Implementation Science: The “How” of Moving Comparative Effectiveness Findings into Practice

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Dissemination and implementation science seeks to understand how to systematically facilitate deployment and utilization of evidence-based approaches to improve the quality and effectiveness of health promotion, health services, and health care.
**Implementation**

- **Definition**: the process of putting to use or integrating evidence-based interventions within a setting\(^1\)

- **Intention**: to investigate and address major bottlenecks (e.g. social, behavioral, economic, management) that impede effective implementation, test new approaches to improve health programming, as well as determine a causal relationship between the intervention and its impact.\(^2\)

- **Implementation Research**: study of methods to promote the integration of research findings and evidence into healthcare policy and practice. It seeks to understand the behavior of healthcare professionals and other stakeholders as a key variable in the sustainable uptake, adoption, and implementation of evidence-based interventions.\(^2\)

**Sources:**

2. [Internet] 4th Annual NIH Conference on the Science of Dissemination and Implementation: Policy and Practice
**Dissemination**

- **Definition**: the active approach of spreading evidence-based interventions to the target audience(s) via determined channels using planned strategies

- **Intention**: to spread information and the associated evidence-based interventions.

- **Dissemination Research**: addresses how information about health promotion and care interventions is created, packaged, transmitted, and interpreted among a variety of important stakeholder groups.
Recent review identified 61 models (e.g. theories and frameworks) describing either dissemination and/or implementation models to guide research\(^1\).

Of the 61:
- 11 were dissemination only (I)
- 16 were combined but mostly dissemination (D>I)
- 17 were equally dissemination and implementation (D=I)
- 5 were combined but mostly implementation (I>D)
- 12 were implementation only (I)

Review two D=I models, the *Consolidated Framework for Advancing Implementation* (CFIR)\(^3\) and the *Interactive Systems Framework* (ISF)\(^4\) and its companion Quality Improvement Tool (QIT).

Consider their use for an important public health issue.

Sources:
Major Domains of the CFIR

- Intervention Characteristics
- Outer Setting
- Inner Setting
- Characteristics of the Individuals Involved
- Process of Implementation

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Intervention Characteristics

- Intervention source
- Evidence strength and quality
- Relative advantage
- Adaptability
- Trialability
- Complexity
- Design quality and packaging
- Cost$^3$
Outer Setting

- Patient needs and resources
- Cosmopolitanism
- Peer pressure
- External policies and activities
Inner Setting

- Structural characteristics
- Networks and communication
- Culture
- Implementation climate
  - Tension for change
  - Compatibility
  - Relative priority
  - Organizational incentives and rewards
  - Goals and feedback
  - Learning climate
- Readiness for implementation
  - Leadership engagement, available resources, access to information and knowledge
Characteristics of the Individuals Involved

- Knowledge and beliefs about the intervention
- Self-efficacy
- Individual stage of change
- Individual identification with organization
- Other personal attributes
Process of Implementation

- Planning

- Engaging
  - Opinion leaders
  - Formally appointed internal implementation leaders
  - Champions
  - External change agents

- Executing

- Reflecting and evaluating
Interactive Systems Framework for Dissemination and Implementation

The Quality Implementation Tool

- Practical translation of the implementation science literature
- Six components
  - Develop an implementation team
  - Foster supportive organizational/communitywide climate and conditions
  - Develop an implementation plan
  - Receive training and technical assistance
  - Practitioner–developer collaboration in implementation
  - Evaluate the effectiveness of the intervention

Estimated Vaccine Coverage, Adolescents aged 13–17 years, US, 2006–2012

- Despite availability and extensive marketing of the HPV vaccines—a cost effective and proven solution, vaccination rates remain low in the US: 33% for all 3 doses in 2012

- Vaccination rates for 2 other vaccines given at the same time to adolescents are much higher
Why?

- Lack of awareness & information
- Concerns about
  - safety,
  - duration of efficacy, and
  - impact on sexual debut
- Cost of vaccine and other barriers, especially for uninsured individuals
- Hesitancy/self-efficacy to discuss and promote the vaccine
- Pediatric providers poorly motivated by distal disease consequences
- Reluctance to frame HPV as routine and as a cancer prevention measure
A D = I Approach

- Focus on poorly performing practices
- Conduct audience research with providers
- Identify barriers/enablers
- Develop tailored, evidence-based communication strategies, materials and products
- Distribute through credible channels
- Repeat exposure

- Develop an implementation team in each practice
- Foster supportive organizational/community-wide climate and conditions
- Develop an implementation plan
- Receive tailored training and technical assistance
- Evaluate the effectiveness of the intervention
  - Increased series completion
  - Decreased missed opportunities

Dissemination Goal – Adoption by Practices

Implementation Goal – HPV Vaccine Uptake & Reach
Implementation Action Steps

1. Form Implementation Team representing all stakeholders in each practice

2. Foster supportive climate and conditions by
   1. using champions
   2. developing policies
   3. communicating perceived need and benefit
   4. establishing practices to counterbalance stakeholder resistance to change

3. Develop practice-specific implementation plan

4. Receive training and technical assistance for specific needs

5. Collaborate with experts, community, academic partners to problem solve and examine factors affecting quality of implementation

6. Evaluate the effectiveness of the implementation strategies: fidelity, dose and quality of training and technical assistance, participation and participant responsiveness, and documentation of adaptations to original implementation plan