Evidence-based practice (EBP) encourages clinicians to make clinical decisions based on the “best-available” evidence. Clinical inference is the process of applying knowledge (best evidence) prior to action in the context of a clinical situation such as an individual patient treatment. Clinicians sometimes have difficulty in identifying the ‘best’ evidence, particularly when faced with assessing and interpreting research statistics. Statistical inference imparts results of a study sample on a represented population, while clinical inference applies results of a study on individual patients.

Statistical inference relies on several assumptions (eg, sample size, variance, distribution, homogeneity) to infer sample results on clinical populations; unfortunately, some clinical studies used in making clinical decisions fail to meet these assumptions. To compound this problem, the commonly reported “p-value” for statistical significance is of little value in clinical decision making, although most clinicians (and researchers) are unaware of this. While the p-value provides the probability of incorrectly rejecting the null hypothesis as a dichotomous “Yes-No” statistical decision, it does not necessarily provide the evidence needed to make an informed clinical decision.

Clinicians can use estimation statistics derived from representative samples to determine the clinical significance of research outcomes, thus supporting evidence-informed decision making. Estimation statistics can help clinicians identify the magnitude and direction of an outcome (effect size), range of likely outcomes in a population (confidence interval), and the best estimate of the true value of the outcome (point estimate). Clinicians should use the minimal clinically important difference (MCID) values to determine if a study's particular outcome measure is clinically meaningful. These statistics can then be used to make a clinical inference in the context of the research outcome and the individual patient.

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