The Basics of Implementation Science

Nederlands Implementatie Collectief
Week van de Implementatie
Monday 24 January 2022
13:00-14:30

Bethany Hipple Walters
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A few questions to start…

- I work primarily as…
  - A master's student
  - A PhD student
  - A healthcare provider
  - An educator at a college or university
  - A researcher at a college, university, academic medical center, or knowledge center
  - A public health professional working a governmental public health organization
  - A health policy professional
  - Other

- What is your current level of knowledge of strategies for implementing evidence-based programs in practice?
  - Good
  - Fair
  - Poor

- What is your current level of knowledge of implementation science?
  - Good
  - Fair
  - Poor

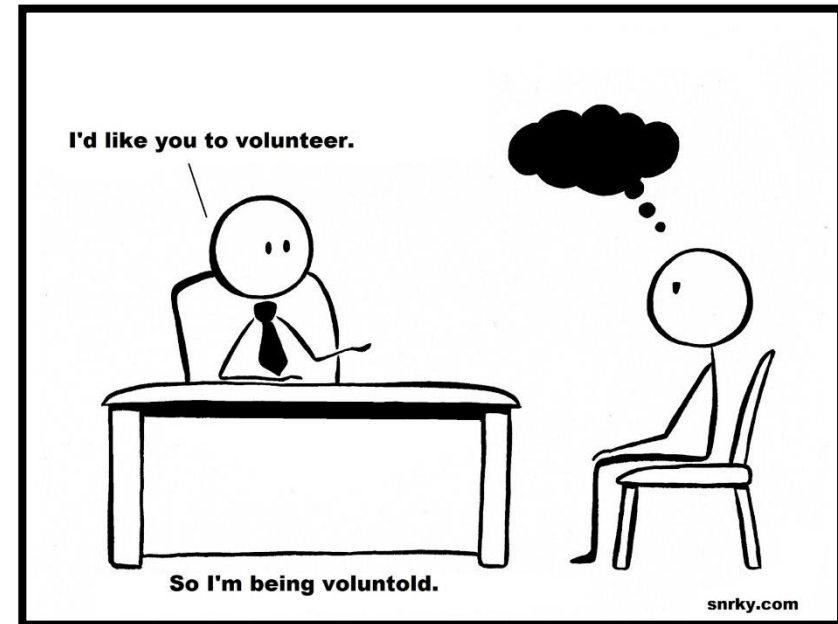- What was your primary reason for joining today's session?

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May we record this session?

Volunteers wanted

- Note taker
- Chat monitor

What do you hope to learn today?

Agenda

- Introduction to Nederlands Implementatie Collectief
- Introduction to the speaker
- Implementing evidence-based practices
- Researching the implementation of evidence-based practices

Goal of the session

- By the end of this session, we hope that attendees will:
  - Understand the need to develop and use implementation strategies when putting a new intervention in place (whether for research or practice)
  - Have been introduced to implementation research
    - Understand the difference between implementation research and other forms of health services research
    - Have had an overview of some of the different forms of implementation research
    - Know where to find additional information and resources

Nederlands Implementatie Collectief/ Netherlands Implementation Collaborative

The Netherlands Implementation Collaborative (NIC) is a professional network for implementation scientists and implementation specialists in the Netherlands. By sharing knowledge about how professionals can effectively implement and evaluate evidence-based programs, policies, and guidelines, NIC hopes to improve the health, well-being, and welfare of people in the Netherlands.

NIC website

International – nederlandsimplementatiecollectief.nl

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Introduction to today's speaker

- Education
  - PhD from Erasmus University
  - MPH from Columbia University
  - BA from University of Massachusetts

- Career
  - Director of the Centre for Implementation at the Trimbos Institute
  - Project Director and Researcher at Massachusetts General Hospital – CEASE
  - Adjunct instructor at Webster University Leiden

- Research specializations
  - Implementation research
  - Practice-based health services research
  - Qualitative research

- Areas of research
  - Tobacco control in healthcare practices
  - Chronic disease programs in primary care
  - Mental healthcare systems reform

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What's a woman
from Oklahoma
doing in the Netherlands?

Centre for Implementation at Trimbos

- Knowledge center for implementation and implementation research for programs, policies, and innovations related to mental health, alcohol (mis)use, drug (mis)use, and tobacco use
  - Research support
  - Training
    - Implementation strategies
    - Implementation science models and research methods
    - Research design
  - NIC partner

[Implementatie van onderzoek - Trimbos-instituut](#)

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Implementing evidence-based practices

Evidence-based practices in health care

- Interventions shown, through research, to be effective
  - Efficacy and effectiveness studies

- Interventions can include
  - Programs
  - Care provider practice
  - Clinical decision-making
  - Medications and therapies
  - Policies
  - Guidelines and practice standards

References
McKibbon, K A. "Evidence-based practice." *Bulletin of the Medical Library Association* vol. 86,3 (1998): 396-401.

Rabin, B.A. et al. "A glossary for dissemination and implementation research in health." *Journal of Public Health Management and Practice* 14.2 (2008): 117-123.

So what, exactly, is implementation?

- Defined as "the process of putting to use or integrating evidence-based interventions" into a practice (Rabin et al, 2008)
  - Practices are often <u>but</u> not always or only health care delivery settings
- Hopefully done in a planned manner with feedback and insight from local stakeholders, tailored to meet the needs of the setting, with support and training provided, and evaluation conducted
  - Implementation plan, strategy, or guide
    - Not a straight line – adjusted along the way based on new needs
- Implementation is a science and a skillset
  - Implementation systematically guided by evidence, models, and tools

Reference
Rabin, B.A. et al. "A glossary for dissemination and implementation research in health." *Journal of Public Health Management and Practice* 14.2 (2008): 117-123.

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Implementing interventions

- Implementation strategies
  - *methods or techniques used to enhance the adoption, implementation, and sustainability of a clinical program or practice*
    - The "intervention" that's being tested or implemented

- Described, in detail, in the implementation plan

Reference
Proctor, E.K. et al. "Implementation Strategies: Recommendations for Specifying and Reporting." *Implementation Science : IS* 8 (2013): 139.

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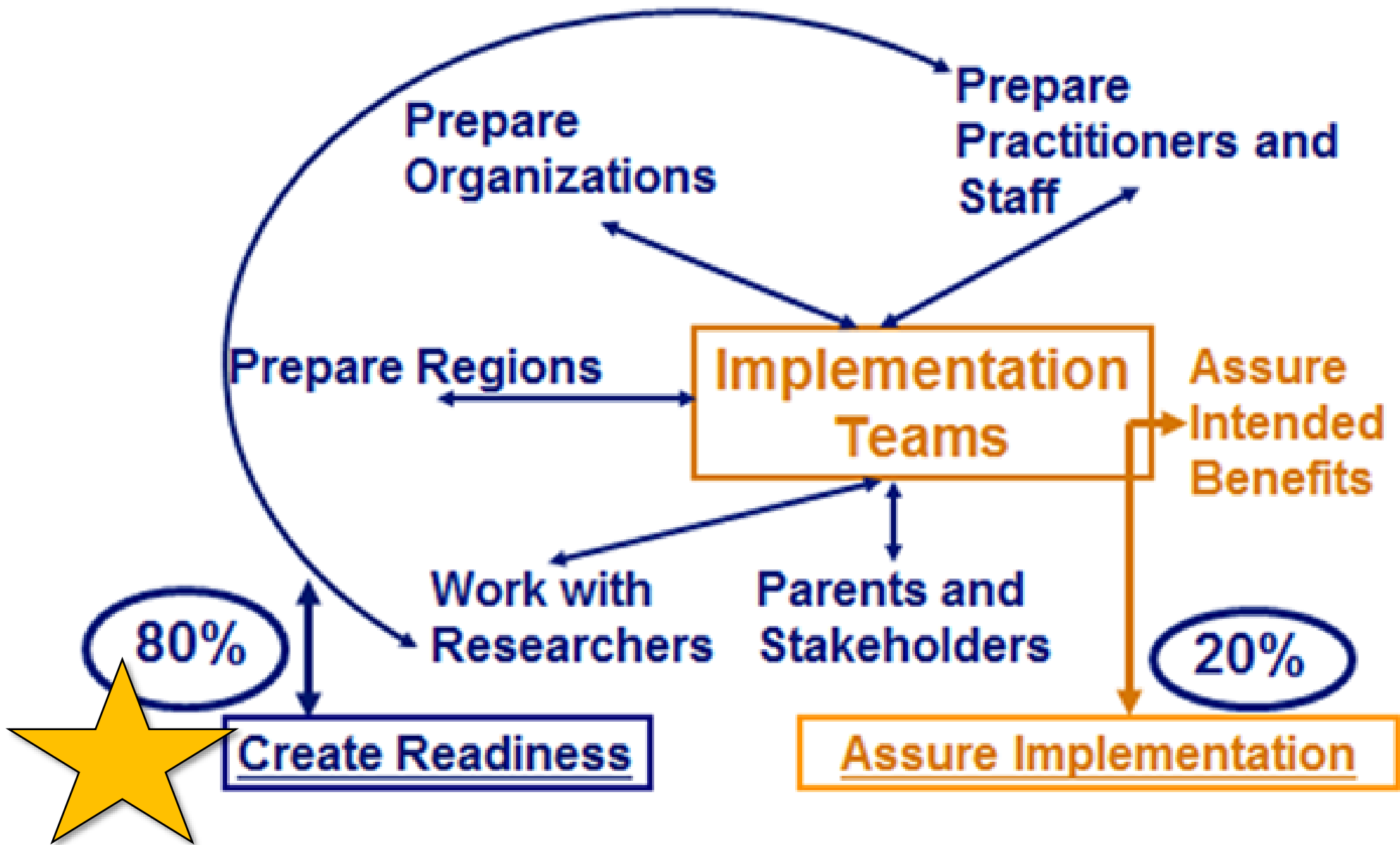bhipplewalters@trimbos.nl

What does this mean in practice?

- The development of three plans
  - Intervention
    - Plan for improving care or for a new program
  - Implementation
    - The strategy or methods of putting that new program into place
  - Research
    - The protocol for researching the implementation of the intervention

- These three plans are interrelated and build off one another

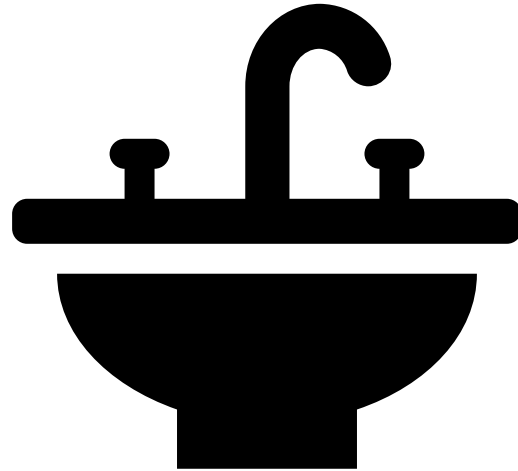Bethany Hipple Walters
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Develop an implementation plan

- Step-by-step guide to making changes in practices
  - Realistic, feasible, and concrete
- Tools and training needed for implementation
- Developed with all stakeholders
- Updated as needed
- Informed by the intervention
- Shapes the research strategy

> ZonMw has a great tool for developing an implementation plan!

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National Implementation Research Network
https://nirn.fpg.unc.edu/module-3/topic-3/function-1

Researching implementation

Defining implementation science

- 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". [Eccles, M.P., Mittman, B.S. Welcome to Implementation Science. *Implementation Science* 1, 1 (2006)]

Pre-intervention/pilot testing

Efficacy research

Effectiveness research

Adoption

Sustainability

Scaling up
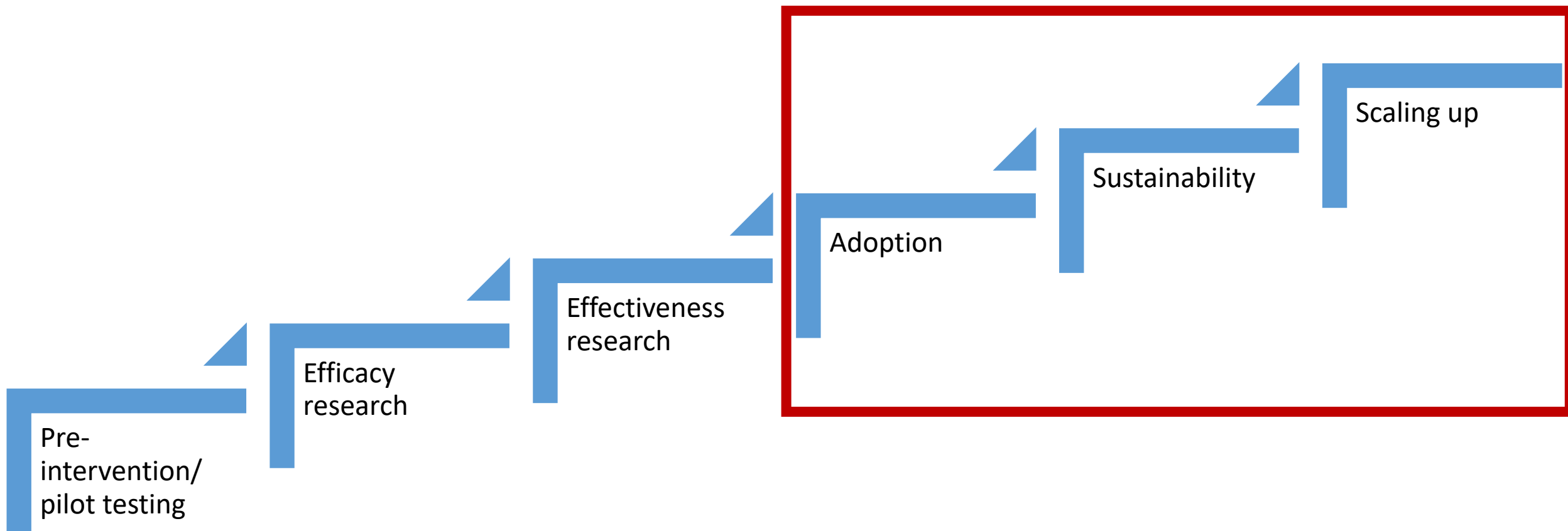
Most implementation research studies fall within these phases of research.

National Research Council and Institute of Medicine, 2009

Implementation science studies

- Focus on studying the implementation of a program
  - NOT (just) whether a program is effective

- Pragmatic
  - Real-world practices, not idealized settings

- Multidisciplinary study teams

- Study designs include (but are not limited to)
  - RCT
  - Pre/post
  - Pragmatic trials

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Implementation science research questions

- In general, implementation science research questions…
    - Are not about program/project efficacy
    - Focus on implementation outcomes, implementation processes, factors that influence implementation, or the evaluation of implementation
    - Often are guided by an implementation science theoretical framework

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Implementation science research questions

- *What are the most effective techniques to improve the distribution and receipt of evidence?*

- *What are the most effective techniques to incorporate new discoveries and evidence-based practices into care delivery?*

- *How do contextual factors influence implementation success or failure (and how can these contextual factors be modified to increase chances of success)?*

- *What are the most effective techniques to de-implement practices that are no longer effective or were never effective in the first place?*

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Implementation science research methods

- Circumstances and needs of healthcare system before change
  - Needs assessment
  - Literature review

- Processes of changing the healthcare system with a new intervention or care pathway
  - Focus groups
  - Surveys
  - Interviews
  - Chart reviews
  - Economic evaluation

Implementation science research methods

- Outcomes of the change in the healthcare system from the new intervention or care pathway
  - Focus groups
  - Surveys
  - Interviews
  - Chart reviews
  - Economic evaluation
  - Policy changes
  - Changes in care guidelines
  - Increase in media on the new intervention or care pathway

Theories in implementation science
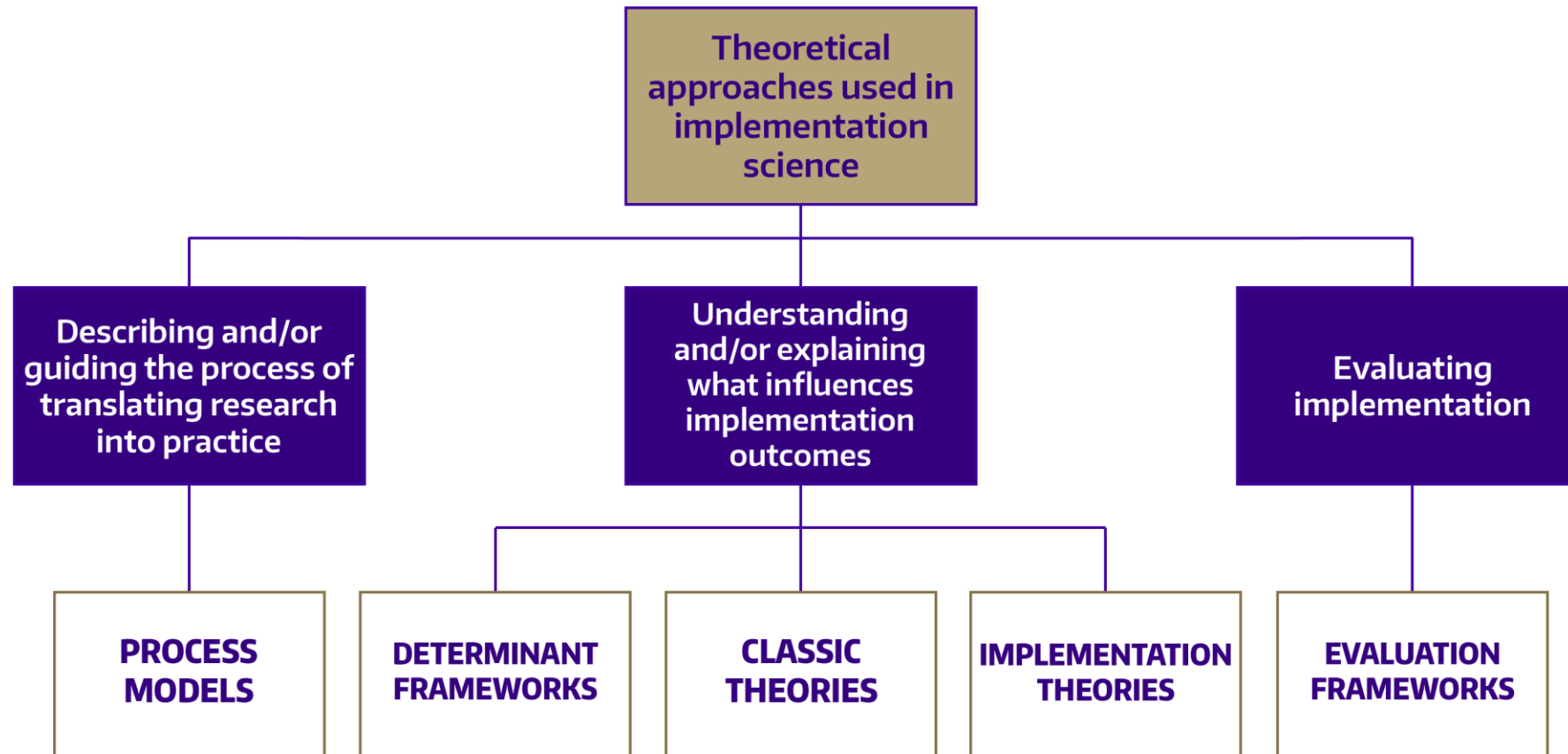
Adapted from:
Nilsen P. Making sense of implementation theories, models and frameworks. *Implement Sci.* 2015;10(1):1-13.

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Through your research, what would you like to learn? Why? How?

- Impact of implementing the intervention?
  - Evaluating and studying how implementation of an intervention has made a difference
    - Perhaps best suited for interventions that have both an extensive evidence base *and* have been implemented in the "wild" in the past

- Process of implementing the intervention?
  - Translation of evidence to practice through guided steps
    - Perhaps best suited for interventions with a more extensive evidence-base
    - Perhaps best suited for interventions that have not been implemented in real-world setting

- Factors influencing the implementation of the intervention?
  - Understanding and explaining the factors that shape implementation, including organizational, social, economic, inter-personal, and cultural factors
    - Perhaps best suited for research and evaluation aims, as the focus is on gathering information that could shape and improve future implementation

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NIC Nederlands Implementatie Collectief

Trimbos instituut
CENTRUM VOOR IMPLEMENTATIE

In very very broad strokes...

- Evaluation models
  - Have available measures and recommendations on how to evaluate
- Process models
  - Have guidance that can be used to develop a step-wise implementation plan
- Explanatory factors models
  - Have comprehensive lists of factors that can influence implementation

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Considering an implementation model

- *the purpose of the framework (describing/guiding the implementation process, analyzing what influences outcomes [barriers and facilitators], or evaluating the implementation effort);*

- *the level(s) included within the framework (e.g., provider, organization, system);*

- *the degree of inclusion and depth of analysis or operationalization of implementation concepts (process, determinants [barriers and facilitators], strategies, evaluation);*

- *the framework's orientation, which includes the setting and type of intervention (i.e., EBP generally, a specific intervention, a guideline, a public health program being implemented) for which the framework was originally designed*

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Theory and practice

- The framework that you select depends on the goal of your research
  - What is the aim of your research?
    - Long term *and* short term
  - When is the research being conducted?
    - What is the complete timeline for your research project?
    - How long has the intervention that you will research been implemented?
  - What are the intended outcomes of your research project?
    - Reports, journal articles, conference presentations
    - Guidance for those implementing the intervention
  - Who will be involved?
    - In the research
    - In the intervention that you intend to study
  - What data would you need to collect?
    - What ethical review would you need?
  - What resources do you have?

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Questions? Comments? Ideas?

Three implementation frameworks

RE- AIM

RE-AIM

"The goal of RE-AIM is to encourage program planners, evaluators, readers of journal articles, funders, and policy-makers to pay more attention to essential program elements including external validity that can improve the sustainable adoption and implementation of effective, generalizable, evidence-based interventions."
RE-AIM website

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RE-AIM

Reach the target population

Effectiveness or efficacy

Adoption by target staff, settings, or institutions

Implementation consistency, costs and adaptions made during delivery

Maintenance of intervention effects in individuals and settings over time

RE-AIM website

RE-AIM tools

- RE-AIM Planning Tool

- Dissemination Planning Tool

- Checklist for Study or Intervention Planning

- Questions to Ask about RE-AIM Dimensions When Evaluating Health Promotion Programs and Policies

RE-AIM website

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Consolidated Framework for Implementation Research (CFIR)

CFIR

"The CFIR provides a menu of constructs that can be used in a range of applications – as a practical guide for systematically assessing potential barriers and facilitators in preparation for implementing an innovation, to providing theory-based constructs for developing context-specific logic models or generalizable middle-range theories." CFIR website

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CFIR constructs

- Intervention Characteristics

- Outer Setting

- Inner Setting

- Characteristics of Individuals

- Process

Each construct has several sub-constructs.

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CFIR Tools

- Evaluation design and data collection tools
  - Qualitative Data
    - Observation template
    - Interview guide
      - Can be tailored to your project
      - Can select the constructs most relevant to your desired outcome
  - Quantitative Data
    - No complete set
    - A few constructs have measures – see the CFIR website

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Practical, Robust Implementation and Sustainability Model (PRISM)

Practical, Robust Implementation and Sustainability Model (PRISM)

- PRISM explores "how the health care program or intervention interacts with the recipients to influence program adoption, implementation, maintenance, reach, and effectiveness"

- Constructs and perspectives include:
  - Intervention
    - Organizational perspective
    - Patient perspective
  - Implementation and sustainability infrastructure
  - Recipients
    - Organizational characteristics
    - Patient characteristics
  - External environment
  - RE-AIM evaluation tools and methods

Reference
Feldstein, A. C., & Glasgow, R. E. (2008). A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice. *The Joint Commission Journal on Quality and Patient Safety*, *34*(4), 228-243

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Influences on the design of PRISM

- Chronic Care Model
  - *supports the need to leverage support from the community, health system leadership, delivery system design, clinical information and clinician decision systems, and patient self-management to maximize outcomes*

- Model for Improvement
  - *focuses on evidence, context, and facilitation*

- RE-AIM framework
  - RE-AIM outcome measures and evaluation tools

Reference
Feldstein, A. C., & Glasgow, R. E. (2008). A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice. *The Joint Commission Journal on Quality and Patient Safety*, *34*(4), 228-243

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The model considers how the program or intervention design, the external environment, the implementation and sustainability infrastructure, and the recipients influence program adoption, implementation, and maintenance.
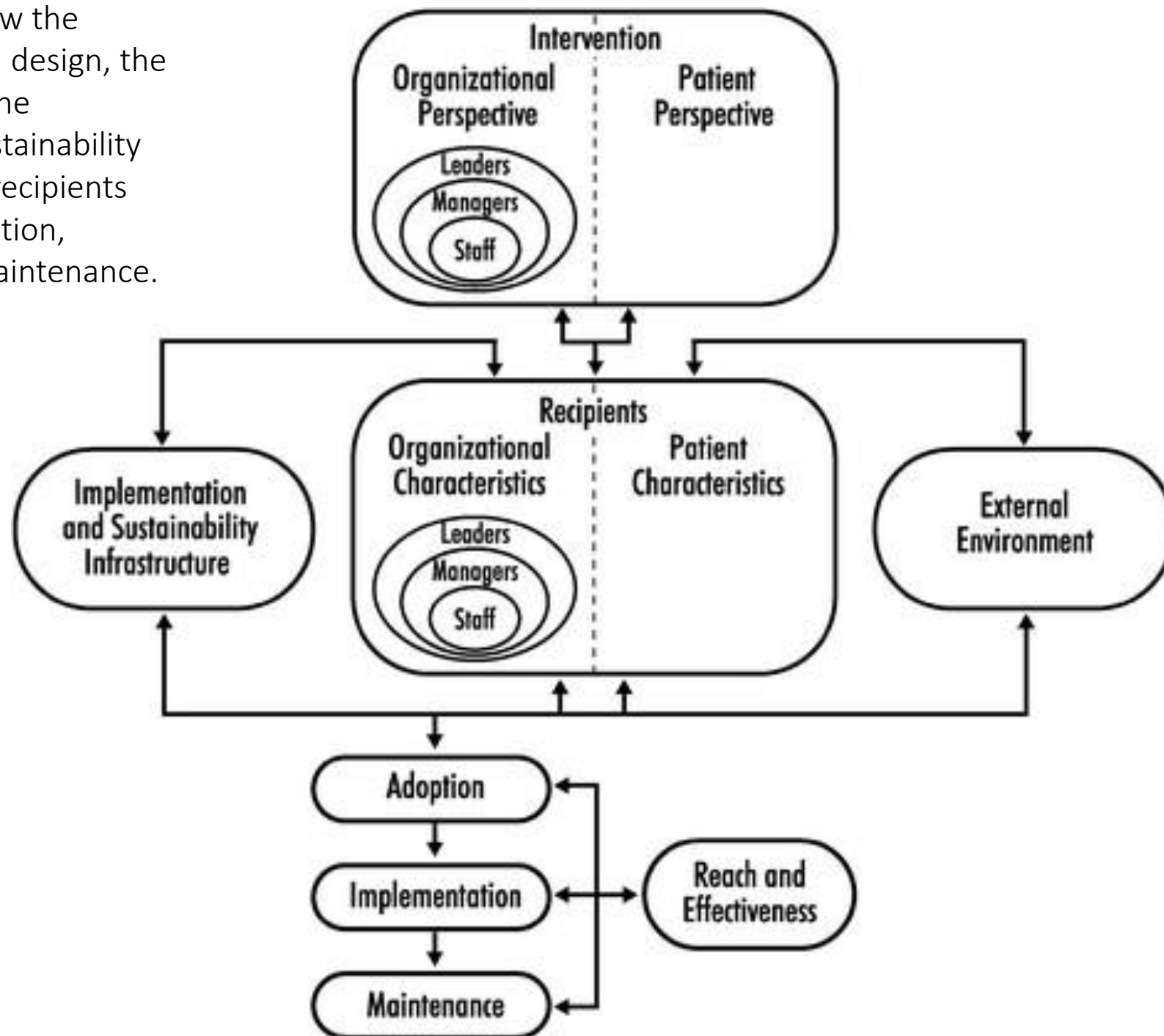
Reference
Feldstein, A. C., & Glasgow, R. E. (2008). A practical, robust implementation and sustainability model (PRISM) for integrating research findings into practice. *The Joint Commission Journal on Quality and Patient Safety*, *34*(4), 228-243

Use of PRISM

- Developing and tailoring programs, based on the organizational perspective and the patient perspective

- Supporting implementation of the program with and for the recipients while keeping external influencing factors in mind

- Evaluation, using the RE-AIM tools

- PRISM is often used as a framework for health information systems, technology programs, digital health data initiatives, monitoring systems, and data-informed decision-making

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Implementation framework selection

Compare frameworks head-to-head

http://www.dissemination-implementation.org/select.aspx

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.

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Questions? Comments? Ideas?

Questions? Email bhipplewalters@trimbos.nl