

EVALUATING HEALTH PROGRAMS: RE-AIM

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OVERVIEW

Why is it hard to evaluate diabetes programs?

Ways to go about evaluating programs:

- **“Act like a journalist”**
- **RE-AIM model for research translation**
- **Practical research studies**

Summary and Questions

WHY IS IT HARD TO EVALUATE DIABETES PROGRAMS?

- **Complex condition;
multiple outcomes**
- **Complex treatment**
- **Diverse stakeholders**
- **Individualized
treatment**
- **Context is important**

RECONCILING DIVERSE PERSPECTIVES— FINDING COMMON GROUND AMONG:

- **Researchers**
- **Clinicians and Educators**
- **Policy Makers and Administrators**
- **Patients**

JOURNALIST QUESTIONS: **WHO COMES** —and does not

At following levels:

Setting: Which clinics, hospitals

Staff: Which staff members participate?

Patients: Which patients participate?

JOURNALIST QUESTIONS: **WHAT Outcomes are Produced?**

How much change on key measures?

What is impact on quality of life?

Were any negative impacts produced?

JOURNALIST QUESTIONS:
WHERE AND FOR WHOM
will this program work?

What types of settings and staff are most successful?

What patient characteristics are associated with success (moderators)?

JOURNALIST QUESTIONS:
WHY were these results found?

How did change come about (mediators)?

What contextual factors were important?

JOURNALIST QUESTIONS: **HOW CONSISTENTLY** was program delivered?

- Across various program components (essential elements)?
- Across different staff?
- Over time (did program change)?

JOURNALIST QUESTIONS: **HOW Long Lasting** are effects?

- What was the drop-out rate—at setting, staff, and patient level; and how did this influence results?
- How long were improvements maintained?
- Was the program institutionalized, modified, or discontinued?








"My question is: Are we making an impact?"

WHY IS DIABETES CHALLENGING?

"The law of halves" ... a story

RE-AIM TO HELP PLAN, EVALUATE, AND REPORT STUDIES

| | | | |
|-----------------|---|----------|------------------------|
| <i>R</i> |  | Increase | <u>R</u> each |
| <i>E</i> |  | Increase | <u>E</u> ffectiveness |
| <i>A</i> |  | Increase | <u>A</u> doption |
| <i>I</i> |  | Increase | <u>I</u> mplementation |
| <i>M</i> |  | Increase | <u>M</u> aintenance |

RE-AIM ELEMENTS: REACH

Definition: The number, percent of target audience, and representativeness of those who participate.

Example: 65% of patients invited to group medical visit attended initial session; those declining more likely to be Latino.

Key Issues: Does program reach those at highest risk? Are different promotional approaches or visit options required?

RE-AIM ELEMENTS: *EFFECTIVENESS*

Definition: Change in temporally appropriate outcomes, and impact on quality of life and any adverse outcomes.

Example: Telephone case management program decreased A_{1C} by 20%; with no adverse effects on quality of life or cancer screening rates.

Key Issues: Logic model helps to clarify anticipated effects; quality of life provides common metric across conditions and interventions; anticipate unintended consequences; impact on health disparities.

RE-**AIM** ELEMENTS: **ADOPTION**

Definition: Number, percent and representativeness of settings and clinicians who participate.

Example: Six months after CME introduction, 60% of primary care physicians have used self-management goal setting tool—but only 30% of specialty care providers.

Key Issues: Need to focus on “denominator” and barriers among non-users. Do initial adoptees include peer opinion leaders?

RE-AIM ELEMENTS: *IMPLEMENTATION*

Definition: Extent to which a program or policy is delivered consistently, and the time and costs of the program.

Example: Patients receiving post-visit follow-up calls 65% of the time; takes an average 3 minutes of time, but not all staff are calling consistently.

Key Issues: Consistency across staff, program components, and time. Balance between fidelity and local customization.

RE-AIM ELEMENTS: **MAINTENANCE**

Definition:

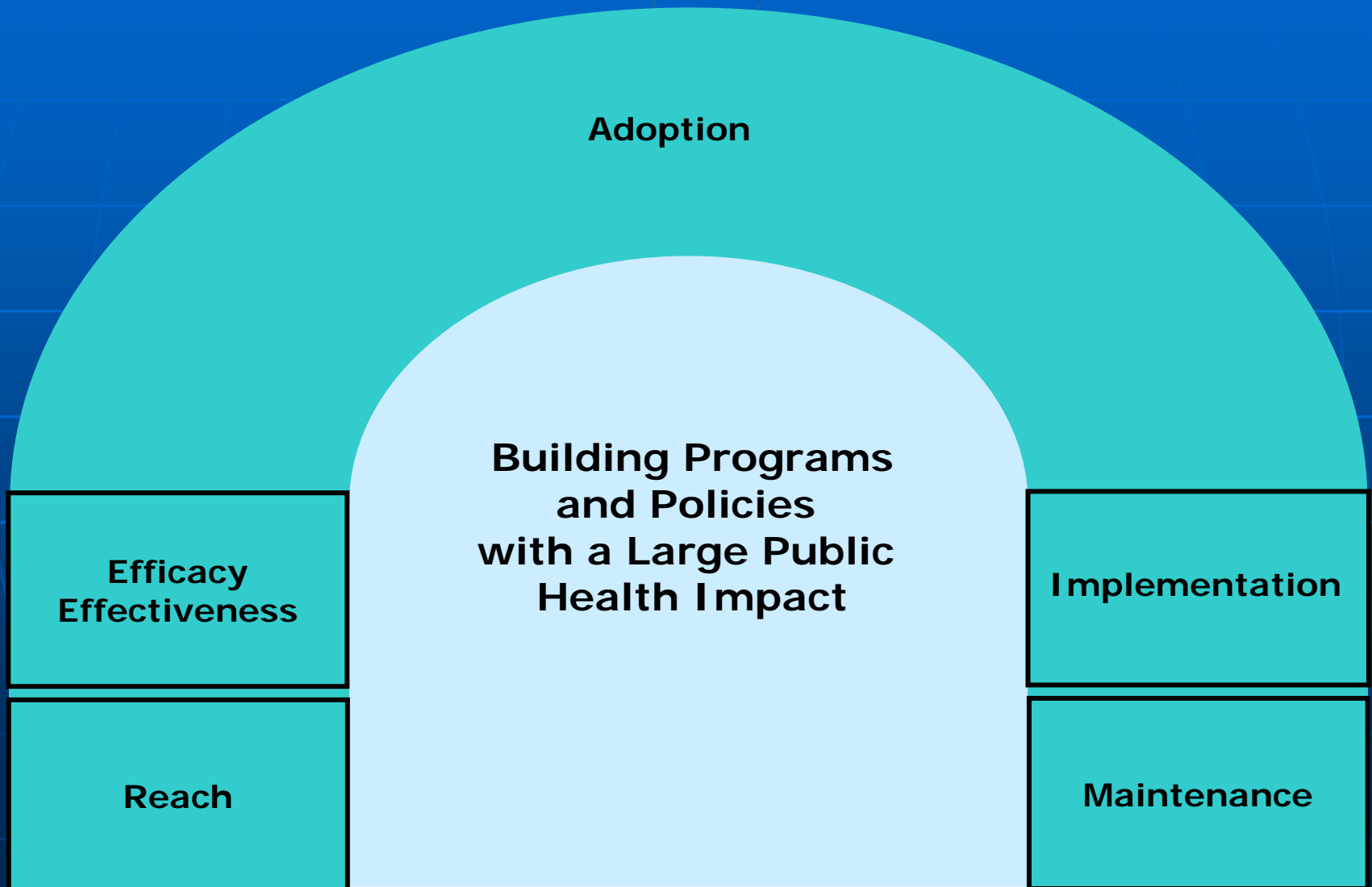
Individual/member target: Long-term effects and attrition.

Setting/clinician: Extent of discontinuation, modification, or sustainability of program.

Example: At one-year follow-up, was 58% attrition from Internet weight loss program; those present maintained weight loss. Only 40% of clinicians initially referring continued to do so.

Key Issues: Does attrition bias results? Qualitative approaches to understanding program adaptation.

RE-AIM BUILDING BLOCKS THAT TOGETHER PRODUCE PUBLIC HEALTH IMPACT



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

Larry W. Green, 2004

Green LW & Ottosen JM. From efficacy to effectiveness...Proceedings from NIDDK Conference: *From Clinical Trials to Community*, 2004

WE NEED MORE STUDIES THAT INTEGRATE RESEARCH INTO PRACTICE

Key Elements of “Practical Clinical Trials”

- Representative Patients**
- Multiple Settings**
- Controls address “standard of care”;
other alternatives**
- Outcomes or measures relevant to
clinicians and decision makers**

PROPOSED TRANSLATIONAL RESEARCH MEASUREMENT PACKAGE

- 1) Contextual factors
- 2) Implementation
- 3) Generalization (*Reach, Adoption, Maintenance*)
.....
- 4) Behavior change (multiple levels?)
- 5) Economic outcomes
- 6) Quality of life

BEHAVIOR CHANGE MEASURES

- Brief, practical measures*
- Often triangulate when no “gold standard”
- Focus on sensitivity to change
- Measures of patient, staff, change agents (e.g., family), system and policy changes

ECONOMIC OUTCOMES

Use Standardized Methods

- Assess cost of intervention delivered*
- Estimate replication costs* *
- Optional, more sophisticated analyses of cost-effectiveness, cost-utility, cost-benefit, return on investment
- "Costs are not costs are not costs"

* Gold, et al. *Cost-effectiveness in health and medicine*. New York: Oxford Univ. Press, 2003

** Meenan, et al. *Med Care* 1998;36:670-678

Ritzwoller, et al. *Economic Analysis of the Mediterranean Lifestyle Program...*
Diabetes Educator 2006;32(5):761-769

IN DESIGNING FOR PRACTICAL TRIALS, be:

- Practical in intervention delivery
- Broad in what you measure
- Transparent (TREND*) in reporting
- Summarize results in terms understandable to clinicians (NNT) and policy makers

FUTURE DIRECTIONS FOR APPLIED PRACTICAL RESEARCH AND PROGRAMS— USING RE-AIM

- Assesses context and representativeness
- Includes multiple dimensions
- Addresses both individual participant and setting levels
- Includes quality of life and adverse consequences impacts
- Addresses feasibility issues critical for dissemination, including cost
- Includes impact of health disparities

The “3 Rs” of Integrating Research into Practice

Representativeness (Reach, Adoption)

Robustness (Effectiveness across subgroups—especially re: disparities)

Cronbach’s generalization across persons, time, measures

Replicability (Implementation) in representative settings

Cronbach LH, et al. *The dependability of behavioral measurements: Theory of generalizability for scores and profiles*. New York, John Wiley & Sons, 1972

Shadish WR, et al. *Experimental and quasi-experimental design for generalized causal inference*. Boston: Houghton Mifflin, 2002

CHALLENGES AND CONCLUSIONS

- The future is multiple (conditions, behaviors, interactive modalities)
- The future is complex (and we ignore complexity at our peril)
- “All models (and designs) are wrong”* – and greater tolerance, respect, and creativity is needed
- We need to UN-learn much of what we have been taught to answer the tough questions

A MIXED SUCCESS STORY...

