IMPLEMENTATION, DE-IMPLEMENTATION AND EMBEDDEDNESS

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Care that Fits
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17 YEARS FOR RESEARCH EVIDENCE TO REACH CLINICAL PRACTICE
Basic science, discovery

Controlled, Efficacy trials

Pragmatic effectiveness trials, real world

Understand and Facilitate this process

Daily Practice
Basic science, discovery

Controlled, Efficacy trials

Pragmatic, effectiveness trials, real world

Understand and Facilitate this process
Limited use of effective evidence-based practices

Excessive use of ineffective practices

Harm

Waste
IMPROVE HEALTH: TRANSLATIONAL PARADOX

- Limited use of effective evidence based practices
- Excessive use of ineffective practices
- Harm
- Waste

Implementation Science

De-Implementation Science
IMPROVE HEALTH: TRANSLATIONAL PARADOX

Increase uptake of effective evidence based practices

Limited use of ineffective practice

Improve Health
IMPLEMENTATION SCIENCE

• Study of methods to promote the adoption and integration of evidence-based practices, interventions, and policies into routine health care and public health settings to improve the impact on population health.
Pubmed articles “implementation”
DE-IMPLEMENTATION

• The process of identifying and removing harmful, non–cost-effective, or ineffective practices based on tradition and without adequate scientific support.

• Discontinuing or abandoning practices that are not proven to be effective, are less effective or less cost-effective than an alternative practice, or are potentially harmful.
Pubmed articles “de-implementation”
IMPROVE HEALTH: TRANSLATIONAL PARADOX

Increase uptake of effective evidence-based practices

Improve Health

Limited use of ineffective practices
ACTIVITY

1. In your work, have you encountered any examples of the translational paradox?

2. Have you had any experiences, working in implementation/de-implementation science?
1. In your work, have you encountered any examples of the translational paradox?

2. Have you had any experiences, working in implementation/de-implementation science?
IMPLEMENTATION
IMPLEMENTATION SCIENCE...

…is not intervention research

…starts with an EBP (practice, policy, program)

…is aimed at implementation strategies and outcomes

…answers the question: “How do we get ‘what works’ to the people who need it, with greater speed, fidelity, efficiency, quality, and relevant coverage?”*

WHAT IMPLEMENTATION RESEARCH LOOKS LIKE

• Identify the evidence-based practice (EBP)

• Write an implementation question, choose an implementation framework, and design the research

• Deploy implementation strategies that map to implementation context

• Evaluate implementation strategies and assess implementation outcomes, i.e., changes related to implementation process

Acceptability
Appropriateness
Feasibility
Adoption
Fidelity
Cost
Penetration
Sustainability
WHAT IMPLEMENTATION RESEARCH LOOKS LIKE

• Identify the evidence-based practice (EBP)

• Write an implementation question, choose an implementation framework, and design the research

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• Evaluate implementation strategies and assess implementation outcomes, i.e., changes related to implementation process
IMPLEMENTATION CONTEXT

Determinant frameworks call attention to factors that may foster or inhibit implementation. Multi-level factors include perceptions of:

- **Personal characteristics**, e.g., attitudes and beliefs, self-efficacy, knowledge
- **Innovation**, e.g., cost, complexity, and relative advantage
- **Setting**, e.g., the culture of the organization and the way the work is organized
- **External environment**, e.g., mandates, pay-for-performance, collaboratives, and public or benchmark reporting
### MAPPING DETERMINANTS TO STRATEGIES

<table>
<thead>
<tr>
<th>Identified Determinants</th>
<th>Implementation Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of knowledge</td>
<td>Interactive education sessions</td>
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<tr>
<td>Perception/reality mismatch</td>
<td>Audit and feedback</td>
</tr>
<tr>
<td>Lack of motivation</td>
<td>Incentives/sanctions</td>
</tr>
<tr>
<td>Beliefs/attitudes</td>
<td>Peer influence/opinion leaders</td>
</tr>
<tr>
<td>Systems of care</td>
<td>Process redesign</td>
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Source: TIDIRC implementation strategies video [https://www.youtube.com/watch?v=rXceNpPhf6s](https://www.youtube.com/watch?v=rXceNpPhf6s)
Example implementation strategies

**Build health IT to support data-informed quality improvement**
- Use data experts
- Develop and implement tools for quality monitoring
- Audit and provide feedback

**Build QI capacity and improve outcomes**
- Assess readiness and identify barriers/ facilitators
- Identify and prepare champions
- Use an implementation facilitator

**Enhance clinician and practice member knowledge**
- Develop and distribute educational materials
- Capture and share local knowledge
- Create a learning collaborative

**Build community connections and patient involvement**
- Prepare patients/consumers to be active participants
- Obtain and use patients/consumers and family feedback
- Engage community resources
Case #1: Implementation

Evidence-based colorectal cancer (CRC) screening

1 in 3 adults ages 50-75 are not up-to-date for CRC screening, with significant disparities by race/ethnicity, rural residence, income, and education.

Barriers include failure of clinicians to recommend it, lack of identification of who needs it in the EHR, and belief that colonoscopy is the only screening tool.

Your team wants to implement an evidence-based program to improve clinician screening recommendations. It includes EHR reminders and clinician education on screening options.

ACTIVITY

What should we know about implementation context and how will we know about it?

a) Identify at least 1 method for assessing context, e.g., surveys, observations, interviews

b) Indicate subjects or source, e.g., clinicians, patients, administrators

Identify 2-3 potential determinants you might investigate

a) About the innovation
b) About the people
c) About the organization / setting
d) About the external environment

Identify potential implementation strategies that might address those determinants

a) Type (e.g., knowledge, champions, data for improvement)
b) Recipient (e.g., clinicians, patients, administrators)
REPORT OUT

• How did you approach the task?
• What factors may be most important for successful implementation?
• How will you know if your strategy is successful (i.e., which implementation outcome will improve)?
DE-IMPLEMENTATION
• Cough, feeling tired.

• Evaluated by a clinician, some tests and assessment.
  • Viral upper respiratory infection.
  • Should be fine in a couple of days.

• No antibiotics.

• I was hoping for some antibiotics so that he can feel better faster.
Choosing Wisely: An International Movement Toward Appropriate Medical Care
American Academy of Pediatrics

View all recommendations from this society

Released February 21, 2013; updated July 13, 2016 and June 12, 2018

**Antibiotics should not be used for viral respiratory illnesses (sinusitis, pharyngitis, bronchitis and bronchiolitis).**

Antibiotics should not be used for upper respiratory illnesses characterized by congestion, cough, or pharyngeal pain unless criteria for bacterial sinusitis or Group A streptococcal pharyngitis are met. The vast majority of these infections are caused by viruses.
THINKING ABOUT DE-IMPLEMENTATION

**Strength of the evidence**
- Ineffective
- Contraindicated
- Mixed
- Untested

**Magnitude of the Problem**
- Harm
- Prevalence
- Equity
- Resource

**Action**
- Reduce
- Replace
- Remove
- Restrict

**Barriers/Facilitators**
- Patient
- Clinician
- Setting
- Societal

**Strategies**
- Patient
- Clinician
- Setting
- Societal
THINKING ABOUT DE-IMPLEMENTATION

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**Magnitude of the Problem**
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Identify and Prioritize
THINKING ABOUT DE-IMPLEMENTATION

- **Action**
  - Reduce
  - Replace
  - Remove
  - Restrict

- **Barriers/Facilitators**
  - Patient
  - Clinician
  - Setting
  - Societal

- **Strategies**
  - Patient
  - Clinician
  - Setting
  - Societal

Facilitate the process
STRENGTH OF THE EVIDENCE

• Routine use of antibiotics for the management of viral upper respiratory infections in children is ineffective.

• Randomized control trials – no evidence of improvement of clinical outcomes.
MAGNITUDE OF THE PROBLEM

• Prevalence: 40% of children presenting with upper respiratory symptoms received antibiotics.

• Harms: Side effects (e.g., GI), costs, antibiotic resistance

• Equity

• Resources
THINKING ABOUT DE-IMPLEMENTATION

Facilitate the process
Patient experience and preferences

Patient-Clinician

Attitude and Beliefs

Practice Environment

Culture (healthcare and professional medicine)
ACTIVITY

1. Consider if you will like to: reduce, replace, remove or restrict the use of antibiotics for children with viral respiratory infections?

2. Identify 2-3 potential barriers/facilitators for the de-implementation of antibiotics for children with viral respiratory infections, at the level of:
   a) Patients
   b) Clinician
   c) Setting
   d) Society

3. Identify 2-3 potential strategies for the de-implementation of antibiotics for children with viral respiratory infections, at the level of:
   a) Patients
   b) Clinician
   c) Setting
   d) Society
ACTIVITY - REPORT

1
Consider if you will like to: reduce, replace, remove or restrict the use of antibiotics for children with viral respiratory infections?

2
Identify 2-3 potential barriers/facilitators for the de-implementation of antibiotics for children with viral respiratory infections, at the level of:
   a) Patients
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   d) Society

3
Identify 2-3 potential strategies for the de-implementation of antibiotics for children with viral respiratory infections, at the level of:
   a) Patients
   b) Clinician
   c) Setting
   d) Society
Interventions to facilitate shared decision making to address antibiotic use for acute respiratory infections in primary care (Review)

Coxeter P, Del Mar CB, McGregor L, Beller EM, Hoffmann TC

Action – reduce antibiotic use
Barriers/facilitators - Patient/Clinician
Strategy – Facilitate SDM
Delayed Antibiotic Prescription for Children With Respiratory Infections: A Randomized Trial

Gemma Mas-Dalmau, MD; Carmen Villanueva López, PhD; Pedro Gorrotxategi Gorrotxategi, PhD; Emma Arguelles Prendes, MD; Oscar Espinazo Ramos, MD; Teresa Valls Duran, MD; María Encarnación Gonzalo Alonso, MD; María Pilar Cortés Viana, PhD; Tatiana Menéndez Bada, MD; Marta Esther Vázquez Fernández, PhD; Ana Isabel Pérez Hernández, MD; Laura Muñoz Ortiz, MD; Paul Little, PhD; Mariam de la Poza Abad, PhD; Pablo Alonso-Coello, PhD; ON BEHALF OF THE DAP PEDIATRICS GROUP

Action – reduce/replace antibiotic use

Barriers/facilitators - Patient/Clinician

Strategy – option to delayed antibiotic prescription
SUMMARY

Implementation and de-implementation

- Understand the need for implementation science
- Consider (de)implementation factors related to individuals and organizations
- Identify potential strategies for improving implementation outcomes
RESOURCES

Theories, models, and frameworks

- D&I model webtool: https://dissemination-implementation.org/index.aspx
- CFIR: https://cfirguide.org/
- RE-AIM: https://re-aim.org/
- Normalization Process Theory: http://www.normalizationprocess.org/
- Implementation Research Logic Model: https://doi.org/10.1186/s13012-020-01041-8

D&I websites

- NIH Office of Disease Prevention: https://prevention.nih.gov/research-priorities/dissemination-implementation
- NIH Division of Cancer Control and Population Sciences: https://cancercontrol.cancer.gov/is
- University of Wisconsin: https://ictr.wisc.edu/dissemination-implementation-launchpad/
- University of North Carolina: https://impsci.tracs.unc.edu/
- Consortium for Implementation Science: https://consortiumforis.org/
- University of Washington: https://impsciuw.org/
- Society for Implementation Research Collaboration: https://societyforimplementationresearchcollaboration.org/
- VA QUERI: https://www.queri.research.va.gov/