

Technology transfer for the implementation of a clinical trials network on drug abuse and mental health treatment in Mexico

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ABSTRACT

Low- and middle-income countries (LMIC) lack the research infrastructure and capacity to conduct rigorous substance abuse and mental health effectiveness clinical trials to guide clinical practice. A partnership between the Florida Node Alliance of the United States National Drug Abuse Treatment Clinical Trials Network and the National Institute of Psychiatry in Mexico was established in 2011 to improve substance abuse practice in Mexico. The purpose of this partnership was to develop a Mexican national clinical trials network of substance abuse researchers and providers capable of implementing effectiveness randomized clinical trials in community-based settings. A technology transfer model was implemented and ran from 2011–2013. The Florida Node Alliance shared the “know how” for the development of the research infrastructure to implement randomized clinical trials in community programs through core and specific training modules, role-specific coaching, pairings, modeling, monitoring, and feedback. The technology transfer process was bi-directional in nature in that it was informed by feedback on feasibility and cultural appropriateness for the context in which practices were implemented. The Institute, in turn, led the effort to create the national network of researchers and practitioners in Mexico and the implementation of the first trial. A collaborative model of technology transfer was useful in creating a Mexican researcher-provider network that is capable of changing national practice in substance abuse research and treatment. Key considerations for transnational technology transfer are presented.

Key words

Technology transfer; clinical trials as topic; evidence-based practice; science and technology information networks; substance-related disorders; mental health; health services research, methods; Mexico.

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Evidence shows that in most fields in medicine, translation from research to practice can take considerable time (1–4). In the United States, this particular disconnect between research and practice in

drug abuse treatment (5–10) led to the establishment of the National Institute on Drug Abuse of the National Drug Abuse Treatment Clinical Trials Network (NIDA CTN) in 2000 (11). This network

brought together academic researchers and community-based providers to develop and execute rigorous clinical trials of treatment interventions that fulfill the practical needs of community-based drug abuse treatment programs. Engaging substance abuse treatment providers in the research process in the NIDA CTN improved generalizability, acceptability, adoption, and dissemination of research results (12–14).

Adoption and implementation of evidence-based practices for drug abuse in real world treatment settings is a challenge outside of the United States as well. In Mexico, as in other low- and middle-income countries (LMICs), this challenge is heightened by the lack of research infrastructure and limited capacity for conducting rigorous studies to generate evidence on locally-effective substance abuse and mental health treatments that might inform the decision-making process in clinical practice (15, 16). The need to bring evidence-based interventions for drug abuse treatment to community centers in Mexico gained urgency when, in 2010, the Government

of Mexico began opening 335 new primary care centers for addictive disorders (*Unidades de Especiales Medicas – Centros de Atención Primaria para las Adicciones*; UNEME- CAPAS). This offered a perfect opportunity to transfer to Mexico the technology of the NIDA CTN (11–14) and create the first national clinical trials network for substance abuse and mental health treatment in Latin America.

To facilitate technology transfer, a partnership was developed between the University of Miami (Miami, Florida, United States; a CTN-participating academic institution) and the National Institute of Psychiatry in the Ministry of Health of Mexico, with the overarching goal of improving substance abuse treatment in Mexico. The goals of the partnership were to develop a national clinical trials network of substance abuse and mental health researchers and providers in Mexico, and to develop and implement the first randomized clinical trial within the newly-created network.

The objectives of this paper were to: (a) describe the methodology for transferring technology from the United States to

Mexico to develop a researcher-provider national clinical trials network that would conduct randomized clinical trials of drug abuse and mental health treatments in real-world, community-based settings; (b) present the results of the technology transfer; and (c) provide key considerations as a result of lessons learned in the process.

MATERIALS AND METHODS

The transfer of technology was supported by a bi-national collaborative effort that involved the University of Miami-based Florida Node Alliance of the NIDA CTN, hereafter referred to as “the Node,” the National Institute of Psychiatry in Mexico, hereafter referred to as “the Institute,” and several key players working within a facilitative context (Table 1).

The adoption of the NIDA CTN model was facilitated through a process referred to as “technology transfer” (17, 18). Technology transfer took place from 2011–2013 in two sequential, yet overlapping processes: the Node shared the

TABLE 1. Partners and stakeholders in the United States–Mexico technology transfer collaboration to create a clinical trials network for substance abuse and mental health, 2011

Institution	Role	Description
Mérida Initiative and the United States Department of State	Sponsor	A binational cooperation program between Mexico and the United States that includes support for the creation of Mexico's first comprehensive national demand reduction infrastructure.
The United States National Institute on Drug Abuse Treatment Clinical Trials Network (NIDA CTN)	Model for the innovation	United States research to practice network in the field of drug abuse treatment.
Florida Node Alliance at the University of Miami	Knowledge broker/ mentor	One of the 13 centers that comprise the NIDA CTN, experienced in conducting research with Hispanic and Spanish-only speaking populations, with fully bilingual and bi-cultural team members in areas of clinical trial development and implementation, design and methodology, protocol development, quality monitoring, and trial management.
<i>Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz</i> (National Institute of Psychiatry Ramón de la Fuente Muñiz)	Mentee	An institute within the Ministry of Health of Mexico that provides leadership in epidemiological, psychosocial, clinical, and neuroscience research, training, and services in the areas of substance abuse and mental health.
<i>Comisión Nacional Contra las Adicciones</i> (National Center for the Prevention and Control of Addictions in Mexico)	Stakeholder	Federal commission within Mexico's Ministry of Health with the mission of promoting and protecting the health of Mexicans through the design and implementation of national policies regarding research, prevention, treatment and development of human resources for the control of addictions.
<i>Centro Nacional Contra las Adicciones</i> (National Center for the Prevention and Control of Addictions in Mexico)	Stakeholder	Government office in charge of the planning and direction of the nationwide newly created 335 primary, first-level care addiction treatment centers, under the coordination of 32 national state councils at the national level.
Centros de Integración Juvenil (Youth Intergration Centers)	Stakeholder	Non-profit organization and civic association founded in 1969 by the Ministry of Health in collaboration with community boards. Comprised of 115 treatment centers throughout the country dedicated to drug demand reduction through the delivery of community-based substance abuse prevention and treatment programs.

“know how” for the development of the research infrastructure necessary to implement randomized clinical trials in community treatment programs and the methodology with which these trials would be implemented. The Institute, in turn, led the national effort to create the network of researchers and practitioners. In collaboration with the Node, the Institute selected and adapted the design of the first trial that was implemented in the network and was responsible, under the Node’s mentorship, for leading the implementation of the trial (19). These processes were bi-directional in nature, that is, they were informed by feedback on feasibility and cultural appropriateness for the context in which they were implemented (Figure 1).

The innovation

The innovation consisted of a set of practices and guidelines, i.e., the “know how” for building and maintaining a network of scientists and treatment providers with the goal of implementing clinical trials for the treatment and prevention of drug abuse and mental health problems in Mexico. These practices and

guidelines (Table 2) were gleaned from the Node team’s experience over the last 15 years in the US NIDA CTN.

The strategy

The strategy for technology transfer involved a stage-wise acquisition of knowledge in sequential, overlapping steps and practical testing of the knowledge gained. These steps involved a progression from (a) developing the knowledge needed to create the network infrastructure and building a knowledge base of clinical trial concepts and practices to (b) developing/adapting a research protocol, and (c) subsequently, implementing/managing the protocol at multiple sites within the newly-formed network. The steps were overlapping in that the processes of creating the network and developing and implementing the first trial were intertwined and informed by each other.

The process of technology transfer was supported by a structured communications plan. The Node team and the leadership at the Institute established regular meetings with specific objectives, which allowed the process of technology transfer to unfold over time. Executive calls,

operations calls, and site implementation calls occurred weekly, and face-to-face meetings were held periodically. In addition, informal communications between the Node and the Institute occurred daily or as needed via telephone, email, and online audio/video-conferencing. Meetings served as an essential forum for providing recommendations, instruction, coaching, and feedback, as well as an opportunity to monitor the practices and processes set forth. The Node and Institute teams identified implementation challenges in real-time and worked together to develop solutions that were feasible and sustainable.

The phases of implementation

The implementation of the “innovation” progressed through a continuum of phases as illustrated in Figure 2. As described in the implementation science literature, the phases included: exposure, adoption, (trial) implementation, and routine practice (20–24).

Exposure. In the exposure phase, the Director of the Institute explored and evaluated the NIDA CTN as a model for improving substance abuse practices in Mexico.

Adoption. The adoption phase included the laying the groundwork and building capacity and infrastructure at the Institute. The Node and the Institute had collaborated previously in other contexts and were able to build on existing trust to develop a shared vision and objectives for this effort.

Building the infrastructure at the Institute began with the creation of a specialized team, *Unidad de Ensayos Clínicos* (the Clinical Trials Unit; UEC) composed of six cores: implementation; quality monitoring; intervention supervision and fidelity; data management; statistics; and logistics and coordination. The structure of this Unit mirrored existing operational cores at the Node. The Unit Director and core leaders were each assigned a specific member of the Node’s team for ongoing daily mentoring and support in their respective areas of expertise. Role-specific coaching pairings allowed one-on-one specialized attention, supported professional and technical development, facilitated joint problem-solving, and promoted cross cultural understanding.

FIGURE 1. The bidirectional process of technology transfer for the development of a clinical trials network to improve substance abuse and mental health treatment in Mexico, 2011–2013

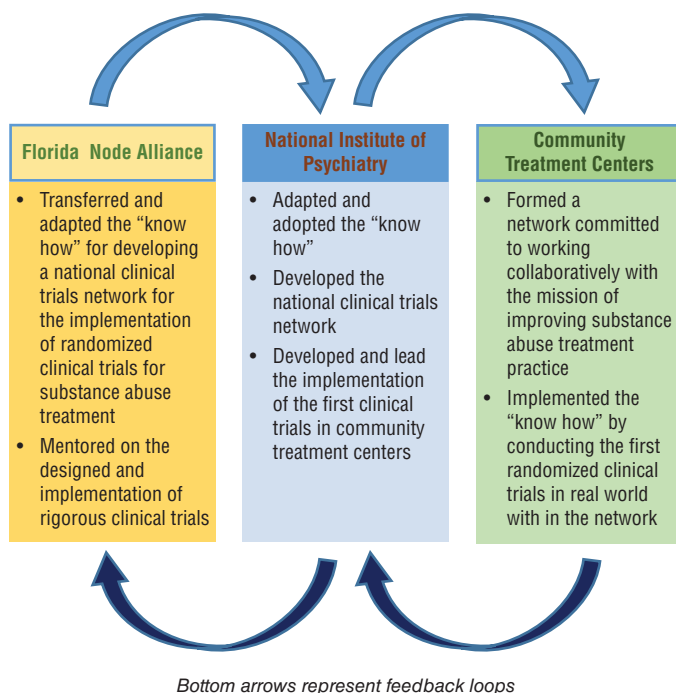


TABLE 2. The Innovation—set of practices transferred from the United States to Mexico for the implementation of rigorous clinical trials

Set of practices
Development of a clinical trials network
Partnership development
<ul style="list-style-type: none"> • Identification of potential partners • Site visits <ul style="list-style-type: none"> • Development of a general survey to assess agency/site capacity and needs • Development of institutional working agreements
Infrastructure development
<ul style="list-style-type: none"> • Creation of a Network Coordinating Team (Clinical Trials Unit) <ul style="list-style-type: none"> • Director • Implementation Coordinator • Intervention Coordinator • Data Manager • Quality Monitoring Director • Statistician • Logistical Coordinator • Administrative Support • Acquisition of physical infrastructure for coordinating team and sites <ul style="list-style-type: none"> • Allocation of physical spaces • Technology (software, hardware, equipment)
Implementation of a clinical trial
Protocol development
<ul style="list-style-type: none"> • Write up of protocol narrative <ul style="list-style-type: none"> • Selection and adaptation of study-specific outcome measures • Selection of sites to conduct the trial <ul style="list-style-type: none"> • Development of a study-specific site survey • Site visits for study-specific site selection • Development of study-specific Informed Consent forms • Submission of study documents for approval
Quality and regulatory monitoring
<ul style="list-style-type: none"> • Development of a study-specific Quality Monitoring plan • Development of study-specific Quality Monitoring tools and report templates • Identification of regulatory requirements for the study (for the coordinating center and the sites) • Implementation of periodic on-site monitoring visits (site initiation, interim and close out visits)
Intervention
<ul style="list-style-type: none"> • Selection of the interventionists (e.g., randomly assigned or appointed) • Development of the intervention fidelity tools/process/medication compliance • Training and certification on a manualized intervention • Intervention monitoring (fidelity)
Data management
<ul style="list-style-type: none"> • Selection and acquisition of electronic data capture system compliant with international regulations • Development of the Data Management Plan: Definition of data quality assurance procedures • Development of the Case Report Forms (CRFs) • Training and certification for system users
Implementation
<ul style="list-style-type: none"> • Development of Manual of Operations and Procedures and site-specific procedures • Establishment of staff training and certification requirements • Preparation and delivery of study-specific training • Management and oversight of study implementation <ul style="list-style-type: none"> • Weekly calls with sites • Tracking of site performance (e.g., weekly recruitment and retention reports)

The next step in the adoption phase included the delivery of core training modules on clinical trial implementation and management to the Institute. The core training modules for the Clinical Trials Unit were delivered in Spanish by the Node team via a series of face-to-face sessions that spanned 3–4 days each. Modules and their corresponding practical assignments were organized around major content areas: methodology and design of randomized clinical trials; Good Clinical Practices (GCP), which included

a regulatory component and the importance of informed consent; quality monitoring; and data management.

The instructional content delivered at each step included core concepts and “how to’s” followed by relevant activities where new concepts could be immediately applied with real-time feedback and support. The adaptation and conduct of a trial provided a rich and structured opportunity to apply newly learned concepts and practices. A number of different teaching techniques were used with flexibility.

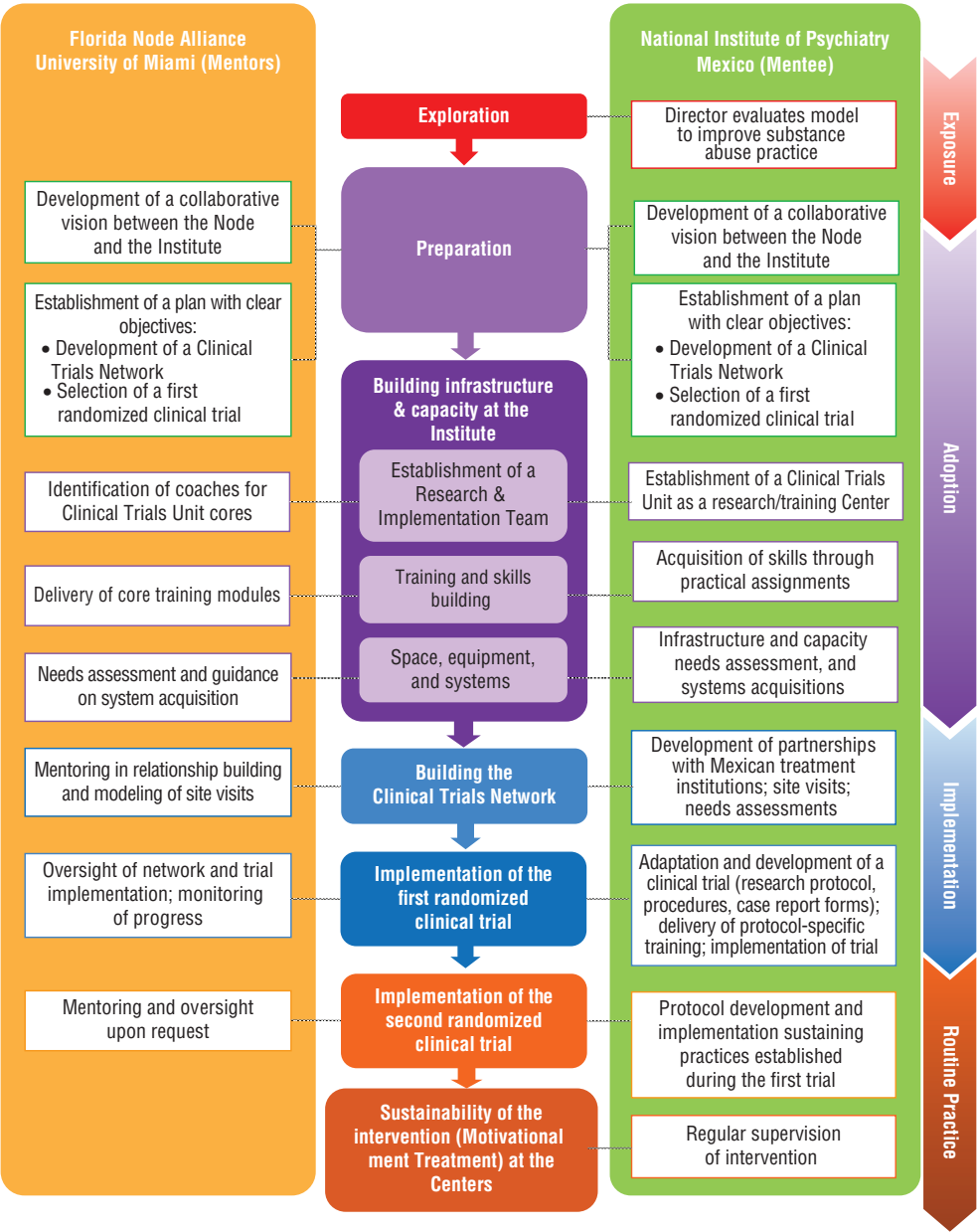
These included didactic instruction, experiential learning, modeling, coaching, monitoring and feedback.

Implementation. The implementation phase entailed building the clinical trials network and the implementation of the first trial. The development of the Mexican Clinical Trials Network meant establishing partnerships with other institutions and community treatment centers to build the foundation of the network. This included visits to community treatment programs and involved the assessment of: characteristics of the patient populations served, existing treatment and research capacities, openness to participating in randomized clinical trials, and program needs. These visits helped to consolidate relationships with the Institute’s founding partners in the network, the Youth Integration Centers (Mexico City, Mexico), and the National Center for the Prevention and Control of Addictions (Mexico City, Mexico). Visits also helped to identify community treatment programs that could carry out the first trial.

Critical to the technology transfer plan was the selection of a clinical trial that would serve as the “task” around which the network and its procedures would be established and its capabilities built. The goal was to select a trial that had been implemented previously in the NIDA CTN, could be readily adapted for implementation, and that would be relevant to the treatment needs in Mexico. The Motivational Enhancement Therapy for Spanish Speakers—CTN 0021 (MET-S) (25) trial was selected because it met these criteria and addressed the documented clinical problem of poor treatment engagement and retention in outpatient drug abuse treatment centers in Mexico (26, 27).

The central activities of the implementation phase were the adaptation of the MET-S research protocol by the Institute’s Clinical Trials Unit, and the implementation of the trial at three community treatment programs within the new network. A multi-site randomized clinical trial allowed the Clinical Trials Unit team to apply their newly acquired knowledge and to test the infrastructure and systems developed. With support and monitoring from the Node, the Clinical Trials Unit led and served as the main coordinating center for the trial. It was responsible for all aspects of

FIGURE 2. Phases of technology transfer and implementation of a clinical trials network to improve substance abuse and mental health treatment in Mexico – from exposure to sustainability



trial management, including budget and timeline planning, training of study teams, development of study procedures (Manuals of Operations), performance and quality monitoring, and data management. The Node trained and certified therapists and clinical supervisors at each of the trial sites to build local capacity on Motivational Enhancement Therapy, and thereby facilitate the

sustainability of the intervention at sites after trial completion.

Routine practice. The final phase in implementing an innovation, as described in the literature, is routine practice. Routine practice refers to the sustainability of the practices gained, described in the section that follows.

Ethics

Study procedures were consistent with the ethical standards for protecting human subjects and the Helsinki Declaration of 1975 (28), and were approved by the internal review boards/ethics committees of all participating institutions, where applicable. All trial participants provided written, informed

consent. Safety events were identified and monitored for all study participants, according to a study-specific monitoring plan.

RESULTS

The primary objectives of the technology transfer collaboration were met. A Mexican national clinical trials network of substance abuse researchers and providers was established, and the first randomized clinical trial was successfully completed within the new network.

Under the mentorship and coaching of the Node, the Institute adapted and implemented the first trial in the Mexican Clinical Trials network at three outpatient community-based centers. The objective of this trial was to compare the effectiveness of Motivational Enhancement Treatment (MET) versus Counseling as Usual in retaining substance users in treatment and reducing substance use.

The design and characteristics of this trial, "Motivational Enhancement Treatment for outpatient treatment seekers in Mexico," can be found in Marin-Navarette (29).

The trial was implemented with outstanding performance, achieving its randomization target of 120 participants across three outpatient sites ahead of schedule, with a treatment exposure rate of 92%, and attendance of 93% and 95%, respectively, at the 2- and 4-month research follow-up visits. The Clinical Trials Unit developed and implemented a study-specific Quality Assurance Plan that included on-site monitoring visits, written reports of findings, systematic identification and reporting of protocol violations, and implementation of corrective and preventive actions to address all findings and violations. Moreover, the trial provided training in research methods, processes, and intervention to more than 143 community treatment

professionals (counselors, research assistants, and clinic directors) through 47 training sessions.

As illustrated in Figure 2, the final step in instituting new practices/innovations is moving from trial to routine practice. We defined routine practice as continuously conducting rigorous research based on the infrastructure and practices gained during the technology transfer process. Results of the technology transfer and sustainment of the practices gained are presented in Table 3 and are summarized below.

Expansion of the Mexican Clinical Trials Network

The Clinical Trials Unit has developed new partnerships using the infrastructure created and the methodology acquired, and has now expanded to include an additional institution, the National University in Mexico, as well as participating centers (i.e., centers overseen by state councils and non-governmental organizations) with both outpatient and residential settings. This expansion was intended to broaden the network's reach to a wider population with substance abuse and mental health problems.

New research projects

The new partnerships have allowed the implementation of research projects, beyond the initial three treatment centers of the trial, to 45 additional centers. This new network has completed a second randomized clinical trial, an online intervention, and a clinical measures validation study—both within the expanded network—and a study examining the process of technology transfer.

Research trainings and protocol specific trainings, including the use clinical research methodology and procedures, standardized measures, good clinical practice, and ethics in research were delivered to sites of the expanded network. In addition, specialized training and certification on three evidence-based interventions (EBIs) were delivered for professionals at participating treatment centers.

Scientific findings of the Mexican Clinical Trials network have also been disseminated through several venues. In collaboration with its partners, the

TABLE 3. Results of the technology transfer for the implementation of a clinical trials network for substance abuse and mental health treatment in Mexico: sustaining the practices gained

Expansion of the Mexican Clinical Trials Network

- Six collaborative research agreements established with institutions in Mexico
- Agreements permitted research implementation in 45 different clinical settings:
 - 9 outpatient addiction primary care centers
 - 36 mutual aid residential care centers (run by non-governmental organizations)
- 2 outpatient community treatment centers
- 1 hospital outpatient clinic

Implementation of new^a research projects

- REC 002: Online intervention for Substance Use Disorders (completed)
- REC 003: Co-Occurring Disorders and Validation Scales in residential facilities in Mexico (completed)
- REC 004: An Examination of the Mexican Clinical Trials Network (in progress)
 - A Qualitative Study on the Technology Transfer Collaboration
 - Readiness to Adopt- and Adoption of Evidence Based Practices by centers of the Mexican Trials Network
- REC 005: Co-Occurring Disorders in people with disabilities in Mexico City (completed)
- REC 006: Co-Occurring Disorders and Neuropsychological conditions in inhalant dependent adults (under development)

Improvement of research capacity at treatment centers

Total of 72 research training modules have been delivered to approximately 143 mental health professionals:

Overview of clinical trials

- Clinical assessment
- Participant recruitment and retention strategies
- Good clinical practices and ethics in research

Development for the delivery of evidence-based interventions

Specialized training/certification delivered to 27 mental health professionals in evidence-based interventions:

- Motivational Enhancement Treatment in Spanish (METS) - delivery and supervision
- ASSIST - Brief Intervention
- Online intervention for substance abuse and depression

Dissemination of scientific findings

Research findings from network projects have been presented in:

- 7 invited lectures at international congresses and meetings
- 9 research posters
- 3 papers in peer-reviewed journals
- 1 book chapter

^a 'New' means after the completion of the first trial.

Network has presented its work at national and international conferences (30–38), in peer-reviewed journals (19, 39–41), and a book chapter (15).

Keys to transnational technology transfer

There are key considerations for successful transnational technology transfer. First, is the development of mutually agreed-upon goals and a work plan to guide the collaboration and ensure active investment and accountability by both parties. Second, a detailed needs-assessment is critical to identifying existing local infrastructure (personnel, systems, and expertise) on which to build, as well as areas that will require full development. Third, a local team capable of leading the adoption and implementation of the innovation and sustaining it into the future must be established. Fourth, the mentor team must be culturally informed, able to communicate effectively with the local team in a common language, and have protected time for ongoing support for the duration of the project. Fifth, role-specific coaching pairings allow for efficient and specialized mentoring and facilitate the use of modeling and observation as learning strategies. Sixth, vital for the survival of the project is the identification of invested leaders at all levels of the mentee's country/institution: Ministry of Health, at the participating institutions, and at the community/clinic level. Seventh, the implementation of randomized clinical trials demands careful evaluation of the local regulatory and ethical guidelines, administrative processes, and approvals needed in order to ensure local compliance, as well as plan timelines accordingly. Eighth, partners must allot time and resources to the cultural adaptation of all research interventions, measures, and procedures prior to implementation. For example, adaptations need to be considered when deciding on participant reimbursement and staff compensation structure for research.

Although in the United States participants are reimbursed for time spent on research, this might not be standard practice elsewhere. The adaptation process should involve consideration and discussion of the intended purpose of the practice, and how its implications or consequences may vary once implemented in a different country. Similarly,

though a standard practice in the United States, in other countries it may be difficult or impossible to directly cover time spent by staff on research activities with research funds. However, partners can come up with alternative ways to compensate staff for time devoted to the research project, thus rewarding their dedication and ensuring accountability.

Additionally, particular attention needs to be given to the cultural norms of communication. While much of the communication can occur online or by phone, some cultures place a high value on face-to-face contact. This should be considered when planning critical collaborative and problem-solving activities, as well as when celebrating successes and accomplishments. Finally, trust, patience, humility, and flexibility are key ingredients for a true working collaboration.

DISCUSSION

This paper presents a technology transfer collaboration for the development of research infrastructure to support the rigorous testing and implementation of evidence-based practices, testifying to its successes and providing key considerations for transnational technology transfer. A recent systematic review of implementation frameworks conducted by Moullin (24) acknowledges the multiple existing models for technology transfer and explains that not all models include the full range of concepts involved in implementation. Ward and colleagues (42) summarize common elements of 28 models of knowledge transfer, but argue that studies on the topic have focused narrowly on deterministic approaches instead of on the broad explanations of the journey from knowledge to action. Literature (43) has also described the components for capacity building and sustainable transfer of technology to developing countries.

The work presented here shows how some of these frameworks' core concepts were applied to a methodology for developing research infrastructure for addiction and mental health treatment lacking in LMIC. While the concepts described in our methods have been presented in the literature, the novel contribution of this paper is its application. Our work initiated the first research-to-practice network implementing clinical trials for mental

health and drug abuse treatment in Latin America.

The strategy and process of developing the Mexican Clinical Trials network encompasses several distinct components. First, the shared vision for the technology transfer was developed jointly and collaboratively, rather than promoted primarily by either the user or the knowledge broker. Second, in addition to a coaching team, each member of the team had an assigned mentee, which allowed for specialized coaching on practice-based projects over time. Finally, the technology transfer process was culturally informed, reaching beyond typical adaptations for EBIs (44, 45) by acknowledging and addressing the contextual and cultural appropriateness of each practice adopted.

The research-to-practice network created, and most importantly, the local team that led the network to develop and implement rigorous clinical trials in real world settings, are capable of generating evidence for treatments that are effective and culturally relevant among the populations they serve. The culture of quality and quality monitoring that was prompted by the technology transfer process has impacted practices at the Institute and the treatment centers. In addition, some of the solutions generated by network participation and collaboration have included strategies to improve outreach to the population in need. The newly-established research infrastructure can serve as a wide dissemination platform for evidence-based practices, thus advancing the quality of care for substance abuse and mental health in Mexico. All of these accomplishments translate into gains for the population.

Organizational readiness for change has been defined as the extent to which organizational members are psychologically and behaviorally prepared to implement organizational change (46–48). In this case the Node, the Institute, and the participating sites were motivated and open to change; the context of the newly created centers generated the opportunity for an improvement in practice; funding was readily available; and skilled staff were ready to take on this initiative. It is possible that this readiness facilitated and sustained the practices gained.

Limitations

A limitation of this project was that, even though it could be clearly shown

that the technology transfer goals were achieved, we did not take baseline measurements of organizational readiness for change or key theoretical or empirical mediators of the change process. A second limitation was that although training and capacity building are essential to the technology transfer process, they do not guarantee that the innovation will be sustained for the long-term. A lack of funding, of incentives, or of knowledge when facing new practices, among other possible factors, could undermine the project's long-term impact.

Conclusions

The partnership between the Florida Node Alliance of the NIDA CTN and Mexico's National Institute of Psychiatry, through its collaborative technology transfer, created the Mexican national clinical trials network to generate local evidence on effective treatments. The Clinical Trials Unit, the coordinating center for the network, with its multifaceted infrastructure is making contributions to both science and practice in the field. The Unit, besides adopting systems and methods for implementing and overseeing clinical trials in real world settings, has developed the capacity to serve as trainers in core research assessment measures, to conduct quality and intervention fidelity monitoring, and to train and supervise clinicians in the interventions tested. Its versatile structure can disseminate evidence-based practices to community treatment centers and can be used to evaluate current treatment programs. By building this network, conducting the first trial, and applying practices to new projects, a bridge between science and practice has been erected that has the potential to reach farther into the future.

As the Institute moves into the sustained practice of implementing new randomized clinical trials on evidence-based models, it might also serve as a consultant for other countries in Latin America aspiring to do the same. Furthermore, the Mexican Clinical Trials Network could act as a foundation for multinational collaboration among substance-abuse researchers and practitioners throughout Latin America.

Finally, implementation research calls for subsequent efficacy and effectiveness research to confirm that outcomes were indeed improved by this method of technology transfer. In the case of the Node-Institute collaboration, this follow-up research should be done with these objectives: first, to examine the process of the transfer of the "know how" from the Node to the National Institute of Psychiatry; and second, to examine the adoption and implementation of the evidence-based practices that the Mexican Clinical Trials Network tests. Such studies are currently underway to better understand whether we were able to change practice. Subsequent studies could examine whether changes in practice translate into improved patient outcomes.

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Conflicts of interest. The spouse of a study team member is an employee of INFOTECHSoft, Incorporated (Miami, Florida, United States), a subcontractor on this study.

Disclaimer. Authors hold sole responsibility for the views expressed in the manuscript, which may not necessarily reflect the opinion or policy of the RPSP/PAJPH and/or PAHO.

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RESUMEN

Transferencia de tecnología para la implantación de una red de investigaciones clínicas sobre el tratamiento de la drogadicción y los problemas de salud mental en México

Los países de ingresos bajos o medios (PIBM) carecen de una infraestructura de investigación y de la capacidad para llevar a cabo investigaciones clínicas rigurosas sobre la eficacia del tratamiento de la drogadicción y los problemas de salud mental que orienten la práctica clínica. Se estableció una asociación entre la Florida Node Alliance de la National Drug Abuse Treatment Clinical Trials Network de los Estados Unidos y el Instituto Nacional de Psiquiatría de México con objeto de mejorar la práctica en materia de tratamiento de la drogadicción en México. La finalidad de esta asociación fue la de crear una red nacional mexicana de investigaciones clínicas constituida por investigadores y proveedores de tratamiento de la drogadicción capaces de ejecutar ensayos clínicos aleatorizados de eficacia en entornos comunitarios. Se implantó un modelo de transferencia de tecnologías. La Florida Node Alliance compartió el conocimiento y la experiencia para la creación de la infraestructura de investigación con objeto de ejecutar investigaciones clínicas aleatorizadas en programas comunitarios, por medio de módulos de capacitación común y específica, entrenamiento en funciones específicas, emparejamientos, modelado, vigilancia y retroalimentación. El proceso de transferencia de tecnología fue de tipo bidireccional en cuanto se basó en la retroalimentación sobre la viabilidad y la adecuación cultural para el contexto en el que se llevaron a cabo las prácticas. El Instituto, a su vez, lideró la iniciativa para crear la red nacional de investigadores y profesionales de México y llevar a cabo el primer ensayo. Un modelo colaborativo de transferencia de tecnología resultó útil para la creación de una red mexicana de investigadores y proveedores de tratamiento capaz de cambiar las prácticas nacionales de investigación y tratamiento en materia de drogadicción. Se exponen las consideraciones clave para la transferencia transnacional de tecnología.

Palabras clave

Transferencia de tecnología; ensayos clínicos como asunto; práctica clínica basada en la evidencia; redes de información de ciencia y tecnología; trastornos relacionados con sustancias; salud mental; investigación sobre servicios de salud, métodos; México.