Applying the Principles of Implementation Science to Precision Public Health

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Session Outline

- A Very Brief Orientation to Implementation Science
- Considering Implementation Science within Precision Public Health?
- Challenging Existing Assumptions
We assume... “If you build it...”
…It might take 108 years for this
A Challenge from Multiple Perspectives…

Trust me, Harold, it's not
or demand... it's
supply and demand
Beyond efficacy/effectiveness

**Figure 1. Elements of the RE-AIM Framework**

- **Maintenance**: How do I incorporate the intervention so it is delivered over the long-term?
- **Reach**: How do I reach the targeted population?
- **Implementation**: How do I ensure the intervention is delivered properly?
- **Adoption**: How do I know my intervention is effective?
- **Effectiveness**: How do I develop organizational support to deliver my intervention?
Key Terms

- **Implementation Science** is the study of methods to promote the integration of research findings and evidence into healthcare policy and practice.

- **Dissemination research** is the scientific study of targeted distribution of information and intervention materials to a specific public health or clinical practice audience. The intent is to understand how best to spread and sustain knowledge and the associated evidence-based interventions.

- **Implementation research** is the scientific study of the use of strategies to adopt and integrate evidence-based health interventions into clinical and community settings in order to improve patient outcomes and benefit population health.
Studying Implementation

What?
QIs
ESTs

How?
Implementation Strategies
Implementation Outcomes
Feasibility
Fidelity
Uptake
Costs

Service Outcomes*
Efficiency
Safety
Effectiveness
Patient-centeredness
Timeliness

Health Outcomes
Satisfaction
Function
Health status/symptoms

THE CORE OF IMPLEMENTATION RESEARCH

Implementation Research Methods

Proctor et al, 2009, APMH&MHSR

*NOM Standards of Care
Example: Lynch Syndrome

Sample IS Challenges:

- ID of Lynch Syndrome within general pop
- Family member scale-up
- Implementing screening/monitoring/
Example: PMI

Sample IS Challenges

- How does clinical practice incorporate PMI findings?
- How do you implement evidence that will be evolving?
- How do you train and support the workforce?
- What services will be covered/paid for?
Traditional Assumptions

- Evidence and Evidence-based practices are static
- System is static
- Implementation proceeds one practice or test at a time
- Consumers/Patients are homogeneous
- Choosing to not implement is irrational

How well do these relate to the implementation of precision medicine?
Choosing not to implement is irrational... (Does it fit?)

- QUESTIONS ABOUT “ACTIONABILITY”
- WHAT IS REIMBURSED?
- IS COUNSELING AVAILABLE?
- ARE EXISTING TESTS OPTIMAL?
- IS THERE A DEMAND FOR THE KNOWLEDGE?
Sustainability or Evolution?

IF PRECISION MEDICINE CONTINUES TO EVOLVE, SHOULD EXISTING INTERVENTIONS BE SUSTAINED IN THE SAME FORM THAT WE’VE CREATED THEM?

HOW DOES THE SYSTEM COPE WITH A DYNAMIC FIELD THAT IS CONSTANTLY CHANGING?

WHERE DO WE GO FROM HERE?

http://www.thestrut.com/2012/12/19/the-evolution-of-the-beatles-hair/
How to Evaluate Innovations that Outpace Usual Research Timelines?

- YouTube (2005)
- Wii (2006)
- iPhone (2007)
- Android (2008)
- iPad (2009)
- Facebook reaches 1B users (2012+)

- Grant Submit and Award
- Development and Pilot Testing
- Recruit and Randomize
- Follow-ups
- Analyze and Publish
- Ready for Use?
Enter the learning health care system...

FIGURE 1. Collection and use of data to inform decision making by stakeholders in a learning behavioral health care (BH) system

Hope for the future…
Current Funding Announcements

- NIH: PAR-16-237; 16-238;16-236 (R03, R01, R21)
- NCI leads (16 ICs total, including FIC, NIMH, NHLBI, NHGRI, as well as OBSSR)
- Organizes the D&I research agenda across NIH
- >150 grants funded through NIH since 2006
- 2010 CSR standing review committee
Selected Priority Areas for PARs

- Studies of the **local adaptation** of evidence-based practices in the context of implementation
- Longitudinal and follow-up studies on the factors that contribute to the **sustainability** of evidence-based interventions
- **Scaling up** health care interventions across health plans, systems, and networks
- **De-Implementation** of ineffective or suboptimal care
Guiding Principles for IS & PPH…

- First, context matters and is multilevel.
- Second, it’s not just whether a practice works, but whether that practice can be delivered in many real-world settings.
- Third, there are effective strategies to implement evidence-based practices.
- Fourth, implementation science is a team sport. Partnerships needed with a range of stakeholders, including patients, clinicians, administrators, researchers, and policy makers.
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