

THE NEXT GENERATION OF EVIDENCE-BASED POLICY

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INTRODUCTION

The current approach to evidence-based policy and its cousin evidence-based practice (referred to collectively as EBP here) primarily focuses on documenting extant evidence while minimally addressing the use of that evidence. This model is static—sharing information about pre-packaged programs with little information on key elements of effective practice. Moreover, rarely are these approaches designed with the end user in mind.

The future calls for more innovative approaches to synthesizing evidence, updating information, and sharing information with end users, including funders, policymakers, and practitioners. This will require a way to systematically review research evidence to identify core components of interventions, a process for keeping evidence reviews updated in real time, and tools to make the resulting information actionable for practitioners, funders, and policymakers.

THE STATUS QUO: A STATIC APPROACH TO EVIDENCE

The rationale behind EBP is strong. Yet, for all the effort put into EBP, it is not clear what it has brought us as a nation. The evidence for improved outcomes is scarce. Evaluations of key evidence-based policies have not shown the desired effects.

The Tyranny of the RCT

One of the strengths of the current EBP movement—its focus on methodological rigor—has, in some ways, stunted this movement’s usefulness. Current EBP approaches have privileged causal inference above all other elements of study quality.

RCTs are the best approach for drawing causal inference, but the problem is that their near-total domination in the fields of evidence-based practice limits the actionability of information available to end users. RCTs are most often used to study *packages* of practices—what we will call packaged program models. So, for instance, an education researcher might develop a packaged curriculum model that includes lesson plans, exercises, student assessment tools, and a professional development system for teachers. An evaluation of this packaged model will tell us how those elements—the curriculum, the assessment, and the teacher training—TOGETHER improve outcomes for students. But because the causal inference applies only to the full package of elements, this study would provide little information about the “active ingredients” in the model—those that are necessary versus those that might be nice to have. The study is essentially a “black box,” telling us little about why the model worked or did not work.

THE NEXT PHASE OF EBP: MAKING EVIDENCE ACTIONABLE

The reason EBP has not been successful, either in take-up or in achieving outcomes, is because it was never designed with end users in mind. Current EBP models have led with the evidence base—what do studies with strong causal inference tell us and how can we share that information with people? Little consideration was given to what information practitioners want or need.

Two shifts are required to make evidence more useful to practitioners: 1) we must break open the black box of program evaluation to better understand the effectiveness of individual components of practice; and 2) we must share evidence in a way that meets the needs of the end users and reflects the wide variability in those needs.

Step 1: Breaking Open the Black Box by Focusing on Core Components

There is a movement afoot in the world of EBP to better attend to elements of practice, what are commonly called “core components.” This movement

is not new,¹ but it is gaining traction in the face of the limited success of EBP. Indeed, W. T. Riley and D. E. Rivera note that an emphasis on understanding components of effective practice is critical for intervention research to become a cumulative science.²

The ad hoc analysis of core components, however, is not sufficient to drive use and move the EBP field forward. We must find a way to standardize core components so they can be studied systematically. Standardizing core components has significant implications for how we catalogue studies and how information is shared.

Second, we must rethink how we source core components and what evidence is used to analyze them. Restricting core components studies to those meeting strong causal inference standards is likely to lead to a nearly empty database. That is because there are far fewer RCTs that examine elements of practice than there are RCTs of packaged program models. An empty database will not only be of no use to practitioners and funders but also will increase resistance to and frustration with the ideals of EBP.

We also must develop new methods to evaluate the efficacy of core components. Traditional meta-analytic techniques fall short for several reasons. First, traditional meta-analyses are static—large databases built from research studies are developed in silos by academic researchers, with each new field or area of study generating a new meta-analysis. The data are proprietary, nonstandardized, and rarely updated as the field progresses. The information gleaned from the meta-analysis is presented in a set of papers—locked inside PDFs—giving practitioners, funders, and even other researchers no ability to query the data or analyze it to address other questions.

To advance EBP, we, instead, need to find a way to build a common language to taxonomize studies—breaking them down into parts that can be standardized across studies and fields. Information about interventions, samples, contexts, and study design can be coded using a common dictionary. This will prevent the need for a “clearinghouse of clearinghouses,” to address the siloed nature of the analyses. Standardization—combined with public access to the data and standardized coding—also will make it easier to update the evidence base over time and better understand variability of effects.

Step 2: Giving Practitioners and Other End Users the Ability to Access Information in a Way that Addresses Their Questions

The wealth of data available through a standardized core component approach will benefit end users only if it is accompanied by tools that allow them to make best use of it. To date, evidence registries have been the primary approach to sharing information about EBP. Those registries are minimally interactive. The information is contained in written reports or syntheses, with little opportunity to find information tailored to one's needs. In effect, these registries are like stagnant pdfs—with the information locked inside whatever format the registry developer deems best.

To make the core components of information most useful, we need to move from this static approach to sharing information to a more dynamic one. We need approaches to EBP that look less like a pdf and more like an app. End users should be able to query the data and tailor the information they receive to their own questions. To get a better picture of this, imagine a shift from static lists of mortgage interest rates to tools that allow buyers to tailor the information based on their context, the amount of money they want to put down, etc. In effect, we need to democratize the evidence, giving access to a broader range of stakeholders to use it however they need.

**MAKING CORE COMPONENTS ACTIONABLE FOR PRACTITIONERS:
THE IMPACT GENOME PROJECT®**

The ideas presented above are what motivated the founders of the Impact Genome Project (IGP). Inspired by the standardization used in the Human Genome Project, combined with the use of algorithms to tailor information for clients on apps such as Pandora, the IGP standardizes information about practices, populations, contexts, and outcomes from research papers and other sources. The IGP mines the core components of practice found across thousands of studies—those small, bite-size, implementable pieces of information that are more easily translated for practitioners, funders, and policymakers.

To avoid the siloing of evidence we have seen to date, the IGP model aims to isolate and identify the “genetic code” (so to speak) that makes interventions effective. This allows the IGP to break down that finite list of practices or approaches common across fields from both each other and the

content addressed in those approaches. For instance, it allows us to learn about features of more and less effective cash incentive systems, separate from whether the cash incentive is used to promote weight loss or school attendance. By using this approach, the IGP can pull evidence and data from a wide array of sources, ensuring cross-disciplinary learning.

The IGP relies on taxonomic meta-analysis, which uses the component as the unit of analysis rather than packages of components or interventions. Taxonomic meta-analysis is empirically driven, meaning that the taxonomy itself is derived from the literature base rather than established *a priori* from theoretical frameworks. Because the taxonomy is not dependent on discipline-specific theoretical frameworks, it can provide a common language for components that can cut across fields of research.

Some examples of how the IGP has been used include:

- A common genome for childhood obesity intervention research developed by a panel of experts and Mission Measurement with funding from the National Institutes of Health. The genome was then used to conduct a meta-analysis of core components within the field of childhood obesity prevention and intervention.³ Similar reviews have been conducted in other fields, such as early childhood education, K-12 education, and financial health.
- A component explorer funded by the Chan Zuckerberg Initiative, which delves deeper into the data from the What Works Clearinghouse, allowing users to discover core components of interventions relevant to their work and compare their own program elements to the evidence.

The separate coding of practices, contexts, outcomes, and target populations across fields also allows the IGP to dig more deeply into the nuanced question: “*What works best for whom, under which conditions, and why?*” For example, analyses can focus on behavior change, attitude change, culture change, or all the above. They can examine how each of those strategies—or a combination of strategies—work with different populations in different contexts. They also can look at practices based on the type of change they aim for, whether targeting individuals, organizations, or geographically defined populations.

This latter point is critical if we want to address historic inequities both within the evidence base and through using EBPs. To date, most evidence

registries have focused on interventions targeted at changing the behavior of individuals—teachers, parents, students, clients. Yet, many of the social problems in the United States reflect long-standing systems-level issues that individual-focused interventions alone cannot overcome. The design of the IGP will allow analysis of the interaction between systems-level levers of change (policy, public-private partnerships, advocacy, community organizing) and individual-level levers of change (individual-focused therapy, training, behavioral interventions). By coding and standardizing all these elements, we can begin to understand not just the components that drive outcomes but also which combinations of components can magnify our impact.

BRINGING END USERS INTO THE MIX

As noted, advancing evidence use will not be solved solely by standardizing the evidence base; we also must shift our focus to sharing evidence with users in a more dynamic and interactive way. By breaking evidence into components, the IGP has set the foundation for a more dynamic approach to interfacing with the evidence base. It does this in two ways: 1) by publicly sharing their coding infrastructure for others to use and add to; and 2) by supporting that infrastructure with user-friendly tools to interact with the evidence base.

In standardizing information, we must make both the data and the coding schemes available to researchers, practitioners, and funders to allow practitioners to compare their own programs to the evidence. This is quite different from how meta-analyses are typically developed, where coding structures are fragmented, hidden behind paywalls and may change over time. It allows practitioners to benchmark their programs and generate scenarios to strengthen their impact. Funders also can use the data to estimate the likelihood of positive outcomes from proposed strategies or compare strategies to one another.

By developing a user interface like the one in the IGP, researchers can provide a simple tool for practitioners to ask tailored questions of the evidence base and get reports that relate to their unique circumstances. In doing so, they can democratize the evidence base, putting it in the hands of those we want to use it. Moreover, interfaces that work with information provided by funders and practitioners also will provide more insight into the

needs of the field, such as which questions are of greatest interest or which components of practice are most common.

THE FUTURE OF EBP

As we look to the future of EBP, we must remember that the primary goal of EBP is to improve outcomes through the greater use of evidence. While it is important to enhance the number of rigorous studies and share the evidence from those studies, this approach is not sufficient to promote evidence use. The future calls for more innovative approaches to synthesizing evidence, updating information, and sharing information with end users. The field is on the right track with its emphasis on core components analyses. But, alone, that shift will not meaningfully enhance evidence use. Rather, we will need to revisit how we systematically review research evidence, how we keep it updated over time, and how we make the information accessible and useful to practitioners, funders, and policymakers.

Luckily, researchers do not have to do this alone. We are experts in building and implementing research studies, but we are not necessarily experts at making information available and usable to different audiences. We should leverage the expertise of app developers, data scientists, and others to tailor our evidence systems to those we aim to reach. We should investigate how machine learning can help reduce the cost and delay inherent in our current labor-intensive approaches to analyzing the evidence base. If we can agree on a common language for coding evidence, new articles could be coded by the authors as they are published, so they can be included in the evidence base in real-time.

Most importantly, we must engage with end users to find out how to make evidence more actionable. There must be deep engagement with funders, policymakers, and practitioners—anyone we anticipate using the evidence—to ensure they can easily query the data and get answers to *their* questions. For it is only by addressing the needs of the end users that we will truly reach our primary goal, improving outcomes through evidence use.

NOTES

1. For example, see Embry and Biglan's notion of "evidence-based kernels." Dennis D. Embry and Anthony Biglan, "Evidence-Based Kernels: Fundamental

Units of Behavioral Influence,” *Clinical Child and Family Psychology Review* 11, no. 3 (2008), pp. 75–113.

2. W. T. Riley and D. E. Rivera, “Methodologies for Optimizing Behavioral Interventions: Introduction to Special Section,” *Translational Behavioral Medicine* 4, no. 3 (2014), pp. 234–37, <https://doi.org/10.1007/s13142-014-0281-0>.

3. National Collaborative on Childhood Obesity Research, “Childhood Obesity Evidence Base (COEB): Test of a Novel Taxonomic Meta-Analytic Method,” accessed June 1, 2021, www.nccor.org/projects/childhood-obesity-evidence-base-test-of-a-novel-taxonomic-meta-analytic-method/.