

Research-Training Link

An Evidence-Based Practice Glossary: Unscrambling Alphabet Soup

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The evidence-based movement that first emerged in medicine is gaining momentum in psychology, public health, and education. Here we briefly examine what precipitated the movement, its relevance to health psychologists, and some of its associated terminology.

It used to be the case that procedures practiced by physicians automatically were deemed medically necessary and were covered by insurance (Eddy, 2005). In the 1970s, however, several observations began to cast doubt on the wisdom of that tradition. First, it became apparent that similar patients were receiving very different treatment depending upon where they lived (Wennberg & Gittelsohn, 1973). Second, accumulating evidence showed that clinical decision-making errors and treatments contraindicated by any professional standard were being implemented with surprising frequency. Physicians judged that the best way to preserve professional credibility and reimbursement was to adopt a more transparent standard for determining best practices. Agreement that research offered an objective way to evaluate the effectiveness of treatments ushered in the evidence-based movement in the early 1990s. It soon became apparent that only about 15% of medical procedures had solid scientific support, prompting calls for research to determine which treatments actually worked (Committee for Evaluating Medical Technologies, 1985). An accumulation of new clinical trials and research syntheses has since produced some surprising results. Among those are findings that some underappreciated treatments show solid evidence of effectiveness (cf. Cochrane Collaboration logo, www.cochrane.org/logo) and other well-accepted ones produce significant harm (Writing Group for the Women's Health Initiative Investigators, 2002). The result has

been emergence of a robust evidence-based movement that aims to support health care decision-making by integrating high-quality research evidence with clinical expertise and patient preferences (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996).

In 2000, the Office of Behavioral and Social Sciences, under Peter Kaufmann's Acting Directorship, funded the initial Evidence-Based Behavioral Medicine (EBBM) Committee out of recognition of a need to grow and systematize the evidence base for behavioral health treatments in parallel to that for medical treatments. EBBM became a standing Committee of the Society of Behavioral Medicine in 2004. Its working groups include liaison members from major professional groups concerned with behavioral health interventions (e.g., American Psychological Association [APA] Division 38, Association for Cognitive and Behavioral Therapy, Academy of Behavioral Medicine Research, American Psycho-somatic Society, International Society of Behavioral Nutrition and Physical Activity).

An alphabet soup of evidence-based terminology can bog down researchers looking to contribute to the evidence base and practitioners looking to access it for clinical decisions. Below we offer a glossary to explain some commonly used terms.

Evidence-Based Medicine (EBM). EBM stands in contrast to "eminence-based medicine," based on the personal opinions of authorities. The EBM approach involves two components (Eddy, 2005): (1) Clinical practice guidelines recommend best practices for the group or average patient. Guidelines derive from systematic reviews synthesizing evidence from many research studies weighted by quality. Those of the British National Institute for Health and Clinical Excellence (www.nice.org.uk) offer

good examples. (2) Clinical decision-making about the care of individual patients that conscientiously, explicitly, and judiciously integrates best current research evidence with clinical expertise and patient values and preferences (Sackett et al., 1996).

Evidence-Based Behavioral Medicine (EBBM). Evidence-based behavioral medicine seeks to strengthen, systematize, and render more accessible the evidence base for behavioral health treatments. The aim is to enable practitioners to access effective techniques that can be used when their clinical expertise suggests that these will match the needs and preferences of individual clients.

Hierarchy of Evidence. The hierarchy ranks the credence given to different kinds of evidence about the effectiveness of treatments. Topping the hierarchy, confidence about whether a treatment does or does not work is greatest when consistent findings emerge from multiple, well-conducted studies with research designs that minimize sources of error. At the bottom of the hierarchy, because most prone to bias, are anecdotal reports from authorities or colleagues. Treatments for which high-quality evidence is lacking or insufficient cannot be determined to be effective or ineffective.

Randomized Controlled Trial (RCT). In an RCT, participants are randomly assigned to the treatment of interest or to a control condition, producing a state in which all factors, known and unknown, are balanced across groups (Friedman, Furberg, & DeMets, 1998). Because randomization attenuates the threat for bias, RCTs have high internal validity, offering greater confidence that differences in outcome can be causally attributed to the differing treatments. For that reason, RCTs are usually considered to be at the top of the evidence hierarchy. When randomization is not feasible for reasons of expense or ethics,

nonrandomized designs can be used. Cohort studies, single case experiments, and case-control studies are examples of nonrandomized designs used in clinical research.

Empirically Supported Treatment (EST). An APA Division 12 Task Force initially proposed criteria for a psychological intervention to be judged empirically "validated" (Begg et al., 1996). The descriptor was subsequently changed to empirically "supported" so as not to imply that validity had been proven, precluding any need for further research (Des Jarlais, Lyles, & Crepaz, 2004). A number of interventions were listed as well-established or probably efficacious based upon having met criteria that required empirical support in a few group comparison studies or single-case experiments, preferably using treatment manuals (Chambless & Ollendick, 2001). The EST evidence hierarchy was collapsed, such that randomized and nonrandomized, and single case and group comparison designs were all accorded the highest level of evidence.

Consolidated Standards of Reporting of Trials (CONSORT). Nontransparent reporting of clinical research impedes synthesis of evidence for systematic reviews. To standardize the reporting of RCTs, the Standards of Reporting Trial (SORT) group, in collaboration with the Asilomar Working Group on Recommendations for Reporting of Clinical Trials, developed the CONSORT (Begg et al., 1996). The revised CONSORT statement has been published in several languages and endorsed by numerous medical journals and editorial groups (see <http://www.consortstatement.org/endorsements/journals/journals.html>). The CONSORT statement requires comprehensive reporting of specific information relevant to evaluating threats to the internal and external validity of a trial. Behavioral medicine journals that have incorporated CONSORT into their reviewer guidelines include the *Annals of Behavioral Medicine*, *Health Psychology*, *Psychosomatic Medicine*, *Journal of Consulting and Clinical Psychology*, *AIDS*, and *Alcohol and Alcoholism*.

Transparent Reporting of Evaluations With Nonrandomized Designs (TREND). Paralleling CONSORT, the TREND statement provides reporting guidelines for nonrandomized studies, such as quasi-experimental designs and natural experiments (Des Jarlais et al., 2004). The *Annals of Behavioral Medicine*, *Journal of Consulting and Clinical Psychology*, *American Journal of Public Health*, *Addiction*, *AIDS*, *AIDS Care*, *AIDS Education and Prevention*, *Archives of Sexual Behavior*, and *Journal of Psychoactive Drugs* have endorsed TREND.

Intention to Treat (ITT). An important principle for clinical trial analysis, an ITT approach retains outcomes for all randomized cases according to their original treatment assignment, regardless of protocol adherence or

attrition (Newell, 1992). The "once randomized, always analyzed" principle preserves the randomization, while allowing clinician deviation and patient nonadherence to occur as usual and be taken into account in the analyses (Hollis & Campbell, 1999). Because alternative approaches, such as excluding non-adherent or attrited cases, introduce bias, CONSORT criteria require reporting of whether analyses were performed on an ITT basis.

RE-AIM. In addition to being effective, health-promoting interventions need to be able to be broadly adopted and maintained in usual health care settings if they are to improve public health. Glasgow and colleagues developed the RE-AIM model to evaluate a treatment's translatability for representative personnel and patients in community settings (Glasgow, McKay, Piette, & Reynolds, 2001). RE-AIM stands for reach, efficacy/effectiveness, adoption (by target settings), implementation (in target settings), and maintenance (for individuals and communities). A Web resource is available (www.reaim.org) that provides information, checklists, calculators, and other tools to assist in evaluating the disseminability of evidence-based treatments (Dzewaltowski, Glasgow, Klesges, Estabrooks, & Brock, 2004).

CPT Health & Behavior Codes. In 2002, the APA Practice Directorate and Interdivisional Healthcare Committee introduced six Current Procedural Terminology (CPT) codes for behavioral services aimed at the treatment and/or prevention of physical health disorders. Individual, group, and family counseling for patient adherence, health risk reduction, and adjustment to physical illness are among the included services. For the first time, psychologists can offer reimbursable services to patients who do not have a primary mental health diagnosis. An expanding evidence base that establishes the utility of psychological services for a wide range of health conditions, patient populations, and care settings will continue to expand the reach of clinical psychologists.

The evidence-based movement will continue to have implications for the work of researchers and clinicians. Researchers will increasingly be held to standards for the design and transparent reporting of studies that maximize their contribution to the evidence base. Clinician input is needed to determine the kinds of evidence that are most needed and the presentation format that would render it most user-friendly. Clinicians will benefit from a robust evidence base that improves accountability by demonstrating that best practices are cost-effective, and that provides new techniques to expand psychologists' reach into the health care environment.

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