Advancing Research on Sustainability and Health Equity in Implementation Science

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Abstract

This Keynote will focus on opportunities within implementation science to advance research on sustainability, with explicit consideration of how to do so with a focus on promoting health equity. Sustainability has been identified as one of the most important yet challenging translational research areas we face in implementation science. This presentation will highlight: 1) conceptual, measurement, and methodological issues and recommendations in studying sustainability; 2) multilevel factors that influence the sustainability of interventions across a range of diverse public health, community, and healthcare settings and populations; 3) frameworks, tools, and resources that are useful for guiding research in this area and planning for sustainability; and 4) applied examples and key opportunities to advance research on sustainability with explicit attention to the connections between sustainability and health equity.

Learning Objectives:

1. Define sustainability and some key considerations in its conceptualization and measurement
2. Explain why sustainability is important from the perspective of key partners
3. Identify key multi-level factors that impact sustainability across diverse settings/populations
4. Discuss practical considerations for tracking and planning for sustainability
5. Describe one or more tools or frameworks to actively plan for sustainability
6. Discuss the connection between sustainability and equity

Notes

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- Shelton, R.C., Chambers D., Glasgow R. (2020). An Extension of RE-AIM to Enhance Sustainment: Addressing dynamic context and promoting health equity over time. *Frontiers Pub Health.*
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- Shelton RC, Brotzman L, Johnson D, Erwin D. (2021). Trust and mistrust in shaping adaptation and de-implementation in the context of changing screening guidelines. *Ethnicity & Disease. Special Issue on Social Determinants of Health and Implementation Research: Three Decades of Progress and a Need for Convergence.*

Key Points and Questions: Sustained delivery and impact of evidence-based interventions is a considerable challenge across range of complex real-world public heath and healthcare settings. If we are to have an equitable impact on population health, build trust, and make best use of funding and resources, it is critical that we reflect on our existing evidence base and proactively assess and plan for sustainment from the outset. Adaptations to interventions and strategies may be essential for sustainability, in response to dynamic contexts, changing population needs, and evolving scientific evidence; this may be particularly critical for settings and populations that experience numerous structural barriers to health. Engaging key partners is important for informing meaningful conceptualization and assessment of sustainability, and advancing understanding of the value and return on investment of sustainability for diverse partners and systems. Existing frameworks can help with assessment to better understand determinants of sustainability across diverse settings, and can inform the development, planning, and evaluation of sustainability strategies to address identified challenges. Pragmatic tools and resources in the field can be used to continuously and explicitly track where and when challenges to sustainability and equity arise along the implementation continuum, with the goal of actively understanding and addressing such gaps.

1. What is the value and importance of sustainability from the perspective of key partners?
2. What is the connection between sustainability and health equity and why is it important for us to prioritize both in implementation science?
3. How are the factors that matter for sustainability similar and different than those that matter for implementation? What are the specific considerations and determinants of sustainability for settings and populations experiencing structural barriers to health/healthcare?
4. How can we proactively track and plan for sustainability up front, and with an explicit focus on actively promoting health equity?

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Recommendations to guide planning, adaptation, and measurement when applying RE-AIM to facilitate sustainability with a focus on context and equity, with example hypotheses.

Recommendation 1: Extending/Reframing "Maintenance" in RE-AIM to Include Recent Multidimensional Conceptualizations of Sustainability as longer-term outcome over time.

Example: Hypothesis: *Informed by a broadened, longer-term conceptualization of sustainability, the dose and nature of implementation strategies needed to initially implement an EBI will differ from the strategies needed to sustain an EBI over time (e.g. implementation strategies focused on sustainability may relate to providing proactive planning and ongoing evaluation/monitoring to manage likely changes in the implementation setting, including turnover, EHR upgrades, treatment guideline updates, changes in patient population)*.

Recommendation 2: To Facilitate Sustainability and Equity, Planned Adaptations & Evolutions Must Be Made Across the Life Cycle of EBIs & implementation strategies to Respond to Changing Needs, Context, & Evidence, & may include De-implementation.

Example Hypothesis: Settings that maintain core functions of EBIs but include proactive, planned, iterative adaptations to intervention components and implementation strategies in response to changing context and needs will be sustained longer than those that do not, and will have greater impact on reducing health inequities.

Recommendation 3: Mixed-Methods Assessment and Feedback on RE-AIM Indicators as an Iterative Method to Guide Adaptations, in partnership with stakeholders.
Example Hypothesis: Programs that iteratively assess and address RE-AIM dimensions over time to guide their sustainability planning and adaptations will have stronger sustainability outcomes (e.g. higher levels of continued delivery of EBI; higher levels of sustained behavior change across population groups) than those that do not.

Recommendation 4: Other Sustainability Frameworks or Determinants Frameworks Can Be Integrated With RE-AIM to Understand Key Sustainability Determinants.
Example Hypothesis: Programs that explicitly address multi-level contextual determinants of sustainability will produce higher levels of sustainability and equity than those that do not.

Recommendation 5: Equity (both equitable implementation across RE-AIM dimensions and health equity) and costs/value are important and understudied cross-cutting issues across all RE-AIM dimensions that impact sustainability.

Example Hypotheses: 1) Programs that explicitly and repeatedly assess health equity and equitable implementation, and make iterative adjustments guided by RE-AIM will produce higher levels of sustainability than those only considering equity at the planning stage. 2) Programs that consider and monitor costs (and RE-AIM outcomes), 'return on investment' over time, and discuss and act on these assessments in partnership with stakeholders will produce stronger sustainable outcomes than those that do not.

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Iterative application and operationalization of RE-AIM for Sustainment, with focus on health equity and dynamic context over time

Reach	*Indicators:* Number, proportion, representativeness of individuals who participate in EBI. *Key Questions:* Who was the intended audience and who actually participated. Why or why not? How can we better reach them? *Health Equity Considerations:* Are all populations equitably reached by the EBI? Who is not reached by the EBI (in terms of a range of social dimensions) and why? How can we better reach those who are not receiving the EBI and ensure we are reaching those who experience inequities related to social dimensions/social determinants of health (SDOH)? *Sustainability Considerations:* Who continues to not be reached by the EBI at various time points over time? (Why or why not?
Effectiveness	*Indicators:* The impact of an intervention on important health behaviors or outcomes, including QOL and unintended negative consequences; consider heterogeneity of effects. *Key Questions:* Is the EBI effective? For whom? Any negative effects? *Health Equity Considerations:* Are the health impacts experienced equitable across all groups on the basis of various social dimensions- why or why not? Do certain groups experience higher levels of burdens? *Sustainability Considerations:* Does the EBI continue to be effective at various time points over time? Among whom?
Adoption	*Indicators:* The number, proportion, and representativeness of: a) settings; and b) staff/interventionists who deliver the program, including reasons for adoption or non-adoption across settings and interventionists. *Key Questions:* Where was the EBI applied and by who? Which sites/staff were invited and which excluded? Which participated and not? Why? How can I support the setting/context/staff to deliver the EBI? *Health Equity Considerations:* Did all setting equitably adopt the EBI? Which settings and staff adopted and applied the EBI? Which did not and why? Were low-resource settings able to adopt the EBI to the same extent that higher-resource settings? *Sustainability Considerations:* Which settings/staff continue to deliver the EBI over time? Which do not and why?
Implementation	*Indicators:* At multiple setting and staff levels, continued and consistent delivery of the EBI as intended (fidelity), as well as adaptions made and costs of implementation *Key Questions:* Was the EBI delivered consistently- why or why not? How was it be adapted and how did this impact sustainability? How much did it cost? How can we ensure the key functions of the EBI are delivered? *Health Equity Considerations:* Was the EBI equitably delivered across settings/staff? Which settings/staff successfully delivered the EBI and implementation strategies and which did not and why? Do all settings/staff have the capacity and resources to deliver the EBI on an ongoing basis? What adaptations might be needed to promote equity and address SDOH? *Sustainability Considerations:* How do we ensure that the EBI continues to be delivered consistently over time, especially in the context of reduced funding? Are certain implementation strategies more likely to sustain EBIs and have sustained impact than others?

Maintenance/ Sustainability

Indicators: Extent to which (*a*) health impact/benefits and behaviors continue for patients/consumers; (*b*) program activities or core elements/functions of the original intervention (and strategies) continue at setting/staff level, as well as adaptations made to the EBI; (*c*) sustainability capacity and infrastructure (partnerships, networks, coalitions) for delivering EBI are developed and maintained; and when applicable, (d) institutionalization, or extent to which EBI becomes part of routine organizational practices/policies (when considered dynamically over time) (all above measured initially 6 months after initial implementation and at least 1 year post EBI implementation and on ongoing basis). Includes proportion and representativeness of settings that continue EBI and reasons why/not.

Key Questions: What sustainability strategies can we use sustain the program long-term beyond 1 year after implementation and longer? What are the costs and return on value of sustainability? How can we support and incorporate the EBI so it is delivered past initial implementation?

Health Equity Considerations: Is the EBI being equitably sustained? What settings and populations continue to be reached long-term by the EBI and continue to receive benefits over time- why or why not? Do adaptations to EBIs reduce or exacerbate health inequities over time? Do all settings have continued capacity and partnerships to maintain delivery of EBIs? Are the determinants of sustainability the same across low-resource and high-resource settings? How do social determinants of health shape inequitable implementation and sustainability of EBIs over time?

Sustainability Considerations: As the program continues and the context and evidence changes, what adaptations (to the program, strategies, and setting) are needed to continue delivering the EBI long-term? Are there opportunities to build capacity at sites with low maintenance to promote longer-term sustainability? What would it take for sites to sustain the EBI over the long term? What are key multi-level barriers to continued program sustainability over time among a range of stakeholders? What are factors or strategies that might support continuation of the program? Over time as evidence changes, is de-implementation of some program elements a more appropriate outcome than continued delivery of the program? Are there certain sustainability strategies that are effective at maintaining EBI impact and delivery over time?

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CONDUCTING A SUSTAINABILITY ASSESSMENT, INFORMED BY THE INTEGRATED SUSTAINABILITY FRAMEWORK ***(Adapted from Shelton RC & Nathan N 2021; Chapter on Sustaining Evidence-Based Interventions in 'Practical Implementation Science')***

Domain	Questions to Consider
Outer/Policy Context	- What **policies, regulations, and social norms** are in place that may have implications for sustainability? - What's the **broader funding environment** like and are there external funds that could help sustain the EBI? - Are there **external partnerships (with government agencies, healthcare systems, community-based organizations)** that can help bring resources, support, and commitment to sustain the EBI? - How does EBI align with **national, state, local priorities**?
Inner/Organizational Context	- Are there **program champions** (community and organizational) who can help influence sustained delivery of the EBI? - Does the EBI have **support from organizational leadership**? - Within the organization, is there **organizational infrastructure** (time, financial resources, space) to support the EBI? How 'ready' is the organization? - How are **stakeholders continually engaged** related to EBI delivery?
Implementation Processes	- Are there processes in place to support the **recruitment and retention** of staff involved with EBI delivery? - Are there **supervision and training** processes in place to support EBI delivery among staff over time? - Are there processes in place or that could be added to **track or monitor data** on health impact of EBI or its delivery? - Is there **strategic planning** about sustaining the EBI (e.g. grant writing, communications)?
Implementer and Population Characteristics	- Do the implementers have the **self-efficacy** to deliver the EBI over time? - What are some of the **benefits and challenges** that implementers might experience in delivering the program over time? - What are the **attitudes** of the implementers towards the EBI? - What **characteristics or experiences of the population** served might impede sustainability (e.g. stigma, mistrust, literacy, poverty, experiences of discrimination)?
EBI Characteristics	- How **adaptable** is the EBI? - How **costly** is the EBI? Is there a return on investment? - How well does the **EBI 'fit'** within the organizational context? - Does the EBI continue to **address a priority or need** in the community?

OVERARCHING QUESTIONS TO CONSIDER REGARDING SUSTAINABILITY OF EBIS *(Adapted from Shelton RC & Nathan N 2021; Chapter on Sustaining Evidence-Based Interventions in 'Practical Implementation Science')*

1. Do I have a clear sense of the evidence-based practice/program and its core components and intended health impact?	● Reach out to implementers (and possibly program developers) to access program materials and description
2. Have I worked with stakeholders to determine what 'counts' as sustainability of the EBI?	● Revisit conceptualizations of sustainability and discuss with stakeholders the advantages and disadvantages of various approaches (e.g., sustained use of EBI with fidelity? Maintenance of partnerships? Continued impact on health behaviors/outcomes?) ● Consider the extent to which adaptations of EBIs are tracked, to understand their impact and how the EBI changes over time based on changing needs, evidence, and context. Consider tracking the extent to which such adaptations may reduce or exacerbate health inequities.
3. Have I started to think about or plan for sustainability during the implementation phase or determine who will be involved in sustainability efforts?	● Apply planning tools (e.g., Program Sustainability Assessment Tool or Clinical Sustainability Assessment Tool) or sustainability frameworks that help identify potential barriers and facilitators to consider and address specifically related to sustainability (e.g., Integrated Sustainability Framework, EPIS).
4. Do I have a plan for measuring or assessing or monitoring sustainability over time?	● Consider existing planning or evaluation tools (e.g., RE-AIM framework) and determine the time period when sustainability will be assessed (e.g., 6 months post implementation and annually over the next five years); if possible, assess using both qualitative and quantitative sources of information. Are there indicators of institutionalization that help inform understanding of sustainability (e.g. are staff roles and program costs included as part of annual budget)?
5. Have I considered delivering strategies to better support sustainability?	● Think about linking identified barriers to sustainability with strategies that could address them. ● Provide opportunities to obtain feedback from stakeholders on how well they are working (are they feasible, acceptable, appropriate), so they can be iteratively refined as needed.

Abbreviations: EBI = evidence-based intervention; EPIS = exploration, preparation, implementation, sustainment; RE-AIM = reach, effectiveness, adoption, implementation, maintenance