

Implementation Science

Implementation science is the study of methods to promote the use and integration of research evidence into policy and practice (Lobb and Codlitz 2013). It is a relatively new and emerging field of study in juvenile justice. Over the last few decades there has been a steady growth in the number of evaluations examining the effectiveness of juvenile justice programs and practices that seek to reduce criminal behavior and improve the lives of youths. However, there has not been a parallel growth in research examining methods to implement programs and practices into everyday settings (Metz and Bartley 2012). This research-to-practice gap presents a problem for policymakers and practitioners who may want to implement evidence-based interventions in their jurisdictions, but do not have sufficient information to do so. Implementation science is focused on bridging the gap between what research has shown to work and what is actually practiced (Nilsen et al. 2013). The ultimate goal of this emerging field of study is to improve the processing, supervision, rehabilitation, and treatment of at-risk and justice-involved youth by using research that shows what works.

Scope of the Problem

Implementation science is about finding ways to integrate research evidence into decisions made in real-world settings. Integrating research into practice can be a complicated and arduous task. For example, within the public health field, research found that it took an average of 17 years for 14 percent of original clinical research to be integrated into a physician's practices (Brownson et al. 2006). Similarly, Ringwalt and colleagues (2008) found that, in 2005, only 10.3 percent of surveyed school districts across the country administered a universal substance use prevention curriculum recognized as "evidence-based" on a federal registry, despite efforts by legislation, such as No Child Left Behind, that requires schools to implement prevention programs with evidence that demonstrates effectiveness.

There has been limited work on examining whether and how research is used by those in the justice system, and the extent to which research affects decisions made about the processing and treatment of justice-involved individuals. For instance, Lovell (1988) looked at the use of research evidence by upper management in a state department of corrections. He found that research evidence was available to the department, members understood "research" variably, and research information was used minimally. A 2014 study by Johnson, Mebold, and Elam (discussed below) examined why social research may be underutilized by juvenile justice and youth service professionals.

It is important for policymakers and practitioners in the juvenile justice system to use available research to inform their decisions about youth programming. This is especially true when research

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suggests that a specific program or practice does not work. For example, the Drug Abuse Resistance Education (D.A.R.E.) was a popular program that was implemented in elementary and middle schools for many years, despite evidence suggesting that the program did not impact youths' reported use of drugs and alcohol (Weiss et al. 2008). It is equally important for researchers to give consideration to the translation and dissemination of their research, so that practitioners and policymakers have an opportunity to access, understand, and apply research findings to everyday practice.

Terms of Implementation Science

There are many interrelated terms used when discussing implementation science. *Implementation* generally refers to putting a program or practice into place. Although the definition of implementation seems straightforward, implementing an intervention in a real-world setting can be complicated and influenced by many factors (Schillinger 2010). Implementation science involves the examination of research use throughout the implementation process.

Although implementation science focuses on the *use of research*, what constitutes research use can vary across fields and disciplines. Research use can range from accessing and reading about evaluations and studies that influence what a policymaker or practitioner thinks about an issue or problem, to actually making direct changes to policy and practices based on evidence (Walter, Nutley, and Davis 2005; National Research Council 2012; Tseng 2012).

In addition, many of these interrelated terms are used interchangeably within discussions of implementation science, such as *research*, *evidence*, *knowledge*, *data-driven*, *evidence-informed*, and *evidence-based*. Although each term has a specific meaning, the use of this type of language essentially strengthens the idea of creating policies and practices that are grounded in science and research, as opposed to politics, ideologies, or beliefs (Tseng 2012). These terms, however, may have different meanings to practitioners and researchers. For instance, in the education field, Tseng (2012) reported that researchers often used the terms “evidence” and “research” to mean empirical findings derived from scientific methods (for example, results from randomized controlled trials or quasi-experimental designs), whereas practitioners and policymakers viewed evidence as including not only empirical work, but also information obtained from individuals' experiences, testimonies, examples or case studies, and laws/policies.

Models and Frameworks to Integrate Research into Practice

There are a number of models and frameworks that have been developed by researchers to help practitioners through the process of implementing a specific program or practice. The models often provide practitioners with an ordered or sequential implementation process to follow, as well as information on key components of implementation. Examples include the National Implementation Research Network (NIRN), which describes the six stages of the Implementation Process (Fixsen et al. 2005); RAND's *Getting to Outcomes (GTO)* series that presents 10 steps to address issues before and after the implementation of a program has begun (Mattox et al. 2013); and the Quality of Implementation Framework (QIF) that was developed from a literature synthesis focused on 25 frameworks of implementation from myriad fields, including health care, substance abuse prevention and treatment; and community-based prevention services (Durlak and Wandersman 2012). These models, and many others like them, were developed to help guide the implementation process. Although these models

are informed by research on implementation, there has been limited research done to examine the models' effectiveness (Chinman et al. 2014).

Other models and frameworks have been designed to help practitioners make use of research and evidence-based interventions in everyday practice. One framework that has been targeted for use in the criminal justice community was developed through the Evidence-Based Decision-Making (EBDM) in Local Criminal Justice System Initiative, which was launched by the National Institute of Corrections in 2008. The primary goal of the initiative "is to build a systemwide framework (arrest through final disposition and discharge) that will result in more collaborative, evidence-based decision making and practices in local criminal justice systems" (Center for Effective Public Policy 2010, 6). The framework for EBDM was developed based on the findings from the "what works" research literature, including research on factors associated with reoffending and reducing the likelihood of reoffending (Willison et al. 2014). There are four principles at the foundation of the EBDM Framework:

1. The professional judgment of criminal justice decision-makers is enhanced when informed by evidence-based knowledge;
2. Every interaction within the criminal justice system offers an opportunity to contribute to harm reduction;
3. Systems achieve better outcomes when they operate collaboratively; and
4. The criminal justice system will continually learn and improve when professionals make decisions based on the collection, analysis, and use of data information (Willison et al. 2014, 2).

The framework is based on the idea that risk- and harm-reduction are fundamental goals of the justice system. It is not a model that provides specific answers to all questions or calls for implementation to be done the same way in every community. Rather, the EBDM Framework identifies key structural elements in a system that can be informed by evidence (Center for Effective Public Policy 2010). Research on the use and effectiveness of the framework in real-world settings is ongoing (Willison et al. 2014).

Challenges of Implementation Science

There are many challenges to the promotion and integration of research evidence into the policies and practices of the juvenile justice system. Some examples of these challenges include the awareness, accessibility, and quality of the research evidence; the perception of the practical usefulness of research by practitioners and policymakers; the characteristics of the evidence-based programs and practices (such as the costs or required training); and resistance to changing the current juvenile justice system (Lobb and Codlitz 2013; Johnson, Mebold, and Elam 2014).

Some of the challenges are the result of the complicated relationship between researchers and practitioners. As Weiss and colleagues (2008, 31) noted, "The obstacles to productive collaboration between research and policy can be classified into three main categories: shortcomings in researcher and researchers; shortcomings in policy makers and practitioners; and shortcomings in the links between the two realms." There are many factors that influence the uncooperative relationship between

researchers and policymakers, such as differences in priorities, different timeframes for results, different use of language, and a lack of understanding of each other's working environments.

Only a small number of studies have explored the challenges of integrating research into juvenile justice. A study by Johnson, Mebold, and Elam (2014) focused on explaining possible reasons why social research may be underutilized when developing policy and practice in the juvenile justice system. Focus groups were conducted with juvenile justice and youth service professionals to ask about their use of research. The responses from focus group participants showed they had limited awareness and knowledge of research evidence, even though they were familiar with evidence-based programming. They were aware of programs and practices labelled as "evidence based" or "best practices," but demonstrated skepticism about the research evidence supporting those programs. Many participants did not discuss seeking out such research to make their own decisions. Furthermore, when asked about how to improve the quality, accessibility, and utility of research evidence, the focus groups did not have many suggestions to provide. Instead, participants talked about ways to improve the implementation process (Johnson, Mebold, and Elam 2014). The findings suggest that juvenile justice professionals who work directly with youths are primarily concerned with whether a program or practice is evidence-based and if it will work for them in their community, but less concerned with finding, understanding, and using research evidence. The study underscores the importance of implementation science and developing ways to close the research-to-practice gap expressed by the focus groups.

Outcome Evidence

Rigorous implementation science studies are limited, especially in criminal and juvenile justice. There has been some focus in the area of "knowledge utilization," which has attempted to develop strategies to encourage the use of research in decisions made about policy and practice. However, a report by the National Research Council (2012, 52) on the use of science as evidence in public policy found that "There is little assessment of whether innovations said to increase the use of science in policy have had or are having their desired effects."

Walter, Nutley, and Davis (2005) conducted a systematic review of research on different mechanisms that promote research use across multiple sectors, including health, social care, criminal justice, and education. The review included 93 articles (although only four of the included studies were from the criminal justice field). They found that there were five primary mechanisms that were used to promote the use of research in practice: 1) dissemination, 2) interaction, 3) social influence, 4) facilitation, and 5) reinforcement. Dissemination refers to the targeted distribution of information and research to a specific audience, such as practitioners and policymakers. Dissemination approaches can include publishing a research article in a peer-reviewed journal; presenting on research at professional conferences, workshops, trainings, or seminars; and using mass media to market the release of new research (Walter, Nutley, and Davis 2005; Kreuter and Bernhardt 2009). Dissemination approaches are important to the implementation process, as policymakers and practitioners need to learn about research in order to incorporate the evidence into everyday practices (Kreuter and Bernhardt 2009).

Interaction approaches involve creating and strengthening links between the research and practitioner communities. A researcher-practitioner partnership (which may include, for example, researchers from

a local university partnered with practitioners in the community to study and implement a program) is one strategy that has been used to strengthen the relationship between both sides (Walter, Nutley, and Davis 2005).

Social influence involves the use of influential others (such as colleagues, role models, peers, practice experts, and opinion leaders) to inform practitioners and policymakers about research and persuade them of the importance of using it.

Facilitation focuses on promoting research use by providing support that may take various technical, financial, organizational, or emotional forms. Some facilitation approaches have focused on enhancing individuals' skills, motivation, and expertise to access, understand, and apply research in the field, such as through professional development activities. Studies on a number of initiatives in social care, education, and criminal justice found that providing support through training, financial resources, and ongoing mentoring were helpful to ensure the use of research in everyday practice (Walter, Nutley, and Davis 2005).

Finally, reinforcement approaches provide feedback and rewards to encourage research use. This approach may involve providing incentives for using research, or reminders and feedback to give information to practitioners in order to reinforce the use of research (Walter, Nutley, and Davis 2005).

Conclusion

Implementation science involves the systematic study of the acquisition, interpretation, and use of research by policymakers and practitioners and the application of that knowledge. It also focuses on the production, translation, and dissemination of evidence by researchers. In addition, implementation science considers the complicated relationship between the researcher and practitioner communities, and how this relationship can affect the use of research in everyday practice (Brackes 2009).

There is much research to be done in the area of implementation science, especially in the juvenile justice field. Future studies on implementation science should focus both on the supply side of research (i.e., the empirical work produced by researchers) and the demand side of research (i.e., practitioners' and policymakers' efforts to use research) (Tseng 2012). However, the relationship between the researchers and practitioners is not linear, and many other key players also affect the use of research. For example, intermediaries are organizations and individuals who translate and present research in user-friendly ways to practitioners and policymakers. The role that intermediaries have in helping to bridge the researcher-practitioner gap should be considered in future research (Tseng 2012; National Research Council 2012). Clearinghouses (such as the *Model Programs Guide*) are another example of a mechanism that can promote the use of research. Clearinghouses aggregate, review, and rate evaluations on programs and practices, and provide users with translated information about the research. The role of clearinghouses, and ways to improve the information they provide, can also be explored (Neuhoff et al. 2015).

The overall goal of implementation science in the juvenile justice field is to find different strategies to encourage and facilitate the use of research on what works and what doesn't work, in order to improve the policies and practices that directly affect at-risk and justice-involved youths. The aim is to provide

evidence-based treatment and services to youths, to improve their lives and reduce their involvement in the justice system.

References

- Brackes, Bethany. 2009. "NIJ Seeks to Strengthen the Practitioner-Researcher Bond." *Corrections Today* 71(4):78-80.
- Brownson, Ross C., Matthew W. Kreuter, Barbara A. Arrington, and William R. True. 2006. "Translating Scientific Discoveries Into Public Health Action: How Can Schools of Public Health Move Us Forward?" *Public Health Reports* 121(1):97-103.
- Center for Effective Public Policy. 2010. *A Framework for Evidence-Based Decision Making in Local Criminal Justice Systems: An Initiative of the National Institute of Corrections*. Silver Spring, Md.: Center for Effective Public Policy.
- Chinman, Matthew, Patricia A. Ebener, Q. Burkhart, Karen Chan Osilla, Pamela Imm, Susan M. Paddock, and Patricia Ann Wright. 2014. "Evaluating the Impact of Getting to Outcomes-Underage Drinking on Prevention Capacity and Alcohol Merchant Attitudes and Selling Behaviors." *Prevention Science* 15(4):485-96.
- Fixsen, Dean L., Sandra F. Naoom, Karen A. Blase, Robert M. Friedman, and Frances Wallace. 2005. *Implementation Research: A Synthesis of the Literature*. Tampa, Fla.: University of South Florida, Louis de la Parte Florida Mental Health Institute, National Implementation Research Network.
- Kreuter, Matthew W., and Jay M. Bernhardt. 2009. "Reframing the Dissemination Challenger: A Marketing and Distribution Perspective." *American Journal of Public Health* 99(12):2123-27.
- Lobb, Rebecca, and Graham A. Codlitz. 2013. "Implementation Science and Its Application to Population Health." *Annual Review of Public Health* 34:235-51.
- Lovell, Rick. 1998. "Research Utilization in Complex Organizations: A Case Study in Corrections." *Justice Quarterly* 5(2):257-80.
- Mattox, Teryn, Sarah B. Hunter, M. Rebecca Kilburn, and Shelley H. Wiseman. 2013. *Getting to Outcomes for Home Visiting: How to Plan, Implement, and Evaluate a Program in Your Community to Support Parents and Their Young Children*. Santa Monica, Calif.: RAND Corporation.
- Meyers, Duncan C., Joseph A. Durlak, and Abraham Wandersman. 2012. "The Quality Implementation Framework: A Synthesis of Critical Steps in the Implementation Process." *American Journal of Community Psychology* 50:462-80.
- National Research Council. 2012. *Using Science as Evidence in Public Policy*. Committee on the Use of Social Science Knowledge in Public Policy, Kenneth Prewitt, Thomas A. Schwandt, and Miron L. Straf (eds.). Division of Behavioral and Social Science Education. Washington, D.C.: National Academies Press.
- Neuhoff, Alex, Simon Axworthy, Sara Glazer, and Danielle Beford. 2015. *The Way Works Marketplace: Helping Leaders Use Evidence to Make Smarter Choices*. New York, N.Y.: The Bridgespan Group.
- Nilsen, Per, Christian Stahl, Kerstin Roback, and Paul Cairney. 2013. "Never the Twain Shall Meet? A Comparison of Implementation Science and Policy Implementation Research." *Implementation Science* 8(63):1-12.

- Ringwalt, Chris, Sean Hanley, Amy A. Vincus, Susan T. Ennett, Louise A. Rohrbach, and J. Michael Bowling. 2008. "The Prevalence of Effective Substance Use Prevention Curricula in the Nation's High Schools." *Journal of Primary Prevention* 29(6):479-88.
- Schillinger, Dean. 2010. "An Introduction to Effectiveness, Dissemination and Implementation Research: A Resource Manual for Community Engaged Research." In P. Fleisher and E. Goldstein (eds.). *UCSF Clinical and Translational Science Institute (CTSI) Resource Manuals and Guides to Community-Engaged Research*. San Francisco, Calif.: University of California San Francisco, Clinical Translational Science Institute Community Engagement Program.
- Tseng, Vivian. 2012. "The Uses of Research in Practice and Policy." *Sharing Child and Youth Development Knowledge* 26(2):1-24.
- Walter, Isabel, Sandra Nutley, and Huw Davis. 2005. "What Works to Promote Evidence-Based Practice? A Cross-Sector Review." *Evidence & Policy* 1(3):335-63.
- Weiss, Carol H., Erin Murphy-Graham, Anthony Petrosino, and Allison G. Gandhi. 2008. "The Fairy Godmother-And Her Warts: Making the Dream of Evidence-Based Policy Come True." *American Journal of Evaluation* 29(1):29-47.
- Willison, Janeen Buck, Pamela Lachman, Dwight Pope, and Ashleigh Holand. 2014. *Evidence-Based Decision Making in Local Criminal Justice System Initiative*. Washington, D.C.: U.S. Department of Justice, National Institute of Corrections.