

# TRANSLATING RESEARCH INTO PRACTICE: PRAGMATIC RESEARCH APPROACHES

**Russell E. Glasgow, PhD**

**Whitney Jones Rhodes, PhD**

**Evaluation Hub, Department of Family Medicine**

**University of Colorado School of Medicine**

# CONFLICTS OF INTEREST

- No conflicts of interest to disclose
- Some ideas presented come from grants funded by the National Institutes of Health (NIH), Agency for Healthcare Research and Quality (AHRQ), and Robert Wood Johnson Foundation (RWJF).

# CHALLENGES TO TRADITIONAL OUTCOMES RESEARCH

It takes an average of **17 years** before **14% of research findings** are translated into practice.



Balas, E. *Managing clinical knowledge for health care improvement*. Yearbook of Medical Informatics. Stuttgart, Germany: Schattauer; 2000.

Green, L. W. (2006). Public health asks of systems science: to advance our evidence-based practice, can you help us get more practice-based evidence?. *American journal of public health*, 96(3), 406-409.

# CHALLENGES TO TRADITIONAL OUTCOMES RESEARCH

In many fields, RCT's remain the gold standard for clinical research.

However, RCT's have numerous limitations including:

- Not perceived as relevant or realistic
- Slow
- Complex and costly
- Lack of generalizability or replicability



## A DIFFERENT APPROACH: PRAGMATIC RESEARCH

Pragmatic trial: Real-world test in a real-world population

Explanatory trial: Specialized experiment in a specialized population

Pragmatic designs emphasize:

- Participation or reach
- Adoption by diverse settings
- Ease of Implementation
- Maintenance
- Generalizability

# THE 5 R'S TO ENHANCE PRAGMATISM AND LIKELIHOOD OF TRANSLATION

## Research that is:

- Relevant
- Rapid and Recursive
- Redefines Rigor
- Reports Resources Required
- Replicable



Peek, C. J., et al. (2014). The 5 R's: An Emerging Bold Standard for Conducting Relevant Research in a Changing World. *Annals Of Family Medicine*, 12(5), 447-455. doi:10.1370/afm.1688

deGruy, F.V., et al. (2015). A plan for useful and timely family medicine and primary care research. *Family medicine*, 47(8), 636-42.

## ENHANCING PRAGMATIC RESEARCH

*“If we want more evidence-based practice,  
we need more practice-based evidence.”*

Green, L.W. (2006). Public health asks of systems science: to advance our evidence-based practice, can you help us get more practice-based evidence?. *American journal of public health*, 96(3), 406-409.

# RELEVANCE

- Main reason practitioners do not use research: not perceived as relevant
- How to address relevance:
  - Involve stakeholders and end users from the beginning (and continuously)
  - Ultimate use perspective
  - Make sample, resources, and staff similar to those in applied settings
  - Partner with and learn from other disciplines

Peek, C. J., et al. (2014). The 5 R's: An Emerging Bold Standard for Conducting Relevant Research in a Changing World. *Annals Of Family Medicine*, 12(5), 447-455. doi:10.1370/afm.1688

deGruy, F.V., et al. (2015). A plan for useful and timely family medicine and primary care research. *Family medicine*, 47(8), 636-42.

## RAPID AND RECURSIVE

- When possible, use routinely collected clinical data from sources such as EHRs, registries, databases or research networks
- Include iterative mini-assessments and interviews to guide adjustments
- Concept of 'Adaptome' (Chambers et al, 2016)
- Use adaptive research designs
- Disseminate research findings to those who can use them

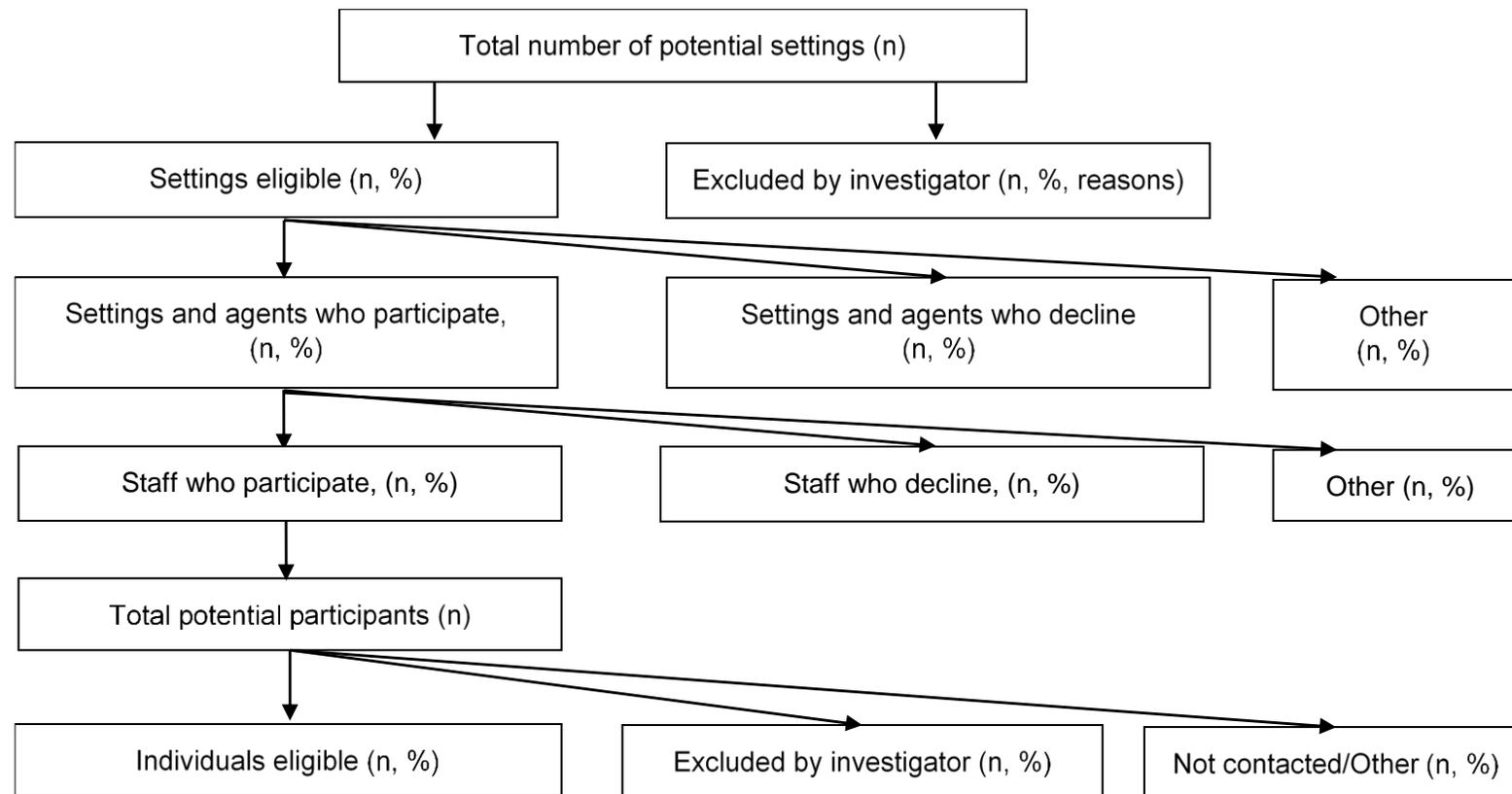
Glasgow, R. E., et al. (2014). Conducting rapid, relevant research: lessons learned from the My Own Health Report project. *American journal of preventive medicine*, 47(2), 212-219.

Chambers, D.A., et al. (2016). The Adaptome: Advancing the Science of Intervention Adaptation. *American Journal of Preventive Medicine*.

## REDEFINES RIGOR

- ***Pragmatic does not mean less rigorous!***
- To include external validity (generalizability) and representativeness
- Includes ***transparent*** reporting of recruitment of settings and participants, modifications made, nonsignificant results and unanticipated impacts
- Use of 'Extended' CONSORT diagram

# EXTENDED CONSORT DIAGRAM



## REPORTING RESOURCES REQUIRED

- Reporting on cost and other resources in a standardized manner is useful in:
  - Demonstrating *value*
  - Promoting rigor, transparency and relevance to stakeholders
- Present from perspective of stakeholders and decision makers
- Simple is fine – sophisticated economic analyses are not needed
  - Report costs of conducting or replicating interventions
  - Beyond money, costs can include clinician and staff time, training, infrastructure, startup costs, opportunity costs

## REPLICABILITY (AND GENERALIZABILITY)

- Important to report conditions under which program was delivered
  - To what extent is the program replicable:
    - In similar settings?
    - In different settings?
- Goal – what intervention do you compare it to (real world alternative)?
- PICOT – Population, Intervention, Control, Outcome, Target of the trial
- Bottom Line and Ultimate Use question: “***What program/policy components*** are most effective for producing ***what outcomes*** for ***which populations/recipients*** when implemented by ***what type of persons*** under ***what conditions***, with ***how many resources*** and ***how/why*** do these results come about?”

# ACHIEVING THE 5 R'S: RE-AIM FRAMEWORK

## WWW.RE-AIM.ORG

### Focus on enhancing:

- Reach – Participation rates and representativeness
- Effectiveness – Breadth (quality of life), including negative or unintended effects
- Adoption - Setting and staff participation
- Implementation – Consistency and adaptation of the program
- Maintenance – Extent to which effects of program are maintained

Gaglio B, et al. The RE-AIM Framework: A Systematic Review of Use over Time. (2013). [Am J Public Health Jun; 103\(6\):e38-46.](#)

Kessler RS, et al.. (2012) What Does It Mean to “Employ” the RE-AIM Model? [Eval Health Prof Mar; 36\(1\):44-66.](#)

# WHY IS THIS IMPORTANT?

## IMPACT LOSS AT EACH RE-AIM STEP

### Example of Translation of Interventions into Practice

Dissemination Step	Concept	% Impact
50% of clinics use intervention	Adoption	50.0%
50% of clinicians/staff take part	Adoption	25.0%
50% of patients identified accept	Reach	12.5%
50% follow regimen correctly	Implementation	6.2%
50% benefit from the intervention	Effectiveness	3.2%
50% continue to benefit after 6 months	Maintenance	1.6%

# PRAGMATIC RESEARCH

- What is it?
- Planning tools
- Large recent investment by NIH and PCORI
  - NIH: Pragmatic Trials
    - URL: <http://commonfund.nih.gov/hcscollaboratory/>
  - PCORI: several large pragmatic trials announcements up to \$10 million
    - URL: <http://www.pcori.org/funding-opportunities/announcement/pragmatic-clinical-studies-Cycle-2-2016>

# THE PRAGMATIC-EXPLANATORY CONTINUUM INDICATOR SUMMARY (PRECIS) PLANNING TOOL

- How pragmatic is your study?
- Tool to help in planning and reporting.

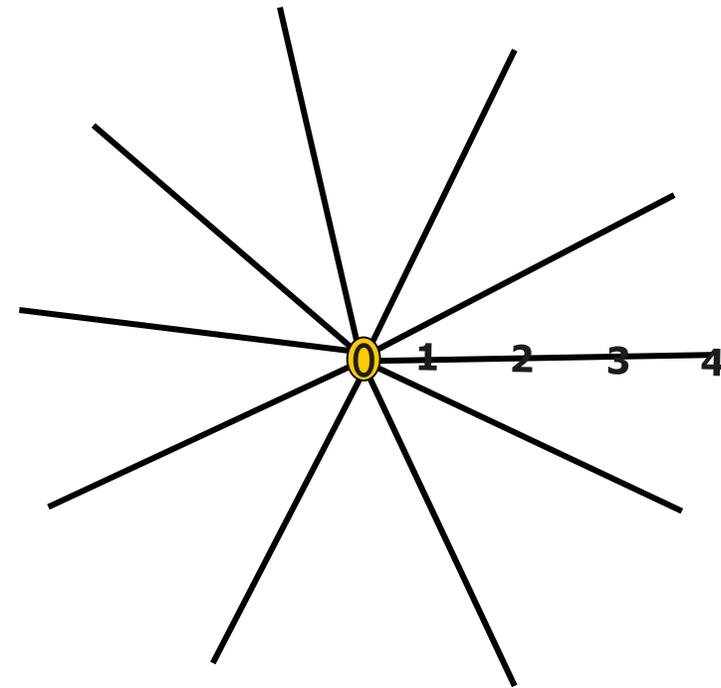
Gaglio, B., et al. (2014). How pragmatic is it? Lessons learned using PRECIS and RE-AIM for determining pragmatic characteristics of research. *Implementation Science*, 9(1), 1.

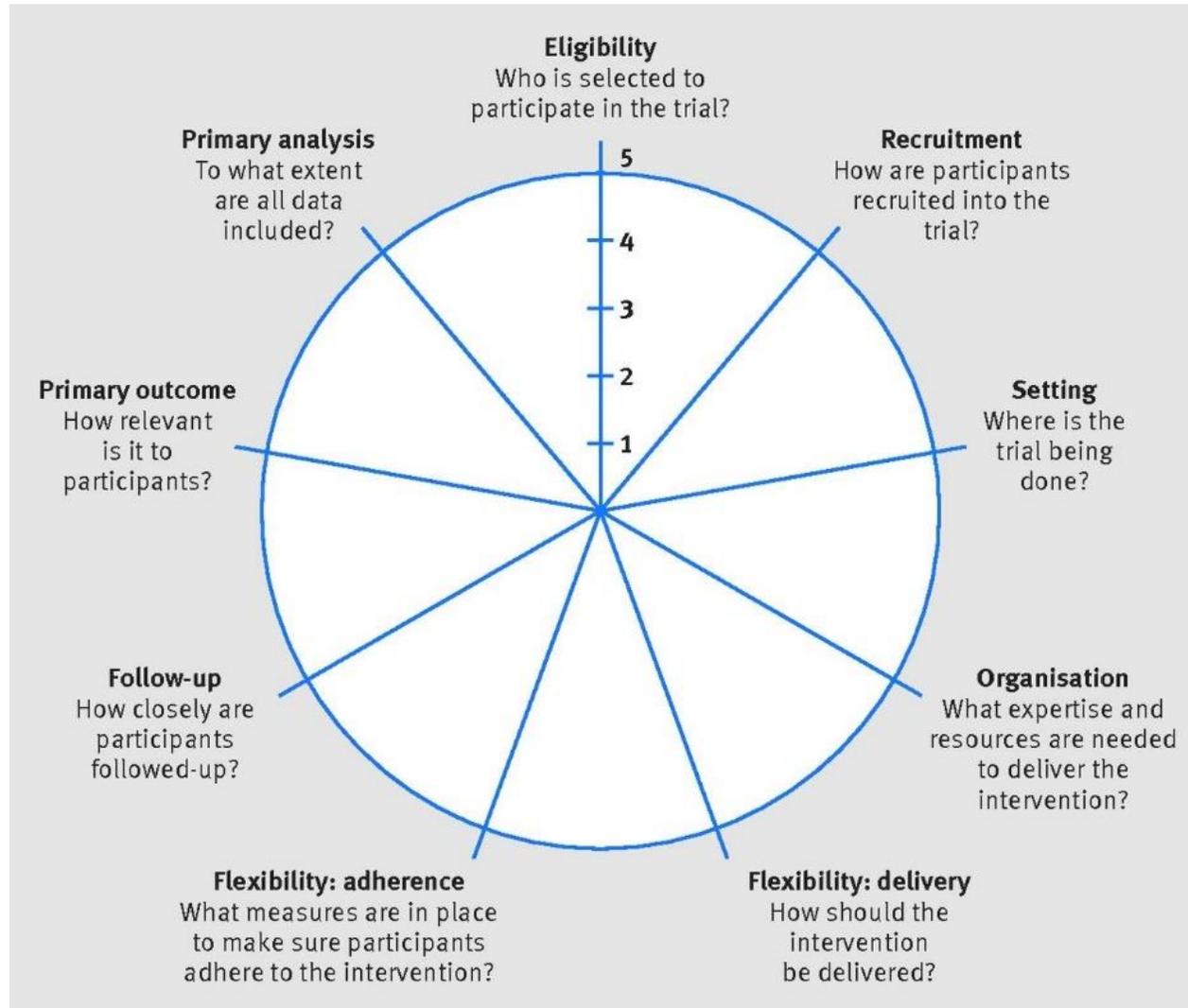
Thorpe KE, et al. A pragmatic-explanatory continuum indicator summary (PRECIS)...*CMAJ* 2009;180(10):E47-E57.

# THE PRAGMATIC-EXPLANATORY CONTINUUM INDICATOR SUMMARY (PRECIS): HOW PRAGMATIC IS YOUR STUDY?

**10 domains plotted on a “spoke-and-wheel” diagram:**

1. Eligibility criteria
2. Intervention flexibility
3. Practitioner expertise (experimental)
4. Comparison intervention
5. Practitioner expertise (comparison)
6. Follow-up intensity
7. Primary outcome
8. Participant compliance
9. Practitioner adherence
10. Primary analyses





Loudon, K., et al. "The PRECIS-2 tool: designing trials that are fit for purpose." *BMJ* 2015: h2147.

## SUMMARY: THE 5 R'S TO INCREASE USEFULNESS

- Need for an expanded focus to produce:
  - More relevant results
  - More pragmatic research
    - Does not mean less rigorous!
    - From stakeholder/ decision maker perspective
    - Specifies conditions of study to aid replication and judgment of applicability

RELEVANT – RAPID – RIGOR – RESOURCES – REPLICABLE

Peek, C. J., et al. (2014). The 5 R's: An Emerging Bold Standard for Conducting Relevant Research in a Changing World. *Annals Of Family Medicine*, 12(5), 447-455. doi:10.1370/afm.1688

deGruy, F.V., et al. (2015). A plan for useful and timely family medicine and primary care research. *Family medicine*, 47(8), 636-42.

QUESTIONS?



## MORE INFORMATION

- [Re-aim.org](http://Re-aim.org)
- <https://www.precis-2.org/>
- Brownson, R. C., Colditz, G.A., & Proctor, E. K. (2012). *Dissemination and implementation research in health: translating science to practice*. Oxford University Press.
- [Betterevaluation.org](http://Betterevaluation.org)