Translating Evidence-Based Interventions Into Practice : The Merck Childhood Asthma Network, Inc. (MCAN) Initiative

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Editorial

Translating Evidence-Based Interventions Into Practice: The Merck Childhood Asthma Network, Inc. (MCAN) Initiative

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IMPLEMENTATION SCIENCE AND TRANSLATIONAL RESEARCH

The Merck Childhood Asthma Network, Inc. (MCAN) initiative described in this supplement discusses implementation of evidence-based interventions (EBI) and programs with the intention of maintaining fidelity to core elements of these programs, but adapting to contextual factors encountered in different communities. Taking advantage of the principles of implementation science (IS), the intervention sites sought to understand better how complex factors of EBI are integrated into programs and systems in specific settings (e.g., health care clinic, worksite, school). This supplement presents articles that discuss the challenges and facilitators that led to successful adoption of evidence-based interventions in real-world settings. Dissemination of important lessons learned is central to this supplement. Articles therefore discuss how effective these interventions were on clinical outcomes and needed system changes.

While the MCAN initiative sought to advance the field of IS, translating research into practice is inherently complex (Ohadike, Malveaux, & Lesch, 2011). Moreover, the systematic approach to IS with evaluation of clinical outcomes and systems as part of the process is a relatively new discipline. This type of translational research seeks to close the gap between "what works" in randomized controlled trials (RCTs) and "what is done" currently in health care practices. Kerner (2006) calls this the "discovery–delivery" gap. Although the medical literature is filled with rigorously developed evidence-based strategies to treat many diseases and conditions, health care providers do not always incorporate those strategies into their practices. In fact, it is often erroneously assumed that research findings and clinical guidelines will intuitively be incorporated into practices and public health initiatives without systematic input and consideration of health outcomes in different communities (Madon, Hofman, Kupfer, & Glass, 2007). As a result of such assumptions, McGlynn et al. (2003) noted that adults in the United States receive only half the care that is recommended for common disorders and chronic diseases.

The Institute of Medicine's Clinical Research Roundtable first described "translational blocks" (T1 and T2) that impede the implementation of EBI into medical practices and health decision making in systems of care (Sung et al., 2003). Westfall, Mold, and Fagnan (2007) later noted that "what is efficacious in randomized clinical trials is not always effective in the real world of day-to-day practice." They expanded the translational

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lexicon from T1 and T2 as proposed by the Clinical Research Roundtable to include T3 or "physician-based research." The additional translational research step recognizes the need to implement RCT into clinical practice and provides the final pathway for improving quality care and patient outcomes. As noted by Dougherty and Conway (2008), T3 activities address health care delivery and how science-based medicine contributes to disease treatment and prevention, as well as health promotion and improvement for individuals and populations.

The MCAN initiative that was implemented in different communities encompassed not only the classically defined T3 physician/clinic-based practices, but also home-, school-, and community organization–based health care delivery "systems." These are truly real-world settings where patients and families get health education that changes their behavior, as well as information and materials that empower them to self-manage chronic conditions such as asthma. Although all of these settings do not necessarily lend themselves to the rigorous research conditions that are required for RCTs, they do provide the "laboratories" for needed observational studies and implementation research. T3 studies address policy changes that are needed to improve health outcomes (Rosenthal, Landon, Howitt, Song, & Epstein, 2007), as well as practical questions and issues that key decision and policy makers often face and need to answer, such as (Glasgow, 2009), (a) Can this program work here?; (b) How much will it cost?; (c) Who can successfully deliver the program?; and (d) How can it be sustained? The MCAN initiative emphasizes the need to initiate policies that improve childhood asthma management at federal, state, and local levels (Rossier Markus, Lyon, & Rosenbaum, 2010).

Many different terms have been used to describe the process of implementing research programs and findings into health care practice. The use of multiple terms to describe these types of studies poses communication barriers for researchers, practitioners, interested stakeholders, and others. In a recent literature review of articles that were written in 12 different health care journals in 2006, 22% described *implementation research* but referred to it as "knowledge translation" or "KT" (McKibbon et al., 2010). One hundred different terms were identified as being equivalent or closely related to KT (e.g., implementation, adoption, translation, dissemination, quality improvement, or diffusion), and no consistent or uniform terms were used in this relatively new discipline. In fact, these different terms are often used interchangeably in the literature, sometimes to mean different processes. Although our intent is not to debate over terminology in this editorial, the ill-defined lexicon that describes IS is a significant issue. Agreement on use of standardized terms and definitions is an important step that would not only advance the field of IS, but would also facilitate greatly the exchange of ideas and information and allow comparison of results across related studies. As Kerner (2006) notes, "Translating research into practice requires a common language and common understanding among researchers and practitioners about the meaning of knowledge translation, knowledge integration, and the nature of evidence (p. 78)."

TRANSLATION OF EVIDENCE- AND SCIENCE-BASED INTERVENTIONS AT THE PRACTICAL LEVEL

The complexity of multifaceted interventions, along with the vast number and nuances of social, organizational, and environmental contextual issues, make it extremely difficult to identify coherent theoretical frameworks around which one can structure implementation research in a given setting (Kerner, 2006). Additional studies are needed to (a) develop and validate theoretical frameworks that describe practitioner and organizational behavior and behavioral changes that inform intervention selection in specific settings, and (b) monitor and measure effectiveness of implementation strategies in the face of identified challenges and facilitators. To this, the authors recommend that future studies focus on refining evaluation of the economic value of added interventions to health care systems and resolving the balance between fidelity (delivering a program exactly as in a research protocol) and adaptation to local settings, culture, and history. The importance of detailed planning and the anticipation of challenges cannot be overestimated in implementing multifaceted interventions in different settings. Several studies suggest that the key to overcoming the challenges is to plan for and anticipate trouble spots (Green & Kreuter, 2005; Klesges, Estabrooks, Dzewaltowski, Bull, & Glasgow, 2005).

ROLE OF PARTNERSHIPS FOR IMPLEMENTATION OF EBI

In contrast to traditional, individually focused behavior change efforts of RCTs, community-based approaches to implement EBIs, as described in this supplement (Rojas Smith et al., 2011), require partnerships that involve multiple sectors of the community and include advocates, health care providers and administrators, policy makers, health services researchers, behavioral specialists, and users of health care systems. The mobilization

of diverse talents and approaches serves to identify and adapt EBIs that are appropriate for the local community and health care delivery and have the greatest chance of leading to desired health outcomes.

Partnerships tend to evolve and strengthen over time when well-defined goals, mutual interests and identifiable benefits exist for each partner (Rojas Smith et al., 2011). Since each community is unique with different assets and needs, the alliance of partners will face different challenges. For example, implementation and sustainability of EBI in medically underserved communities may face barriers associated with limited access to medical care in general and asthma specialty-based care in particular; as well as social determinants of health that influence behavioral change (Madon et al., 2007).

EVALUATION OF PROCESS AND CLINICAL OUTCOMES OF IMPLEMENTED EBI IN REAL-WORLD SETTINGS

Evaluation of implementation of EBI in real-world programs and systems is challenging, but critical to understanding what types of patients, staff, and delivery conditions are associated with success, or failure (Pawson, Greenhalgh, Harvey, & Walshe, 2005). Because of the complexity of programs and systems, comprehensive evaluation measures are needed to capture the dynamic nature of processes and clinical outcomes of these multilevel implementation strategies (Glasgow, 2009; Merzel & D'Affliti, 2003). A multimethod approach that includes both quantitative and qualitative assessment assures a more complete evaluation (Crabtree & Miller, 1999) and addresses concerns of multiple stakeholders and decision makers. Qualitative data obtained from interviews can be helpful in assessing factors associated with success, challenges to fidelity of program implementation, relative responsiveness of certain subgroups of patients, and other areas of the program that require refinement. Multiple measures of outcomes that resonate with clinicians, decision makers, and community members provide critical information about contextual factors and whether programs can or should be institutionalized. Until more frameworks for planning and evaluation for implementation science are developed, major challenges can be overcome by planning for and anticipating trouble spots (Green & Kreuter, 2005; Klesges et al., 2005).

The decisions to implement and sustain EBI often are based in part on economic issues. No ideal evaluation models exist for addressing these issues and cost analyses can be complicated. Ritzwoller, Toobert, Sukhanova, and Glasgow (2006), however, noted that focusing on costs of a program as delivered, replication under different conditions, or the cost per unit change in key outcomes is not only practical, but is also likely to answer most financial questions that are raised by decision makers. Models are yet to be developed that address the many economic issues that are associated with the complexities of implementation studies.

SUSTAINING/INSTITUTIONALIZING PROGRAMS

A frequent criticism of controlled, efficacy studies aimed at developing interventions is discontinuation of funding and failure to sustain these evidence-based programs in communities and health care systems. All too often, once the data have been analyzed and the results of the RCT are published, these efficacious programs are not implemented and their effectiveness is not evaluated in real-world settings. As a result, the literature on sustaining and institutionalizing implemented EBI programs in health care delivery systems or in communities is sparse. To understand better the factors that contribute to continuation, alteration, and cessation of implemented programs, assessments should be conducted at individual (i.e., attrition rate) and systems (i.e., discontinuation of program) levels (Glasgow, 2009).

CHALLENGES AND "CHARGE" TO THE FIELD

Although the evolution of IS faces significant challenges, its contribution to closing the discovery–delivery gap and providing high-quality, cost-effective, science-based health care is widely recognized. As summarized by Berwick (2008), "further research on effectiveness of interventions across different contextual settings is likely to transform health care delivery systems." However, at the current rate of investment in IS and T3 translational research, accelerating closure of the gap in all communities will be difficult (Dougherty & Conway, 2008).

Health services researchers and others engaged in IS are charged to understand better (a) the impact of context on effectiveness, (b) the importance of fidelity to EBI, (c) study designs and theoretical frameworks for implementation studies, and (d) the economic impact of interventions on health care systems and sustainability of programs (Bhattacharyya, Reeves, & Zwarenstein, 2009). Researchers, practitioners, and stakeholders are charged to identify policy changes that will have a positive impact on the quality of health care, especially for those in medically underserved communities. Finally, developing a common, standardized language of IS, innovative methods for evaluating systems changes and clinical

outcomes, and training programs that integrate knowledge and application for future researchers is in the best interest of all.

The National Institutes of Health (NIH) has made remarkable progress in basic biomedical research and translated those findings into life saving diagnostic tools and therapeutics. However, spending in 2002 by the federal government and foundations together for health services research (including T3 and quality improvement) is estimated at 1.5% of total biomedical research and 0.1% of our total health care expenditures (Moses, Dorsey, Matheson, & Their, 2005). To make substantial progress in improving access to and the quality of health care, as well as meeting the goals of health promotion in the Affordable Care Act, substantial reallocation of funds will be needed to support the activities of implementation science and T3 activities. It is indeed encouraging that, in recent public discussion, the NIH proposes to develop a National Center for the Advancement of Translational Sciences. The Center will bring existing efforts together in new ways to enhance the ability of all NIH Institutes and Centers to "perform research that leads to the development of drugs, diagnostics, devices, vaccines, and strategies for prevention." Let us hope that "strategies for prevention" is not the stepchild of this initiative and that IS and T3 research will be funded adequately to impact health improvement, better access to quality health care, and reduced disparities of health outcomes in medically underserved communities. Let us also anticipate that the NIH's mantra of "improving human health through science" does not lose sight of the critical role that IS plays in quality improvement, improved health outcomes and health care systems, policy changes, and sustainability of cost-effective interventions and programs.

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