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
\[ T_t = \frac{(P_{pos}/n_d \times R_{rx} + R_t)}{(P_{pos}/n_d \times R_{rx} + P_{pos}/d \times B_{rx})} \]
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).
I suggest:
- Index of Diagnostic Impotence (IDI)
- Number Needed to be Tested
- Number Tested Needlessly
- Index of Diagnostic Impotence = \((\text{Number Needed to be Tested}/\text{Number Tested Needlessly}) \times 100\)