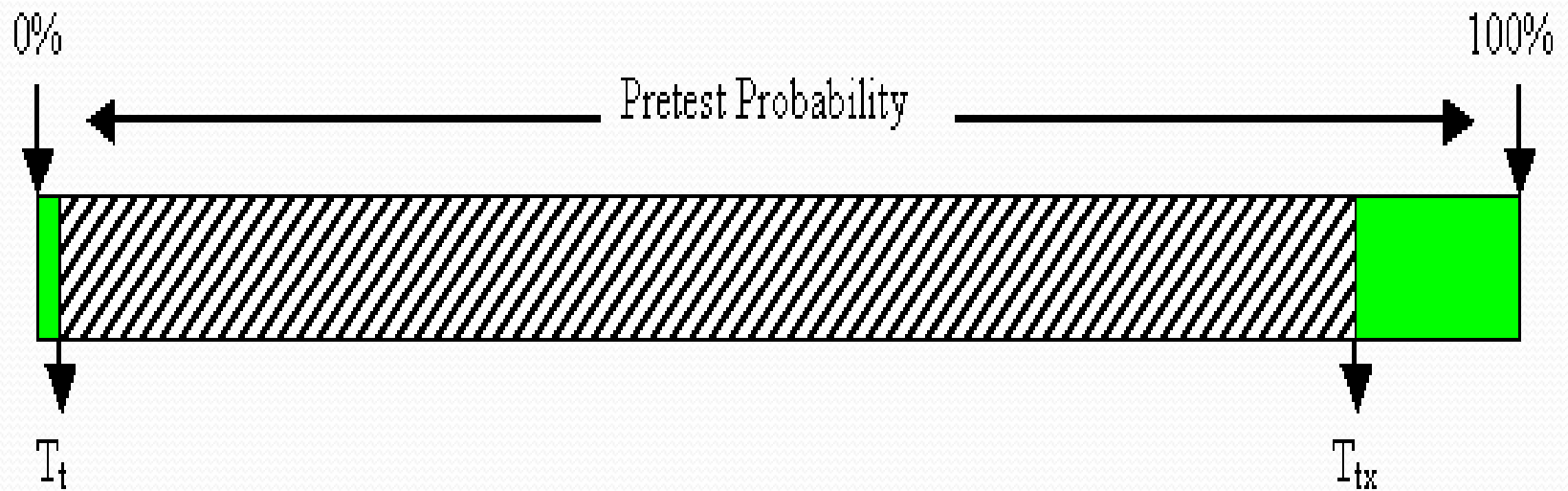
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Pretest Probability

- Pretest probability estimates: a pitfall to the clinical utility of evidence-based medicine?
- ELIZA plus Western Blot: high sensitivity of about **99.9%** and specificity of about **99.99%**
- Nonetheless, due to a very low base rate of HIV in the order of 1 in 10,000 among heterosexual men with low-risk behavior, **the chance of infection can be as low as 50% when a man tests positive in screening.**
- www.pretestconsult.com



$$T_t = (P_{\text{pos}}/n_d * R_{rx} + R_t) / (P_{\text{pos}}/n_d * R_{rx} + P_{\text{pos}}/d * B_{rx})$$

Index of therapeutic Impotence(ITI)

- Number Needed To Treat (NNT), www.thennt.com
- Number Treated Needlessly(NTN)
- $NTN = NNT - 1$
- **Index of therapeutic Impotence** = $(NTN / NNT) * 100$
- NNTs under 5 are **unusual**, whereas NNTs over 20 are **common**.
- Richard Smith, MD: *Most drugs don't work on most patients*
- Same calculations for Number Needed To Screen

Diagnostic Trials

- Properly conducted, randomized controlled trials are the gold standard for assessing the effectiveness and safety of interventions, yet are **rarely** conducted in the assessment of diagnostic tests.
- Instead, diagnostic cohort studies are commonly performed to assess the characteristics of a diagnostic test including sensitivity and specificity.
- While diagnostic cohort studies can inform us about the relative accuracy of an experimental diagnostic intervention compared to a reference standard, **they do not inform us** about whether the differences in accuracy are clinically important, or the degree of clinical importance (in other words, the impact on patient outcomes).

Diagnostic Trials continued,

I suggest:

- Index of Diagnostic Impotence (IDI)
- Number Needed to be Tested
- Number Tested Needlessly
- Index of Diagnostic Impotence = $(\text{Number Needed to be Tested} / \text{Number Tested Needlessly}) * 100$