LESSONS LEARNED IN DIABETES SELF-MANAGEMENT RESEARCH

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Overview

- RE-AIM Model
- Diabetes Research Illustrating Application of RE-AIM
  - Early basic and efficacy studies
  - Recent and ongoing effectiveness research
- Summary and Implications
Purposes of RE-AIM

- To broaden the criteria used to evaluate health promotion programs to include external validity
- To evaluate issues relevant to program adoption and implementation
- To help close the gap between research studies and practice by
  - Informing design of interventions
  - Providing guides for adoptees
<table>
<thead>
<tr>
<th>RE-AIM Evaluation Dimension</th>
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<tbody>
<tr>
<td>% <strong>Reach</strong> (what proportion of the panel of patients will receive or be willing and able to participate in this intervention)</td>
</tr>
<tr>
<td>X  % <strong>Efficacy/Effectiveness</strong> (results if implemented as intended; defined as positive outcomes minus negative outcomes)</td>
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<tr>
<td>X  % <strong>Adoption</strong> (how many settings, practices, and plans will adopt this intervention?)</td>
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<tr>
<td>X  % <strong>Implementation</strong> (to what extent is the intervention implemented as intended in the real world?)</td>
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<tr>
<td>X  % <strong>Maintenance</strong> (extent to which a program is sustained over time)</td>
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<tr>
<td>= Public Health Impact (population-based effect)</td>
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</table>
Increasing Regimen Adherence

Russ Glasgow, Matthew Riddle (1984-1987)

SCOPE:
First intervention study: targeting key social learning variables. Traditional group sessions.

Funded by NIDDK Grant #35524
More Elaborate Conceptual Model

- Social Environment
- Patient Characteristics
- Medical Condition
- Patient-Health Care Team Interactions
- Health Care Setting Characteristics
- Self-Management Behaviors
- Physiologic Outcomes
- Functioning and Quality of Life
Contributions and Lessons Learned

- Significant improvement in randomized trial vs no-treatment / usual care in nutrition and weight
- Link between behavior and physiologic outcomes not real strong

Importance of Tailoring

“Do not do unto others as you would have them do unto you.” G.B. Shaw
RE-AIM Conclusions

REACH: Unknown (minimal)

EFFICACY: Moderate for narrow range of targeted outcomes (depends on control / comparison condition)

ADOPTION: Unknown / Ignored

IMPLEMENTATION: Good…but by 100% research funded staff

MAINTENANCE: OK at short-term follow-up / NA at setting level
“60 – Something”

Enhancing REACH

Russ Glasgow, Pete Lewinsonh, Matthew Riddle

SCOPE

- Older adults with diabetes were ignored;
- Assumed could not learn new tricks.
- Applied SCT to older adults in small RCT;
  8 group sessions

Funded by NIDDK Grant #35524
60-Something Percent Calories from Fat (n=48 and 49/condition)
60-Something
Weight (n=48 and 49/condition)

![Graph showing weight changes over time for Delayed Tx and Immediate Tx conditions.](image-url)
Contributions and Lessons Learned

- Barriers-based, tailored problem solving worked for older adults also!
- Group support and problem solving were important processes

“If you build it, they will not necessarily come.”

Brief Medical Office-based Intervention

Russ Glasgow, Sarah Hampson, John Noell

SCOPE
Trying to reach those who would not otherwise attend during primary care visit and condense multiple-session program into 20 minutes

Funded by NIDDK Grant #35524
Purpose and Intervention

- Evaluation in an RCT, the *REACH* and *EFFECTIVENESS* of a brief intervention guided by a patient-computer intervention
- Intervention began with 15-minute interaction with multi-media touchscreen computer program
- Focus on goal setting, identification of barriers, tailored problem-solving (with educator) and follow-up support
Identification of Personal Barriers and Supports

Development of Personalized Strategies and Problem-Solving

Assessment of Self-Management Beliefs, Behavior & Knowledge

Personal Action Plan
1. Lists Specific Goals in behavioral terms
2. Lists likely barriers and plans to overcome them
3. Lists follow-up plan
4. Shared with all members of health care team

Collaborative Goal Setting

Identification of Personal Barriers and Supports
Baseline and 12-month Follow-up Levels of Percent of Calories from Fat by Condition

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>12-Mo FU</th>
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<tbody>
<tr>
<td><strong>Usual Care</strong></td>
<td>32.9</td>
<td>32.0</td>
</tr>
<tr>
<td><strong>Intervention</strong></td>
<td>33.8</td>
<td>30.5</td>
</tr>
</tbody>
</table>
Pretest to Follow-up Changes in Serum Cholesterol

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>12-Mo FU</th>
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</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>216.8</td>
<td>207.8</td>
</tr>
<tr>
<td>Usual Care</td>
<td>222.9</td>
<td>226.2</td>
</tr>
</tbody>
</table>

mg/dl of serum cholesterol
Results

- **REACH:** 62% participation in primary care
- **EFFICACY:** Improvements vs assessment control in behavior and cholesterol--not A_1C
- **ADOPTION:** Unknown: only 2-3 physicians in one office
- **IMPLEMENTATION:** High, but a) physician asked only to give motivational statement and b) research staff
- **MAINTENANCE:** Individual level--good out to 12 months. Setting level--kept computer; dropped phone calls

Contributions and Lessons Learned

- Interactive technology appealed to patients
- Feasible to combine with Usual Care
- Power of feedback
- Demonstrated cost-effectiveness for behavioral and cholesterol outcomes
“It’s not the patient’s fault; it’s not the doctor’s fault; it may be the system.”
“Choosing Well”
Health Plan-based Self-management

Russ Glasgow, Deborah Toobert, Sarah Hampson, Garth McKay (1996–2000)

SCOPE
Extending and replicating Offbase with larger sample and many practices; testing components

Funded by NIDDK grant #35524
Goal

To enhance **ADOPTION**, evaluate **GENERALIZATION**, and **IMPLEMENTATION** across diverse clinics and counselors
“Choosing Well” Design
Randomized Trial (n = 320)

- Basic Condition = Computer-assisted goal setting and follow-up
- Telephone Follow-up = 8 calls
- Community Resources = Guidebook and 8 newsletters
Results

- **REACH:** 76% participation; representative
- **EFFECTIVENESS:** Overall significant improvement in dietary behavior, $A_1C$ and cholesterol, QOL; few between condition differences
- **ADOPTION:** High—40 of 42 physicians approached and 13 of 13 offices
- **IMPLEMENTATION:** Over 90% of components delivered consistently by each of 4 interventionists
- **MAINTENANCE:** At individual level, good at 12 months
Contributions and Lessons Learned

- Importance of collaborative goal setting and follow-up
- Refining intervention technology (CD-ROM) and patient choices
- High REACH, ADOPTION, IMPLEMENTATION, across different interventionists

Glasgow R, Toobert D. Medical Care, 2000;38:1062
“More is not necessarily better.”
Chronic Illness Support


SCOPE
Development instrument for multi-level assessment of social support and community resources; applicable across different chronic illnesses

Funded by grant from Robert Wood Johnson Foundation
Broadening the Scope

PURPOSE:

1. Apply a “Pyramid Model” of social-environmental resources to increase *REACH* and *MAINTENANCE*

2. Apply to multiple chronic illnesses and multiple lifestyle behavioral risk factors

Chronic Illness Resources Survey
Sample Question

Over the past 3 months, to what extent:

Has your doctor or other health advisor provided support between visits such as phone calls, reminder letters or newsletters?

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<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A moderate amount</td>
<td></td>
<td>A great deal</td>
<td></td>
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</table>
Results and Lessons Learned

- “CIRS” scale prospectively predicts self-management better than more narrow support scales.
- Can (hopefully) be used to tailor support interventions across chronic conditions.
“Real men don’t use no support (but will check out resources).”
Maintenance: CIRS-based Intervention

- Study conducted in community health center in metro Denver
- Low-income patients had one or more chronic illness (M = 3.6)
- Small randomized pilot study (n=28) in which patients set goal (e.g., increasing exercise, reducing fat intake)
Maintenance: CIRS-based Intervention

- Intervention = 1 face-to-face meeting around CIRS to develop tailored resources plan
  - One follow-up phone call on implementation
  - Two newsletters
## Change Scores in CIRS Intervention (mean and s.d.)

<table>
<thead>
<tr>
<th>Measure</th>
<th>1-Month Follow-up</th>
<th>3-Month Follow-up</th>
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<tbody>
<tr>
<td>Community Involvement (n=21) (CIRS average score)</td>
<td></td>
<td></td>
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<tr>
<td>- Immediate Tx</td>
<td>0.14 (.18)^a</td>
<td>0.30 (.13)^a</td>
</tr>
<tr>
<td>- Delayed Tx</td>
<td>-0.06 (.11)^b</td>
<td>0.01 (.18)^b</td>
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<tr>
<td>Minutes / week Physical Activity (n=13)</td>
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<td></td>
</tr>
<tr>
<td>- Immediate Tx</td>
<td>198 (18)^a</td>
<td>191 (12)^a</td>
</tr>
<tr>
<td>- Delayed Tx</td>
<td>26 (23)^b</td>
<td>34 (40)^b</td>
</tr>
</tbody>
</table>

Different letters indicate significance between condition differences on ANCOVA, covarying out baseline scores and gender.
Results and Conclusions

- **REACH** = 46% participation
- Brief intervention significantly increased use of resources (CIRS) and physical activity levels compared to control
- Improvements maintained from 1- to 3-month short-term follow-up
- Next steps: Replicate in multiple settings for other target behavior outcomes

Riley, et al, *J Health Psychol*, accepted for publication
Other Lessons Learned

1) First understand your patients “Personal Illness Model,” (Hampson, et al) and relate self-management to those beliefs and values

2) Self-management (“adherence”) is not a personality trait—it varies across regimen areas and over time

3) Self-management does not change the patient so much as help them address barriers and change their environment

Hampson, S., Glasgow, R.E., Brit J Health Psychol, 2000, 5:27-40
Other Lessons Learned (cont.)

4) Self-management needs to be integrated with other care activities

5) Follow-up support is critical: Diabetes education is not a one-time inoculation
**Current and Future Directions**

Focus on Translation and Dissemination by:

- **Integrating** self-management into Improving Chronic Illness Care Breakthrough collaboratives (Wagner, et al)

- **Adoption:** Diabetes Priority Program (Dr. Paul Nutting), to help practices and patients improve care

- **New media / distance learning:** DNET Internet-based program (Dr. Garth McKay and colleagues, Oregon Research Institute)

Recommendations

- Appears to be an inverse relationship between **REACH** and **EFFICACY / EFFECTIVENESS**. Need study of relations among other RE-AIM dimensions.

- Most intervention modalities have both strengths and limitations on RE-AIM criteria. Need greater graphical displays.

Recommendations (cont.)

- Need greater study of “AIM” (ADOPTION, IMPLEMENTATION, MAINTENANCE)
  - Conceptual model behind intervention
  - Intervention structure and intensity
  - Adaptability
  - Marketing and packaging
  - Economic factors
  - Fit between interventions and settings
Conclusions & Recommendations

To enhance self-management success:

1) Focus on increasing all RE-AIM dimensions (not just efficacy)

2) Be population-based (group education programs alone won’t do it due to limited research)

3) Be patient-centered (tailored, interactive vs. standardized didactic education)
Conclusions & Recommendations (cont.)

4) Be **Proactive** (planned outreach and follow-up)

5) Be **Partners** (with DCPs, community health centers, community organizations, etc. – not an island)
“The significant problems we face cannot be solved by the same level of thinking that created them.”

A. Einstein