

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
 - $P = 1 - \text{beta}$
 - 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
 - $NNT = 1/ARR$
 - *Absolute Risk Reduction (ARR) = CER - EER*
 - *CER = Control Event Rate*
 - *EER = 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
 - $Sensitivity = (\text{true positives}) / (\text{true positives} + \text{false negatives})$
- **Specificity:** A test's ability to identify negative results
 - $Specificity = (\text{true negatives}) / (\text{true negatives} + \text{false positives})$