The Center for Implementation

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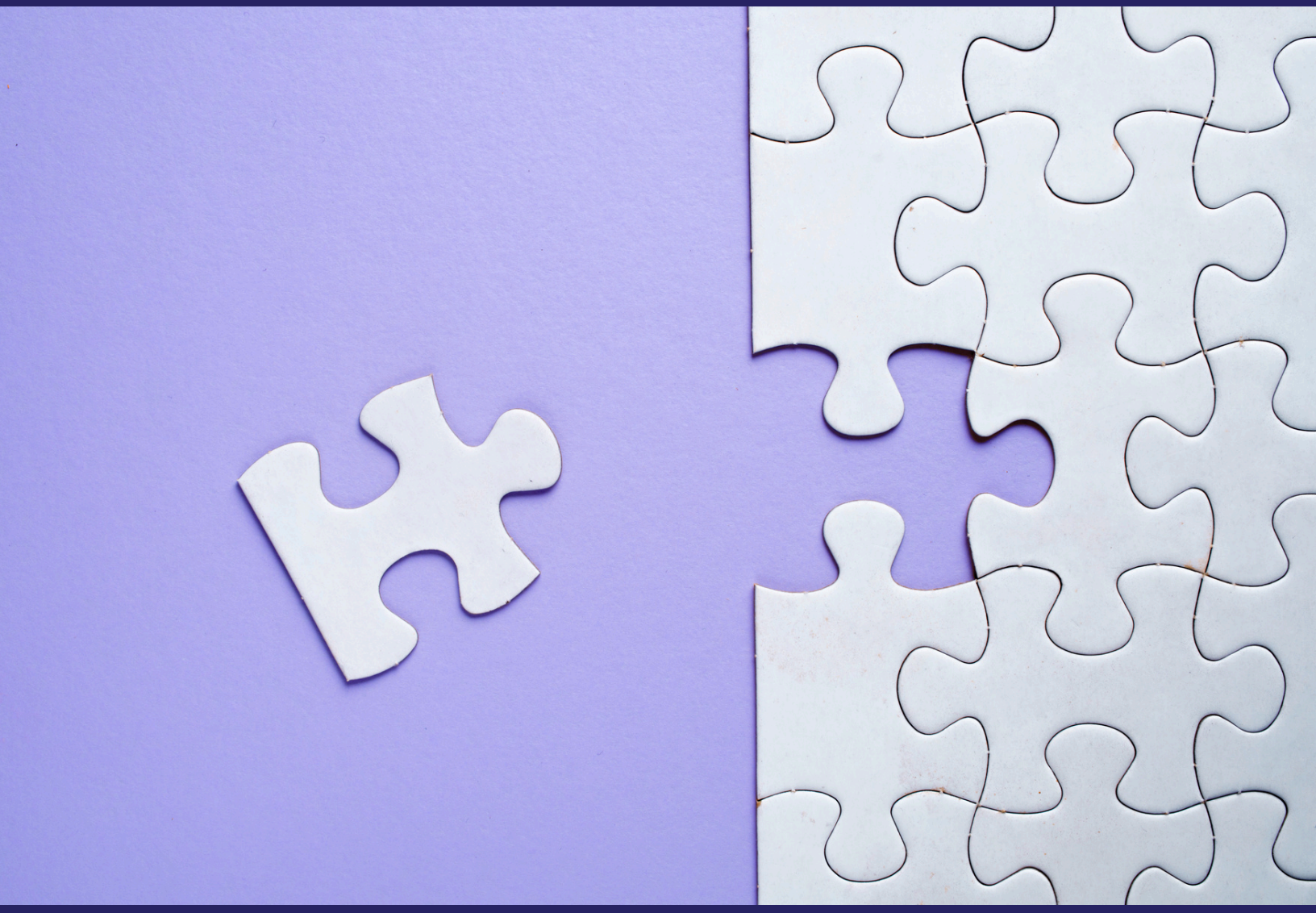
Applying Implementation Science

Challenges and opportunities for KBH+ funded projects



Prepared for KBHN by The Center for Implementation

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The Center for Implementation

About us

Founded in 2018, The Center for Implementation (TCI) is a social impact organization with a mission and moral imperative to train, support, and empower professionals in using evidence-informed approaches to maximize their impact.

Our vision is to see millions of changemakers worldwide actively applying best practices in implementation science to their initiatives.

In working towards this vision, we prioritize an entrepreneurial and values-based approach that embraces equity, empathy, creativity, and collaboration. Learn more about us and what we do.

Our services

We provide expert guidance and deliver practical solutions to organizations across multiple fields. We develop customized implementation support packages, partner on large-scale initiatives, and design professional development workshops tailored to specific contexts. Learn more about our services.

For teams and individuals, we offer comprehensive online training, Implementation Support Specialist certification, and the Implementing Change Community — a unique online space for changemakers to share knowledge and connect with each other.

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About this guide

What is the purpose of this guide?

This guide serves as a practical resource to help KBH+ funded individuals and teams understand the most common areas for improvement in neurodisability implementation projects. It also offers tips, reflection questions, and resources to begin addressing these improvement areas. This guide is not intended to be an exhaustive list of all challenges, tips, and resources, but a starting point for self-reflection.

How was the guide developed?

This guide is based on common challenges experienced by KBH+ project teams (past and present) and commonly identified implementation challenges in the literature.

Who is the guide intended for?

Individuals and teams funded by KBH+ who are planning/developing their implementation projects and/or strengthening existing initiatives.

When would this guide be used?

The guide can be used to strengthen proposal design, support implementation planning and execution of project activities, and identify areas for improvement across existing efforts.

The Ten Main Areas for Improvement in Implementation Projects

A list of common opportunities for improvement when applying implementation science to project work was identified from past KBH+ funded individual and team experiences, as well as from the literature. These are summarized in **Table 1**; the subsequent sections of the guide delve into each of these areas more deeply by describing:

- Overview of the area for improvement
- Common pitfalls that individuals/teams experience related to the area for improvement
- Quick tips to help address the area for improvement
- Reflection questions
- Recommended resources

Table 1. Overview of Ten Main Areas for Improvement

Area for Improvement	Overview
1. **Selecting appropriate TMFAs**	Identifying appropriate theories, models, frameworks, and/or approaches that can support implementation planning, delivery and evaluation.
2. **Selecting appropriate implementation study designs**	Selecting appropriate study designs and methods to answer implementation-related research questions.
3. **Embedding equity**	Integrating equity principles and practices throughout the entirety of the implementation project.

Table 1. Overview of Ten Main Areas for Improvement

Area for Improvement	Overview
4. **Role clarification and engagement**	Clarifying roles in the implementation system and on your team, and how to engage people throughout implementation.
5. **Adaptations**	How to track, monitor, and evaluate adaptations.
6. **Applying the RE-AIM framework and selecting outcomes**	Conceptualizing and/or applying constructs in the Reach, Effectiveness, Adoption, Implementation and Maintenance (RE-AIM) Framework and/or selecting implementation outcomes.
7. **Cost evaluation**	Tracking, monitoring, and evaluating implementation-related costs.
8. **Sustainability**	Defining what is being sustained and monitoring/evaluating sustainability efforts.
9. **Implementation support infrastructure**	Identifying and clarifying implementation support and infrastructure needs.
10. **Scaling**	Planning for scale up (e.g. planning tools, identifying sites, assessing readiness and context, adaptations).

1 Selecting Appropriate Theories, Models, Frameworks, and Approaches

Overview

To guide project stages and improve the design of initiatives, it is important to select appropriate theories, models, frameworks and/or approaches (TMFAs). TMFAs can help simplify the process of implementation and highlight considerations that teams might overlook otherwise. A well-planned implementation project will involve the application of multiple TMFAs to describe various aspects of implementation (e.g., strategy selection, overall process, contextual determinants, evaluation).

Common pitfalls that individuals/teams experience

- **TMFA purpose**: Using the wrong TMFA for what you want to accomplish (e.g., selecting a framework instead of a process model to guide the implementation process; selecting an individual-level determinant framework when you're exploring contextual factors)
- **Misalignment of TMFAs:** Selecting multiple TMFAs that aren't complementary (e.g., focused on different contexts or that serve the same purpose)
- **Too many TMFAs:** Selecting too many TMFAs that aren't needed (e.g., selecting two determinant frameworks when one achieves your goals).
- **Not enough TMFAs:** Selecting only one TMFA and using it for all implementation stages, which can lead to missing important factors, steps, or considerations.
- **Treating TMFAs as checklists:** applying all constructs in a TMFA without prioritizing or rationalizing what works best for your project (e.g., using RE-AIM to guide evaluation and using all constructs despite not all being relevant).

Quick tips - Selecting appropriate TMFAs

- Explore the purpose and level of the TMFA. Map TMFAs to their specific purpose (e.g., guide process, determinant framework, evaluation), level (e.g., individual or contextual), stage of implementation, and whether it was designed for research or planning purposes.
- Strike a balance with the number of TMFAs selected for each phase of implementation and your research. Only include additional TMFAs if there is clear value added and they serve different /complementary purposes.
- You might integrate TMFAs to achieve a specific purpose. For example, integrating the Theoretical Domains Framework and the Consolidated Framework for Implementation Research to achieve a multi-level understanding of barriers and facilitators.
- You can adapt and tailor most TMFAs. Focus on the most relevant constructs for your context, project, and stage of implementation. Review examples in the literature of different ways the TMFA has been used.

Reflection Questions - Selecting appropriate TMFAs

- What are we trying to make sense of that a TMFA may help with? For example, are we trying to understand how to implement, what factors are influencing implementation, and/or how well it works? Does the TMFA align with that/those aim(s)?
- Does the TMFA function at the same level as the problem we are trying to address? (e.g., individual, contextual)
- If we didn't use this TMFA, would there be a gap in our project or our understanding of the implementation work?
- Which TMFAs are essential versus nice to have?
- Which constructs in the TMFA(s) that we have chosen are most relevant to our project?

Resources - Selecting appropriate TMFAs

General TMFA resources

- Making sense of implementation theories, models and frameworks by Nilsen, P.
- Clarity out of chaos: Use of theory in implementation research by Damschroder, L.J.
- Advancing the selection of implementation science theories, models, and frameworks: a scoping review and the development of the SELECT-IT meta-framework by Fontaine, G., Mooney, M., Porat-Dahlerbruch, J., et al.
- More Than a Checklist: Building Better Implementation Plans by Moore, J.E.
- Theory, Model, and Framework Comparison and Selection Tool (T-CaST) by the Dissemination and Implementation Methods Unity at the North Carolina Translational and Clinical Sciences Institute at the University of North Carolina at Chapel Hill
- Implementation Strategies Explained by Moore, J.E.

Commonly used theories

- Diffusion of Innovations by Rogers, E.M., Singhal, A., & Quinlan, M.M.
- The theory of planned behavior by Ajzen, I.
- Approaches for Organizational Learning: A Literature Review by Basten, D. and Haamann, T.

Commonly used determinate frameworks

- A guide to using the Theoretical Domains Framework of behaviour change to investigate implementation problems by Atkins, L., Francis, J., Islam, R., et al.
- The updated Consolidated Framework for Implementation Research based on user feedback by Damschroder, L.J., Reardon, C.M., Widerquist, M.A., et al.
- The Context Compass Framework Explained: How to Assess Context Across Levels and Phases of Implementation by Khan, S.

Commonly used evaluation frameworks

- Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) by Glasgow, R., Vogt, T.M., & Boles, S.M.
- Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda by Proctor, E., Silmere, H., Raghavan, R., et al.

Multi-purpose

- PARIHS revisited: from heuristic to integrated framework for the successful implementation of knowledge into practice by Harvey, G., and Kitson, A.

Commonly used approaches - e.g., implementation strategies

- StrategEase tool by The Center for Implementation
- A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project by Powell, B.J., Waltz, T.J., Chinman, M.J., et al.
- Implementation Mapping: Using Intervention Mapping to Develop Implementation Strategies by Fernandez, M.E., Ten Hoor, G.A., van Lieshout, S., et al.

2 Selecting Implementation Study Designs and Approaches

Overview

The selected study design and methods should align with your implementation research question and goals. Methods should assist in answering your research questions, be pragmatic and work in real-world settings, and build on current knowledge gaps.

Common pitfalls that individuals/teams experience

- **Incorrect study design:** while there are many types of examples, common examples include selecting a clinical trial design in a pragmatic study (such as forcing a randomized controlled trial design when it is not practical or informative) or skipping a formative evaluation or exploratory study when it is better suited.
- **Lack of mixed methods:** not including mixed methods and/or defining qualitative research well, as many implementation outcomes and factors are best assessed through qualitative work.
- **Not considering feasibility:** short or unrealistic timelines and including too many data collection approaches that don't align with the team's existing processes and/or the research question. This can lead to research waste.
- **Uninformative evaluation:** Omitting the evaluation of important infrastructure and processes of support. For example: not evaluating how researchers are delivering implementation support and building site readiness, which can skew how we understand implementation processes, feasibility and outcomes; not exploring or evaluating sustainability capacity during the study – i.e., how will the initiative be maintained when researcher resources are removed?

Quick tips - Selecting implementation study designs and approaches

- Identify your research goals and whether you aim to study implementation, the effectiveness of the initiative you are implementing, or both. A clear set of research questions and goals can help you select the study design that is most appropriate.
- Consider developing a theory of change and/or logic model that can help clarify how the components of your work are related to one another and to outcomes
- Consider innovative and/or pragmatic designs that might have been used in other contexts for similar questions; for example, adaptive designs, interrupted time series analysis, and qualitative comparative analysis can be applied to implementation research to answer important questions related to adaptation effects, implementation effects for large-scale implementation over time, and which permutations of determinants relate to specific implementation outcomes, respectively.
- Many implementation outcomes are assessed through qualitative methods, therefore it is helpful to bring qualitative research experts on board, and to have ensured that you are building research protocols that involve informative mixed methods data integration techniques.
- Connect with your sites/teams to co-determine the feasibility of methods. They often know what will work best in their context. Sometimes you can connect data collection with activities the site is already doing (e.g., staff meetings, family events, feedback surveys).
- Ensure research methods are complementary and connect back to the research goals.
- Reflect on how your research activities impact site readiness and sustainability; if you must equip and prepare sites to implement, this is an implementation support and pre-implementation strategy and should be evaluated as such. If a new role is needed to do implementation work, this should be considered in an exit strategy/sustainability plan.
- Create a study timeline for each study phase, and revisit this often to make changes as needed and ensure feasibility.

Reflection Questions - Selecting implementation study designs and approaches

- Have we identified a clear implementation knowledge gap and research questions/objectives? (i.e., that are different from evaluating the innovation)
    - Relatedly, how much implementation research do we need to do at this phase of our work?
- How clearly have we articulated the theory of change or logic model underlying our work, and in what ways does (or doesn't it) help link activities to the outcomes we hope to achieve?
- Do we have or need control or comparison groups?
- Does the selected study design align with our research goals? Are there other study designs we should be considering?
- Have we selected appropriate methods to answer our research question(s)? Are there methods we haven't considered that may be more appropriate for the groups we're working with?
- Have we developed a feasible and detailed study timeline? (e.g., that includes data collection timepoints, implementation activities, data analyses, and dissemination)
- What are the potential risks and limitations of our study design? How might we overcome these?
- Are we using qualitative approaches in informative ways?
- If we are using both quantitative and qualitative approaches, how will we integrate and interpret the data?
- Have we considered the potential burden of data collection?
- How are we interpreting and analyzing data? Who is involved?

Resources - Selecting implementation study designs and approaches

- Scoping implementation science for the beginner: locating yourself on the "subway line" of translational research by Lane-Fall, M.B., Curran, G.M., and Beidas, R.S.
- Case studies: a guide for researchers, educators, and implementers by Greenhalgh, T
- Reflections on 10 years of effectiveness-implementation hybrid studies by Curran, G.M., Landes, S.J., McBain, S.A., et al.
- Introduction to Hybrid Effectiveness-Implementation Approaches by Landes, S., Szydlowski, G., and Mahmoudi, E.
- Potential Applications of Realist Methodologies to Implementation Science Research by Mukumbang, F.C., Arguelles Bullon, A., Scott McLelland, R., et al.
- An Overview of Research and Evaluation Designs for Dissemination and Implementation by Hendricks Brown, C., Curran, G., Palinkas, L.A., et al.
- Using formative evaluation methods to improve clinical implementation efforts: Description and an example by Rani Elwy, A., Wasan, A.D., Gillman, A.G., et al.
- The Implementation Research Logic Model: a method for planning, executing, reporting, and synthesizing implementation projects by Smith, J.D., Li, D.H., and Rafferty, M.R.

3 Embedding Equity

Overview

Considering and embedding equity principles and practices throughout the entirety of implementation projects is essential. From designing studies and initiatives (e.g., who is engaged, intended to benefit, feasibility, flexibility), engaging sites/partners, rolling out activities, and evaluating outcomes and impacts – it is always important to consider how different groups have access to, participate in, and may benefit from implementation. Embedding equity in implementation requires deliberate and intentional planning, reflection, and action.

Common pitfalls that individuals/teams experience

- **Not considering power dynamics:** Not paying attention to, and/or addressing, potential power imbalances across people involved in implementation, such as researchers, site staff, community members, families, youth, etc.
- **Missing engagement:** Not actively engaging clinicians, staff, families, etc. in implementation and research decisions and activities to ground the work in their needs and realities (e.g., selecting implementation strategies, designing adaptations).
- **Implementation capacity considerations:** Not considering capacity building and implementation support infrastructure amongst the sites you're working with. This is important to understand how to tailor supports to meet teams where they're at and to consider how sites/teams will continue implementing once external funding and/or your team's support is no longer available.
- **Adaptability considerations:** not considering or assessing adaptability of the innovation and implementation strategies to respond to local needs and realities.
- **Systems and structures**: Not considering how historical and structural barriers and discrimination have impacted and currently impact groups more significantly (e.g., racism, colonization, ableism, sexism), and how that relates to your initiative.

Quick tips - Embedding Equity

- Practice continuous reflexivity and humility. Reflecting on equity before, during and after your project should be an embedded process within your work.
- Ensure time to get to know each other, co-explore needs and goals, set up consistent check-ins, and make sure everyone feels heard. Plan for relational activities in your projects and timelines, and build in funding for such activities (when possible).
- Aim for implementation activities to involve power distribution. For example, many activities can be community-led (e.g., internal staff, families, youth) and internal capacity can be built, where possible. Provide the necessary training, resources, and supports to enable this.
- Explore community-identified goals, fit, and adaptations at the beginning.
- Check in about who you are reaching – who is accessing the innovation and who may be missing, and why?
- Leverage equity and relational guides, questions, and health equity frameworks to enhance your methods and approaches.

Reflection Questions - Embedding Equity

- How do our identities, assumptions, experiences and positions on the team shape how we approach this work?
- Whose voices might be missing in this project? How might we engage them?
- How are we shifting or sharing power in meaningful ways?
- What capacities do sites already have? Where might they need support?
- How are we investing in capacity building with sites?
- How have historical and present-day structural and systemic factors shaped access, trust, and experiences related to the innovation?
- How are we acknowledging, addressing, or mitigating structural and systemic barriers?

Resources - Embedding Equity

- Equity Guiding Questions by The Center for Implementation
- Equity is Fundamental to Implementation Science by Loper, A., Woo, B., and Metz, A.
- Cultiv8 Tool by The Center for Implementation
- Implementation science and power: equity-oriented implementation science needs a power lens by Fischer, H.T., Hanefeld, J., Koduah, A.
- Co-creating a new Charter for equitable and inclusive co-creation: insights from an international forum of academic and lived experience experts by Mulvale, G., Moll, S., Phoenix, M., et al.
- A more practical guide to incorporating health equity domains in implementation determinant frameworks by Wooward, E.N., Singh, R.S., Ndebele-Ngwenya, P., et al.
- An implementation mapping approach to equitable program delivery: building readiness in community organizations by Franke, T., Nettlefold, L., Sims Gould, J., et al.

4 Role Clarification and Engagement

Overview

It is important to clarify who is involved in your project (directly or indirectly), their roles, and engagement strategies and approaches, where appropriate. People you might consider include those on your project team, implementation team(s), partner organizations/sites you are working with, and those who will be impacted by the implementation. Across these different groups, there may be varied levels of engagement.

Common pitfalls that individuals/teams experience

- **Role mapping and connections:** Lacking clarity of who has a meaningful role in implementation (e.g., implementation team, supports, initiative development), additional roles in the system that influence the initiative (e.g., funders, decision makers), and if/how you may want to connect with these individuals.
- **Not identifying team member roles:** Not discussing and specifying team member roles and level of involvement based on interests, strengths, capacity, and goals. This is important so that people are on the same page and that their skills and interests are being acknowledged and leveraged.
- **Missing relational activities:** Focusing only on the research and not scheduling relationship-building opportunities and activities. This can lead to people not feeling heard, valued, comfortable, safe, etc.
- **No monitoring and check-in practices:** Not planning for regular check-ins with partners to ask questions, explore updates, and identify opportunities and next steps. Check-ins are essential to understand how people are feeling, areas to improve, and changes that may be needed for implementation or the team/relational work.
- **Compensation considerations:** Not budgeting for partner compensation and/or having transparent discussions with partners about compensation expectations and options.

- **Closing the loop:** At the end of the project, not sharing updates with partners and interest holders or co-identifying knowledge dissemination activities/opportunities. Those engaged in the work should be informed about findings, impacts, and next steps.

Quick tips - Role Clarification and Engagement

- Create a Team Agreement or Terms of Reference that outlines the team's core values, principles, goals, activities, and roles. Note that capacity and interests may change throughout the project.
- Use tools such as the Collaboration Spectrum or Involvement Matrix to understand how people want to engage throughout different project stages.
- Use the Interactive Systems Framework to understand roles in the implementation system; a mapping exercise can be done using this framework to gain a better grasp of roles, who occupies them, and how they connect with one another.
- Pre-schedule check-in meetings and plan for relational activities in your timeline – in other words, consider relationship building as a core implementation process. Embed flexibility in these and account for diversity in partner needs (e.g., evening meetings for working families and youth, accessibility, privacy, and childcare needs).
- Explore diverse compensation options within your project scope and budget. For instance, if monetary compensation isn't an option, partners may be keen to develop a specific skill, co-author a manuscript, attend and present at a conference, support facilitation of implementation, etc.

Reflection Questions - Role Clarification and Engagement

- Who directly and indirectly influences this initiative across the system?
- Is there a local implementation team (or teams)?
- Who is supporting the implementation work and what does support look like?

- What roles does this project require? Are these accounted for on our team?
- How are we considering team members' strengths, interests, experiences, capacities, etc., in relation to their role?
- Have we identified the people involved with and impacted by implementation? How are we engaging people across these groups?
- How accessible are our engagement practices in terms of time, format, compensation, etc.?
- How are we creating space to build relationships? How is this considered in our timelines and funding?
- Have we considered how findings will be shared across the team and with partners? Are these approaches meaningful to the people we're working with? (e.g., community presentation, celebration gathering, video summary, infographic, artwork, policy brief)

Resources - Role Clarification and Engagement

- Bridging the gap between prevention research and practice: the interactive systems framework for dissemination and implementation by Wandrsman, A., Duff, J., Flasphler, P., et al.
- Considering the Role of Relationships in Implementation: The Relational Pathway by Moore, J.E., and Khan, S.
- The Collaboration Spectrum by The Tamarack Institute
- The Collaboration Spectrum Revisited by The Tamarack Institute
- Involvement Matrix and Guide to Partnership by Smits, D.W., van Meeteren, K., Klem, M., et al.
- Prioritizing research needs and opportunities at the intersection of implementation science and engagement science by Villalobos, A., Reyolds, E., Halpin, S.N., et al.
- Implementation Teams by The University of North Carolina at Chapel Hill Active Implementation Hub

5 Adaptations

Overview

Tracking, monitoring, and evaluating adaptations is an important part of implementation because implementation is context-specific and dynamic. Given the importance of adaptations to enhance equitable implementation, long-term implementation, and when scaling, teams should think about how these efforts are captured and evaluated. This can help us to think about "core" versus adaptable components, fidelity, and the impacts of adaptations.

Common pitfalls that individuals/teams experience

- **Adopting a "fidelity only" mindset:** not supporting adaptations can contribute to implementation failure as the initiative or change strategies will lack fit with the people and places in which it is being implemented. It is important to identify which components of the innovation, change strategies, etc., can be adapted and which are "core" to the initiative.
- **Reactive adaptations:** Only making adaptations as a reaction to a changing barrier or facilitator and not proactively planning for these to better anticipate when and where adaptations might be needed.
- **Tracking adaptations:** not tracking adaptations and/or differentiating what is adapted (e.g., who is involved, change strategies, the innovation). Tracking helps us understand what changes supported implementation in the new context.
- **Goal intentionality:** not thinking critically about why you are adapting or making note of adaptation decisions throughout the process. Noting adaptation goals can help us understand when and why changes are needed to the initiative.
- **Missing engagement:** making adaptation decisions without engaging partners or interest and rights holders. Without doing this, we may lack understanding of what essential adaptations are needed for this context and why.

- **No feedback:** not incorporating feedback mechanisms to explore if or how adaptations are making a difference in the outcomes/reasons that drove the need for adapting, and whether additional modifications might be needed.
- **Cultural safety:** not considering cultural factors (e.g., values, beliefs) and structural inequities (e.g., racism, colonialism) when implementing the innovation in a new context, and whether adaptations are needed to mitigate or address these.

Quick tips - Adaptations

- Identify and communicate clearly what the core versus adaptable components are and why. It can be difficult to identify core versus adaptable components, so build in time for discussions that leverage data to support what the core and adaptable components might be.
- Embed adaptation planning into your implementation processes. Use adaptation planning tools, such as Map2Adapt or the Framework for Reporting Adaptations and Modifications – Enhanced, to guide the adaptation planning process and support monitoring and tracking.
- Embed feedback mechanisms as you roll out the adaptations, such as through check-in meetings, audits, surveys, etc. Pre-scheduled "interim analyses" can help you stay on track with adaptations and ensure that you are reflecting on whether they are positively or negatively affecting implementation.
- If adaptations are made in real-time, develop tracking strategies to make it easy for teams/sites to monitor (e.g., surveys, forms embedded in another implementation strategy, templates).
- Engage interest holders and rights holders early to understand what adaptations are needed, why, and how these groups may support the adaptation process.

Reflection Questions - Adaptations

- Which components of the initiative (e.g., innovation, change strategies) do we believe are 'core'/essential? Why? What evidence is this rationale based on?

- How can we build in adaptation planning time into implementation?
- What are our adaptation goals (i.e., the "whys" of making adaptations)?
- What are some pragmatic and sustainable ways that we can track adaptations?
- Have we noticed any trends in when adaptations might be needed?
- Which outcomes and experiences are we paying attention to when rolling out adaptations? How are we responding to feedback?
- How are cultural values, lived/living experience, and systemic and structural factors influencing adaptation decisions? Who are we engaging to inform these?
- How will we know when we have "over-adapted" (i.e., strayed from the effective components of the original initiative)? What checks are we putting into place to mitigate this risk?

Resources - Adaptations

- The FRAME: an expanded framework for reporting adaptations and modifications to evidence-based interventions by Wiltsey Stirman, S., Baumann, A.A., and Miller, C.J.
- The FRAME-IS: a framework for documenting modifications to implementation strategies in healthcare by Miller, C.J., Barnett, M.L., Baumann, A.A., et al.
- Map2Adapt tool by The Center for Implementation
- Methodological recommendations for assessing the impact of adaptations on outcomes in implementation research by Aschbrenner, K.A., Rabin, B.A., Bartels, S.J., et al.
- Methods for capturing and analyzing adaptations: implications for implementation research by Holstrop, J.S., Gurfinkel, D., Nederveld, A., et al.
- Implementation of Complex (multi-level) health interventions: Functions and Forms by the University of Coloradio

6 Applying the RE-AIM framework and Selecting Outcomes

Overview

Selecting relevant outcomes that connect to your research question, stage of implementation, and the innovation you're implementing is a core part of implementation research. The Reach, Effectiveness, Adoption, Implementation, and Maintenance framework is often used to guide evaluation and select outcomes and approaches, so it is a useful tool when planning to evaluate implementation.

Common pitfalls that individuals/teams experience

- **Differentiating outcomes:** common ways that outcomes are conflated are confusing implementation outcomes with 'effectiveness of the innovation' outcomes, and not clearly conceptualizing implementation outcomes as distinct from one another (e.g., conflating adoption with fidelity).
- **Inconsistently defining outcomes:** offering multiple definitions of implementation outcomes so that it eventually becomes unclear what you are trying to measure (e.g., defining feasibility as usability, and also as implementation feasibility and research feasibility)
- **Selecting too many outcomes:** identifying and measuring too many outcomes, which may lead to too much data or superficial measurements
- **Alignment:** misalignment between outcomes selected and your research goals, questions, and implementation activities, which can result in data that does not answer your team's questions and/or support understanding of implementation.
- **Unintended outcomes:** unintended outcomes are not considered or captured. It is important to understand outcomes that we may not have expected (positive, neutral, and negative) to support learning and continued and future implementation.

- **Overemphasis on reach and effectiveness in RE-AIM:** focusing too much on how many people participate and whether outcomes improve, while ignoring other RE-AIM constructs, such as maintenance and implementation.

Quick tips - Applying the RE-AIM framework and Selecting Outcomes

- Clearly define all outcomes of interest with your project team and partners to determine relevance, feasibility, and a common understanding. Include a discussion on how unintended outcomes will be considered.
- Connect your outcomes back to your research goals and implementation activities, and ensure they are well-defined (e.g., a logic model or theory of change).
- Not all RE-AIM constructs are relevant. It is important to reflect on each construct, if/how it applies to your project, and the best way to capture it. Sometimes it's helpful to prioritize 2-3 constructs based on your implementation phase.
- Discuss how maintenance will be considered and measured early in the project using validated surveys (e.g., Program Sustainability Assessment Tool) or planning tools (e.g., Long Term Success Tool).

Reflection Questions - Applying the RE-AIM framework and Selecting Outcomes

- Have we selected outcomes according to a theory of change / our logic model and defined them well? Do outcomes align with research questions and implementation gaps?
- If appropriate, do we have threshold values of success specific to our outcomes?
- Have we differentiated between outcomes specific to the innovation (e.g., family, clinician, organizational) and implementation (e.g., adoption, acceptability, reach, feasibility, cost)?
- Have we differentiated between outcomes specific to the innovation (e.g., family, clinician, organizational) and implementation (e.g., adoption, acceptability, reach, feasibility, cost)?

- Which outcomes are most important for answering our research questions?
- Do we have strategies or processes in place to report unintended outcomes?
- Which RE-AIM constructs are most important in our evaluation?

Resources - Applying the RE-AIM framework and Selecting Outcomes

- Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) by Glasgow, R., Vogt, T.M., & Boles, S.M.
- RE-AIM Planning Tool by by Glasgow, R., Vogt, T.M., & Boles, S.M.
- Understanding and applying the RE-AIM framework: Clarifications and resources by Summers Holtrop, J., Estabrooks, P.A., Gaglio, B., et al.
- RE-AIM Planning and Evaluation Framework: Adapting to New Science and Practice With a 20-Year Review by Glasgow, R.E., Harden, S.M., Gaglio, B., et al.
- Applying an equity lens to assess context and implementation in public health and health services research and practice using the PRISM framework by Fort, M.P., Manson, S.M., and Glasgow, R.E.
- Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda by Proctor, E., Silmere, H., Raghavan, R., et al.
- Ten years of implementation outcomes research: a scoping review by Proctor, E.K., Bunger, A.C., Lengnick-Hall, R., et al.

7 Cost Evaluation

Overview

Tracking and evaluating costs related to implementation efforts are important and support sustainability and future scaling. Many people would benefit from knowing what resources are available to support this and/or how to conduct cost evaluations.

Common pitfalls that individuals/teams experience

- **Cost isn't considered:** Sometimes, cost isn't considered when monitoring and evaluating implementation studies. This can limit the future sustaining and scaling of the innovation.
- **Incomplete cost evaluation:** Only obvious or direct costs are included (e.g., new equipment or materials purchased, training costs), and costs such as staff time, planning time, institutional infrastructure, etc., can be missed, leading to an underestimation of costs.
- **Cost evaluation purpose:** There is no clear articulation of the goal of cost evaluation, such as cost-effectiveness, cost description, or return on investment, which can lead to irrelevant data sources and evaluation approaches being used.
- **Cost perspective:** there is no consideration or differentiation of whose cost you're considering (e.g., clinic/site, health system, societal).

Quick tips - Cost Evaluation

- If you do not have the experience to do the cost evaluation you're interested in, connect with a health economist and/or others at your institution who have costing expertise.
- Costing by phase of implementation can help increase understanding of the resources needed over time. A simple cost analysis to understand tangible and intangible resources expended by the implementation phase can be more informative than no cost analysis at all.

- Consider not just expenditures, but savings (i.e., what expenditures have been or will be averted as a result of implementation?).
- Use practical costing planning tools from the field of implementation science, such as the COINS tool.
- Separate implementation costs from the cost of the innovation.

Reflection Questions - Cost Evaluation

- Are we considering, tracking, and evaluating costs required to develop and implement strategies, enact implementation processes, and support implementation work?
- If we don't have the tools or skill set to evaluate cost, is there someone at our institution or a team member's institution who can answer our questions and support cost evaluation?
- What aspects of cost are we tracking and evaluating? How? Are there other tools we can reference to ensure we are doing a comprehensive cost evaluation?
- How much staff time, planning time, coordination, or infrastructure support is needed that isn't captured formally in our evaluation?

Resources - Cost Evaluation

- The Cost of Implementing New Strategies (COINS): A Method for Mapping Implementation Resources Using the Stages of Implementation Completion by Saldana, L., Chamberlain, P., Bradford, W.D., et al.
- A Costing Guidebook for Implementation Scientists by Cronin, J., Gritz, R.M., Eisman, A., et al.
- The Stages of Implementation Completion (SIC) Framework by Saldana, L.
- Cost of Implementing New Strategies (COINS) Approach and System by Saldana, L.
- Making Implementation Costing More Accessible: Initial Transdisciplinary Guidance for Researchers and Practitioners by Eisman, A.B., Cronin, J., Ritzwoller, D.P., et al.

8 Sustainability

Overview

It is essential to think about the sustainability of your initiative from the beginning and throughout implementation. Planning for sustainability early can increase the likelihood of long-term success of your initiative.

Common pitfalls that individuals/teams experience

- **Lack of sustainability planning:** Not considering sustainability early, including sustainable roles and how handoffs will occur at the "end" of the work. No structured discussion or process in place to think about and plan for sustainability.
- **Sustainability barriers and facilitators:** assuming sustainability is far down the road and not intentionally and explicitly assessing barriers and facilitators that impact sustainability more immediately (e.g., leadership support, workforce turnover).
- **Not planning for adaptations:** Not adapting change strategies, the innovation, who is involved, etc., along the way to promote sustainability. It is important to build in strategies to respond to the changing context as an innovation is sustained.
- **Overdependence on external resources (i.e., funding):** relying on external grant funding, research team support, etc., to implement the initiative, without considering what implementation looks like when those resources are no longer in place.
- **Monitoring and feedback:** data collection stops once implementation outcomes are achieved, and monitoring mechanisms aren't included in the long-term plan.

Quick tips - Sustainability

- Clarify sustainability goals. Identify what you want to sustain over time (e.g., the HOWs, outcomes), how you will plan for and monitor sustainability, and how changes will be made over time to support sustainment (e.g., adaptations to HOWs).

- When implementing processes and strategies, select those that will most likely be able to become a “way of work” or be normalized within the setting.
- Build internal organizational capacity, such as champions and internal facilitators, who can support implementation when external resources are no longer available. Ask yourself, what is needed to continue this initiative if the grant ended tomorrow?
- When having conversations about sustainability, keep people from focusing on funding as the sole source of sustainability and divert the conversation to other levers/facilitators for sustainability.
- Use sustainability planning tools to help you/your team assess factors that influence sustainability early on and as they emerge throughout your project.
- Embed sustainability monitoring mechanisms into existing systems, such as workflow, documentation, reporting, etc.

Reflection Questions - Sustainability

- What factors are already influencing sustainability right now? (e.g., leadership support)
- What factors do we anticipate will impact sustainability later that we should plan to address now?
- Have we carved out time for sustainability planning? What would sustainability planning look like for us?
- What assumptions are we making about the end of this grant and who will carry it forward?
- What will happen after KBH+ funding concludes? How will we maintain this initiative? How are we planning for sustainability?
- Have we talked about what sustainability looks like? What do we envision being sustained (e.g., components of the innovation, change strategies, who is involved) and what may change as the initiative continues?
- How are we monitoring whether the initiative is sustained? What data or feedback are we using?

Resources - Sustainability

- Toward the sustainability of health care innovations to “transform our world”: current status and the road ahead by Chicoine, G., and Straus, S.E.
- What makes a sustainability tool valuable, practical and useful in real-world healthcare practice? A mixed-methods study on the development of the Long Term Success Tool in Northwest London by Lennox, L., Doyle, C., Reed, J.E., et al.
- Long Term Success Tool by Healthcare Excellence Canada
- Program Sustainability Assessment Tool and Clinical Sustainability Assessment Tool by Washington University in St. Louis
- Sustainability: What Is It? Why Is It Important? How Are Readiness, Context, and Sustainability Related? by Moore, J.E.
- Do the Expert Recommendations for Implementing Change (ERIC) strategies adequately address sustainment? by Nathan, N., Powell, B.J., Shelton, R.C., et al.
- Sustaining Evidence-Based Interventions and Policies: Recent Innovations and Future Directions in Implementation Science by Shelton, R.C., and Lee, M.

9 Implementation Support Infrastructure

Overview

When implementing, it is important to think about what infrastructure is needed to support, sustain, and/or scale implementation efforts. This is especially important when thinking about building capacity and motivation amongst the people implementing – sometimes called Implementation Support Programs, External Implementation Support, Technical Assistance Centres, Central Support, etc. Implementation support may vary, but can include activities such as training, tools/resources, coaching, mentorship, and monitoring.

Common pitfalls that individuals/teams experience

- **Not considering implementation support:** assuming that internal and/or external implementation support is not needed, or not recognizing and calling out when support is being given as a key part of implementation.
- **Overreliance on external support:** participating sites rely too much on external support (e.g., coaches, evaluators, facilitators) and are not building internal capacity, which becomes an issue once the external support is no longer available.
- **Support strategies are one-size-fits-all:** the same infrastructure is applied across sites regardless of capacity, size, and local needs, instead of being adaptable and tailored to the needs of the new site.
- **Activities overprioritize research:** support activities focus solely on data collection and evaluation rather than practical implementation support.
- **Lack of continuity for external support:** external implementation support is no longer available after the project ends, and internal capacity has not been built within the local site/team.

Quick tips - Implementation Support Infrastructure

- Explore existing roles within an organization and if/how those can be leveraged to provide implementation support.
- Build internal implementation support capacity early (e.g., train-the-trainer, providing tools/resources).
- Embed flexibility in implementation support, so that it can be adapted and tailored across sites.
- Identify what support models work best for your initiative to address implementation team needs and for ongoing sustainability.
- Keep implementation support tools practical and feasible, and gather feedback from those receiving support to help tailor tools.
- Consider community building and continued learning after the 'formal period' of external implementation support concludes, such as a community of practice, ongoing coaching sessions, etc.

Reflection Questions - Implementation Support Infrastructure

- Are implementation supports needed that are currently not being provided? What needs will implementation support fulfill?
- What types of support are we providing to sites, even if we aren't labelling them 'implementation support'? (e.g., coaching, problem-solving, supporting assessments)
- How are we building capacity and transferring knowledge, skills, and resources to the local sites/teams?
- Do any parts of our initiative rely heavily on external coaches, facilitators, funding, etc.?
- How well does our implementation support respond to differences in site capacity, resources, and needs?
- What will happen to implementation at the site when our team's involvement ends?

Resources - Implementation Support Infrastructure

- Toward an Evidence-Based System for Innovation Support for Implementing Innovations with Quality: Tools, Training, Technical Assistance, and Quality Assurance/ Quality Improvement by Wandresman, A., Chien, V.H., and Katz, J.
- TCI's Implementation Support Core Competencies and Functions by The Center for Implementation
- The Technical Assistance (TA) Effectiveness Logic Model: A Tool for Systematically Planning, Delivering, and Evaluating TA by Scott, V.C., Chagnon, E., and Wandersman, A.
- Trajectory of external implementation support activities across two states in the United States: A descriptive study by Aldridge II, W.A., Roppolo, R.H., Chaplo, S.D., et al.
- Mechanisms of change in external implementation support: A conceptual model and case examples to guide research and practice by Aldridge II, W.A., Roppolo, R.H., Brown, J., et al.
- Implementation Support Practitioner Competencies by Metz, A., Burke, K., Albers, B., et al.

10 Scaling

Overview

When projects are in the scaling phase or a team is preparing to scale, it is important to be clear on how you intend to plan, execute, and support scaling. This can relate to some of the topics above, such as adaptations needed, implementation support infrastructure, equity, and/or costs.

Common pitfalls that individuals/teams experience

- **Scaling too early:** scaling before the innovation and change strategies have been piloted and tested sufficiently. This can lead to initiatives that are scaled too early without knowing what works and where.
- **Not considering roles during scale:** not anticipating the shifting roles that take place when scaling, particularly related to the role of the innovation developers.
- **Scaling plan:** not taking time to understand what types of scaling mechanisms and strategies can be used to scale your work (e.g., push vs pull mechanisms)
- **One-size-fits-all:** assuming the strategies that worked in one setting will work in all other settings without considering each unique context and specific needs.
- **Underestimating resources and supports required:** assuming costs, staff time, implementation supports, etc., are the same across contexts.
- **Inadequate monitoring:** scaling without monitoring activities and embedding feedback loops to understand what's working, where, and why, and what may need modifying.
- **Readiness considerations:** scaling to a site that is 'less ready' without providing proper support and/or only scaling to sites that are 'ready' (which favours specific contexts and excludes others).

Quick tips - Scaling

- Test for scale readiness before scaling, such as what is effective, implementable, and adaptable.
- Use scaling planning tools to help identify relevant activities needed prior to scaling: partnerships, assessing context, readiness, and adaptations needed.
- Consider how scaling will best be achieved, as there are many pathways to scaling. For example, an initiative that is highly acceptable and addresses an immediate priority area might benefit from policy (vertical) scale-up. An initiative that contends with competing belief systems and mental models might need to be socialized and communicated about in order to scale.
- Remember to scale the implementation support, not just the innovation. This is especially important when sites have less capacity and resources to support implementation.
- Engage with partner sites and interest holders to co-identify important differences, needs, and approaches to scaling.
- When prioritizing sites to scale to, you might also think about scaling to sites that your team has less experience with (e.g., a new sector, geographic location, or organization structure) to advance learnings.

Reflection Questions - Scaling

- What does scaling mean for this initiative? What can or should be adapted in new sites? Who should be involved?
- Are we designing push or pull mechanisms for scaling?
- For “push” mechanisms of scaling, how have we identified new sites? What made us select these sites? Have we explored readiness?
  - How can we engage with sites that are ‘less ready’ now or in the future?
- For “pull” mechanisms of scaling, how are we advocating/building momentum for this work so that people want to adopt it widely?
- Have we completed a context assessment to inform the scale plan? How are we exploring and monitoring contextual factors?

- How are we monitoring and responding to scale-related data?
- How are our assumptions about readiness impacting who benefits from scaling?

Resources - Scaling

- ExpandNet
- Beyond Adoption: A New Framework for Theorizing and Evaluating Nonadoption, Abandonment, and Challenges to the Scale-Up, Spread, and Sustainability of Health and Care Technologies by Greenhalgh, T., Wherton, J., Papoutsi, C., et al.
- Are they the same? Disentangling the concepts of implementation science research and population scale-up by Lee, K., McKay, H., Crane, M., et al.
- The Intervention Scalability Assessment Tool by The Australian Prevention Partnership Centre

Related to scaling can also include **assessing context and readiness.** This includes doing readiness assessments, determining if a site is 'ready', and/or selecting sites to scale to (which connects back to equity).

- Readiness Thinking Tool by The Wandersman Center
- The Context Compass Framework Explained: How to Assess Context Across Levels and Phases of Implementation by Khan, S.
- Making Context Assessment Manageable: How to Slice and Dice Context in Different Ways by Khan, S., and Moore, J.E.
- Measuring Context: Balancing Implementation Research and Practice by Khan, S.
- Hexagon Readiness Tool by the Family Planning National Training Center
- Implementation Community Webinar: Readiness in the Real World by Moore, J.E.