In Search of Synergy: Strategies for Combining Interventions at Multiple Levels

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This Talk Is Aimed at Researchers Wishing to Develop Multi-Level Interventions

• What is a multi-level intervention?
  – Focuses on multi-level healthcare quality improvement or implementation interventions
  – Example studies

• How to think about achieving synergy
  – A hypothetical example
WHAT IS A MULTI-LEVEL INTERVENTION?
Multi-Level Implies Hierarchy

• Interventions directed at e.g. local, regional, national actors
• May involve
  – Patients, clinicians, other providers, managers or leaders at any or all levels
  – Healthcare delivery systems
  – Community organizations, politicians
Logic Model

• You haven’t really
  – *Produced a sustainable change* unless you’ve changed the local organization
  – *Sustained change* unless you’ve mobilized any needed resources/eliminated any critical barriers locally, regionally and nationally
  – *Spread change* unless you’ve created methods/ tools that account for the above two

• Requires thinking about which levels are necessary
Multi-Level Interventions Require Multi-Level Partnership

- A focus on integrating health services research (HSR) resources with system management
When Should a Multi-Level Intervention Be Considered?

- When prior evidence supports an improvement approach
  - Clinical practice guidelines
  - Behavior change theory/practice
  - Policy analysis
  - Prior tests of change in relevant contexts
- When data shows a need for large-scale change
  - Performance deficits, variations in care, poor outcomes
Intervention Scope Should Reflect The Implementation Science Basis

• Engages synthesis/expertise from a field of research, not one study

• No untested intervention should be applied at multi-levels
  – Multi-level input on intervention design, however, with PDSA testing can be optimal

• Strategic planning by researchers can work toward multi-level intervention
Examples of Multi-Level Intervention

Implementation and Spread of Multi-Level Interventions:

- National
- State / Region
- Communities
- Practices
- Providers
- Patients

CHOICE = Communicating Health Options through Information and Cancer Education (Lewis, et al., 2010; Pignone, et al., in press; Pool Cool Diffusion Trial, skin cancer prevention program (Glanz, et al., 2005); HVMA = Harvard Vanguard Medical Associates (Sequist, et al., 2009; Sequist, et al., 2010); Tobacco Control (CDC, 1999 and 2007); TIDES = Translating Interventions for Depression into Effective Care Solutions (depression collaborative care) (Rubenstein, et al. 2010; Smith, et al., 2008; Chaney, et al., in press); CRC = Colorectal Cancer Care Collaborative (C4) (Jackson, et al., 2010; Chao, et al., 2009).
What is a Multi-Level Intervention?

Implementation and Spread of Multi-Level Interventions: Levels

- National
- State
- Community
- Practices
- Providers
- Patients

Health Plan CRC Screen

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Yano et al, JNCI, 2012
What is a Multi-Level Intervention?

Implementation and Spread of Multi-Level Interventions:
Levels

- National
- State/Region
- Communities
- Practices
- Providers
- Patients

Sunscreen in community pools

Tobacco Policy

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What is a Multi-Level Intervention?

Depression Care

Implementation and Spread of Multi-Level Interventions:

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What Did These 6 Studies Aim to Implement?

- **Policy change**
  - National (2), regional (1), system (6), local (1)
- **Decision support (e.g., reminders) & education**
  - Local for pts/providers (6)
- **Priority-setting**
  - Regional (1)
- **Plan-Do-Study-Act cycles/care redesign**
  - Local (2)
How Were These Studies Funded?

- Most were based on multiple funded studies
  - E.g., an intervention development or preparation study, several implementation/evaluation studies directed at different groups or populations
  - Component studies often had different designs, e.g., cluster randomized trials, observational qualitative or quantitative designs
FINDING SYNERGY FOR MULTI-LEVEL INTERVENTION RESEARCH:

An Approach To Initiating a Study
A Hypothetical Example

• You are a researcher with interests in improving care for elderly hospitalized patients
  – It comes to your attention that Pressure Ulcer Medical Center (PUMC) with which you are affiliated on another project has high rates of pressure ulcers
  – The hospital is part of the national “WeCare” Healthcare Delivery Organization

• You want to work on this problem
  – You have an existing research team to work with
#1: Be Strategic

- What is already going on at We Care nationally, regionally, or locally on pressure ulcers?
  - What is the level of awareness of the problem?
  - Is it a goal, performance measure, or strategic plan element? A committee?
- Are there other health services researchers working on relevant topics at We Care?
- Is the project more push or more pull?
Managers, Patients, Clinicians

HSR implementing science in practice
Health Services Researchers

QI by Clinical Managers, Patients, Clinicians
#2. Review Existing Information

• Review and table literature on
  – Relevant guidelines
  – Epidemiology and determinants of the problem
  – Barriers and facilitators
  – Approaches to improving the problem

• Review existing relevant WeCare and PUMC data
#3. Define the Problems to Be Solved

• Begin with a best-guess initial formulation and be willing to change as you interact with partners
  – The broad but organizationally oriented problem ("improve WeCare pressure ulcer prevention")
  – More specific problems
    • “improve pressure ulcer prevention in the ICU”
    • “improve the reliability of pressure ulcer performance measures”
#4: Decide on the Multilevel Approach Strategy

- Early adopter sites are usually valuable for innovation development
  - May be linked into regional or national planning from the beginning (e.g., CMS demonstration sites for PCMH)
  - May instead be begun locally or regionally while planning for later involvement of other levels
- Consider how money/resources flow
- Consider organizational readiness for change at different levels
#6: Establish Partnerships

- Identify all key types of stakeholders, including consumers/patients
- Decide which types to approach at which levels, e.g.,
  - Engage nursing, physicians, administrators at PUMC and at WeCare headquarters
  - Engage nursing unit leads, geriatricians, and pressure ulcer team leads at the PUMC level
  - Engage patient reps at both levels
- Consider formal priority setting using modified Delphi methods
#7: Develop a Logic Model

• The logic model identifies the rationale for the intervention
  – Many types, e.g., driver diagrams, conceptual frameworks, theoretical frameworks, input/output type diagrams
  – Can be based on barriers, facilitators, levers and how the project will address these

• A detailed logic model can help design the evaluation, enable effective use of theory

• Often, the logic model for a multi-level intervention should address the elements of the chronic care model (or proactive care model)
Examples of Other Relevant Theories and Methods

- Quality improvement (e.g., Deming, IHI)
- Social Marketing (e.g., Andreasen)
- Innovation diffusion (e.g., Rogers)
- Re-Engineering (e.g., Goldratt, Plsek)
- RE-AIM (Glasgow)
- CFIR (Consolidated Framework for Implementation Research, Damshroeder)
#8: Design Evaluations and Reports

- Plan for formative and summative evaluation
- Formative addresses two targets
  - Information for improving interventions like this
  - Information for partners to help them improve
- Summative aims at population based measures of improvement
  - Should be tightly linked to improved health status
Can Studies Like This Sustain Careers?

• There are challenges
  – Writing and analysis in this field are challenging (see SQUIRE guidelines)
  – Studies require disproportionate personal investigator time
  – IRB and privacy issues require attention

• However, such efforts typically produce a large number of publications outside of their results related to effectiveness
  – Typically 10 to 100 related publications
  – A fertile field for engaging young investigators
Yes, aiming for synergy across multiple levels for improving healthcare quality and value is a compass that can guide our research...
And can find the “sweet spot” between research knowledge and hands on knowledge that leads to improvement.