Implementation Science and eHealth for Adults with Serious Mental Illness

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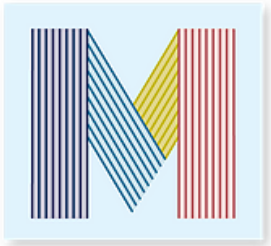

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Too often, we have assumed, “If you build it…”

eHealth Interventions and Implementation

Even if an eHealth intervention is 100% effective...
only so good as how and whether:

- Provider organization adopts and supports it
- Clinical providers choose to provide/prescribe it
- End-users are trained to use it and engage with it
- Eligible populations most in need receive it
- Use is sustained in use over time

If we assume 50% threshold for each step…
(even with perfect access/adherence/dosage/maintenance)

Impact: .5x.5x.5x .5 x .5 = 3% benefit

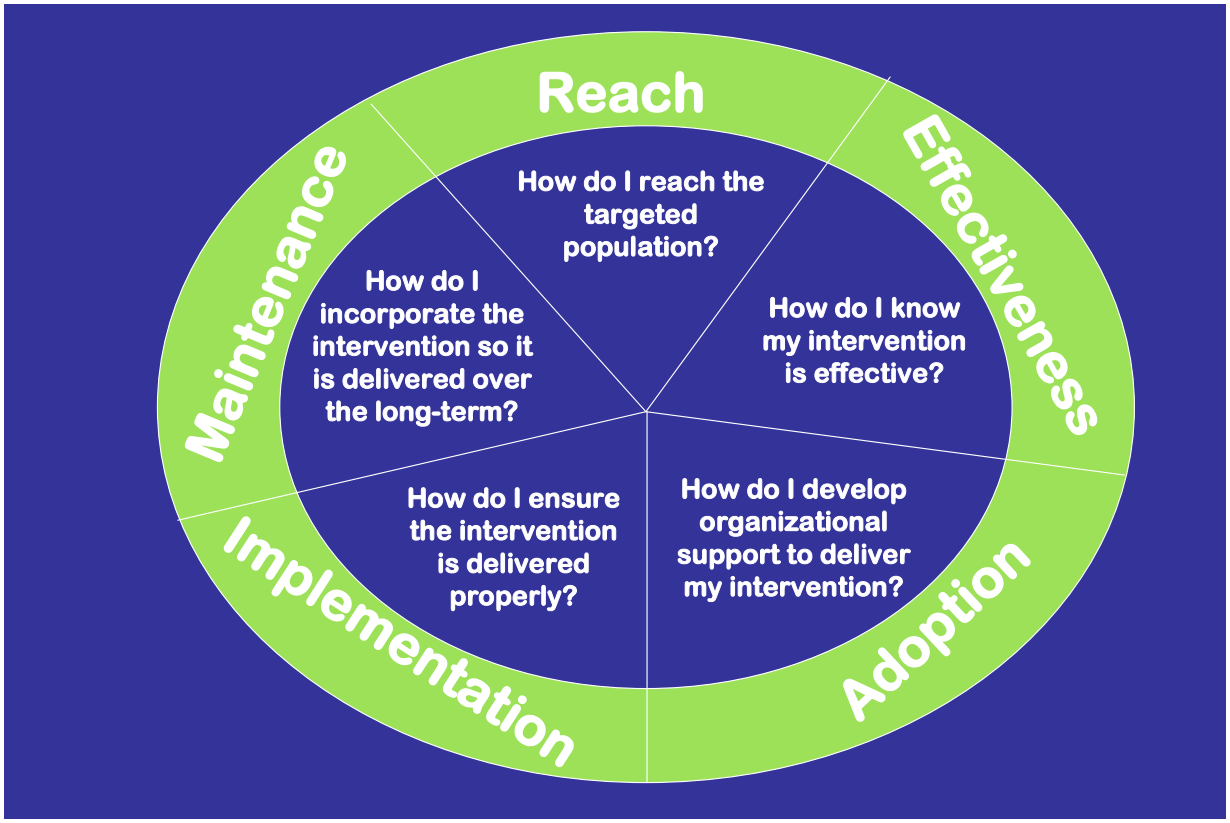
www.Re-aim.org

Adapted from Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *Am J Public Health.* 1999;89(9):1322.

Beyond Effectiveness in Research Settings
Key Implementation Outcomes

- **Adoption/Uptake**: By organizations, providers, end-users
- **Implementation**: Integration into workflow, end-user engagement
- **Reach**: Reaches population/individuals most in need- equity focus
- **Maintenance/Sustainment**: Continued use over time

RE-AIM



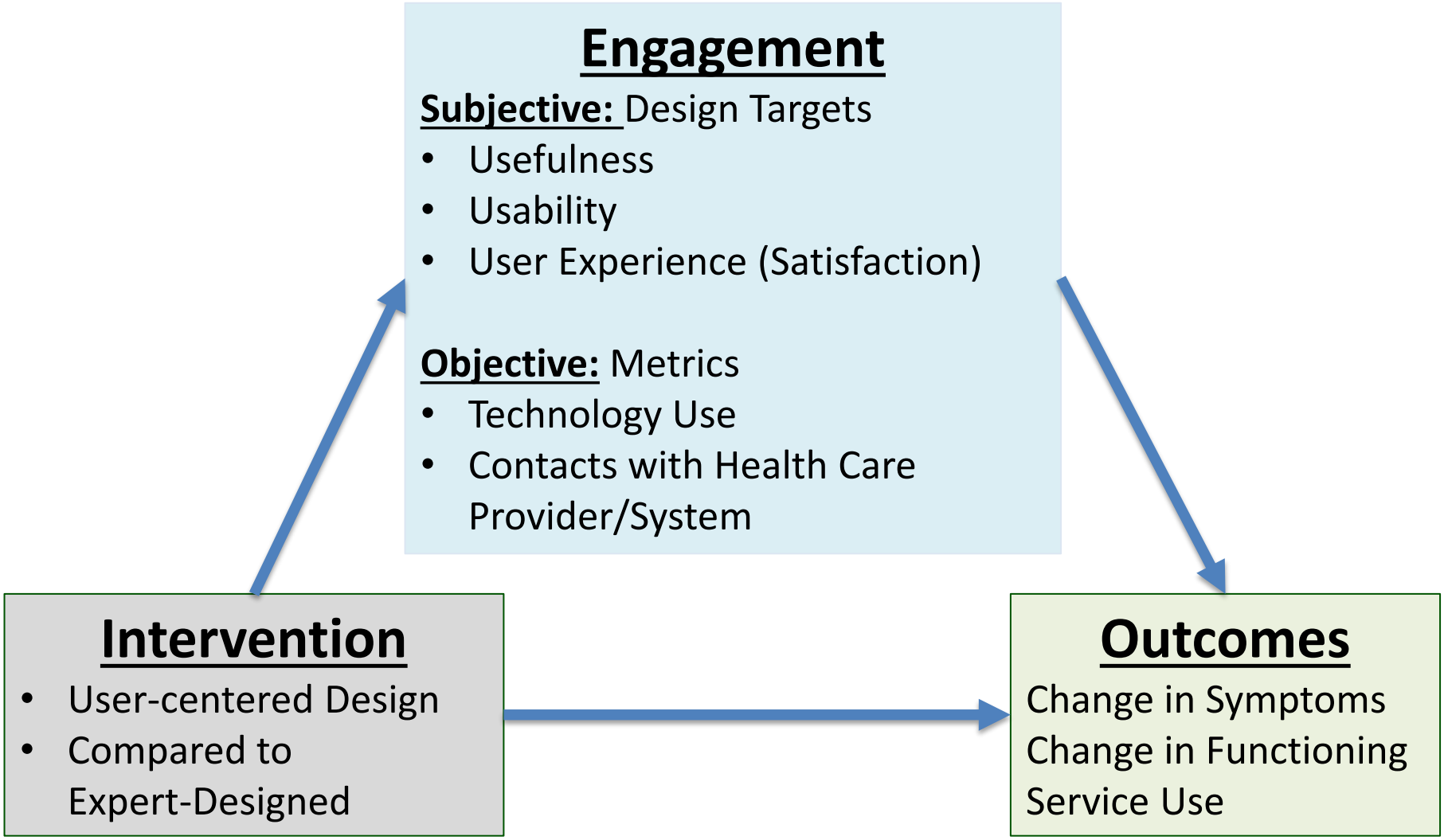
Glasgow RE et al. Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *Am J Public Health.* 1999;89(9):1322.

Adoption, Uptake, and Engagement

- When ehealth interventions are moved from research settings to real-world settings, implementation has often failed

- Low rates of uptake and use by end-users
- Poor integration into the system of care
- Lack of sustainment and retention over time

Targeting Engagement and User Experience in Digital Health Implementation (Graham)



Graham, Lattie, & Mohr, 2019, Experimental therapeutics for digital mental health, *JAMA Psychiatry*,
Graham et al., 2021, Targeting subjective engagement in experimental therapeutics for DMHIs, *Internet Interventions*

Designing for Implementation

- Integration into the flow of care: Key for clinicians in adopting, prescribing, and using digital health interventions
- Stand-alone vs. EHR integration?
  For complex conditions- integration into the electronic health record

- *"workflow considerations remain among the least explored but most needed factors toward facilitating implementation"*
  Torous et a., 2021 World Psychiatry

Graham et al. 2020, Implementation strategies for digital mental health in health care settings Am Psychol:
Graham, Lattie, & Mohr,2019, Experimental therapeutics for digital mental health, JAMA Psychiatry

REACH and Health Equity: eHealth Implementation Tailored to Reach Populations Most in Need (SMI)

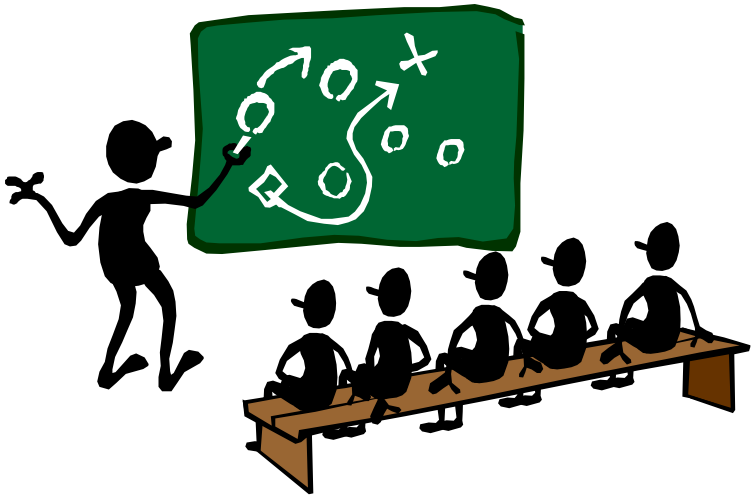
- Focus on Reach from the very beginning
- Design and select interventions for vulnerable populations with Implementation in mind
- Implement what works and strategies that reduce inequities in care
- Develop (and use) the science of adaptation
- Use and equity lens for implementation outcomes

search (2020) 20:190
https://doi.org/10.1186/s12913-020-4975-3

DEBATE Open Access

eHealth Implementation and Sustainability

- **System-level**
  - Technology and financing?
  - Fit/integration with existing programs, EHR, and service delivery?
  - Long-term evolution with change in technology and context?
- **Provider Level**
  - Workflow integration?
  - Utility, clinical value?
  - Staffing support?



- **End-user**
  - Usability ?
  - Engagement?
  - Tailored and responsive to individual needs and preferences?
- **Training/Coaching**
  - Human interaction and support- professional, CHW, peers

Digital Health Interventions for Adults with SMI

A Compounded Set of Challenges…..

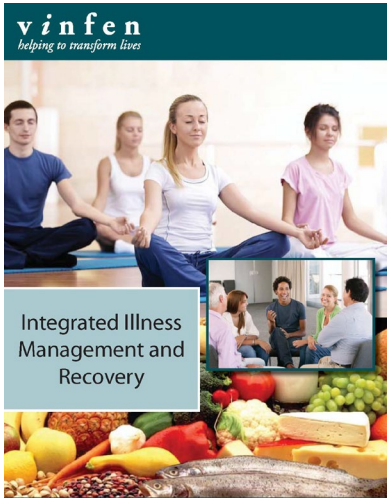
Not "If" but "How Much" and "What Type" of Human Support

Gus:

- 62 yo living in subsidized supervised housing in Boston
- Complexity: Obesity, Hypertension, CHF Diabetes, COPD, Atrial Fibrillation, Asthma, Sleep Apnea, Schizophrenia
- Hx of frequent ER/Hospital Use
- 30+ medications daily
- Gus has outlived his life expectancy of 52 years of age
- Special challenges: cognitive, information processing, attention, motivation, planning, executive function, social network self-management

Which Works Best?

Supported Automated Telehealth?
Or
Health Coaching and
Self-management Training



Study Sample: Mean Age: 49; 58% M; 42% F
Race/Ethnicity: 49% W; 35% Black; 14% Hispanic

Psychiatric: Schizophrenia: 62% Mood Disorder: 38%

Medical: Diabetes 34%; HTN 44%;
Hyperlidemia 32% Obesity 33%; COPD 9%;
Chronic Pain 23%; Tobacco Dependence 61%

NIMH Randomized Trial in Boston with Vinfen
N=300 (R01 MH104555)

Summary of High-Level Outcomes
Which Works Best? *It Depends*

- Telefriend -automated telehealth + remote monitoring with triggered human pre-emptive interventions
  - Fewer Hospitalizations, and ER visits
  - Greater self-rated general physical health
  - Challenging long-term engagement

- Integrated Illness Self-Management Skills Training
  - Greater health behavior/cardiovascular risk reduction
  - Lower depression
  - Greater longer-term engagement

Beyond Effectiveness: eHealth and Implementation

- **Adoption/Uptake**: By organizations, providers, end-users
  Strategies: Peer/user-centered design, usability, acceptability, adaptability, tailoring, fit, finance, support

- **Implementation:** Fidelity to function (rather than form)
  Strategies: human support, integration into workflow and EHR,agile, adaptive, iterative

- **Reach:** Populations/individuals most in need
  Strategies: Equity lens, adaptation, community-engaged implementation, accessibility, scalability

- **Maintenance/Sustainment**: Continued use over time
  Strategies: integration, adaptability, evolvability, value human-centered support: professional, direct care worker, peer