



Addiction Messenger

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Ideas for Treatment Improvement

Technology Transfer

Part 1 - The ATTC Network Technology Transfer Model

"It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change."

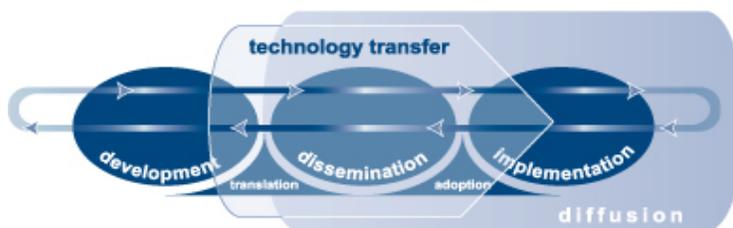
~ Charles Darwin (1809-1882) ~

Research over the past five decades has yielded an increasingly rich cadre of effective innovations for substance abuse prevention and treatment. More recently, a science of implementation has emerged to identify what factors help bridge a well documented gap – a lag time of years – between publication of research results and impact on practice.

Bridging this gap – bringing research to bear on practice – is a core mandate and mission of the Addiction Technology Transfer Center Network. Since being funded in 1993, ATTCs have increasingly drawn from implementation science in developing and honing efforts to assist practitioners to select and implement innovative practices. Recent work, by a national ATTC Network Technology Transfer Workgroup, has distilled implementation science into a “framing” model of the entire innovation process.

This three-part Addiction Messenger series will focus on technology transfer, beginning with a discussion of the *ATTC Network Model of Technology Transfer in the Innovation Process* (ATTC, 2011a) depicted below:

Technology Transfer in the Innovation Process



The Need for a “Shared” Model

Literature has consistently shown that the diffusion of innovations is a slow process, with varying success. E. Andrew Balas and Suzanne Boren (2000) reported, for example, that the transfer of medical research findings into practice took, on average, 17 years. Everett Rogers (2003) found comparable lag times exist across many fields, including medicine, public health, sociology, communications, marketing, and management. In developing methods to address this gap, however, implementation science has itself become bogged down by conflicting terms and processes. This had led to a need for a “shared” or “common” model, as the ATTC Technology Transfer Workgroup explains in a recently published article (ATTC, 2011b):

“The rapid ‘diffusion’ of innovations theory and research of the past 45 years has

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led to multiple, overlapping theoretical models, a plethora of terms that are inconsistently and contradictorily used, and a great deal of research on specific aspects of the innovation process that are difficult to integrate into a coherent body.”

By 2003, for example, there were over 5,000 publications related to diffusion of innovations (Rogers, 2004). Rogers’ foundational text on innovations diffusion (2003) provided a basis and impetus for the development of a great many more.

The ATTC Technology Transfer Workgroup, in developing the Technology Transfer Model, conducted a broad, systematic review (2011 in press), and consulted with experts within and outside the ATTC Network. They arrived at the following conclusion (ATTC, 2011b):

“A more uniform set of terms and definitions would allow for easier grouping of research results and communicating across disciplines. Addressing these issues could serve to better inform and standardize the process through which innovations are understood, investigated, communicated, and transferred to the field.... This model draws on theory and research related to diffusion of innovations, implementation science, etc. It is not meant to supplant or correct other models. Rather, it provides a conceptual framework of the whole innovation process, into which various theories and models that refer to different parts of the process can be contextualized.”

Applying the Model

In addition to providing a conceptual framework for technology transfer, the ATTC Technology Transfer Model is designed to be a tool with practical applications for multiple stakeholders. As envisioned by the ATTC Workgroup, “the model (ATTC 2011b, 2011c):

- Allows federal, state and other funders, program directors, and clinicians to more easily comprehend and appreciate the entire diffusion continuum, including the role of specific technology transfer activities [for example, it could be used in staff education about the change process];
- Clarifies the multi-tiered change process needed for successful implementation of evidence-based treatment practices;
- Assists stakeholders in determining how to invest limited resources to increase the utilization and monitoring of those interventions;
- Leads to more satisfaction with the change process [for example, since all partners share a common understanding of the stages involved] and fewer failed

attempts to use innovations; and,

- Helps stakeholders to assess where they are along the diffusion continuum and identify which activities are appropriate to facilitate the long-term implementation of an evidence-based practice.”

The model can also be useful in research by providing a common framework within which to inquire, and to also consider and compare research findings. For example, it allows for delineation of what constitutes research on dissemination versus implementation; and, as the ATTC Workgroup found (2011 in press) it helps clarify where gaps in research exist (e.g., in the areas of translation and adoption).

Key Components

The ATTC Technology Transfer Model includes seven key components. As the model illustrates, these components often interlink and overlap, combining in a process more complex than its parts; however, it is helpful to be able to examine and discuss each component separately. The following shows the definitions outlined by the ATTC Workgroup (2011 in press).

Development - Creating and initially evaluating an innovation. An innovation can be a idea, technology, treatment or method.

Development is the stage in which an innovation is designed and initially evaluated. It is often thought of as rigorous, controlled research, but the ATTC Technology Transfer Model embraces a broader definition, including other types of innovations. These might include new business and administrative processes, such as making billing changes, or administrative shifts designed to decrease no-shows or wait times or improve retention and/or engagement (often referred to as “process improvement”).

An example of a national system for development – one that allows for bi-directional communication among researchers, providers, and trainers – is the Clinical Trials Network, funded in 1999 by the National Institute of Drug Abuse. The CTN conducts rigorous research in real-life settings within a framework of 13 “Nodes”. Each Node includes a Regional Research and Training Center and several regional Community-based Treatment Programs (where research is conducted); plus they receive support from a national Clinical Coordinating Center and two Data and Statistical Centers. Per NIDA (2011a): “This (framework) allows the CTN to provide a broad and powerful infrastructure for rapid, multi-site testing of promising science-based therapies and the subsequent delivery of these treatments to

patients in community-based treatment.”

Translation - Explaining the essential elements and relevance of an innovation, then packaging it to facilitate dissemination.

In the ATTC Technology Transfer Model, translation refers to “the process of adapting knowledge or information from one form to another to promote its application” (ATTC, 2011b). A good translational package should include the essential elements of an innovation, its relevance, and the necessary ingredients for successful implementation (e.g., an accounting of necessary resources related to organizational and policy changes, personnel and training needs, costs, etc.).

An innovative system for translating research to practice is the NIDA-SAMHSA Blending Initiative (NIDA, 2011b), funded by NIDA in 2001. Through this partnership “Blending Teams” (comprised of CTN researchers and providers, and ATTC technology transfer specialists) select CTN research that has shown positive results and translate it into educational resources called “Blending Products”. ATTC Regional Centers then feature these resources in training and more extensive technology transfer efforts.

Currently available Blending Products feature motivational incentives, motivational interviewing (a supervisory toolkit), treatment planning, and buprenorphine (its use in treatment of opioid dependency for adults and adolescents, and for short-term opioid withdrawal). Six Blending Products are available to view or download for free, at: (www.attcnetwork.org/blendinginitiative and <http://www.nida.nih.gov/blending/>).

Dissemination - Promoting awareness of an innovation with the goal of facilitating adoption and implementation. Dissemination strategies include raising awareness, building knowledge, and distributing materials.

Dissemination is a term often used interchangeably with implementation. It is critical to have language to clarify the difference. Examples of dissemination efforts include lectures, didactic trainings, development of resources (e.g., publications and curricula), distribution of resources (e.g., via U.S. mail, listservs, or websites), and other forms of marketing. Stand-alone workshops may be dissemination, even if they impart new skills, because research indicates that successful implementation requires the more dedicated, extended processes

involved in technology transfer, as we’ll discuss and provide examples of in Parts 2 and 3.

Adoption - The process of deciding whether to use an innovation. Adoption may or may not lead to implementation.

According to the ATTC Technology Transfer Model, adoption is the decision-making process, or planning effort, that leads to implementation. It often involves multiple stakeholders working together to prioritize administrative, business, and/or clinical issues to address; and may include the collection and review of data or other information, such as agency or larger-system surveys or needs assessments. It might also include small-scale implementation trials. For example, an agency might collect data on attendance in a particular program, decide to implement motivational incentives for a specified period in that program alone, and then review data to check for improvement prior to larger-scale implementation.

The adoption process – carefully defining areas for improvement, establishing goals and measurement standards, and selecting processes or practices – is a critical part of the technology transfer process, especially in an environment where resources are scarce. We will discuss it more in Parts 2 and 3.

Implementation - Incorporating an innovation into routine practice. Implementation ideally includes a range of strategies designed to address individual, organizational, and systemic characteristics (e.g., skills training, administrative buy-in, and policy changes).

While dissemination involves learning about innovations, and adoption is selecting them, implementation involves putting them to use, or incorporating them into the routine practice of real-world settings. Implementation science, the study of the technology transfer process, involves multi-step models and individual, organizational, and systemic dimensions. It may include specific skills-building training focused on a chosen innovation, ongoing coaching and meetings, getting buy-in and support from leadership, multi-stakeholder involvement, policy and procedural changes, purchasing new equipment, etc.

For example, full implementation of Motivational Interviewing (a multi-faceted set of skills) requires planful, dedicated efforts involving multiple agency stakeholders. The NIDA-SAMHSA Blending Initiative (NIDA, 2011b) has created a toolkit of resources (Motivational Interviewing Assessment:

Supervisory Tools for Enhancing Proficiency) for supervisors to use in mentoring counselors to develop MI skills and deliver an evidence-based MI intake assessment. (In a later issue we'll look at how MIA:STEP is being used in technology transfer efforts.)

Diffusion - The planned or spontaneous spread of an innovation.

Diffusion begins in the later stages of development and goes through implementation. As originally defined by Rogers (2003) the ATTC Technology Transfer Model considers diffusion to include both planned and spontaneous spread of innovations.

Bi-Directional Communication. In the ATTC Technology Transfer Model bi-directional communication is an untitled element, represented by a continuous loop and arrows, spanning the entire life of an innovation, from development to implementation. Bi-directional communication glues the process together, strengthening each component and facilitating the whole. Examples can be found in the *ATTC Matrix of Actions that Accelerate Technology Transfer* (ATTC, 2011c), which identifies roles and activities at each stage of the model for the following stakeholders: States and Systems, Researchers, Organizations, Clinical Supervisors, Individual Clinicians, and ATTC Regional Centers. Its importance cannot be emphasized enough!

Conclusion

In The Bridge article (ATTC, 2011b), the ATTC Technology Transfer Workgroup concludes: "For the past 17 years, the ATTC Network has utilized a variety of strategies on multiple levels within the treatment system to increase the sustained implementation of EBPs, and therefore is in a unique position in the field to synthesize the work of a range of theorists on the diffusion of innovations, incorporate our experiences of diffusing innovations nationally, and propose a uniform theoretical framework."

The ATTC Technology Transfer Model is a culmination of years of work. Ultimately, it was created to help behavioral health service providers improve the quality of care by accelerating their use of EBPs and other innovations. Part 2 of this series will focus on technology transfer, the core component of the ATTC Model, and the crux of ATTC work.

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