Developing an Integrated Implementation Research Agenda: Guidance from Prevailing Frameworks

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Brian S. Mittman, PhD
Center for Implementation Practice and Research Support, Dept of Veterans Affairs
Dept of Research and Evaluation, Kaiser Permanente Southern California
School of Medicine, University of California at Los Angeles

Mastering implementation science: key topics

1. What is implementation science? *(aims, scope)*
2. Why is it important? *(policy, practice, science goals)*
3. How does it relate to other types of health research?
4. What are the components of a comprehensive, integrated program of implementation research?
5. How does one plan, design, conduct and report different types of implementation research studies – and appropriately follow up?

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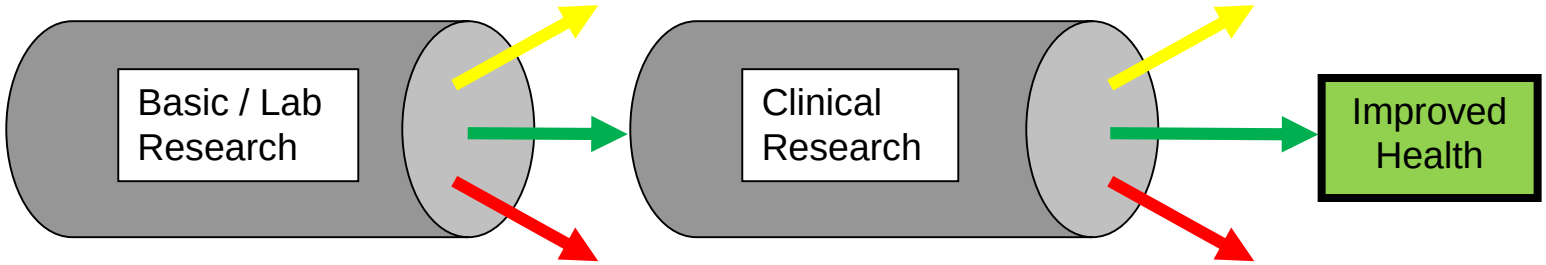
What is implementation research?
The usual story

1. Clinical research produces new evidence, innovation
2. Initial efforts to promote implementation
3. Measurement of rates of adoption and implementation (quality) gaps
4. Research to develop and evaluate *implementation programs** to increase adoption

* *quality improvement programs, practice change programs (interventions)*

The implementation gap *(second translational roadblock)*



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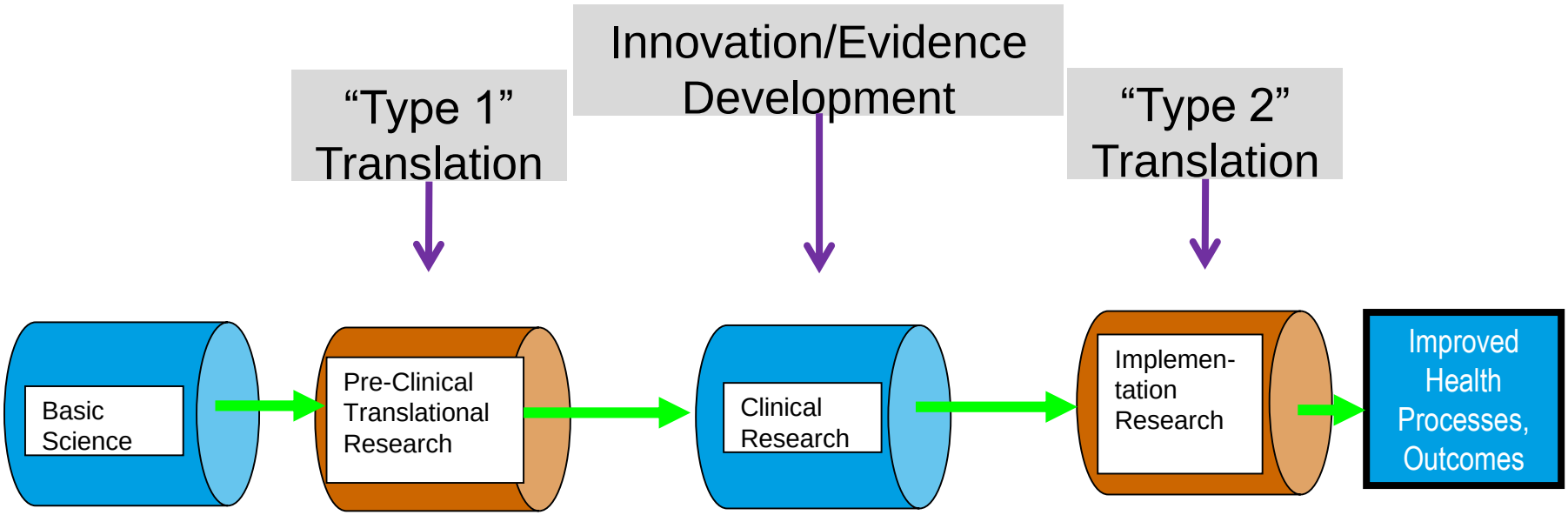
Refined research-implementation pipeline



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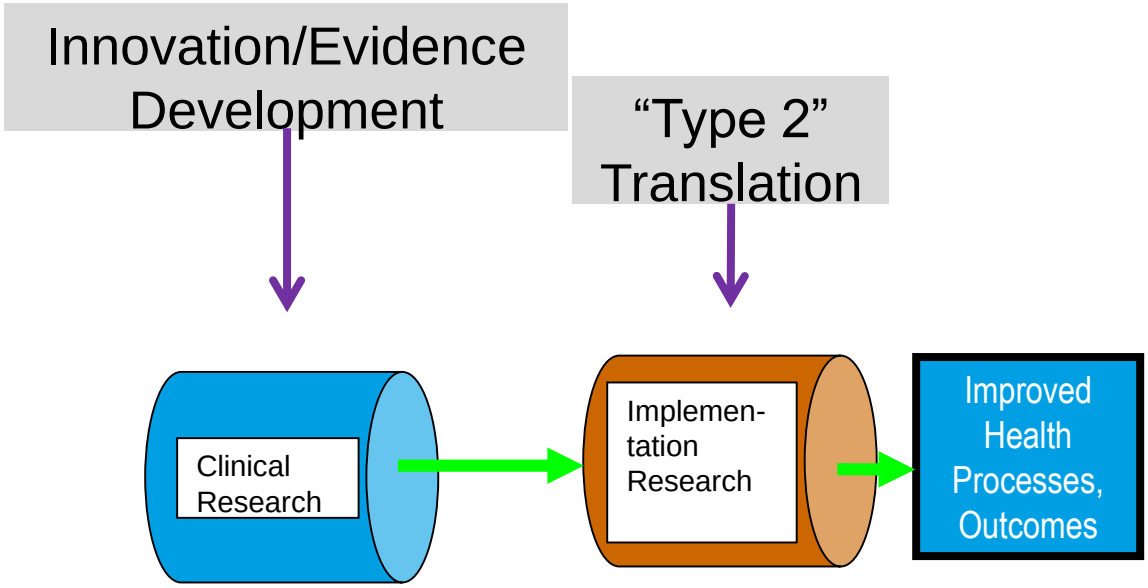


Clinical research (trials) vs. implementation research

Study feature	Clinical research	Implementation research
Study aim: evaluate a …	clinical intervention	implementation strategy
Typical intervention	drug, procedure, therapy	clinician, organizational practice change
Primary outcomes	symptoms, health outcomes	adoption, adherence, fidelity
Typical unit of analysis, randomization	patient	clinician, team, facility

Implementation science definition

Implementation research is the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services.

It includes the study of influences on healthcare professional and organizational behavior.

Eccles and Mittman, 2006

Implementation science aims

1. Develop reliable strategies for improving health-related processes and outcomes; facilitate widespread adoption of these strategies

2. Produce insights and generalizable knowledge regarding implementation *processes*, *barriers*, *facilitators*, *strategies*

3. Develop, test and refine implementation theories and hypotheses; methods and measures

The *Tower of Babel* problem

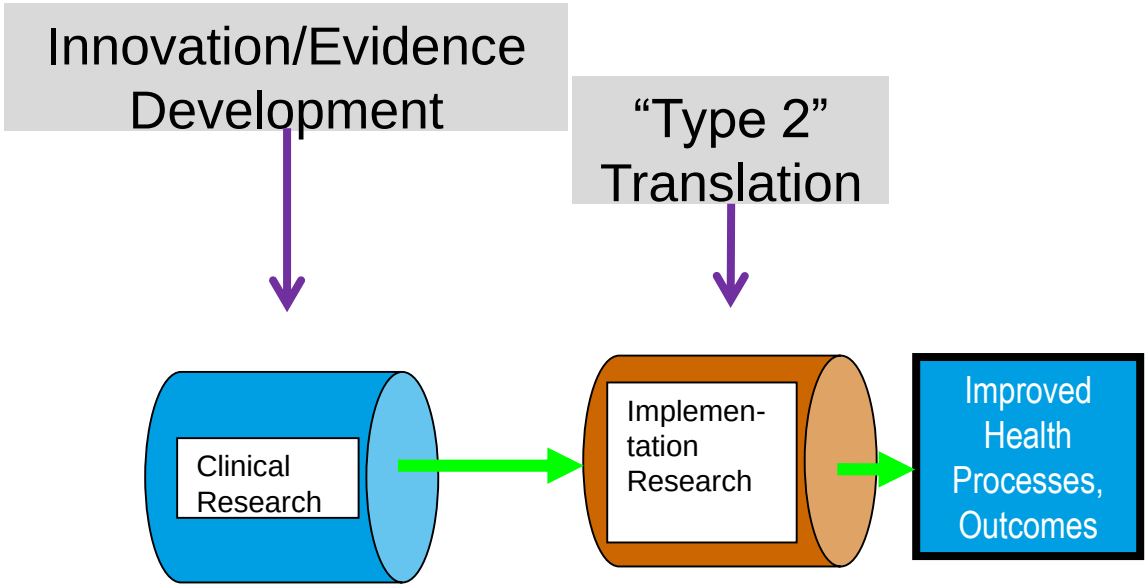
- Knowledge translation
- Translational research
- Research utilization
- Technology transfer
- Knowledge-to-action
- Dissemination research
- Quality improvement research
- Knowledge transfer and exchange
- Etc.

Implementation research vs. QI research

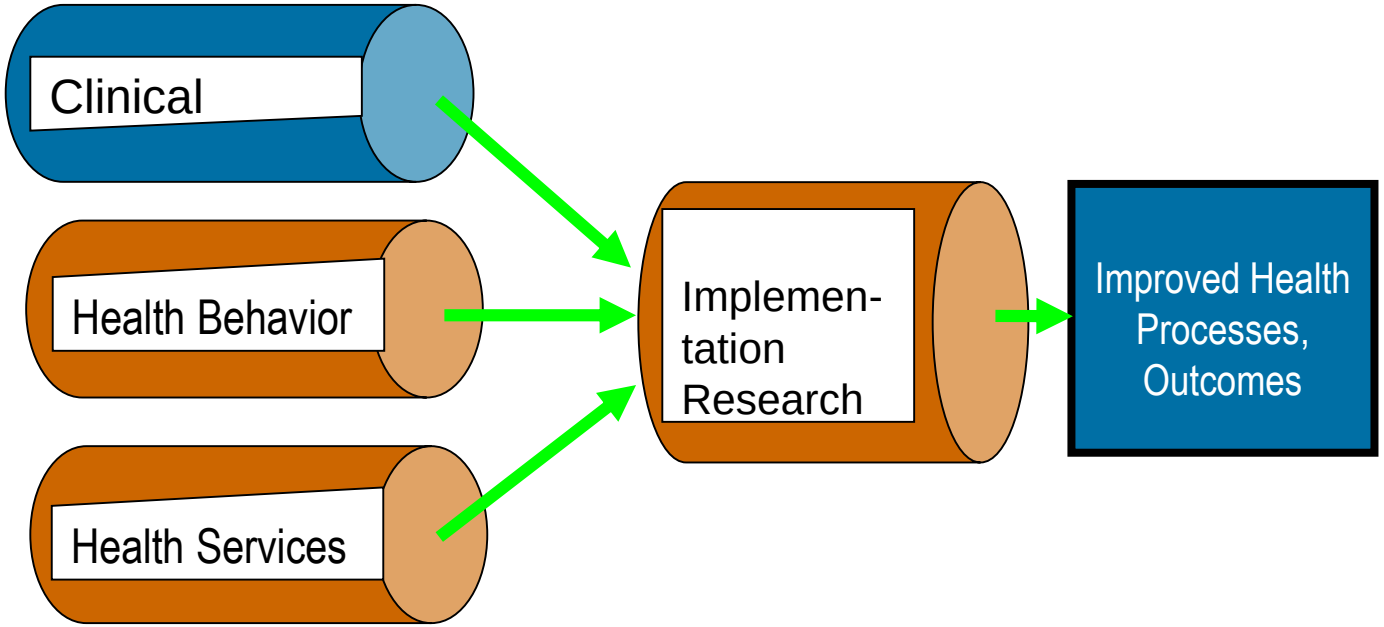
- QI often focuses on the “here and now” – immediate, local improvement needs via rapid-cycle, iterative improvement, addressing a quality problem
- IS often attempts to develop, deploy and rigorously evaluate a fixed implementation strategy across multiple sites, emphasizing theory, contextual factors, (sometimes) mediators, moderators, mechanisms, addressing an implementation gap

- IS aims to develop generalizable knowledge

Refined research-implementation pipeline



Gaps in the pipeline:
1. Health behavior, health services research



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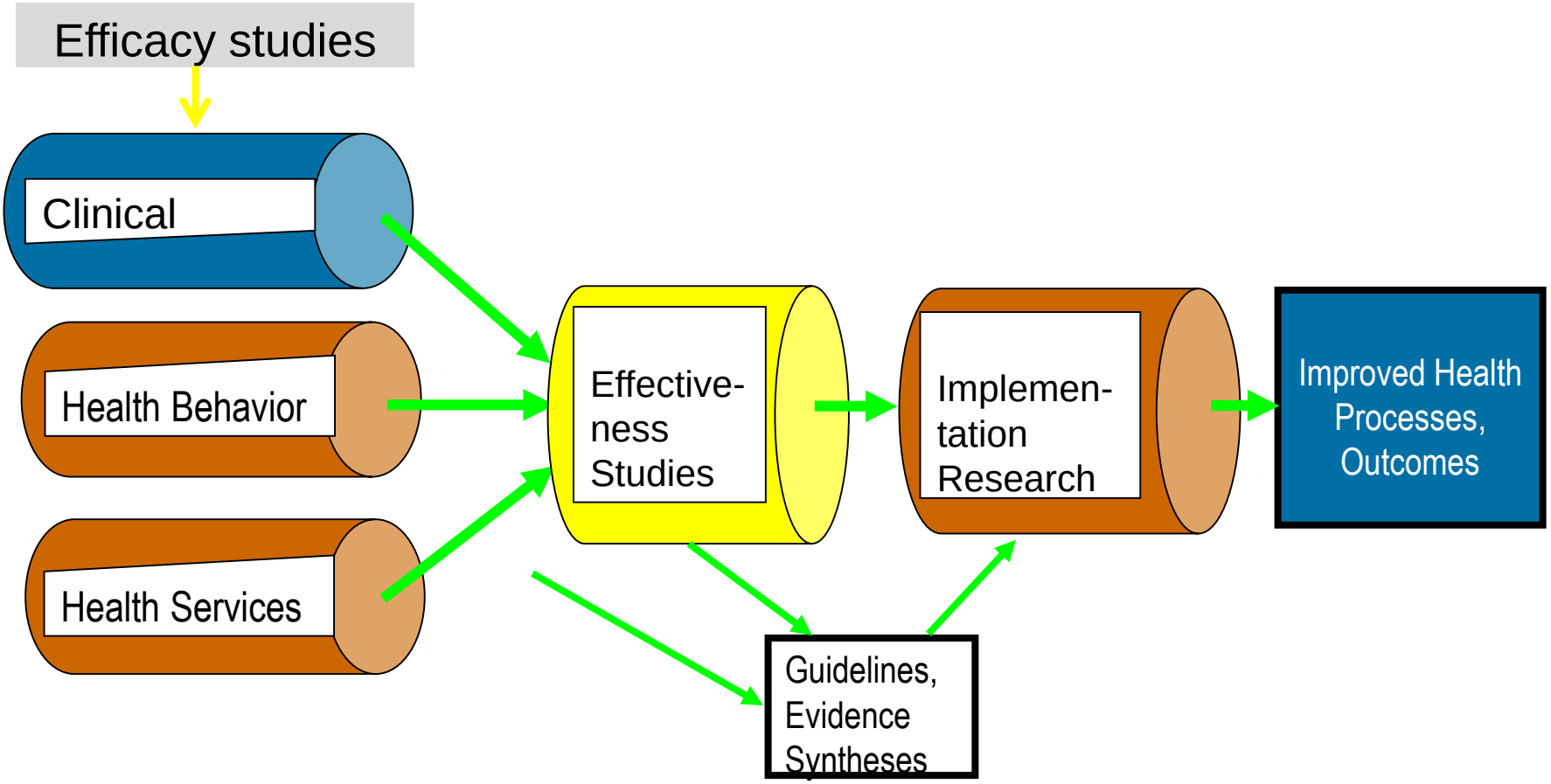
Gaps in the pipeline:
2. Effectiveness studies



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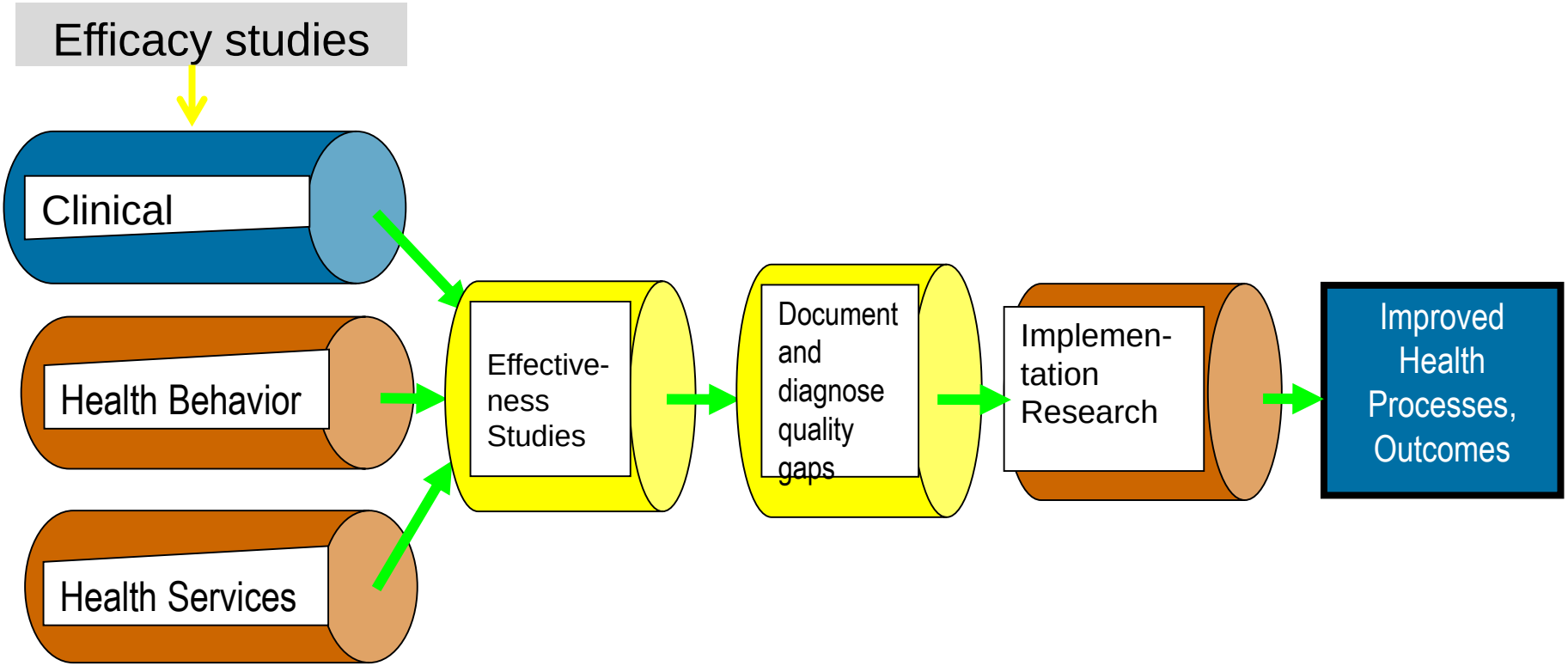
Gaps in the pipeline:
3. Pre-implementation studies

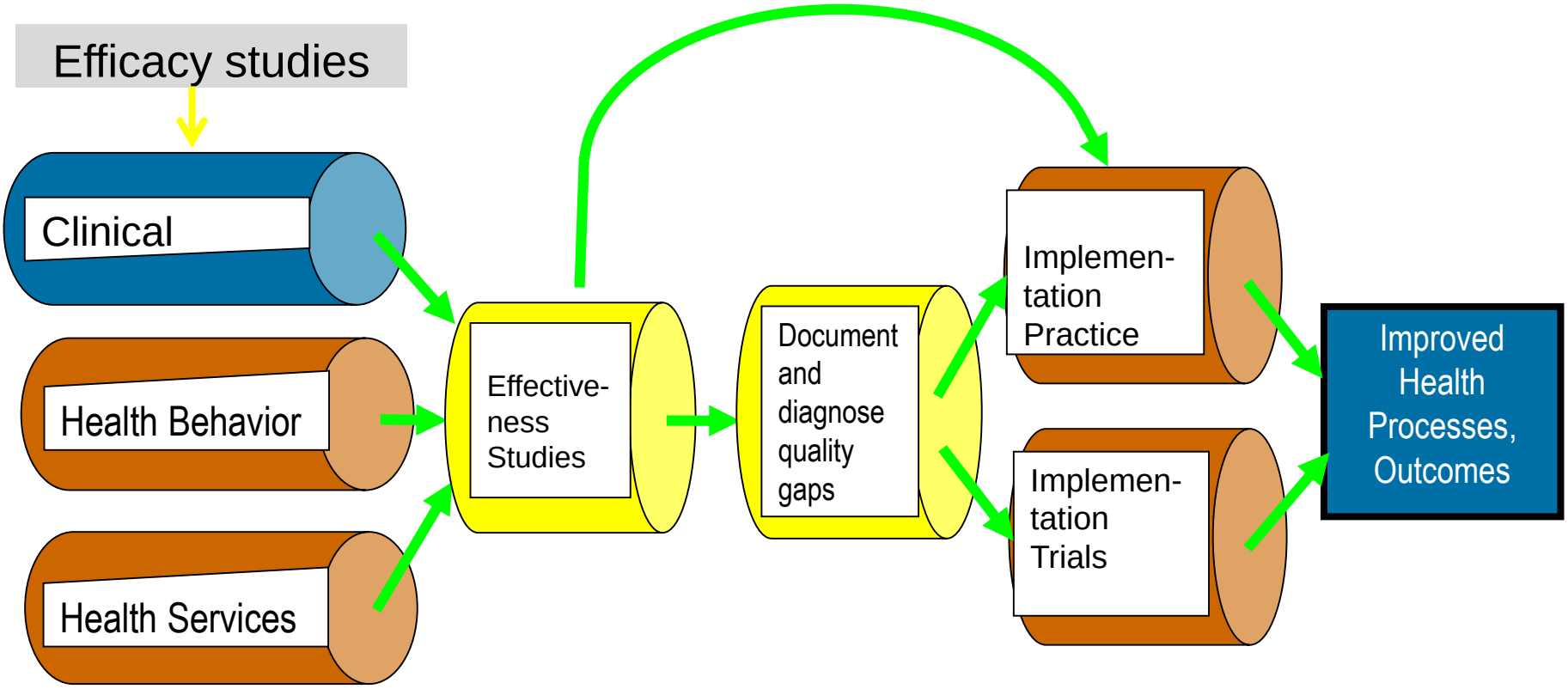


Expanded QUERI Six-Step Process

Step 3: Document and Diagnose Quality/Performance Gaps

- 3A. Measure existing practice patterns and outcomes across VHA and identify variations from evidence-based practices and benchmark outcomes (*quality, outcome and performance gaps*)
- 3B. Identify determinants of current practices
- 3C. Diagnose quality gaps
- 3D. Identify barriers and facilitators to improvement

Gaps in the pipeline:
4. Observational implementation studies



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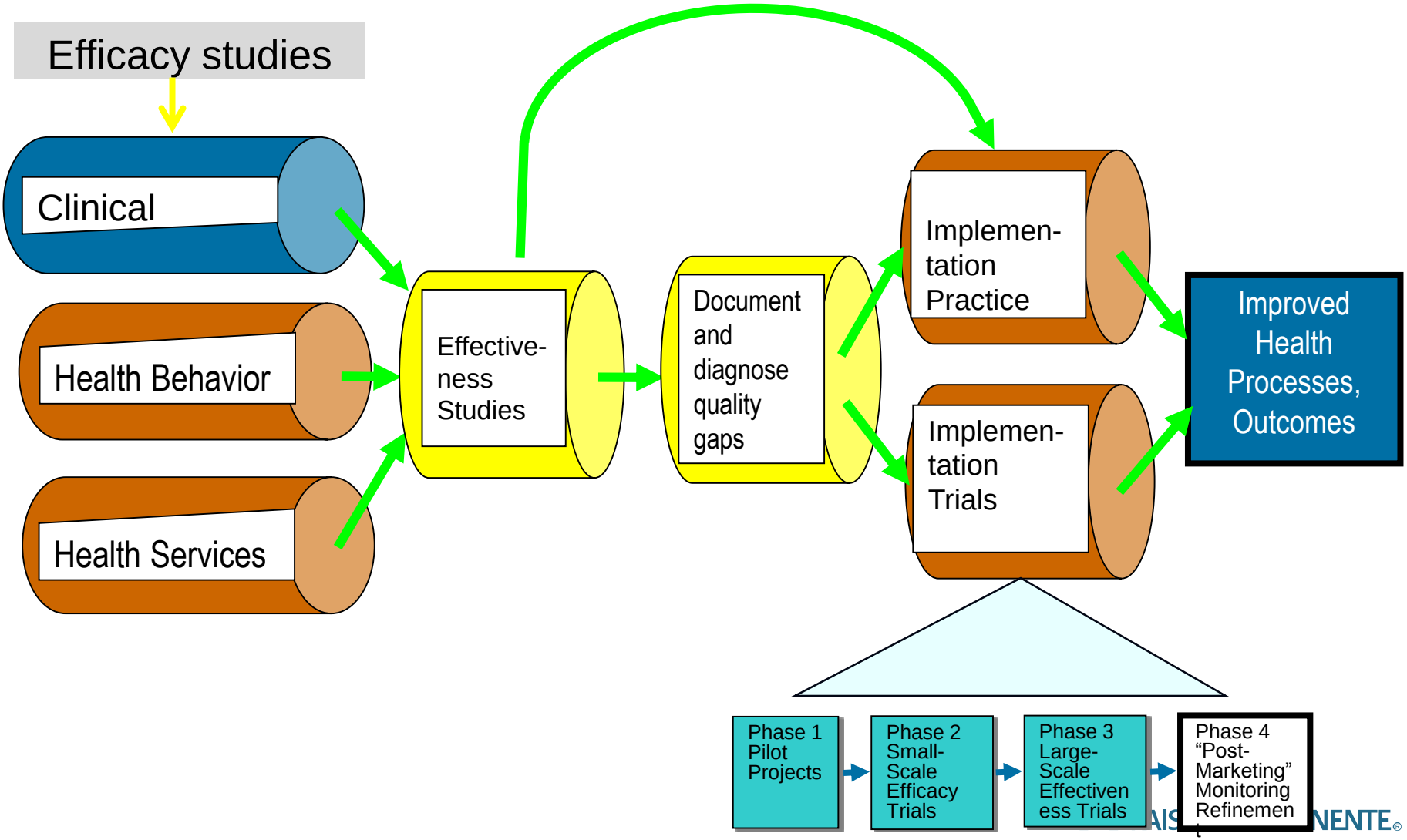
Observational implementation studies

- Naturally-occurring (policy/practice-led) vs. artificial (researcher-led) implementation processes
- Maximize external validity
- Large sample sizes; maximize power to detect contextual influences
- Examine local adaptation processes and effects

Gaps in the pipeline:
5. Phased implementation trials



QUERI Four-Phase Implementation Research Framework

Phase	Study Type	Form of Evaluation
Pre-trial	Program design	Conceptual design of implementation program and underlying (logic) model from theory, prior empirical research
Phase 1	Pilot / formative	Pilot test, assess feasibility, formative evaluation and refinement, develop intervention/evaluation protocols
Phase 2	Efficacy	Small-scale rigorous trial in controlled settings with ongoing intervention support; emphasis on internal validity
Phase 3	Effectiveness	Large-scale rigorous trial under routine conditions in varied settings; emphasis on external validity
Phase 4	Monitoring	Ongoing monitoring and feedback