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The Cutting Edge

FROM RESEARCH TO PRACTICE

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Evidence-Based Practice: Melding Art with Science

I think it is a fact of life that even great gifts have their downsides. The concept of *evidence-based practice* (EBP) may be considered a great gift by all those who seek assurance that interventions in autism spectrum disorders (ASD) are rooted in best (research-based) practices. How could such a high-minded and responsible goal have a downside, you ask? By being misunderstood and misused—which is *not* to denigrate the concept if it is applied correctly and judiciously.

It seems especially fitting that a column devoted to cutting-edge research examine a concept that is being used to underscore the importance of using research as a basis for clinical and educational decision-making. Before proceeding, however, a word of caution is in order. If you're looking for the "last word" on the subject of EBP, you won't find it here. You won't find it anywhere else either, because the application of EBP is relatively new with respect to interventions for individuals with ASD.

What you will find in this article is an objectively-rendered overview of what EBP is and what it is not. If you don't already know it, you will also learn that the term *evidence-based practice* is complex, multi-faceted, and really more reflective of a dynamic *process* than a unidimensional *practice*. And, lest you are wondering in this age of information overload if you really need this information—the short answer is *yes*. The longer answer will be found in the "Connecting the Dots" section at the end of this article.

The Roots of Evidence-Based Practice

The concept of *evidence-based practice* is neither new nor intrinsic to the field of autism spectrum disorders. In fact, it dates back some thirty-four years to when British epidemiologist Archie Cochrane introduced the idea of using

evidence as a basis for decision-making in healthcare programs and interventions. His seminal textbook, *Effectiveness and Efficiency: Random Reflections on Health Services*, not only extolled the virtues of randomized control trials—the "gold standard" of efficacy—but also set the stage for the evidence-based practice movement that is spreading across many different disciplines today.

Application of EBP first took hold in the medical community, and found a firm foothold during the 1990s. It began as a small "snowball" rolling down the hill, gathering strength and momentum to the point where it has become the new "buzzword" in ASD and elsewhere. While *evidence-based practice* would seem to be a self-explanatory term, in reality it is a concept that is fraught with misunderstanding, largely because there are assumptions made that don't hold true. So, if you're one of the many people who believe that evidence-based practice begins and ends with the research evidence, you're likely to be surprised by all that the practice entails.

What You "See" Is Not All of What You Get

EBP's forthright, uncomplicated outward "persona" belies its nuanced, comprehensive inner "self". In other words, evidence-based practice is a highly complex and easily misunderstood term. Arguably, the most common misconception is that evidence "rules", and that clinical judgment and client preferences and values have no place in an EBP approach to decision-making. Another related misconception is that EBP is all about numbers and statistics, and nothing more. A third suggests that only certain types of research evidence will suffice. As it turns out, none of the above is true, and all of the above sells the concept of evidence-based practice short.

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Strauss, Richardson, Glasziou, and Haynes (2005) designed a five-step procedure for determining evidence-based practice that includes the following:

- ◆ Examining the information available in order to identify the problem and ask the appropriate question
- ◆ Determining which is the best evidence to answer the question posed
- ◆ Critiquing the evidence to determine its validity and applicability in the case under consideration
- ◆ Utilizing clinical judgment to determine the degree to which the evidence fits the client's needs and preferences
- ◆ Evaluating the effectiveness of the process over time

It should be obvious that EBP is a process that is multifaceted and dynamic, taking into account not only the actual research evidence, but also its applicability to, and suitability for the individual client. This, of course, requires clinical judgment and an assessment of the client's needs, preferences, and values. Hence, what EBP is not is a "cookbook" where "recipes" (research findings) are applied to clients, willy-nilly, to "serve up" particular interventions. Meline (2006) underscored the importance of clinical judgment and put EBP in its proper "place" when he said, "EBP *informs* [emphasis added] but never replaces the clinician's judgment" (p. 3).

EBP has been defined in many ways. One of the most comprehensive definitions—and one which fits well with the five components listed above—is as follows: "Evidence-based practice refers to an approach in which current, high-quality research evidence is integrated with practitioner expertise and client preferences and values into the process of making clinical decisions" (ASHA, 2005). In the case of autism, it is also critical to expand the concept of the client's individual preferences and values to family-member caregivers who typically serve as the decision makers. The American Speech-Language-Hearing Association (ASHA) clearly does this in its position statement on evidence-based practices by stating that speech-language pathologists need to

recognize the needs, abilities, values, preferences, and interests of individuals and families to whom they provide clinical services, and integrate those factors along with best current research evidence and their clinical experience in making clinical decisions.

Hence, the long and short of it is that evidence-based practices exist at the intersection of *research evidence*, *clinical expertise*, and *client values and preferences*.

What Constitutes Research Evidence?

The old adage, "Don't believe everything you read" offers good advice when it comes to sorting out the research evidence. Greenhalgh (1997) minced no words when stating, "some (perhaps most) published articles belong in the [trash] bin, and should certainly not be used to inform practice" (p. 243). Such a strong statement might come as a surprise at a time when publication per se—not to mention peer review, in particular—seem to confer "imprimatur" status on research findings.

Keeping Greenhalgh's point in mind, it is also important to recognize that there are certain types of studies that are considered stronger than others from an evidentiary perspective. Greenhalgh (1997) rank orders these from the most to the least rigorous. Systematic, narrative reviews of research findings, and especially meta-analyses, are at the top of the "research heap", given that they represent the analysis (statistical in the case of meta-analysis) of several research studies on the same topic. Hence they have a safety-in-numbers kind of appeal when it comes to evidence strength.

Randomized controlled trials—the traditional "darling" of research studies—provide the next level of evidence. These types of studies provide a high degree of confidence in the results. The next tier of studies consists of cohort studies, the primary limitation of which is that random assignment of participants is not used. Case control studies are next, followed by cross-sectional studies. The final type of study, and the one at the lowest evidence level, is that of the case report. (Greenhalgh, 1997)

This ranking of research methodologies is not an exhaustive list from which to draw information to inform practice. Moreover, some research questions are better answered by methodologies not included in this list. For example, if information regarding a client's attitude and beliefs is sought, that information is best obtained through the use of qualitative procedures. Meline (2006) underscores this point by stating that sometimes the "best available evidence may be from single-participant research, qualitative research, or clinical experience" (p. 4). The important bottom line is that while some types of studies provide stronger evidence on which to base decisions than others, information from a variety of sources is a well-accepted part of evidence-based practice.

The Role of Clinical Expertise

Not all studies are “created equal” when it comes to applicability and suitability. Ranking studies from highly to least rigorous tells only part of the story. Other issues, such as clinical relevance of research findings, transportability of findings from research to practice, and individual client differences all require clinical expertise and judgment.

Since the most rigorous studies involve whole populations, as opposed to individual clients, it should be obvious that not all findings will be relevant to each individual client in exactly the same way (Meline, 2006). Clinical expertise and judgment is required to determine, a) if the evidence is suitable; and b) if so, how it should be applied.

In addition, there is the transportability issue with respect to applied vs. basic science research. Findings from applied research, or what Yeung-Courchesne and Courchesne (1997) refer to as “remediation-oriented research”, are typically more translatable to actual practice than are those from basic science research. In fact, Yeung-Courchesne and Courchesne (1997) raise another issue that is pertinent to a discussion of EBP—the differences between these two types of research. Specifically, these researchers state,

There should be a general acknowledgement that clinician-investigators and basic science researchers are trained for different professional missions and responsibilities. They do not, for the most part, share the same research goals, nor do they use and understand research terminologies with the same contextual meaning in their respective settings. (Yeung-Courchesne & Courchesne, 1997, p. 390)

Surely the matter of whether research fits into the present clinical picture, or simply adds to the larger, developing picture of autism is one that requires a high degree of clinical expertise, knowledge, and judgment.

The Role of Client Preference and Values

Gillam and Laing (2006) identified five levels of factors related to client and family preferences and values. From most important (level 1), to least important (level 5), these are as follows: 1) the family’s belief system or set of cultural values; 2) preferred activities and level of participation; 3) the financial resources of the family; 4) feasibility of parental involvement in treatment; and 5) client / parent opinion. It should be obvious that levels 1–4 have a bearing on the suitability and applicability of particular research findings to specific individuals. Level

5, opinion, is at the lowest level, since it is not only the most subjective of all, but also the one most likely to be influenced by hype and a lack of critical analysis. Last but not least, these factors are included here as examples of practical elements that deserve consideration in clinical decision-making. There may be other issues of greater importance than those articulated here, and/or there may be different weights assigned to these factors than those listed.

Summary

Evidence-based practice is a “hot” topic that has the potential to become a “hot-button” (contentious) issue, if it is misunderstood and misapplied. Specifically, it is important to acknowledge that research evidence is but one part—albeit a *crucial* part—of EBP. It is also critical to recognize that in order for research to be used effectively in decision-making, practitioners must carefully weigh the suitability and applicability of specific findings against client/caregiver needs, values, and preferences. They must also be able to make judgments about the quality of the research evidence. All of these things require knowledge, expertise, and clinical judgment. Clearly, evidence-based practice is a process that though rooted in science comes to full maturity through the art of clinical expertise and judgment.

It is hoped that this overview article has helped to delineate a term that though widely used, is not widely understood. If so, EBP will be used wisely and judiciously to ensure that high-quality research exerts a powerful force in its role of informing clinical practice.

Connecting the Dots

The field of autism spectrum disorders has had more than its share of unproven but highly touted treatments foisted upon it over the years. While some have been only mildly annoying, in that they have diverted efforts from more productive pursuits, others have been outrageous both in their claims and in the demands they have placed on a family’s time and resources. This process has been aided and abetted by the Internet—the 21st century’s technological version of the traveling “snakeoil” show. Its accessibility, coupled with its lack of accountability, has made the Internet the perfect venue for luring people in and selling just about anything to an unsuspecting public, desperate for answers.

Fortunately, there is a tug-of-war going on, between the hype-mongers and the accountability gurus. And the good news is that it looks as though accountability has the edge!

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The law of the land is on the side of evidence-based practices. To wit, No Child Left Behind has embraced the concept of scientifically-based research, and so has IDEA 2004. Attorney Wayne Steedman reported in ASQ in the Fall/Winter 2005 issue that, “new language [in IDEA 2004] creates a new requirement that instructional practices or interventions be based on accepted research” (p. 23).

Now, for a few good reasons why EBP is a subject worthy of our time and attention:

- ◆ For far too long the ASD field has been held hostage to one or another “treatment du jour”. This has hurt individuals with ASD and their families in inestimable ways.
- ◆ The growing accountability movement—in fact, the law of the land—in the USA mandates that educational decisions and interventions be based on sound research.
- ◆ Insurance companies will find it harder to turn down coverage for intervention practices rooted in science and guided by sound clinical judgment.
- ◆ Most importantly, individuals with ASD deserve nothing less than our best efforts and research-based best practices. 

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