Innovations in mental health services implementation: A report on state-level data from the National Evidence-Based Practices Project

Jennifer L. Magnabosco, PhD.[1§]

[1]Health Science Research Specialist, VA Greater Los Angeles Healthcare System. HSR&D Center of Excellence for the Study of Healthcare Provider Behavior. Sepulveda, CA

[§]Corresponding author

Email address:
JLM: jlmagnabosco@mindspring.com

Abstract

The national *Evidence-Based (EBP) Project* has been investigating the implementation of mental health EBPs [Assertive Community Treatment, Family Psychoeducation, Integrated Dual Diagnosis Treatment, Illness Management and Recovery, and Supported Employment] in state public mental health systems for adult persons with serious mental illness for the past 5 years.

The study reported was an exploratory secondary analysis of site visit reports that described state-level activities and strategies—including consumer participation--associated with the implementation of the *Project's* EBPs in 8 states. It assessed the number and types of innovations that were associated with the *Project's* Pre-Implementation, Initial Implementation and Plans for Sustainability phases.

Site visit reports were based on background materials and notes from key informant interviews conducted in all 8 states during Fall 2002 – Spring 2003, Spring 2004. Qualitative data analysis methods--content analysis-and application of Greenhalgh et al's (2004) definition of innovation, were used to evaluate state-level implementation activities from site visit reports.

106 discreet, and 5 types (relationship building/communications; state infrastructure building/commitment to EBPs; financing; licensing, certification, regulations, standards and quality improvement; service delivery treatment/training) of innovative implementation activities were identified. Analysis showed that the state's role is critical to the implementation of EBPs at the community level and that the evolutionary model of implementation helps explain the processes by which this occurs.

This study makes new contributions to the field of mental health, implementation and innovations research. It especially contributes to the limited knowledge base that exists for innovations in mental health services implementation. States, other organizations and stakeholders can use the innovations identified to plan, jump start or enhance the development, implementation and planning for an EBP service delivery culture in mental health and healthcare systems.

Background

During the last decade the testing and implementing of evidence-based practices (EBPs) in healthcare systems throughout the United States has been increasing. While a literature on translating EBPs into health and mental health organizations is also growing, [1-26] only a few studies have been conducted to explore the range of EBPs that have been implemented on a national basis [27], or within particular states [28-32] in public mental health systems. Moreover, only select sources discuss innovations in mental health--such as the implementation of EBPs--within a governmental implementation context [33-41]. One recent initiative, the national *Evidence-Based Practice Project* [6, 31] was designed to address some of these gaps.

Since 2001, the *EBP Project* has been investigating the implementation of evidence-based mental health practices [including, Assertive Community Treatment (ACT), Family Psychoeducation (FPE), Integrated Dual Diagnosis Treatment (IDDT), Illness Management and Recovery (IMR), and Supported Employment (SE)] in state public mental health systems for adult persons with serious mental illness. One key objective of the *Project* has been to collect data that helps to better understand how stakeholders in community-based and state agencies interact to implement, sustain and achieve evidence-based service delivery cultures. This objective is consistent with the need to build an empirical knowledge base that supports the implementation and measurement of EBPs throughout the public health sector.

A related paper describes analyses that were conducted to answer two questions about *Project* implementation at the state level [31]: What roles do state mental health (and substance abuse) authorities play in implementing EBPs in general, and specifically with regard to the *EBP Project*? What factors facilitate and create barriers to implement and sustain EBPs, and in particular, the six EBPs included in the *EBP Project*?

In this paper, analyses of state-level data were expanded to explore the types of innovative activities state mental health (and substance abuse) authorities put forth during the preparation, initial implementation and planning for sustainability of the *Project*.

Accordingly, the following research questions were asked: *Can innovations in EBP Project implementation be identified from activities states engaged in to prepare, initially implement and plan for EBP sustainability? What types of innovations were associated with these three phases of initial implementation at the state level? What type of implementation model(s) help explain the implementation? What are some of the implications these innovations might have for the development and implementation of an EBP service delivery culture in state and community-based mental health organizations?*

Exploring the implementation of innovations in mental health--and in particular for the implementation of EBPs--addresses a call for the direct study of such activities. Torrey et al [39] highlights this call as follows: "The literature has an abundance of evidence, whether it is theoretical or empirical, which chronicles the arguments for the need for innovation in mental health services implementation, even though the word innovation is not used predominantly". While no "golden" standards or criteria exist to assess the implementation of innovations or state-level implementation activities, a multi-disciplinary foundation exists from which to begin to secure such agreement.

This foundation includes the fact that:

- *The literature on innovation in government, while minimally inclusive of public sector mental health, raises consistent issues and questions that should be considered when creating evaluation frameworks, criteria and standards to assess innovations.* For example, Capra [40] asks, do we really know an innovation when we see it? For whom does innovation matter? How long does innovation need to run before we can see effects? And, does innovation fit the pattern of how government functions? Perrin [41] challenges us to consider that innovation should only identify the "minority of situations" in which real impacts have occurred and the reasons for them. Smith [41] points out "innovation never occurs alone but always within the context of structured relationships, networks and infrastructures, and in a wider social and economic context". Senge [42] reminds us that individual contributions of people to innovations are key (e.g. leadership is essential to innovation) and Eimecke [43] advocates that we need to develop a "report card of innovation".

- *Evaluations of innovations in government, and organizations that partner with government, have been occurring for many years.* Many entities have recognized government and other organizations for their approaches to innovation [44-48]. For example, the Substance Abuse and Mental Health Administration's Center for Mental Health Services and Center of Substance Abuse Treatment identify innovative mental health and substance abuse programs annually. The Ash Institute for Democratic Governance and Innovations at Harvard's John F. Kennedy School of Government awards $100,000 for pioneering and forward thinking innovations in government [44].

- *Models of implementation have developed that 1) recognize contemporary changes in organizational complexity and structure, and relationships within and between various human and non-human (e.g. environmental, economic, political and material) factors, and 2) reflect the various ways theorists, policymakers and practitioners view and study organizations* [49]. A theory driven approach to implementation is necessary if we are to better understand how implementation occurs, and the factors which are the most and least likely to predict outcomes and effect change [50, 17]. Four main models or theoretical approaches to the study of implementation remain common today: top down or forward mapping" [51]; bottom up or "backward mapping" [52]; adaptive [53]; and evolutionary [54].

In this study, it is hypothesized that the evolutionary model best explains the manner in which the *Project* is being implemented. This model takes into account the 1) combination of micro-[1] and macro-[2] processes that organizations utilize in the implementation of practices and policies, and 2) interrelationships between policy, practice and action [55, 58]. In this model, then, "*institutions matter"* [56] as (institutional) settings in which a policy or program is implemented interact and impact on outcomes [53, 57]. Implementation "evolves" during the process itself—through "progressive movements" [58] and a "continuum in which an

[1] Micro- processes are those processes by which lower management or "street level" [59] workers in local government or service agencies devise and carry out policies, programs or laws according to higher-level administration [60].
[2] Macro-processes are those processes by which higher-level management or administration in government executes its influence on lower level management or workers who implement a policy, program or law [60].

interactive and negotiative process [takes] place over time, between those seeking to put policy [or practice] into effect and those upon whom action depends" [55].

- *Seminal think pieces that describe the facilitators and barriers associated with EBP implementation and systematic reviews of how innovations are implemented are increasing in number.* For example, Rosenheck's [61] call for the development of a "dissemination science" is echoed by many, including Ganju who comments that closing the "gap between what is known through research and what is actually implemented in public mental health systems" will only be accomplished if implementation science more fully evolves and includes a "science of implementation of EBPs" [29]. A recent review conducted by Greenhalgh et al [17] utilized a new methodology for systematically reviewing the literature called "meta-narrative review". This method can be used to identify features, mechanisms, and metaphors for "spread" across empirical and non-empirical studies of healthcare innovations.

- And lastly, *both the Surgeon General's Report on Mental Health, and the President's New Freedom Commission on Mental Health set further development and implementation of EBPs as a primary goal for mental health system reform [34, 35].*

What follows is discussion of the methods applied to evaluate the state-level activities and strategies associated with the preparation or Pre-Implementation, Initial Implementation and Plans for Sustainability of the *Project's* EBPs; the number and types of innovations identified; and implications results have for the implementation of an EBP service delivery culture in mental health organizations.

Methods

This study was an exploratory secondary data analysis of site visit reports that described state-level activities and strategies associated with the implementation of 5 EBPS—ACT, FPE, IDDT, IMR and SE--in 8 states during the Pre-Implementation, Initial Implementation and Planning for Sustainability phases of the *EBP Project* during two observational periods. A complete description of the *Project's* EBPs, state and community-based site selection, EBP

training materials, and agency site level implementation and evaluation methods can be found in Torrey et al [6] and on the following websites:

http://www.dartmouth.edu/~psychrc/know.html and www.mentalhealthpractices.org.

a. *Secondary Data Sources.*

The secondary sources used in this study were 16 state site visit reports. The author of the study reported here obtained these sources directly from the team leader of researchers who conducted the site visits. Site visit reports were a result of the following research design and data collection methods:

Teams of researchers associated with the John D. and Catherine T. MacArthur Foundation Network on Mental Health Policy Research, and the National Association of State Mental Health Directors Research Institute (NASMHPD NRI), conducted site visits in each of the 8 participating states during a 1-2 day period at two separate points in time. Time 1 site visits were conducted during Fall 2002 and Spring 2003 at government offices to investigate state-level activities and strategies associated with the Pre-Implementation and Initial Implementation phases of the *Project*. Follow up site visits at Time 2 were conducted at government offices during Spring 2004 to investigate the continued Initial Implementation and Plans for Sustainability phases of the *Project*. Site visit reports were written by designated team members who attended the same site visits as interviewers and/or note takers.

Since no comparative data about state-level involvement in EBPs or the *Project* existed prior to its launch, the key informant interview method was selected as the primary data collection method to assess state role, activities and strategies associated with the *Project's* implementation. This method therefore allowed for effective exploration of new and potentially sensitive avenues of inquiry. Key informant interview protocols were developed for use during site visits by the Network research team and in consultation with various experts in the field of mental health, including consumers. Protocols were informed by diffusion of innovations, implementation, organizational theory, EBP and healthcare delivery literatures. Members of the Network research team had expertise in these areas and were

familiar with these bodies of literature. Protocols were approved by the full Network research team before site visit use.

Two sets of interview protocols were developed for Time 1 and Time 2 site visits. Time 1 site visit protocol domains included:

- Organization of State Mental Health Systems: state organization of services and providers; background and contexts for EBPs; consensus development; leadership; organizational culture; facilitators and barriers; financing; quality enhancement or improvement; regulation and legislation; information systems and data; training; licensing and certification.

- State role in EBP implementation: site selection; familiarity with Toolkits; challenges to implement EBPs selected by the state; facilitators and barriers; future EBP plans; implementation; contracts with academic and other consulting organizations.

- EBPs: current status of implementation; current extent and models being implemented; political context; existing support levels; identification of champions; strengths and vulnerabilities of EBPs; strategies for implementation, including resources, financing, licensing, standards, certification, treatment planning, performance measures, incentives, quality management, organizational issues to implement EBPs, training, monitoring & feedback mechanisms, general workforce issues; plans for state-wide implementation and sustainability.

Protocols for Time 2 site visits included similar questions from Time 1 so that continuity and progress of activities and strategies could be assessed. In addition, three main areas of interest were identified from analysis of Time 1 site visit reports to guide more in-depth inquiry during the second round of site visits. Time 2 site visit protocol domains included:

- Leadership and political environment: changes in governor, governor's staff and legislative leadership; SMHA Commissioner and Commissioner reporting relationships and other relevant departments; key SMHA staff; EBP champion, site, local entity leadership; key stakeholder groups; perceived impact of leadership changes or SMHA role on EBP

implementation; changes in stakeholder involvement, policies, SMHA, site changes and impact of change; change in expectations about what SMHA will do after Toolkit project ends.

- Financing/Regulations: status of financing efforts, including start-up incentive funds for training, quality efforts, services; issues funding EBPs using Medicaid, block grant and other sources, training; quality improvement efforts; regulations/standards for providers or services; licensing/certification standards; standards or guidelines; fidelity measures; contracting requirements for EBPs.

- Quality and Training: status of training planned and conducted, training content; perceived impact of training efforts; resources for training; supervision; EBP fidelity measurement process and relation to quality management/improvement plans; data collection process for outcome data and EBPs; and use and plans of outcome data.

Site visit reports synthesized data collected on each state's activities and strategies using a profile report format developed for the *Project.* Data included site visit interview notes for individual and group interviews; Network team site visit debriefing meeting notes; background information collected on states, including reports and other documents that described state systems and EBP activities, and annual state profile data posted on NASMHPD's website, www.nri-inc.org. Initial drafts of site visit reports were approved by all Network research team members and sent to the state EBP Project team for review and validation. Revisions to reports were made as needed. Site visit reports were considered valid after states and Network team members approved final versions.

b. Secondary Data Sample: States, EBPs, Key Informant Interviews

Eight states were selected for participation in the initial round of *EBP Project* implementation. States were solicited for their participation at national meetings and through *Project* announcements. A process for state and EBP selection was developed and approved by *Project* developers, researcher and financial supporters.

Table 1 shows the distribution of EBP selection by the states. All but one of the states decided to implement two EBPs. IMR was selected in the most (four) states, followed by FPE, IDDT and SE in three states, and ACT in two states.

States varied in their selection of multiple EBPS. Two states selected both FPE and IMR. Other combinations of EBPs included ACT and IDDT, ACT and IMR, FPE and SE, IDDT and SE, and IDDT and IMR. States were approved to select EBPs for various reasons. For example, EBPs were in line with state mental health, substance abuse or vocational rehabilitation goals; EBPs built on related service practices already being implemented; and EBPs provided an opportunity to implement new service practices for targeted populations.

Types of key informants for individual and group interviews were purposely identified by the Network researchers during *Project* development meetings to match interview protocol topics and to gain expert and multiple perspectives on state EBP activities and strategies. Budget and time considerations (such as limited availability of informants) led Network researchers to plan interviews so that the range of informants could participate. Accordingly, interview protocol sections were developed for use with individual and small groups of informants. During each site visit period, over 50 interviews were conducted in all states, with 1-2 individual and 5-8 group interviews conducted in each of the 8 states each time.

Key informants in each state included the state mental health and state substance abuse directors (individual interview); state *EBP Project* implementation team (group interview); *Project* site agency directors (group interview); state managers of finance, Medicaid, research, quality assurance, training, vocational rehabilitation, and supported employment (group interview); representatives of consumer groups, such as NAMI or the state's Consumer Affairs Office representative (group interview); consumers from *Project* sites (group interview); and consultants with whom states or agencies used to assist in the implementation of the *Project* (group interview).

c. <u>Data Analysis Methods</u>

The goals of data analysis in the study reported here were descriptive. State-level activities and strategies were analyzed according to three of the stages of diffusion or

implementation that Rogers [62] and Greenhalgh et al [17] describe: Pre-implementation or "readiness" for implementation (Time 1 of this study), initial implementation (active and planned efforts to mainstream an innovation, or EBP, within organizations; Times 1 and 2 of this study), and plans for sustainability of the EBPs (Time 2 of this study). Qualitative data analysis methods [63]--content analysis techniques--were used to identify, code and categorize the state-level activities and strategies associated with these three implementation phases of the *Project*.

State-level activities and strategies were identified and counted if they fulfilled two criteria. Activities and strategies were counted if 1) site visit reports described them as specifically pertinent to the implementation of the *Project's* EBPs; and 2) if they met Greenhalgh's definition for innovative: "a novel set of behaviors, routines, and ways of working that are directed at improving outcomes, administrative efficiency, cost effectiveness, or users' experiences and that are implemented by planned and coordinated actions". This definition was used because Greenhalgh et al's [17] review of healthcare innovations was systematic and yielded reliable results. Initial tables were constructed to list counts of innovations within and across states and EBPs.

An inductive analysis approach [63]—allowing patterns, themes and categories to emerge from the data--was used to categorize the activities and strategies identified. This approach was used because this study was exploratory, no other analysis had been conducted on the *Project's* state-level data, and no standards for assessing state-level EBP activities and strategies existed in the literature. Categories or types of activities and strategies were, therefore, evaluator generated [63]. Since the number of states involved in the study was small, analyses were conducted in aggregate, focusing on themes or common domains of types of innovations, and trends across the EBPs implemented in all states. Rank order, or comparisons between number of innovations per type (with highest rank equalling most number counted and lowest rank equalling least number counted) was determined for each implementation phase studied. Data analysis also included an assessment of state activities (e.g. mental health system reforms and other improvements in service delivery), challenges

and other factors (e.g. budget crises) that provided broad based contexts for implementing EBPs. Final tables were constructed that listed counts and types of innovative implementation activities and strategies across EBPs and the three phases of implementation studied.

Results

Tables 2-3 and Appendices 1-3 show results for the analyses that were conducted to identify, count and categorize state level activities and strategies associated with implementation of the *Project's* EBPs during the three phases studied. What follows are highlights of the aggregate analyses. Readers are encouraged to consult tables and appendices for more detail.

Table 2 shows the total number of innovative implementation activities that were identified across all three implementation phases. 106 discreet activities were identified and categorized into five main domain types: state infrastructure building/state commitment to EBPs; relationship building/communication; financing; licensing, certification, regulations, standards and quality improvement (QI); and service delivery treatment/training. Appendices 1-3 provide a complete list of activities associated with each implementation phase, domain and EBP.

Tables 2 shows that overall, relationship building/communication, and financing domains yielded the most activities, followed by state infrastructure building, licensing and certification and service delivery/training, across all implementation phases. Among the three phases, *Plans for Sustainability* yielded the most innovative activities overall, followed by Initial-Implementation and Pre-Implementation.

Analyses were also conducted to determine the aggregate number of innovative implementation activities across EBPs and within each implementation phase and domain (see Appendices 1-3). Here, the most activities identified were associated with the IDDT EBP, followed by IMR, ACT, SE, FPE and FPE. In the *Pre-Implementation phase*, the most activities were associated with the IMR and SE EBPs, followed by ACT and FPE, and IDDT.

In the *Initial-Implementation phase*, ACT yielded the most activities, followed by IMR, IDDT, SE and FPE. In the *Plans for Sustainability phase*, IDDT yielded the most activities, followed by IMR, ACT, FPE and SE.

Table 3 shows the results from rank ordering of number of activities and domains for the three phases of implementation. In the *Pre-Implementation phase,* relationship building and communication activities were primary, followed by state infrastructure building; financing; licensing, certification, regulations, standards and QI; and service delivery/training. These results show that this phase required foundation building or macro-system activities to prepare for the initial implementation of the EBPs.

In this phase, states employed one main relationship building and communications activity across all EBPs: to prioritize the participation of consumers on Project Advisory Boards and EBP Project Steering Committees. Infrastructure and financing innovations were under development or initially underway for all EBPs, except for FPE, during the time of the first site visit. This was largely due to the fact FPE required more intensive stakeholder consensus building to incorporate the newness of this EBP into practice. New licensing regulations were being developed, or were being discussed for all EBPs. State training budgets were reallocated to provide more training for the FPE and SE EBPs especially.

In the *Initial Implementation phase***,** rank ordering of innovations showed financing to be primary, followed by relationship building and communication; licensing, certification, regulations, standards and QI; service delivery/training; and state infrastructure building. These results showed that Initial Implementation required a focus on resources, namely financial activities and strategies to support the implementation process of EBPs (e.g. organizational change, training, and monitoring efforts) at the community-based agency level.

In this phase, much attention was paid to developing strategies to fund and bill ACT (see Appendices 1-3). Relationship building and communication activities in this phase included the fact that all EBPs were supported by monthly meetings between the state, *EBP Project* sites and/or Advisory Councils; and increased collaboration between the state mental health and Medicaid agencies to make billing easier. While licensing, certification, regulations,

standards and QI activities were most prevalent for ACT in this phase, some attention to these issues was associated with all EBPs. In this domain, a shadowing training program for ACT and SE was one of the novel service delivery activities, and training activities. Even though state agency infrastructure building in this phase yielded the least amount of innovations, significant activities stood out for the IDDT, IMR and SE EBPs. One state developed a new state-level position to assist in the implementation and monitoring of EBPs, and for IDDT and IMR in particular. Another was considering strategies to penetrate IMR in all licensed programs, while another developed a new RFP process to help fund this SE EBP statewide.

Like the Initial-Implementation phase, rank ordering of implementation activities in the *Plans of Sustainability* phase reflected financing as primary, with service delivery/training; relationship building/communication; licensing, certification, regulations, standards and QI; and state infrastructure building activities following. In this phase, the top two activities reflect the states' projected focus on prioritizing the security of resources—money and staff—to sustain the *Project's* EBPs after the *Project* ended.

Overall state commitment to EBP rollouts focused on intent to do so and/or targeted infrastructure building for EBPs. Despite serious state budget crisis occurring during the time of the site visits, states expressed a philosophical commitment to rolling out all EBPs, no matter the resources needed. States were committed to working on a funding base for roll out of all EBPS, except FPE as they wanted to better assess this EBP's fidelity and potential funding mechanisms. With regards to particular EBPS, planning for IDDT was most prevalent in this phase. However, states planned to better align incentives and rules to encourage desired practices, behaviors and system change for all of the EBPs.

States also had plans to disseminate EBP information statewide for all of the EBPs; further develop their infrastructure and mechanisms for integrating EBPs into the larger state agenda; apply for governmental grants to build system infrastructure for IDDT; implement a state institute to support *Project* and non-*Project* EBPs; continue state supported research for EBPs, especially for IDDT and IMR; and address the ongoing skills training, credentiallng and licensing needed for all EBP service delivery, especially for IDDT and IMR. State plans

for sustaining *Project* EBPs through relationship building and communication activities largely built on activities set into motion during the Pre-Implementation and Implementation phases.

Discussion

This study's findings provide new data on the types of activities and strategies that are associated with implementing mental health EBPs, and those which were considered innovative during the early implementation of the *EBP Project* in 8 states. This study should be considered a first report on such activities and strategies at the state-level. The study identified 106 distinct, and 5 types, of innovative activities and strategies associated with the implementation of mental health EBPs in three phases--Pre-Implementation, Initial Implementation, Plans for Sustainability. Results show that much innovation resulted, and was required to launch and initially plan for the sustainability of the *Project's* EBPs. Hence, the use of secondary analysis and qualitative data analysis techniques--including the application of Greenhalgh et al's [17] definition of innovation-- proved to be viable methods for assessing the existence (number) and types of state-level *EBP Project* implementation activities and strategies.

As other sections of this paper have described, implementation of programs and policies, and the development and implementation of innovations, occur within various social, economic, and political contexts, and certain implementation frameworks [41, 65]. What follows, then, is an integrated discussion of this study's results guided by two main questions.

First, *is it reasonable to expect that state-level approaches to implementing the Project's EBPs could be evaluated as innovative?* The intuitive answer is "yes". Based on results produced in this study, the empirical answer is also "yes".

States that participated in the *Project* were engaging in various activities and strategies to incorporate *new* organizational change process and implementation strategies into their

mental health and substance abuse systems prior to the launch of the *Project*, and to institute mental health system reform.

At the *national* level, planning for EBPs was sanctioned by a number of developments. The accountability and outcomes measurement movements [66, 67, 49] acted as one of the catalysts for all states to apply for and implement federal grants--such as Data Infrastructure Grants--and to increase performance contracting [68] for services. Such activities primed states with better knowledge on how to measure EBPs, and to integrate measurement with financing.

As mentioned, two national reports on mental health were also released prior to both sites visits conducted for this study. The Surgeon General's Report on Mental Health [35] was disseminated prior to the selection of states for the *Project*, and the first site visit. States at that time used the Report to support their planning efforts in general, and later, in particular to support their efforts to implement EBPs. Similarly, during the early stages of the *Project's* implementation, and just prior to the second site visit, The President's New Freedom Commission on Mental Health report [34] was released. States at that time were using the Report to develop strategic planning goals for their systems in general, and for EBPs in particular.

At the *state* level, much infrastructure and stakeholder relationship building, and chronic attention to financial issues, was occurring—and was required-during the Pre-Implementation and Initial Implementation phases of the *Project*:

- *History of state reform and innovation, and EBP promotion*. All states involved in the *EBP Project* considered themselves, historically, to be innovative reformers of their mental health systems, deliverers of cutting edge services, and to be supported by strong leaders in key state-level positions. Governors in two states demonstrated particular interest in mental health issues, establishing legislation to improve mental health services and systems. All states involved in the *Project* had a history of promoting some aspect of the EBP that they had agreed to implement and wished to increase or build their state's EBP activities. For example, one state passed a senate bill to implement a blueprint for change in the mental health system

that emphasized local control and financing EBPs, while another had been implementing a statewide mental health quality improvement agenda to establish centers of excellence in several service areas to train providers to deliver best and evidence-based practices. *Hence, the EBP Project can be considered part of a larger set of activities that were geared towards fostering an EBP culture within state and local mental health systems.*

- *Relationship building, collaboration and commitment.* Relationship building and collaboration between many levels of government, organizations and stakeholder groups was occurring during all phases of the *Project*. Commitment to EBPs remained consistent, and high, even when leadership changes occurred. States were forging more collaborative relationships between their state mental health, Medicaid, substance abuse, and vocational rehabilitation offices, and between local boards. Here, a few states established formal agreements, such as Memorandums of Understanding, with local boards or community mental health centers, to solidify funding, delivery of services, and support organizational change needed to implement the EBPs. All but one state involved in the *Project* had merged their mental health and substance abuse departments to encourage integration and collaboration between systems. All states considered consumer involvement key to their system reform and service planning efforts, especially for implementation of EBPs that were more directly consumer oriented, namely FPE and IMR. Two states had developed technical assistance and research centers to support the implementation of EBPs throughout their states.

- *Financing strategies*. States made definitive decisions to spend their money on EBPs to improve their mental health services and systems in light of budget and Medicaid funding crises. All states were committed to implementing EBPs, despite these challenges. Prior to the launch of the *Project*, and during the early stages of its implementation, states were planning, or had applied for governmental or non-governmental grants that could support system reform. They were developing and implementing multiple strategies to help prioritize funding and billing issues for EBPs by utilizing, for example, the Medicaid Buy-In Program option, Medicaid 1115B waivers and bundling of funding streams.

- *Training, outcomes measurement, quality improvement and research*. States' long-standing arrangements with universities for provider and consumer training, and outcomes measurement and research placed them in good standing to develop or revise outcomes and performance indicators for EBPs. While all states wished to formally link outcomes measurement and performance measurement and EBPs to their quality improvement or enhancement processes, most states involved in the EBP *Project* were still in the process of formulating strategies to accomplish this statewide [31]. All states were concerned about how to maintain ongoing training needs and staff turnover, and in turn, how to manage the impact these issues have on EBP service delivery. Here, one state established a bureau of EBP evaluation, increased staff and system capacity to monitor outcomes, and hired volunteers to support EBPs implementation.

Second, *does the data analysed in this study support the supposition that the implementation innovations identified in the Pre-Implementation, initial Implementation and Plans for Sustainability phases occurred within an evolutionary implementation framework?* The overall answer is "yes".

The innovation domains represent a "continuum in which an interactive and negotiative process has taken place over time" [55, 58]. Activities across all implementation phases, and EBPs, built on activities set in motion in earlier phases. For example, since all states considered consumers key to mental health system reform, this philosophy laid the foundational ground for regular meetings, Advisory Groups and technical assistance activities to take place between the state agencies, consumers and other stakeholders. The development and implementation of effective financing, and licensing and certification strategies, would not have been possible if multiple state agencies, and sites, had not engaged in a negotiative process concerning new billing codes, incentives, funding streams, regulations and standards. Service delivery training innovations would not have solidified if states and local organizations, or local boards, did not start working together to address chronic issues underlying the delivery of services, such as training, shared financing, and the measurement of EBP outcomes.

The innovations identified show that “implementation takes into account a combination of micro- and macro-implementation processes”[60], “interactions…occur[ed] on various levels, between top and bottom actors”, and a variety of “interrelationships” [55, 58] were necessary to launch, initially implement, and initially plan for the sustainability of the *EBP Project* EBPs. Here, state agencies exercised their authority to set policy for the delivery of clinical practice, and voluntarily engaged in an interactive and cooperative relationship building process with local service and other organizations to meet the full range of needs--infrastructure building, financing, communications, licensing, certification, regulations, standards, quality improvement, service treatment delivery and training--necessary to solidify EBPs as usual mental health and administrative practice. Interactions, then, between the macro- or top down actors (state agencies) and the micro- or bottom-up actors (local service organizations or boards) were required to successfully implement, and roll out, the EBPs.

Furthermore, the variety of ‘institutions” represented in this study—namely, state agencies of mental health, substance abuse, Medicaid, vocational rehabilitation; universities; technical assistance centers; centers of excellence; consumer organizations; local service organizations; local boards; governor offices; federal government grant entities; accrediting boards; and research groups-- engaged in a variety of inter-relationships to implement the *EBP Project* EBPs. Consequently, “institutions matter[ed]” [56], in this study.

Conclusion

This study makes several new and important contributions to the field of mental health, implementation and innovations research. First, it demonstrates that 106 state-level implementation activities and strategies can be identified and categorized into 5 types of domains for three phases of implementation. Second, it complements a related paper’s conclusion that the state’s role in the implementation of mental health EBPs is critical [31], and that innovations resulting from states’ efforts to push forward new service delivery strategies at both the state and community-based levels “matter” [56, 71-74]. And third, it

provides new evidence--post-priori of the *Project's* launch--that EBPs in state mental health systems are being implemented within an "evolutionary" framework. This finding helps to establish more of the interdisciplinary theoretical base from which inquiries about EBP implementation can be better understood.

Consequently, this study's findings have both practical and research applications. Its results provide new evidence that can be used to improve the quality of services and systems of care for persons with mental illness and substance abuse disorders. The list of 106 innovative activities can be used by state and other governmental organizations, community-based organizations, and other stakeholders, to plan, jumpstart and model EBP service delivery cultures. While rank order results showed that "different implementation strategies" are needed at "different phases of implementation", [39] we need to do more studies to see how "multiple strategies are… effective" [39]. Therefore, the innovations identified in this study, and the evolutionary framework of implementation, can be used to design future research studies which investigate empirical links between implementation process (e.g. implementation activities and strategies) and outcomes (e.g. site EBP fidelity measures and patient outcomes), and to determine which activities and strategies may be more or less useful, or effective, for certain points in time and for which EBP(s).

Nevertheless, this study has several limitations. Data sources were limited to secondary data, or 16 state site visit reports. Since original data collection observation points were scheduled at two cross-sectional points in time (with Time 2 occurring during the early implementation phase of the EBPs) it was not possible to assess the full range of implementation activities and strategies, and plans for sustainability, of the *Project's* EBPs. Consequently, the innovations identified can be considered a subset of innovative activities and strategies that otherwise might be discovered if intensive case study methods were used to investigate each state's EBP implementation process in greater depth.

While the innovations showed patterns across and within the EBPs, the states selected for the initial implementation of the *Project* considered themselves innovators of mental health reform, and were very committed to developing a statewide EBP culture. In addition, only 5

EBPs were included in the *Project*. Hence, states and other organizations and stakeholders may be selective in their application of the activities and strategies.

Lastly, comparisons between the innovative activities and strategies used to implement the *Project's* EBPs, and activities and strategies used to implement non-*EBP Project* EBPs, was not possible since these aspects of state behavior were not systematically explored during site visits. Therefore, it was not possible to explore the similarities and differences in innovations among a larger set of EBPS, and in turn, the implications such similarities and differences may have on outcomes. While the study reported here is the first to document and systematically analyze state-level EBP activities and strategies, its analysis is only a first step in understanding the utility and effectiveness of the innovations discussed.

Regardless of these limitations, the results from this study can be used as check points from which to assess how systemic barriers and policy recommendations for the dissemination of mental health EBPs [38, 39, 70] are being addressed. The innovations identified in this study show that states are directly taking steps to help "build a science base"; "ensure that the supply of EBP services and practices and providers are trained in EBP practice; "ensure delivery of state of the art treatments"; "facilitate entry into treatment"; and "reduce financial barriers to treatments" [38]. This study's analysis did not overtly show if and how states were directly addressing "overcoming stigma"; "improving public awareness of effective treatments"; or "tailoring treatment to gender, sex, race and culture".

The innovations identified in this study show that the participating states in this study are addressing the majority of national policy recommendations that were recently cited in the literature [38]. States are providing "leadership in EBPs…reviving an infrastructure for mental heath program training for EBPs…modifying Medicaid, and …using mental health services block grant funding to initiate EBPs". States were also in the process of "developing and strengthening their quality improvement program linked to EBPs". Data collected during the site visits in this study did not explore how states might "modify Medicare'" to accommodate EBPs, or how to "create national information leadership in EBPs".

Hence, this study shows that the states involved in the *EBP Project* demonstrated innovative implementation activities that were addressing the majority of systemic barriers and policy recommendations that have been made to achieve a national EBP service oriented culture. *This is compelling news.*

This research study adds to the knowledge bases on the implementation and dissemination of mental health EBPs and innovations. States, other organizations and stakeholders involved in the implementation of mental health EBPs will hopefully use the activities and strategies identified here to plan, jump start or enhance their EBP implementation processes. While this study utilized qualitative research methods to explore new avenues of inquiry, quantitative studies are also needed to explore links between the cause and effects of EBP implementation factors and outcomes. Using a combination of both qualitative and quantitative methods to investigate the multiple dimensions of EBP implementation--such as innovation--will most optimally help us to deepen our capacity to agree upon the standards and criteria we need to evaluate the short and long term outcomes EBPs have been designed to achieve.

Competing interests

The author declares that there are no competing interests associated with this manuscript. However, the author would like to thank the John D. and Catherine T. MacArthur Foundation Network on Mental Health Policy Research for financing the preparation of data analyses and writing of the manuscript associated with this phase of the *EBP Project*.

Authors' contributions

The sole author listed conceived of this manuscript's design, data analyses, and interpretation of analyses; wrote this manuscript; and gave final approval for this version to be published.

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Table 1: State Selection of EBPs

STATE/EBP	ACT	FPE	IDDT	IMR	SE	TOTAL
1	X		X			2
2	X			X		2
3		X			X	2
4			X		X	2
5					X	1
6		X		X		2
7		X		X		2
8			X	X		2
Total	2	3	3	4	3	15

Table 2: Number of Innovative Implementation Activities Across Implementation Phases

DOMAIN/# ACTIVITIES & INNOVATIONS	# PRE-IMPLEMENTATION EBPS	# IMPLEMEN-TATION EBP	# PLANS FOR SUSTAINABILITY EBPS	TOTAL #
State Infrastructure/Commitment to EBPs	5	3	11	19
Relationship Building & Communication	8	13	6	27
Financing	5	9	12	26
Licensing, Certification, Regulation, Standards, QI	5	9	3	17
Service Delivery Treatment or Training	4	5	8	17
Total #	27	39	40	106

Table 3: Rank Order* of Innovations, Domains and Implementation Phases

PRE-IMPLEMENTATION PHASE: RANK ORDER 1-5	INITIAL IMPLEMENTATION PHASE: RANK ORDER 1-5	PLANS FOR SUSTAINABILITY PHASE: RANK ORDER 1-5
1. relationship building & communication	1. financing	1. financing
2. state infrastructure building	2. relationship building & communication	2. service delivery and training
3.financing	3.licensing, certification, regulations, standards, quality improvement	3. relationship building & communication
4.licensing, certification, regulations, standards, quality improvement	4. service delivery and training	4. licensing, certification, regulations, standards, quality improvement
5. service delivery and training	5. state infrastructure building	5. state infrastructure building

Rank Order is defined as the comparison between number of innovations per type, with highest rank (#1) equalling most number counted, and lowest rank (#5) equalling least number counted.

APPPENDICES

Appendix 1: Pre-Implementation Phase: Innovative Implementation Activities & Strategies

Innovations: Pre-Implementation Stage	ACT	FPE	IDDT	IMR	SE
Infrastructure Building					
• Technical Assistance Center for state & Toolkit efforts established	X				
• Participation in other demonstrations to ready state for EBPs					X
• Modifications to Toolkit made to fit state context of implementing EBPS	X			X	
• White Paper written by consumers to modify EBP					
• State sponsored research establishing evidence base to implement EBPs				X	
			X	X	
Relationship Building & Communications					
• Statewide meetings, workshops, conferences, technical assistance activities to address philosophical and clinical practice differences between providers			X	X	
• Broad communication strategies established (e.g. educational forums, peer support programs, statewide consumer and advocacy meetings) to discuss EBPs		X		X	
• Statewide meetings to engage consumers and other stakeholders in state & Toolkit efforts	X X	X X	X X	X X	
• Statewide Advisory Group established				X	
• Statewide Advisory Committee established, integrating recovery perspectives	X	X	X	X	X
• Priority to include input & consumers on Advisory Board, Toolkit site Steering Committees		X			X
• Reporting of current EBP successes in mass media					
• Partnership formed between state and consumer community to train clinical staff					
Financing					
• Start-up incentive monies for sites provided by state	X	X	X	X	X
• Start-up incentive monies for sites provided by non-state funder				X	X
• New use of block grant funds to support EBPs		X			X
• Shift of funding from inpatient to community services by state	X				
• Financial incentives, using Medicaid billing, for start-up year	X				
• Approaches to make Medicaid billing easier for EBPs investigated by state	X	X	X	X	X
• Education & assurance about Medicaid billing procedures provided to sites by state					X
• White paper written by consumers to address Medicaid reimbursement & coding issues		X		X	
• MOUS signed by cmhcs to receive start-up funds					X
• State Vocational Rehab Agency established MOUS to solidify payment for services					
Licensing, Certification, Regulation & Standards					
• New licensing standards developed by non-state experts	X				
• New licensing regulations developed or discussed	X	X			X
• New dual certification & licensing standards established			X		
• New standards for service delivery established	X				X
• Association for Behavioral Health Centers formed to discuss reimbursement & administrative rules & incentives for clinical staff to perform services		X			
Service Delivery Training					
• Training budget reallocated to be more effective for EBPS		X			X
• Two year training plan developed through community needs assessment process to deliver training through regional training centers					X
• Tracks in clinical supervision and clinical administration best practices developed by state			X		
• Sites to receive incentives for additional training & technical assistance if decide to implement EBP			X		

Appendix 2: Initial Implementation Phase: Innovative Implementation Activities & Strategies

Innovations: Implementation Stage	ACT	FPE	IDDT	IMR	SE
State Agency Infrastructure Building					
• New state position developed to assist in implementation & monitoring of EBPs established			X	X	
• SMHA considering strategies to penetrate EBP in all licensed programs				X	
• New RFP process developed to help fund EBP projects throughout state					X
Relationship Building & Communications					
• Monthly meetings between state, Toolkit sites and/or Advisory Councils	X	X	X	X	X
• Monthly meetings between NAMI and Toolkit sites				X	
• Monthly meetings and/or calls between technical assistance centers & sites	X		X	X	
• Ongoing communication between state and local sites/boards			X	X	
• Increased collaboration between SMHA & State Medicaid Office	X	X	X	X	X
• New collaboration between SMHA, Medicaid & Vocational Rehab Office					X
• First time meeting held between state NAMI and Office of Consumer Affairs directors			X		
• State & local sites working to implement evaluation process & reassure stakeholders of process		X			
• Developed Clinical Practices Advisory Committee				X	
• Planning EBP conference	X				X
Financing					
• SMHA working with State Medicaid agency to make billing easier			X		
• Developed new Medicaid billing code & coding guidelines		X	X		
• Using bundled funding approach to fund EBP	X				
• Exploring Medicaid requirements to qualify consumers to deliver EBP		X			
• Using Medicaid Waiver 1115B to fund EBP		X			
• Position paper written by state to recommend Medicaid reimbursement levels & codes				X	
• Billing of EBP allowed as part of group or individual psychotherapy or day rate for Continuing Day Treatment Program				X	
• Reimbursement codes and rates changed to support EBP					X
• Created new funding program only for EBP					X
• New funding formulas integrated into allocation structure, with codes changed in data system & audit process	X				
• Medicaid approval received to reimburse EBP teams through amendment to state plan	X				
• Medicaid rate recalculated to allow more professionals to be reimbursed	X				
• State cost sharing with counties to func EBPs	X			X	
Licensing, Certification, Regulation, Standards & QI					
• Distributed SAMSHA's standards of care to local sites			X		
• Developed & using new certification manual	X				
• Developing treatment plan tool to include multiple domains & to be consistent with licensure review			X		
• Developing mental health & substance abuse language guidelines for auditors to use in consistent evaluations			X		
• Developing standards for EBP					X
• Barriers to standards for EBP teams removed by Medicaid agency	X				X
• Regulation changes to revise employment referral & authorization form, individual vocational form and verification of diagnostic process, and employment outcome measurement definition	X				X
• Implementing certification process through administrative rule & stakeholder process	X				
• Integrated fidelity measures, technical support & supervision into certification					
Service Treatment Delivery					
• Developing treatment plan tool to include multiple domains & to be consistent with licensure review			X	X	
• SMHA & consumer community developing partnership to train clinical staff to deliver EBP	X			X	X
• SMHA funding for consumer training & joint teaching to professionals & consumers for EBP					X
• Implementing shadowing training program					
• Administrative rule revised to include fidelity adherence for EBP					

Appendix 3: Plans for Sustainability Phase: Innovative Implementation Activities & Strategies

Innovations: Sustainability Plans	ACT	FPE	IDDT	IMR	SE
State Commitment to EBP Rollouts Intent					
• Philosophical commitment to statewide rollout no matter the resources needed	X	X	X	X	X
• State and sites committed to rollout of EBP together			X		
• Goal assess fidelity before rolling out EBP		X		X	
• Goal to reexamine EBP & retrofit rollout because of nature of EBP	X		X	X	
• Goal to examine difference between EBP rollouts because of difference between EBPs & paradigm shifts required to implement			X		X
• Goal to determine system-level adaptations perceived to be required for sustained uptake			X		
Targeted Infrastructure Building					
• State applying for governmental grants to build system infrastructure	X				
• Plan to implement a state institute to support EBPs					X
• Issues for systematic implementation of EBP identified	X	X	X	X	X
• Develop infrastructure & mechanisms for integrating EBPs into larger state agenda & dissemination of EBP information across states			X	X	
• To continue state supported research on EBPs					
Relationship Building & Communication					
• Need to develop engagement process to involve non-Toolkit agencies in EBPS more	X	X	X	X	X
• Increase family involvement in planning & monitoring community based programs		X			
• Continue to create champions at all levels of system		X			
• Continue regular consumer and stakeholder meetings	X	X	X	X	X
• Continued guidance on consensus building	X	X	X	X	X
• Develop language about EBPs that consumers can better understand and use			X	X	
Financing					
• Need to better align incentives & rules to encourage desired practices, behaviors & system change	X	X	X	X	X
• To work on funding base for full roll out	X		X	X	X
• To explore regulating EBPs			X		
• To develop new contract language for EBPS using administrative rule			X		
• To explore developing private insurance program to pay for EBP			X		
• To explore increasing tax on alcohol and tobacco to fund EBP			X		
• To explore expanding ACT to share financing with other EBPs			X		
• To consider higher reimbursement rates			X		X
• To explore restructuring Medicaid plan to cover services			X		
• To add EBP to Medicaid Rehab Option			X		
• To explore solid payment mechanisms		X			
• Determine how to shorten timeframes to transfer funds from the state to sites					X
Licensing & Certification					
• To work on credentialing and licensing issues with locals			X		
• Considering strategies to penetrate EBP in all licensed programs				X	
• Considering deeming EBP training part of certification process			X	X	
Service Treatment Delivery					
• State working with Schools of Social Work to develop EBP training curriculum for students	X			X	
• State to use private donation to create educative training center for EBPs	X		X		
• To address ongoing skills training	X	X	X	X	X
• To explore appropriate outcome measurement of EBP		X		X	
• To implement Train the Trainer Program	X		X	X	
• State to set aside monies for training activities	X				
• To explore strategies that achieve broader penetration of training & use of learning collaboratives	X				
• To increase access to transportation to receive EBP		X			