POCKET STATISTICS FOR MDs

- **Alpha**: The probability of concluding there is a difference between two groups when there is really no difference between them
  - Referred to as a "Type I error"
- **p-value**: the level of statistical significance
  - A result is considered statistically significant if the probability of type I error is less than 5% (p<0.05)
  - P<0.05 indicates that the probability that the result is due to chance alone is less than 1 in 20
- **Beta**: The probability of concluding that there is no difference between treatment groups when there really is a difference
  - Referred to as "Type II error"
  - Beta is conventionally 0.10 or 0.20
- **Power (P)**: The ability to detect significant difference between treatment groups
  - \( P = 1 - \beta \)
  - By convention, adequate study power is set at 0.80 or 80%
- **Intention to Treat**: Statistical analysis for randomized trial that includes all the patients who were randomized to a treatment arm regardless of whether or not they finished the study
  - Considered to mimic clinical practice more closely than an analysis that includes just the patients who concluded the study
- **Number Needed to Treat (NNT)**: Estimated number of patients who need to be treated with a specific therapy in order for one patient to benefit from treatment
  - \( NNT = \frac{1}{ARR} \)
  - \( ARR = \text{Absolute Risk Reduction} = \text{CER} - \text{EER} \)
  - \( CER = \text{Control Event Rate} \)
  - \( EER = \text{Experimental Event Rate} \)
- **Baye's Rule**: If disease incidence is low, the number of false positives may outnumber the number of true positives
- **Sensitivity**: A test's ability to identify positive results
  - \( Sensitivity = \frac{\text{true positives}}{\text{true positives} + \text{false negatives}} \)
- **Specificity**: A test's ability to identify negative results
  - \( Specificity = \frac{\text{true negatives}}{\text{true negatives} + \text{false positives}} \)

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