Models of Dissemination & Implementation Research

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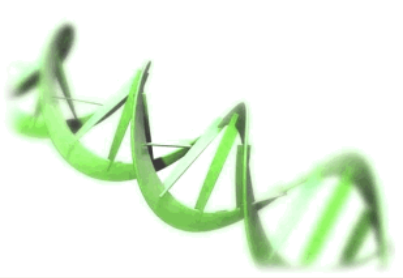
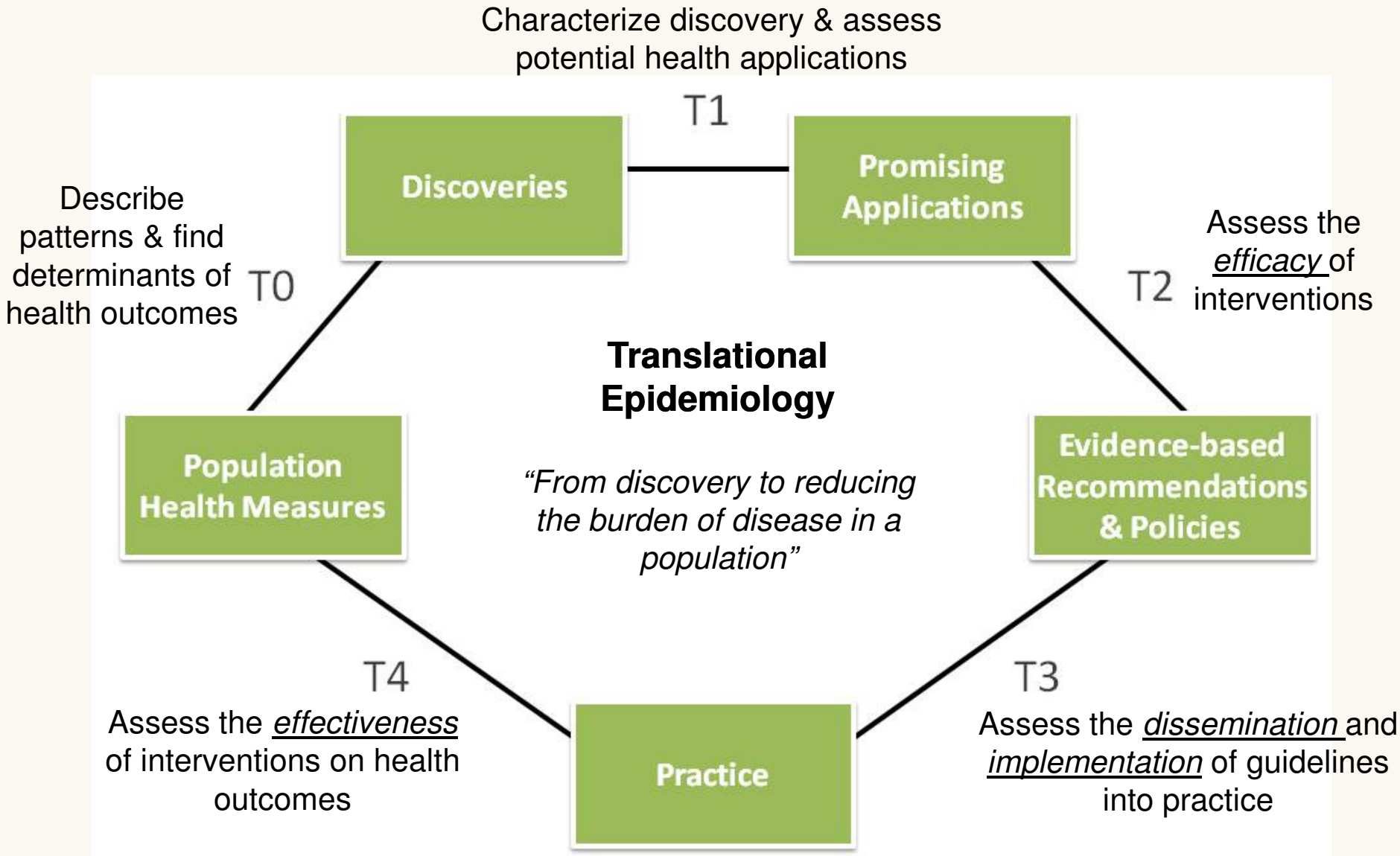
"The latest research shows that we really should do something with all this research"

Overview



- The “Big Picture” (Translational Research)
- Why LSSN is well positioned to conduct high quality Dissemination and Implementation (D&I) Research
- Value of conceptual frameworks & theories (models)
- D&I conceptual frameworks (i.e., RE-AIM and CFIR)
- Methodological considerations in D&I research



NCI Epidemiology and Genomics Research Program: http://blog-epi.grants.cancer.gov/2012/09/26/how-can-we-use-epidemiology-to-bridge-evidence-gaps-in-translating-research-discoveries-into-clinical-and-public-health-practice/

Khoury MJ, Gwinn M, Ioannidis JP. The emergence of translational epidemiology: from scientific discovery to population health impact. Am J Epidemiol. 2010 Sep 1;172(5):517-24.

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Goal of Dissemination and Implementation (D&I) Research

Generate new insights and generalizable knowledge regarding intervention dissemination and implementation processes, facilitators, barriers, & strategies for improvement.

Characteristics of a High Quality D&I Study

1. Focuses on an important public health or clinical problem

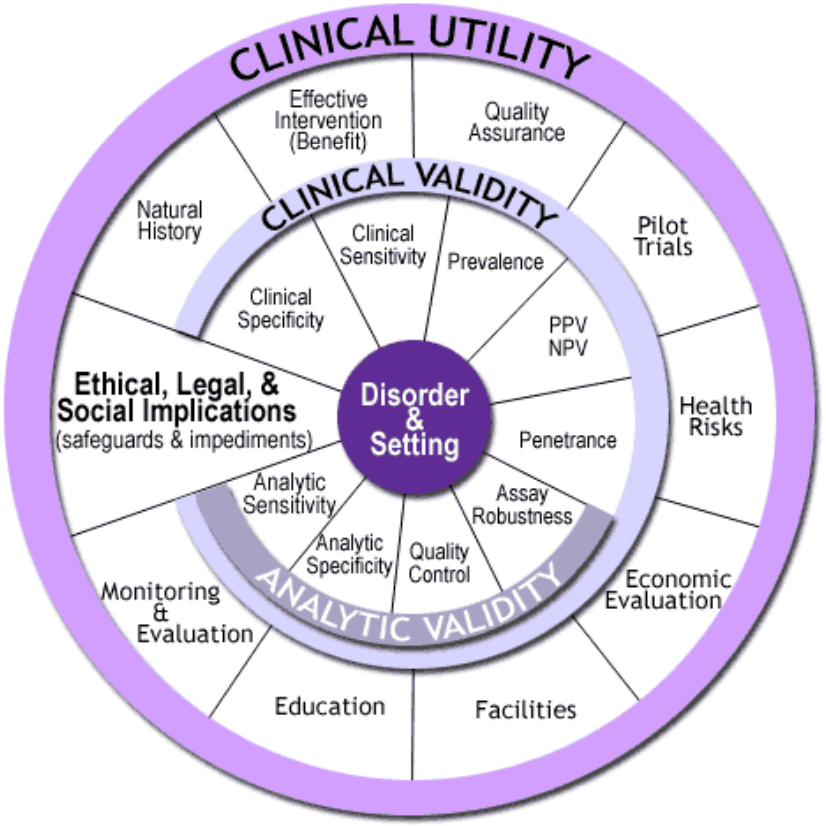
"Increase the proportion of persons with newly diagnosed colorectal cancer who receive genetic testing to identify Lynch syndrome (or familial CRC syndromes)."

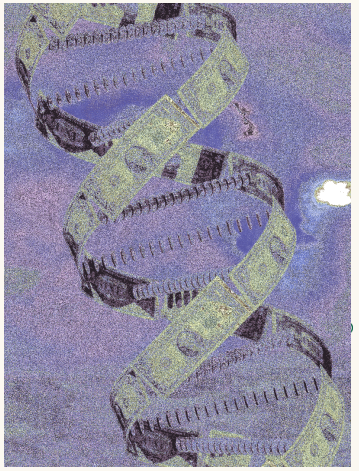
Chambers D, Kerner, J. Dissemination and implementation PARs: background, overview, and review challenges. Presentation to the National Institutes of Mental Health, National Cancer Institute, 2007

Characteristics of a High Quality D&I Study

2. *Efficacy* data strongly supports the value of dissemination and implementation

Evidence to Practice
EGAPP
Evaluation of Genomic Applications in Practice and Prevention



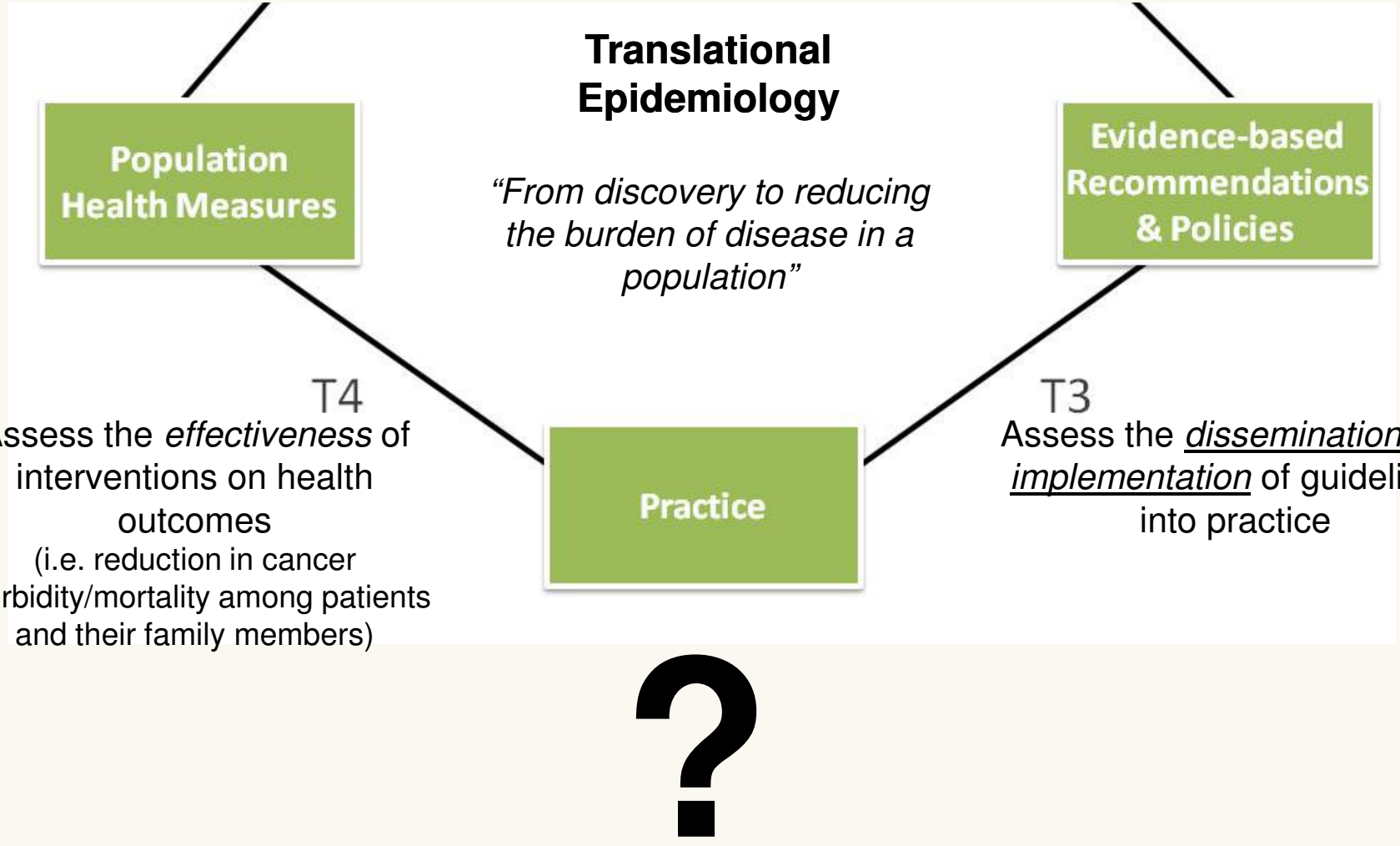


Characteristics of a High Quality D&I Study

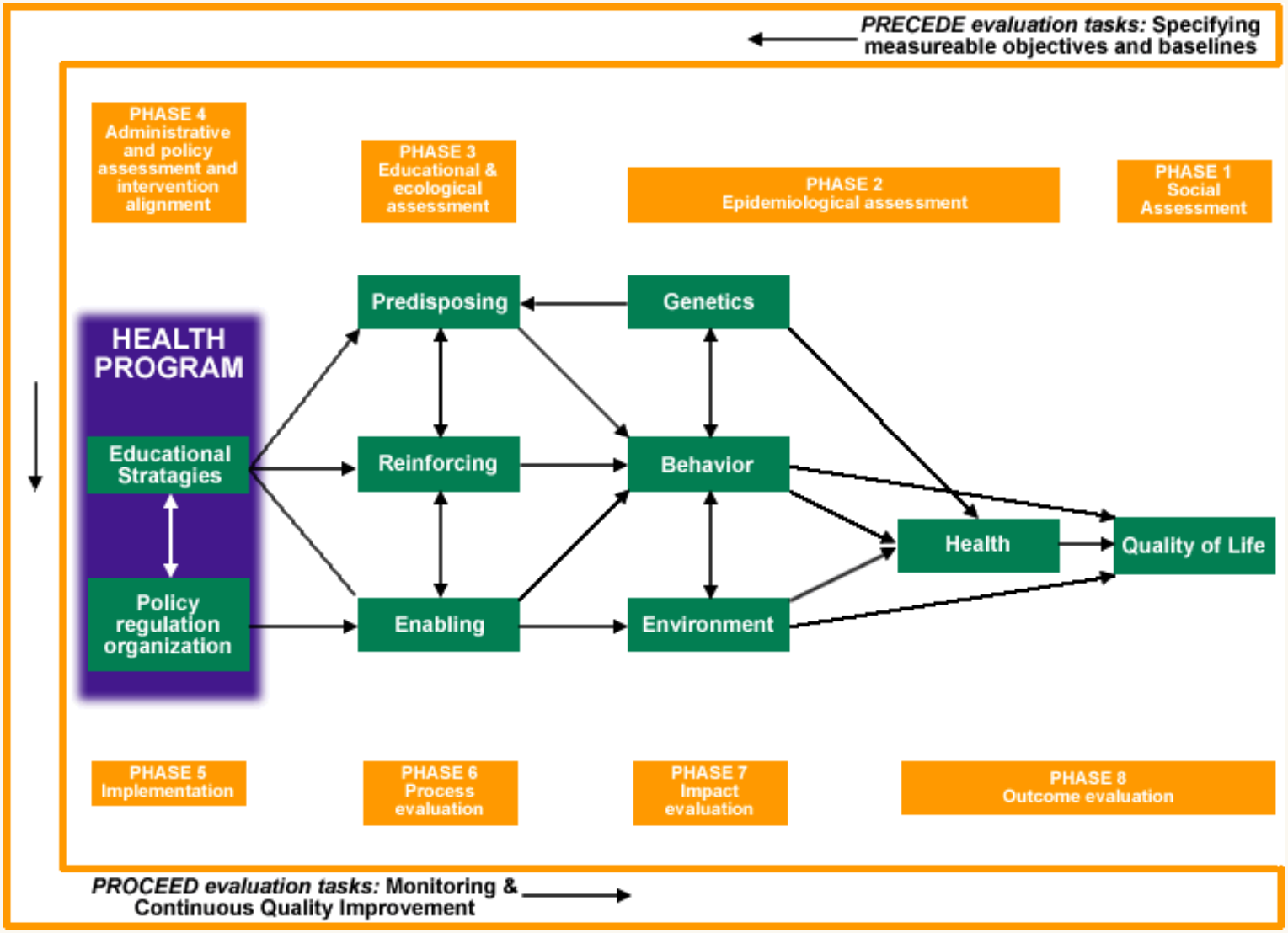
3. **Thorough understanding of implementation and dissemination principles, frameworks, theories**
4. Multidisciplinary team with expertise in I&D
5. Challenges an existing paradigm; or invokes innovative hypotheses or methods
6. Has potential to contribute to I&D knowledge base and advance the field
7. Show how you can disseminate to reach expanded / high-risk target populations

Characteristics of a High Quality D&I Study

8. Specific dissemination products will be created


Translational Epidemiology
"From discovery to reducing the burden of disease in a population"
Population Health Measures
Evidence-based Recommendations & Policies
Practice
T4
Assess the effectiveness of interventions on health outcomes
(i.e. reduction in cancer morbidity/mortality among patients and their family members)
T3
Assess the dissemination and implementation of guidelines into practice
?

Precede Proceed Model



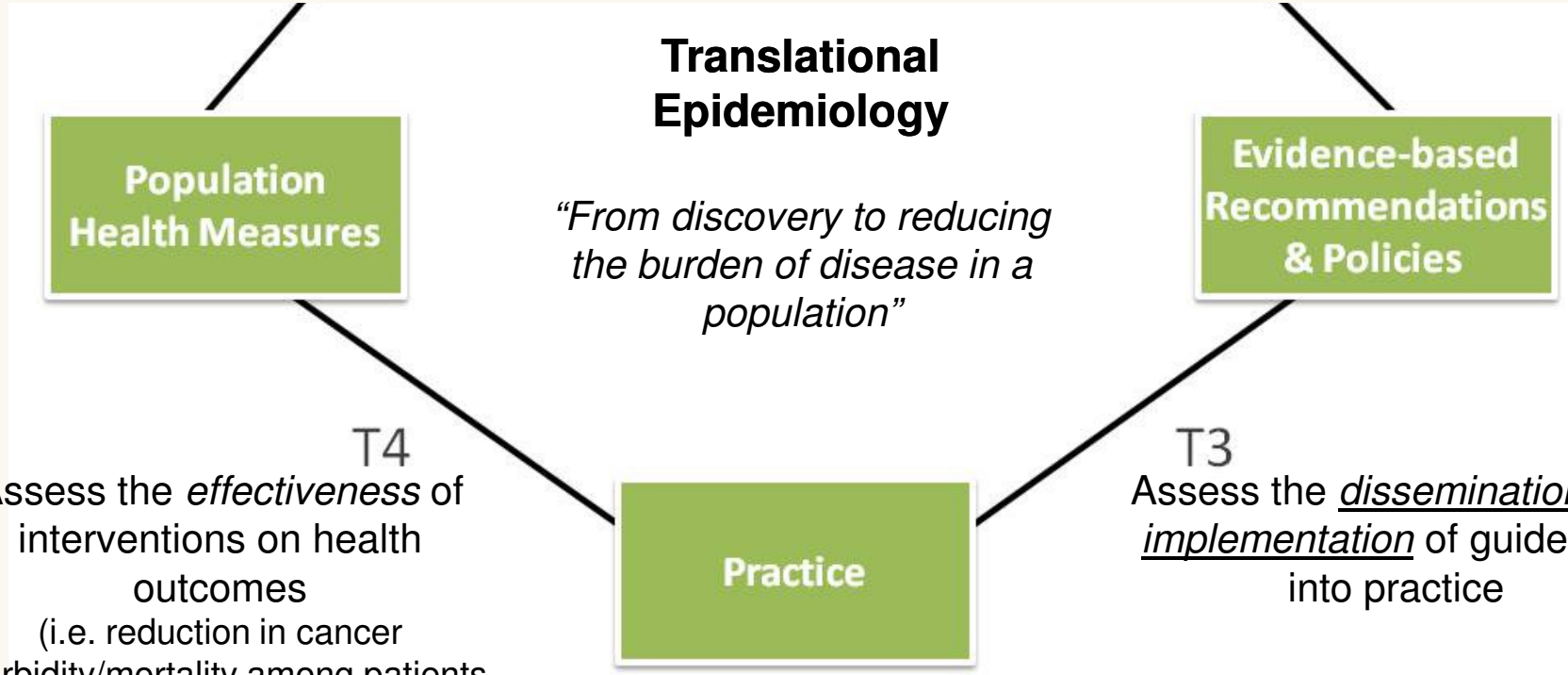
What We Know

- Screening methods and procedures vary across institutions

- Patient follow-through with both genetic counseling and germline testing after an abnormal screen varies across institutions

What We DON'T Know

- Factors that contribute to the decision to adopt universal tumor screening (UTS) for Lynch syndrome
- Why institutional differences exist in terms of UTS procedures/protocols
- Implementation challenges & how they were overcome
- Whether there have been unintended outcomes of UTS
- What contributes to variability in UTS outcomes across institutions



T3 ½

Assess *implementation effectiveness*

(i.e. assess for unintended consequences and determine how implementation factors influence patient follow-through with genetic counseling and germline testing)

Theories & Frameworks

_____ are strategic or action-planning models that provide a systematic way to develop, manage, and evaluate interventions.

_____ are systematic ways of understanding events or behaviors. They illustrate how concepts interrelate and can be used to explain or predict events/behaviors.

1. Increase intervention and research quality & effectiveness
2. Enhance interpretability of findings
3. Ensure critical components are included and/or evaluated

Over 61 D&I Models

OPTIONS Model	D > I	3		x	x	x		46
A Conceptual Model for the Diffusion of Innovations in Service Organizations	D > I	4		x	x			47
Health Promotion Research Center Framework	D > I	4	x	x	x		x	48
Knowledge Exchange Framework	D > I	4	x	x	x	x		[49], [50] and [51]
Research Knowledge Infrastructure	D > I	4		x	x	x	x	[52], [53], [54] and [55]
A Convergent Diffusion and Social Marketing Approach for Dissemination	D > I	5		x	x			[56] and [57]
Framework for Dissemination of Evidence-Based Policy	D > I	5		x	x	x		58
Health Promotion Technology Transfer Process	D = I	1		x	x			59
Real-World Dissemination	D = I	1		x	x			[60] and [61]
A Framework fo								
Interacting Elem								
Interactive Syste								
Push–Pull Capa								
Research Devel								
Utilization-Focus								
"4E" Framework								
Critical Realism								
Davis' Pathman-								
Dissemination o								
Knowledge Tra								
Multi-level Conceptual Framework of Organizational Innovation Adoption	D = I	3				x	x	75
Ottawa Model of Research Use	D = I	4		x	x	x		[76] and [77]
The RE-AIM Framework	D = I	4		x	x	x		78
The Precede–Proceed Model	D = I	5		x	x	x		6
Facilitating Adoption of Best Practices (FAB) Model	I > D	2		x	x			79
A Six-Step Framework For International Physical Activity Dissemination	I > D	3	x	x	x	x	x	80
Pathways to Evidence Informed Policy	I > D	3	x	x	x	x	x	81
CDC DHAP's Research-to-Practice Framework	I > D	4		x	x			[82], [83], [84], [85], [86] and [87]
Practical, Robust Implementation and Sustainability Model (PRISM)	I > D	4			x	x		88
Active Implementation Framework	I-only	3		x	x	x		[89] and [90]
An Organizational Theory of Innovation Implementation	I-only	3			x			91
Conceptual Model of Implementation Research	I-only	3	x	x	x	x		92
Implementation Effectiveness Model	I-only	3			x	x		[93] and [94]
Normalization Process Theory	I-only	3	x	x	x	x		[95], [96] and [97]
Promoting Action on Research Implementation in Health Services (PARIHS)	I-only	3		x	x	x		[98], [99] and [100]
Pronovost's 4E's Process Theory	I-only	3		x	x	x		101
Sticky Knowledge	I-only	3		x	x	x		[102] and [103]
Consolidated Framework for Implementation Research	I-only	4		x	x			[104] and [105]
Replicating Effective Programs Plus Framework	I-only	4		x	x			106

Bridging research and practice: models for dissemination and implementation research. Tabak RG, Khoong EC, Chambers DA, Brownson RC. Am J Prev Med. 2012 Sep;43(3):337-50. doi: 10.1016/j.amepre.2012.05.024.

Conceptual Framework #1

RE-AIM enhances the quality, speed, and impact of efforts to translate research into practice

Glasgow, R.E., T.M. Vogt, and S.M. Boles, Evaluating the public health impact of health promotion interventions: the RE-AIM framework. Am J Public Health, 1999. 89(9): p. 1322-7.

http://re-aim.org/

RE-AIM Dimension	Research Questions
Reach Absolute number, proportion, and representativeness of individuals who participate.	What proportion of CRC patients who screen positive follow-through with genetic counseling and genetic testing at each respective institution?

RE-AIM Dimension	Research Questions
Effectiveness The impact of an intervention on outcomes (including potential negative effects)	Have there been any unexpected outcomes or negative effects associated with UTS implementation? If so, what implementation factors may be related to negative effects and how can negative effects be avoided?

RE-AIM Dimension	Research Questions
Adoption The absolute number, proportion, & representativeness of settings and staff who currently offer UTS and reasons for adopting UTS.	Who was involved in making the decision to adopt UTS? What centers/institutions have adopted UTS and how do they compare to others that have not adopted UTS? What factors influence the decision to adopt UTS?

RE-AIM Dimension	Research Questions
Implementation Consistency of delivery, time and cost of the program, and what adaptations to the program are made in various settings.	•What challenges, if any had to be overcome when implementing screening? •How and why do implementation processes and protocols vary across centers?

RE-AIM Dimension	Research Questions
Maintenance The extent to which a program or policy becomes institutionalized.	•If and how have UTS protocols been adapted at various centers over time?
At the individual level, maintenance is the long-term effects of a program on outcomes after 6 or more months.	•Are patients who have been diagnosed through UTS or as a result of cascade testing undergoing recommended cancer screening?

Conceptual Framework #2

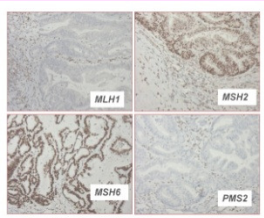
The Consolidated Framework for Implementation Research (CFIR) organizes factors (constructs) that may be important to implementation and outcomes into 5 domains:

1. Intervention
2. Outer Setting
3. Inner Setting
4. Process
5. Individuals involved

L.J. Damschroder, D.C. Aron, R.E. Keith, S.R. Kirsh, J.A. Alexander, J.C. Lowery Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implement Sci, 4 (2009)

CFIR Contextual Factors

Intervention Characteristics



- Intervention source
- Relative advantage
- Complexity
- Cost

Outer Setting

- Contacts with other centers or hospitals performing UTS

- Practice guidelines

Evidence to Practice
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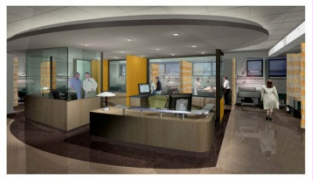
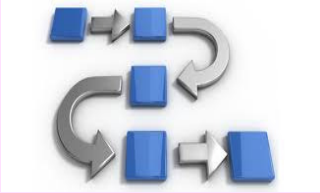
Inner Setting



- Structural characteristics of the institution
- Quality of communication
- Implementation climate
- Readiness for implementation

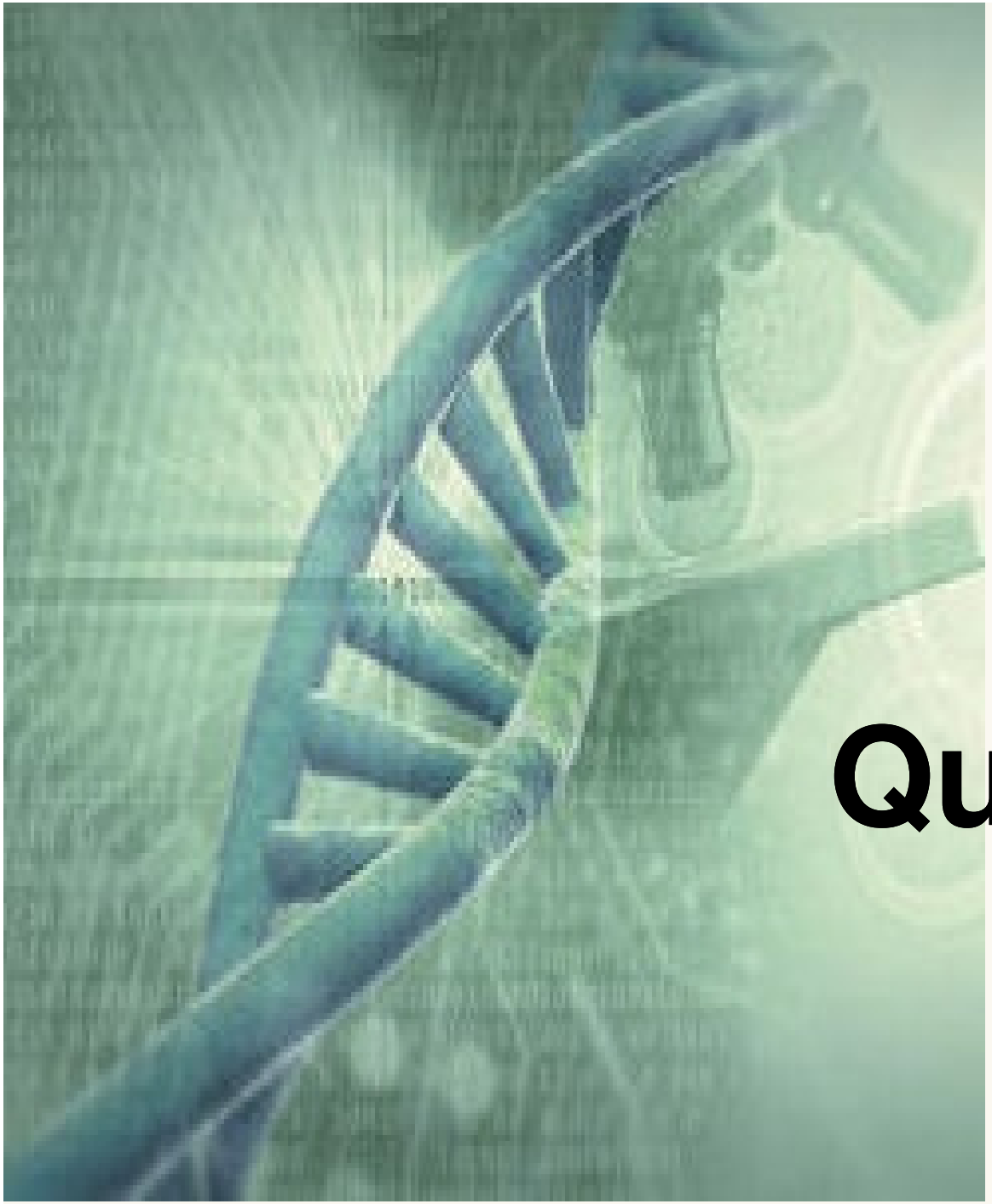
Process

- Screening method
- Who gives results & follows up with patients
- When , where, & how results are given



Methodological Considerations in D&I Research

- Context is critical
- Begin with stakeholders / implementers
- Appreciate and integrate multiple types of evidence and methods (*quantitative & qualitative*)
- Broaden evaluations to include multiple outcomes and report on contextual factors (*models will help here*)
- Recognize that processes are complex and non-linear and multilevel factors influence outcomes
- Know where to look for validated measures



Questions?

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