Frameworks Models and Genomic Medicine

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Implementation Research

Implementations without structure provide no guidance on implementation in other settings—

- Lack generalizability
- Lack sustainability
Example: Central Line Infections

• Peter Pronovost’s ICU checklist (NEJM 2006)
• 108 ICUs in Michigan
• Catheter related infections decreased by 80% at all sites
How You Get to Outcomes is Important
How You Get to Outcomes is Important
Practical, Robust Implementation and Sustainability Model (PRISM)

https://www.fic.nih.gov/About/center-global-health-studies
Promoting Action on Research Implementation in Health Services (PARIHS) Framework

Published guide
(Stetler in Imp Sci 2011)

Evaluating the successful implementation of evidence into practice using the PARIHS framework: Theoretical and practical challenges - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/The-PARiHS-Diagnostic-and-Evaluative-Grid_fig1_5670027 [accessed 27 Aug, 2018]
### RE-AIM

Development and application of the RE-AIM QuEST mixed methods framework for program evaluation

Author links open overlay panel

Jane Forman, Michele Heisler, Laura J. Damschroder, Elizabeth Kaselitz, and Eve A. Kerrab

Show more


<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
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| Reach           | Number, percentage and representativeness of eligible patients who participated in the intervention.  
                  • Is the intervention reaching the target population? Those most in need? |
| Effectiveness   | Intervention effects on targeted outcomes,  
                  • Does the intervention accomplish its goals? |
| Adoption        | Number, percentage and representativeness of participating settings and providers.  
                  • To what extent are those targeted to deliver the intervention participating? |
| Implementation  | The extent to which the intervention was consistently implemented by staff members. |
| Maintenance     | The extent to which an intervention becomes part of routine organizational practices, and maintains effectiveness. |

Glasgow, www.re-aim.org
Coordinated Implementation Model

Knowledge translation

to transfer research knowledge into practice must take into account the views, activities, and available implementation instruments of at least four potential groups. Those include community interest groups, administrators, public policymakers, and clinical policymakers.
Precede-Proceed Model

Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation (PRECEDE) – Policy, Regulatory and Organizational Constructs in Educational and Environmental Development (PROCEED)

**PRECEDE evaluation tasks:** Specifying measurable objectives and baselines

**PROCEED evaluation tasks:** Monitoring & Continuous Quality Improvement

Implementing Genomics in Practice (IGNITE)

- 6 Projects with different genomic interventions
- Implement in at least one community partner
- Create shared knowledge
- Facilitate knowledge transfer

Research Goals

- Develop ways to use pharmacogenomic data in routine care
- Improve prevention of kidney disease in at-risk patients
- Evaluate clinical decision support for genomic care
- Determine if pharmacogenomic data improves care
Consolidated Framework for Implementation Research (CFIR)

Overall:
- 26 constructs
- 13 sub-constructs

Derived from 19 published implementation models

The Consolidated Framework for Implementation Research (CFIR)

- Intervention source
- Evidence strength and quality
- Relative advantage
- Adaptability
- Trialability
- Complexity
- Design quality
- Cost

- Structural characteristics
- Networks and communications
- Culture
- Implementation climate

- Patient needs and resources
- Cosmopolitanism
- Peer pressure
- External policies and incentives

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

- Planning
- Engaging
- Executing
- Reflecting and evaluating

(Damschroder LJ, et al; 2009)
<table>
<thead>
<tr>
<th>CFIR Constructs Ranked for Genomic Medicine</th>
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<tbody>
<tr>
<td>• Intervention: costs</td>
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<tr>
<td>• Intervention: evidence strength &amp; quality</td>
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<tr>
<td>• Implementation Readiness: Available</td>
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<tr>
<td>resources</td>
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<tr>
<td>• Implementation Readiness: Leadership</td>
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<tr>
<td>Engagement</td>
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<tr>
<td>• Engaging: Champions</td>
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</tbody>
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| • Intervention: relative advantage          |
| • Intervention: adaptability                |
| • Intervention: complexity                  |
| • Outer Setting: patient needs & resources  |
| • Implementation climate                    |
| • Implementation climate: relative priority |
| • Engaging: Internal implementation leaders |
| • Process: planning                         |
| • Process: executing                        |
NON-CFIR Constructs for Genomic Medicine

Patient Measures

- Demographics
- Self Reported Health
- Healthcare Activation
- Social Determinants of Health
- Information Sharing
- Health literacy

- Family and community assessments
- Attitude toward genomic intervention
- Preference for who returns results
- More to come.....
Draft Genomic Medicine Implementation Research Model

IGNITE CFIR Constructs: implementation climate, readiness for implementation, individual’s knowledge and beliefs about the intervention, self efficacy, relative advantage of the intervention, cost, engaging key individuals, executing the implementation, and reflecting/evaluating during implementation.

IGNITE non CFIR Constructs: self reported health, healthcare activation, medication adherence, social determinants, family and community assessment, and information sharing.
Additional Benefits ..... 

• Increases reach of the intervention ... generalizability  
• Increases effectiveness of the intervention  
• Provides a broader frame for assessing health disparities
Dissemination and Implementation Models

This interactive website was designed to help researchers and practitioners to select the D&I Model that best fits their research question or practice problem, adapt the model to the study or practice context, fully integrate the model into the research or practice process, and find existing measurement instruments for the model constructs. The term 'Models' is used to refer to both theories and frameworks that enhance dissemination and implementation of evidence-based interventions more likely.

- **Select**
  - Search, view, and select D&I Models

- **Adapt**
  - Read strategies for adapting D&I Models to research or practice context

- **Integrate**
  - Read strategies for incorporating D&I Models into the full spectrum of your project

- **Measure constructs**
  - Find a list of constructs and links to measurement tools associated with the D&I Models

http://www.dissemination-implementation.org
LiveSlides web content

To view

Download the add-in.
liveslides.com/download

Start the presentation.
Summary

• Including system measures with traditional measures and outcomes will help create sustainable interventions

• Implementation models and frameworks can be adapted to meet the needs of the genomic medicine community

• Draft Genomic medicine implementation research model is available and we are looking for opportunities to refine it