Type 2 Translational Research: Advances, Challenges, Illustrative Studies, and Strategic Next Steps

2016 Interdisciplinary Translational Science Retreat
Nebraska Center for Research on Children, Youth, Families and Schools, University of Nebraska–Lincoln

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Overview

1. Context: Evidence-Based Prevention Advances and Translation Challenges
2. Illustrative PROSPER Delivery System Research
3. Translation Research Review Summary
4. Priorities and Strategic Next Steps

Advances in Evidence-Based Prevention

• **NRC-IOM 2009 Report*** reviews an array of evidence-based preventive interventions (EBIs)
  – Prenatal through adolescent stages
  – Prevent multiple behavioral problems, with long-term effects
  – Many show cost benefit/cost effectiveness

• Highlights **evidence on family-focused** programs in particular
  – Caregiver-child bonding, child management, as well as social, emotional and cognitive competencies
  – Substance use, delinquency, conduct problems, other mental health problems


Key Advances: Demonstrations of Crossover Effects

• Universal intervention primary goal: Delay young adolescent initiation of gateway substance use
• Effects – Up to 14 years past baseline
  ➣ Wide-ranging types of substance use
  ➤ Parenting skills and family functioning, youth skills (e.g., peer resistance, social competencies), school engagement and grades
  ➣ Aggressive/destructive behaviors, conduct problems, mental health problems (e.g., depression), health-risking sexual behaviors

How? Programs address common risk/protective factors; impact primary socializing environments (social networks)


Advances: Upsides and Downsides

• **Upside** — Advances noted in NRC-IOM 2009 Report, e.g., EBIs and positive developmental trajectories

• **Downside** — Slow flow of EBIs to population impact, due to many barriers
In Other Words, Advances Notwithstanding

- Most interventions actually implemented in real world are **untested**
- Mostly have only limited, often **ineffective implementation or delivery systems, so...**
  - Poor implementation quality
  - Limited sustainability
  - Slow scaling, resulting from many barriers
- In other words, there is **limited translation** of intervention science to practice.
Improving Translation: Address Core Challenges for Enhanced “Flow” to Practice

**#1: Infrastructure and systems development** for enhanced translation – building necessary supports for practice and research – including workforce development

**#2: Needed scientific advances** for systems-oriented T2 research

Part 2. Illustrative PROSPER Research

Illustrative Translational Research: PROSPER

PROmoting School-community-university Partnerships to Enhance Resilience

THE PROSPER APPROACH
Part 2. Illustrative PROSPER Research

PROSPER Research – Building on Existing Intervention Infrastructures/Education Systems

- **USDA** – Cooperative Extension System
  - Largest informal education system in the world
  - Reach into every county in the country

- **DoE** – State Public School Systems
  - Universal system reaching nearly all children
  - Existing relationships with Extension System

- **DoD** – Military Family Support Systems
  - Ties into National Guard support systems
  - Could link to existing military training infrastructures

- Groundwork for linkage of the systems began in the late 1980s
Part 2. Illustrative PROSPER Research

Tested Community Partnership Sustainability Model

PROSPER

Local Community Teams—
Extension Agent, Public School Staff,
Social Service Agency Representatives, Parent/Youth Representatives

Prevention Coordinator Team—
Extension Prevention Coordinators

University/State-Level Team—
University Researchers, Extension Program Directors

• Primary Task: Sustained, quality implementation of family and school EBIs selected from a menu
Goal 1: Sustain Evidence-based Interventions with High Quality

Community Teams:

• **Plan and coordinate family programs**, including recruitment and monitoring for quality

• **Work with the school** to coordinate a school program, including monitoring for quality

• **Generate resources** for ongoing programming
Part 2. Illustrative PROSPER Research

Who is Involved at the Community Level?

• **Small, strategic PROSPER Community Teams**

• Teams start with between 8-10 members including:
  – Family and/or youth Extension-based Team Leader – average 10 hours/week
  – School-based Co-team Leader – about 1 hour/week
  – Community volunteers – about 3 hours/month
    * Local mental health/public health representatives
    * Local substance abuse agency representative
    * Parents
    * Youth

• **Teams and EBIs expand as teams mature, guided by TA**
Goal 2: Build and Maintain a Well-functioning, Productive Team

Community Teams:

• **Internally**, the team focuses on holding regular, effective meetings and maintaining an active membership

• **Externally**, the team focuses on:
  – Building connections with the school and community organizations
  – Strategic communication throughout the community to promote awareness of its efforts
  – Recognizing and rewarding supporters and contributors
Prevention Coordinators (Middle Tier) – Technical Assistance to Support Teams

• Attend team meetings in their assigned community

• Contact Team Leaders nearly every week to discuss PROSPER activities and goals

• Interact with other Prevention Coordinators to share successful strategies and approaches

• Act as liaison between their community team and the State Management Team to problem solve issues before they become severe
Part 2. Illustrative PROSPER Research

Outcome Study

• Collaboration with PSU

• Design: RCT of 28 school districts (14 IA, 14 PA)
  – Full partnership with community teams
  – Delayed intervention

• Participants: Two cohorts of 6th grade children
  (≈ 6,000 students per cohort); 2nd cohort has ≈ 1,000 intensive assessment families

• Multimethod, multi-informant measurement (now at 10th wave of data collection–post high school)

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Part 2. Illustrative PROSPER Research

“Snapshot” of Long-term Outcomes – Positive Trajectories

Long-term Impact on Illicit Substance Use Index Through 6½ Years Past Baseline

Difference in growth of use is statistically significant, as are differences at multiple time points, including 11th and 12th grades. Stronger effects for higher-risk youth.

Part 2. Illustrative PROSPER Research

Snapshot of Findings – Peer Networks/ Negative Peer Influences

(Black dot = substance user, White dot = non-user)

– Indicates that non-user nominated a substance user as a friend

– More **nonuser** students choose users as friends
– Peer network **favors use**

– More substance users choose non-users as friends
– Peer network opposes use

**PROSPER shifts peer influence toward non-users.**

Part 2. Illustrative PROSPER Research

Snapshot of Findings – Cost Effective Implementation of Evidence-based Programs

SFP 10-14 Implementation: PROSPER team vs. SFP 10-14 alone.

<table>
<thead>
<tr>
<th></th>
<th>PROSPER Low Estimate</th>
<th>PROSPER High Estimate</th>
<th>Economist Report Estimate**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Costs Per Family</td>
<td>$278.56*</td>
<td>$348.25*</td>
<td>$851.00</td>
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</table>

* Represents a 59-67% reduction in costs.

PROSPER Approach to Translation of Science at the Community Level
Barriers to Translation at the Community Level

Key Barriers to Community Implementation:

1. Inadequate technical assistance and support systems for evidenced-based program delivery
2. Limited participation/active engagement of targeted general populations
3. Poor implementation quality of evidence-based programs
4. Limited program sustainability (especially funding)
5. Limited integration of ongoing evaluation for quality improvement
Addressing Implementation Quality Barrier—Ongoing EBI Monitoring

• Educate/train PROSPER partnership members about the **importance of quality monitoring** at:
  – Statewide meetings
  – Learning communities
  – Facilitator and observer trainings
  – “Feedback sessions” after program (e.g. SFP 10-14) session is completed
  – Facilitator supervision
Part 2. Illustrative PROSPER Research

Snapshot of Findings – PROSPER Strategies to Implementation

PROSPER Long-Term Adherence Ratings

Part 2. Illustrative PROSPER Research

Addressing Sustainability Barrier – Benchmarking/Technical Assistance

• Assess benchmarked progress across all phases, with special attention to core components
  – Used to monitor sustainability efforts re team and programs
  – Facilitates sustained, long-term development

Instructions for Completing PROSPER Model Benchmark Scoring

The PROSPER Partnership Model is a scientifically-proven delivery system that provides sustained, quality delivery of evidence-based programs for youth and families. This system facilitates the delivery of programs by creating partnerships among Cooperative Extension, local schools, community volunteers and university-based researchers that operate through a three-tiered partnership structure. The infrastructure created by these partnerships is one of the unique features of this delivery system since it allows for scientific expertise from the university to flow through Prevention Coordinators (PCs) to Community Teams. This expertise and ongoing support, which includes ongoing evaluation and quality control, helps Community Teams implement programs effectively and sustain them long-term. Ultimately, this sustained effort results in a greater impact and benefits the community as a whole.

Based on years of implementation experience, the PROSPER Model Benchmarks have been developed to systematically map onto and reflect the elements of successful model implementation at the community level. Benchmarks have been identified across each of the PROSPER Partnership Model’s five core components and are organized by functional areas as outlined in the Team Leader/PC Handbooks. To illustrate how benchmarks map onto the five core components, some examples are provided below:

<table>
<thead>
<tr>
<th>PROSPER Core Component</th>
<th>Example Benchmarks</th>
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<tbody>
<tr>
<td>1) A small, strategic team of community stakeholders led by a Cooperative Extension representative and co-led by a local school representative.</td>
<td>• PROSPER Team membership reflects the diversity of the community</td>
</tr>
<tr>
<td>2) A 3-tier state-level partnership consisting of Community Teams, PIs, and a State Management Team.</td>
<td>• PROSPER Team has regular meetings during the school year</td>
</tr>
<tr>
<td>3) A developmentally-oriented sustainability planning process that addresses long-term continuity and support for programming.</td>
<td>• Team Leader regularly communicates with Prevention Coordinator</td>
</tr>
<tr>
<td>4) Evidence-based programs that are selected by the Community</td>
<td>• Majority of PROSPER Team members attend Statewide Meeting</td>
</tr>
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</table>

5) Team Leader regularly communicates with Prevention Coordinator.

6) PROSPER Team received funding/in-kind support during the past year for program implementation.

7) PROSPER Team selected family program from the PROSPER menu.

8) PROSPER Team has regular meetings during the school year.
Purpose: Improved Child and Family Outcomes

Goal 1: Sustaining Growth & Quality of Programming
- Evidence-based Family Program
- Evidence-based School Program
- Strengthening Partnerships with Schools/Other Organizations
- Strategic Communication Planning
- Planning for Recognitions and Rewards
- Conducting Effective, Regular Meetings

Goal 2: Sustaining Well-Functioning Teams
- Effective External Relationships
- Effective Internal Relationships

Objectives
- Resource Generation for Programs
- Community/School Positioning
- Program Quality Management/Planning

Addressing Sustainability Barrier – Team Training Guided by PROSPER Sustainability Model
Part 2. Illustrative PROSPER Research

Snapshot of Findings – Team Financial Sustainability

Average Total Contributions Received Across All Project Communities by Academic Year
Part 3. Translation Research Review

Type 2 Translation Research Review

Summary – Thanks to Our Co-authors

Addressing Core Challenges for the Next Generation of Type 2 Translation Research and Systems: The Translation Science to Population Impact (TSci Impact) Framework

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Abstract Evidence-based preventive interventions developed over the past two decades represent great potential for public health and well-being. Research conducted on these interventions have yielded promising results demonstrating relatively modest population impact. In part, progress requires Type 2 translation research that investigates the complex processes and systems through which evidence-based interventions are adopted, implemented, and sustained on a large scale, with a strong orientation toward devising empirically-driven strategies for maximizing population impact. In this article, we...
Part 3. Translation Research Review

Definition of T2 Translation Research in “Advances” Paper

• Investigates the complex processes and systems through which sustainable EBIs are integrated into practice on a large scale, across targeted populations and settings

• Essential for realizing the population-level health impact of EBIs
The Translation Science to Population Impact Framework – Basic Translation Functions

T2 Translation Functions to Investigate

Start Research Cycle for EBIs

- Pre-Adoption
- Adoption
- Implementation
- Sustainability

EBIs with Population Impact
The Translation Science to Population Impact Framework – Basic Translation Function Supports and Contexts

Multiple Contexts for T2 Translation Research
National/State/County/Community Levels

T2 Translation Functions to Investigate
Pre-Adoption ➔ Adoption ➔ Implementation ➔ Sustainability ➔ EBI with Population Impact

Start Research Cycle for EBIs

Infrastructure Supports
Practice-oriented Research, Practitioner-Scientist Partnerships, Financing Structures
Part 3. Translation Research Review

Core Challenge #2: Needed Scientific Advances-Key Research Questions for Each Translation Phase

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**Table 1** Translation science to population impact framework: translation phases, factors to investigate, and illustrative research questions to address.

<table>
<thead>
<tr>
<th>Translation phase/function</th>
<th>Illustrative factors to investigate</th>
<th>Examples of key research questions</th>
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<tbody>
<tr>
<td>Adoption</td>
<td>• Program/provider decision-making</td>
<td>• What are the key market, organizational, and other factors influencing adoption decisions?</td>
</tr>
<tr>
<td></td>
<td>• Economic benefit analysis</td>
<td>• What are the incentives/disincentives for EBI adoption by various stakeholders (e.g., policy makers, community leaders, service providers, program participants), and how do they affect adoption decisions?</td>
</tr>
<tr>
<td></td>
<td>• Organizational readiness</td>
<td>• How do various types of decision-making tools influence the EBI selection and decision-making process?</td>
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<tr>
<td></td>
<td></td>
<td>• How does decision-making vary by type of intervention, service system, or community needs?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• How are cost and other economic data used in the decision-making process?</td>
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</tbody>
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Pre-Adoption/Adoption Phases – Illustrative Factors to Investigate

- **Consumer preferences**
- **Program/provider decision-making**
- Economic benefit analysis
- Organizational readiness

Illustrative questions: “How do program administrators evaluate different types of evidence?”

- How are cost and other economic data used in the decision-making process?” (e.g., Asen et al. study of school board members)
Pre-Adoption Phase – Illustrative Consumer Preference Research Snapshot: Conjoint Analysis

Which Combination of Program Features are Most Preferred?

Question: Do you prefer Program A, Program B, or do you have no preference?

**A**
1. Meets weekday evenings
2. Meets at a school
3. Taught by child development specialist
4. Endorsed by parents

**B**
1. Meets weekend days
2. Meets at a church
3. Taught by parents
4. Endorsed by school administrators

Do you slightly prefer this program or strongly prefer this program?

Implementation Phase – Illustrative Factors to Investigate

- **Factors in participant engagement in EBIs**
- **Provider/organization/team factors affecting implementation**
  - Training/technical assistance (TA)
  - Fidelity/adaptation
  - For example: Is online EBI training as effective as in-person training?
Part 3. Translation Research Review

Implementation Phase – Illustrative Research Snapshot: Participant Engagement on a 4-point Scale

PROSPER Family Program
PROSPER School-based Program
Part 3. Translation Research Review

Sustainability Phase – Illustrative Factors to Investigate

• **Effective funding/financing strategies**
• **Provider/organization team factors affecting sustainability**
• Intervention characteristics/costs
• Organizational/community system factors
• Supportive policy
• Illustrative question: “**What funding strategies are most conducive to sustainability?**”
Part 3. Translation Research Review

Sustainability Phase – Illustrative Research Snapshot: Community Team Funding Sources

- Federal
- State
- Local
- School
- NGLA
- Foundation
- Business
- Fundraising
- Prosper
- Extension
- Other

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AY0708
AY0809
AY0910
Part 4. Priorities and Strategies

Priorities and Possible Strategic Steps

Question:
All things considered, what are some strategic steps? What are the related research and *organizational priorities?*

*For Translational Center development*
Overview of Possible Strategic Steps from T2 Advances Article*

1. Planning and Organization for Infrastructure Development and Capacity Building

   - **Build interagency collaboration** using National Prevention Strategy, focusing on EBI scaling systems, with a common conceptual framework

   - **Build prevention workforce**—“build out” currently available training/certification systems; organize network of university-supported trainers (e.g., ICUDDR)

   - **Strengthen infrastructure for networked prevention systems**—build on existing infrastructure; learn from existing implementation systems research; link with ACA healthcare reform efforts (e.g., Community Benefit)

2. Innovative Funding Mechanisms

- Support **braided funding** approaches
  - Across service and research agencies
  - State agency funding to support community grants with federal agency support for research
- Develop **state/region prevention financing teams** with Communities of Interest, to support priority prevention goals
- Engage **private-public partnerships** (e.g., foundations and non-profit hospitals)
- Develop **prevention and wellness funds** to support networked communities
Increasing Impact: Possible Strategic Steps from T2 Advances Article (cont.)

3. Develop, test, coordinate scalable EBI delivery systems, with embedded research

- Clarify translation lessons from wide-ranging successful systems
  - Systems for delivering individual EBIs, or EBIs on menus
  - Consider systems for universal EBIs with crossover effects as gateways to more targeted, or intensive interventions

- Embed research in state and national prevention systems to develop, test, disseminate EBIs, and use continuous systems improvement across translation phases
Thank you from PPSI and The PROSPER Partnership Group

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We've got prevention down to a science.

Most prevention programs for youth promise to reduce problem behaviors. And they can look good. On paper. But do they work?

Prevention scientists are discovering that results often fall far short of expectations. For some programs, it’s because they were not tested. For others, it’s ineffective implementation. For still others, it’s the lack of continued financial and community support for long-term sustainability, even when the program has positive results.

Learning from this research, we have developed a system for implementing quality, evidence-based prevention programs. Our approach has been tested successfully in real-world settings, and we are eager to share what we’ve learned with others.

We’ve Got Prevention Down To A Science

PROSPER was recently featured in the Office of Disease Prevention and Health Promotion’s Who’s Leading the Leading Health Indicators? – Substance Abuse. Click here to find out more.

PROSPER has been recognized by two of the most rigorous review panels for prevention programs, the Coalition for Evidence-Based Policy and Blueprints for Healthy Youth Development.