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Clinical Guide to the Evidence-Based Assessment Approach to Diagnosis and Treatment

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Assessment plays an essential role in diagnosis, treatment planning, and progress monitoring, but assessment data are often used in ways that are impressionistic and prone to biases. Evidence-based medicine (EBM) principles, underutilized in psychology, can be used to streamline the assessment process and increase the accuracy of conclusions. Using a case example to illustrate the application of each step, this paper outlines a 12-step approach for applying EBM assessment strategies in clinical practice. The initial steps utilize information about clinical base rates, psychopathology risk factors, rating scale scores, and selected in-depth assessment to conduct an iterative, efficient approach to estimating the probability of a given diagnosis until that probability falls into a range suggesting the diagnosis is unlikely to be present, or likely enough to warrant treatment. Once the practitioner and client agree on the treatment plan, subsequent steps monitor progress and outcomes and use that information to make decisions about termination, and then continued monitoring guards against relapse.

A huge amount of research has been conducted since we, as practitioners, completed our training. Tens of thousands of articles are published annually, and even more things compete for our attention if we consider blogs, advertisements, and the news. The problem is that many of the claims are not scientifically valid, and much of the science is not clinically relevant. Perhaps less than 0.25% of the research in most areas of health care will combine scientific validity and clinical relevance (Glasziou, 2006). Who has the time to skim 400 articles to find 1 gem, which may or may not be helpful for the clients we will see this week?

Evidence-Based Medicine (EBM) developed as a philosophy and a set of skills to help manage information overload, so that clinicians can continue to update practices with information to improve client care. EBM is relentlessly pragmatic, using search strategies and critical appraisal tools to find evidence quickly and slash away "hits" that are based on weak designs or will not matter for the client. It is client centered, with the clinician forming answerable questions and looking for evidence to guide decisions about key client issues. The methods have been honed so that updates and searches fit in between seeing clients, or during brief periods as would occur naturally with cancellations and no shows, or perhaps during 30 minutes of regularly scheduled weekly self-improvement (Straus, Glasziou, Richardson, & Haynes, 2011).

Unfortunately, EBM also has developed almost entirely independently from clinical psychology. The original proponents specialized in internal medicine (Sackett, Straus, Richardson, & Rosenberg, 1998), and most of the writings on EBM are oriented towards medicine and nursing (Straus et al., 2011). This is a shame, because EBM has much to offer psychological practice, and psychology also has much to add to EBM (Norcross, Hogan, & Koocher, 2008; Spring, 2007). Adopting these strategies enables clinicians to work more efficiently by streamlining the assessment process. There is an up-front investment of some time to reorganize the assessment process. The reorganization involves identifying reasonable estimates for local base rates, comparing the different assessments available for specific clinical problems, selecting one as the primary measure, and finding or calculating psychometric details that facilitate clinical application of the tools. Many of the most clinically helpful psychometric characteristics are not yet routinely reported in technical manuals or articles, although sufficient information is available to calculate them. The installation process for evidence-based assessment thus involves some focused searches and some one-time calculations to derive the estimates that plug into the assessment process. Once these details are in place, the cost increase and amount of time added per client are

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negligible (and may actually yield either net savings, or an increase in the reimbursable time). Prior articles have described the evolution of our thinking about the complementary strengths of psychological assessment and EBM, as well as a research agenda (Youngstrom, 2013a; Youngstrom, Jenkins, Jensen-Doss, & Youngstrom, 2012). The goal of this article is to describe 12 steps that integrate EBM ideas with traditional assessment into an evidence-based assessment (EBA) model, walk through the processes of installing the model in an existing clinical practice, and applying its steps to an individual client (see Figure 1). These 12 steps are grounded in EBM's probability-based approach to the assessment process. Before defining the steps, we will first describe the underlying theory.

Base Rates and Probabilities: Foundations of the EBM Diagnostic Approach

The EBM approach to diagnosis focuses on determining the probability of a client's having each diagnosis. In the absence of other information, Meehl (1954) advised "betting the base rate." In other words, if 20% of all of our clients have anxiety, prior to learning anything about a new client, there is a 20% chance that the next client has anxiety. EBM provides strategies for integrating information from risk factors and test results to revise the probability of each diagnosis. Bayes' Theorem lays out the mathematics underpinning this approach. The base rate provides an estimate of the prior probability of a diagnosis (in other words, a "best guess" before gathering additional assessment data), and then combine it with the change in risk attached to a particular assessment finding, estimating the updated posterior probability.

Although Bayesian methods are a bit complicated mathematically, there are now websites and smartphone apps that will do the number crunching (e.g., http://www.ebm.med.ualberta.ca/DiagnosisCalc.html; http://ktclearinghouse.ca/cebm/practise/ca/calculators). EBM also uses a probability nomogram (Figure 2) as a graphical method for synthesizing probabilities and changes in risk. We will use the nomogram as we work through our case example. Interested readers can refer to the "diagnosis" and "risk" chapters in Straus et al. (2011), or a series of commentaries illustrating the methods with psychiatric evaluations (Frazier & Youngstrom, 2006; Youngstrom & Duax, 2005; Youngstrom & Kogos Youngstrom, 2005).

What does the posterior probability represent? One way of thinking about it is as the average probability of a diagnosis for a large number of cases with identical scores

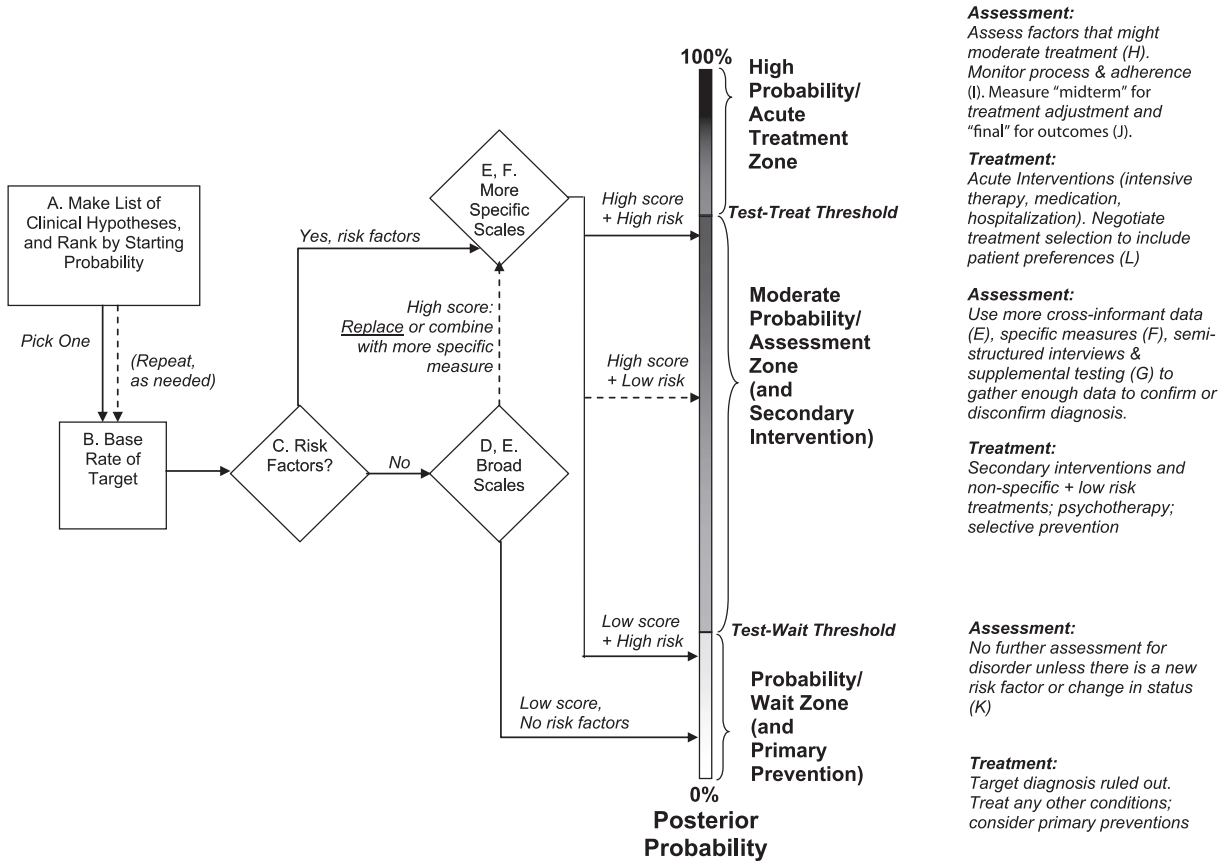

Figure 1. Mapping Assessment Results Onto Clinical Decision Making. *Note.* Letters refer to assessment step in Table 1.