

IDENTIFYING BARRIERS, ANALYZING WORKFLOWS, AND SELECTING IMPLEMENTATION STRATEGIES WITH COMMUNITY PARTNERS

*A Toolkit Developed for
Implementation Investigators by the
Implementation Science Center for
Cancer Control Equity*

Contents

<i>Introduction</i>	3
<i>Teams and Staffing</i>	4
<i>STEP 1: Identify Barriers</i>	6
<i>STEP 2: Workflow Review</i>	9
<i>STEP 3: Select Implementation Strategies</i>	12
<i>STEP 4: Facilitate Implementation Strategies</i>	15
<i>STEP 5: Support Sustainability</i>	17
<i>Conclusion</i>	19
<i>References</i>	19

Introduction

Statement of Purpose: This document is designed to help investigators think through the steps needed to select and test implementation strategies in community-based health care settings.

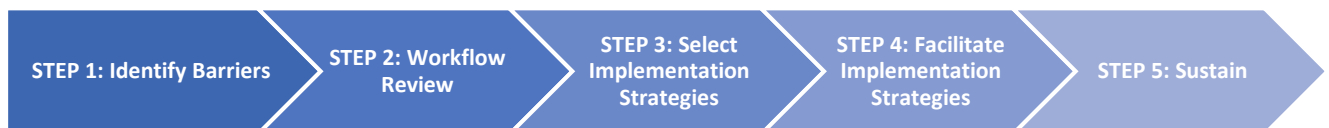
Audience: Investigators conducting research in community-based health care settings such as primary care clinics and community health centers.

The [Implementation Science Center for Cancer Control Equity \(ISCCCE\)](#), an ISC³ funded Center, is a partnership between the Harvard Chan School of Public Health, the Kraft Center for Community Health at Massachusetts General Hospital and The Massachusetts League of Community Health Centers. ISCCCE partners with community health centers to improve cancer prevention and control with equity at the forefront of designing, implementing, and evaluating projects.

During a series of one-year pilot projects with community health centers, ISCCCE and its partner sites developed and successfully utilized a collaborative process for 1) identifying barriers to evidence-based, equitable care, 2) reviewing existing clinical workflows 3) selecting implementation strategies, 4) facilitating implementation strategies and 5) supporting sustainability. This toolkit details our process and the tools that we have adapted and utilized with the anticipation that these may be of value to other community-engaged research projects. This process unfolds through a series of approximately 5-7 meetings with the health care team. Though the process was developed during a series of one-year pilot studies, it can be used in larger implementation studies as well. It should be noted that the steps can be reordered to meet the needs of the project or study. Specific examples of tools utilized in ISCCCE studies can be found in blue text throughout the toolkit.

This toolkit was designed to stand alone or pair with the implementation strategy roadmap created by our partner ISC³ Center, [Optimizing Implementation in Cancer Control \(OPTICC\)](#) from University of Washington, Kaiser Permanente Washington Health Research Institute, and the Fred Hutchinson Cancer Center. The OPTICC roadmap provides instructions for matching implementation strategies to barriers with consideration of mechanisms and specific conditions that need to be in place for the strategy to be successful.

The toolkit will outline the following five activities, ordered as steps:



Teams and Staffing

This section provides suggestions for roles to include in the research team and the health care teams. It is not required that either team fulfills each role for a study, and one person may play more than one role, but involving a variety of individuals and roles provides unique perspectives and may lead to the greatest buy-in and likelihood of success.

For some projects, the Research Team and the Health Care Team are distinct (for example, in an academic-community partnership). However, if a health facility has the capacity to conduct its own research internally, research roles may be played primarily by health care staff.

Research Team

- Principal investigator or study lead: guides aims and goals of project, facilitates meetings, responsible for overall progress and outcomes.
- Research coordinator or research assistant: supports the project or study lead, coordinates and documents meetings, plays a key role in communicating with health care team, monitors tasks, timelines and activities.
- Implementation support staff: Implementation support member offers guidance in use of these tools/processes across pilots or studies, shares knowledge of resources, identifies capacity-building needs that align with or inform the project.
- Clinical research support staff: serves as a consultative/support role, provides guidance on project, provides clinical support and perspective. This role may be played by the Principal Investigator (PI), study lead, Implementation Team Director, or other clinicians.
- Data manager: serves as a consultative/support role to provide guidance on available data and the methods by which the project is collecting data. Data sources may include EHR data (with appropriate data use agreements and sharing methods in place), survey data (e.g., inner setting organizational level data, outer setting area level data, individual stakeholder surveys), and qualitative data (interviews or observational data of facilitation or other communications).
- Implementation science methods expert: Methodologic expertise from team members or consultative support for implementation science methods and measurement.

Health Care Team

- Project lead: main contact who leads the team in on-site activities. The project lead is usually determined by executive leadership at the health care setting. The project lead is

often the quality improvement or population health director or manager, but this role varies depending on the project.

- Clinical champion: supports the project from the clinical side, provides input on strategies, clinical workflows, clinical staffing, feasibility, etc. Clinical champions are usually identified based on their interests and available effort. Examples include a provider champion or nursing leadership; this role may also be the project lead.
- Other project staff: may include other quality improvement staff, nursing, medical assistants, community health workers, navigators, data managers, laboratory managers, etc. depending on the project. Health facility staff may be needed to facilitate access to and interpretation of data, help recruit interview or survey participants, and provide perspectives on integrating new interventions or research activities into workflows.

STEP 1: Identifying Barriers and Facilitators

Goal: To identify implementation barriers and facilitators with the health care team to understand the feasibility of implementing potential strategies.

Prior To Meeting with Health Care Team, the research team should:

- Aim to understand local context, population, and resources that may serve as barriers or facilitators to implementation. The research team compiles a list of the barriers or facilitators based on published literature. Barriers could be organized into categories (patient, radiology, human resources, staff workflow, and technology), levels (system-level, provider-level, patient level). It may be valuable to utilize an existing implementation science determinants framework, for example the Consolidated Framework for Implementation Research (CFIR).
- Conduct a rapid evidence review to summarize published literature, for example of known breast cancer screening barriers and facilitators. (*OPTICC Methods – The OPTICC Center, 2023*). The rapid review is organized in a one-page format to share with health care partners. Rigorous rapid literature reviews can take 3 months or less to complete (Lewis et al., 2021). For limited timeline projects (such as one year pilot studies) a more limited review may be needed. This approach grounds the discussion in prior literature while further facilitating discussion of barriers and facilitators experienced in the individual health care setting. [Cochrane](#) and [The Community Guide](#) are good resources for summarized findings on particular topics such as cancer, asthma, diabetes, etc. (*Cochrane, n.d.; Guide to Community Preventive Services, 2022*)

Collaborative Tools for Engaging Community Partners in Identifying Barriers and Facilitators

The selection of collaborative tools should be based on the needs and resources of the research and health care teams. Health facility staff will be given an overview of how to use the collaborative tool at the start of the meeting, have an opportunity to test using the tool, and ask any questions of the research team prior to starting.

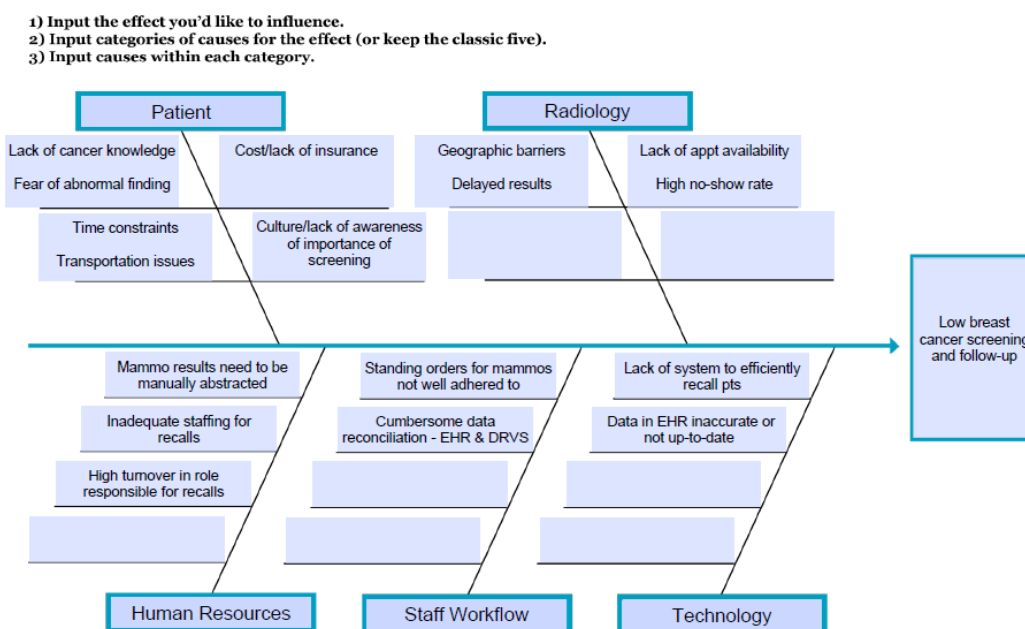
A potential tool is IHI’s Cause and Effect Diagram (Cause and Effect Diagram | IHI - Institute for Healthcare Improvement, n.d.), also referred to as “fish bone diagrams.” Simple collaboration tools such as Miro or Jamboard allow for space to identify and discuss current barriers patients face in regard to completing cancer screenings at multiple levels (e.g. patient level, provider level, systems level, etc.). More information about the tools are below in Box 1. Collaborators may also utilize more widely available programs like PowerPoint with one attendee keeping notes where all can see and confirm them visually. In the Cause and Effect model, the aim is to identify barriers (causes) on the causal pathway to specified health or healthcare delivery outcomes (effects). In the breast cancer screening example below, the health outcome was low screening and follow up rates at a health care setting.

Box 1. More about the online tools:

→ [Jamboard](#) is a collaborative digital whiteboard, which allows multiple users to input content simultaneously.

→ [Miro](#) is a visual platform for collaboration that has available templates. One ISCCCE research team used the [Cause and Effect Diagram template](#) for their barrier identification process, pre-populating the diagram with barriers and facilitators reported in the literature on breast cancer screening follow-up.

Figure 1. Example of fish bone diagram examining contributors to low rates of breast cancer screening



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Meeting with Health Care Team

During the designated meeting to discuss barriers, the research team virtually displays the pre-filled Cause and Effect Diagram or “fish bone diagram” with the barriers/facilitators identified in the literature, using Jamboard or Miro (with barriers organized by level) on their screen so all were able to view. The meeting facilitator/project lead walks through the aims of the exercise and guides the discussion. Examples of questions are below in Box 2. Breakout groups may also allow for improved engagement if more than 6-8 participants are present with a semi-structured guide. If possible, the team updates the fishbone diagram in real time, in response to the staff input.

Box 2. Examples of Questions to Ask of Health Care Staff:

- *Do these categories align with the screening barriers at your health center? What is missing?*
- *We've started with a few examples of causes of low screening rates within each category to start the discussion. In the patient category, are there any barriers listed here that don't align with your context?*
- *What's missing?*

Post-meeting with Health Care Team

- After the meeting, the research team sends the completed Cause and Effect Diagram or Jamboard to the health care team to review, edit and share with others on the team when additional perspectives are needed. The research team requests that the health care team return the reviewed and edited version by a deadline that allows sufficient time for preparation for the next meeting.

STEP 2: Review of Clinical Workflows

Goal: To review and document the workflow and roles at each health care setting. This is important to document and refer to when considering how particular strategies may be implemented.

Prior To Meeting with Health Care Team

- Research team prepares a workflow worksheet that will be utilized during the workflow review meeting to capture details of their unique workflows. The example below is specific to screening for tobacco use and referral for treatment when patients present in the clinic for a primary care visit. The team needs to consider the scope of the workflow.
- Additionally, the research team needs to consider what perspective is most valuable for mapping workflows. For some projects, understanding workflows from the staff perspective is most important. For other projects, the patient perspective is most important (e.g., patient arrives and checks in, patient meets with MA for pre-visit screening and rooming, patient meets with provider who counsels on screening, etc.). The team should prepare probes to explore specific steps with the health care team.

Box 3. Example Workflow Review Facilitator Guide Questions

- *Can you walk through the experience of the patient, starting with the time they walk into the clinic for an office visit until the screening is scheduled?*
 - *Where does the patient check in?*
 - *Does the patient meet with the MA for pre-visit screening and rooming?*
 - *Who provides counseling for screening?*
- *Can you walk us through the role of the medical assistant? Do they review pre-visit planning with a provider?*
- *What staff complete each step?*
- *How is the HER utilized?*
- *Are there any follow-up procedures or tools to monitor no-shows or screening completion?*

Meeting with Health Care Team

- The research team leads the meeting and asks the health care team to walk through their workflow. For this workflow review meeting, it is helpful if a provider or other clinician is also present in addition to the project lead and other project staff, depending on the intervention workflow being examined. If there are multiple workflows relevant to an outcome the team will want a worksheet for each workflow (e.g., visit-based screening, outreach-based screening). One member of the research team shares their screen and inputs content into the grid or worksheet. A workflow scenario can be

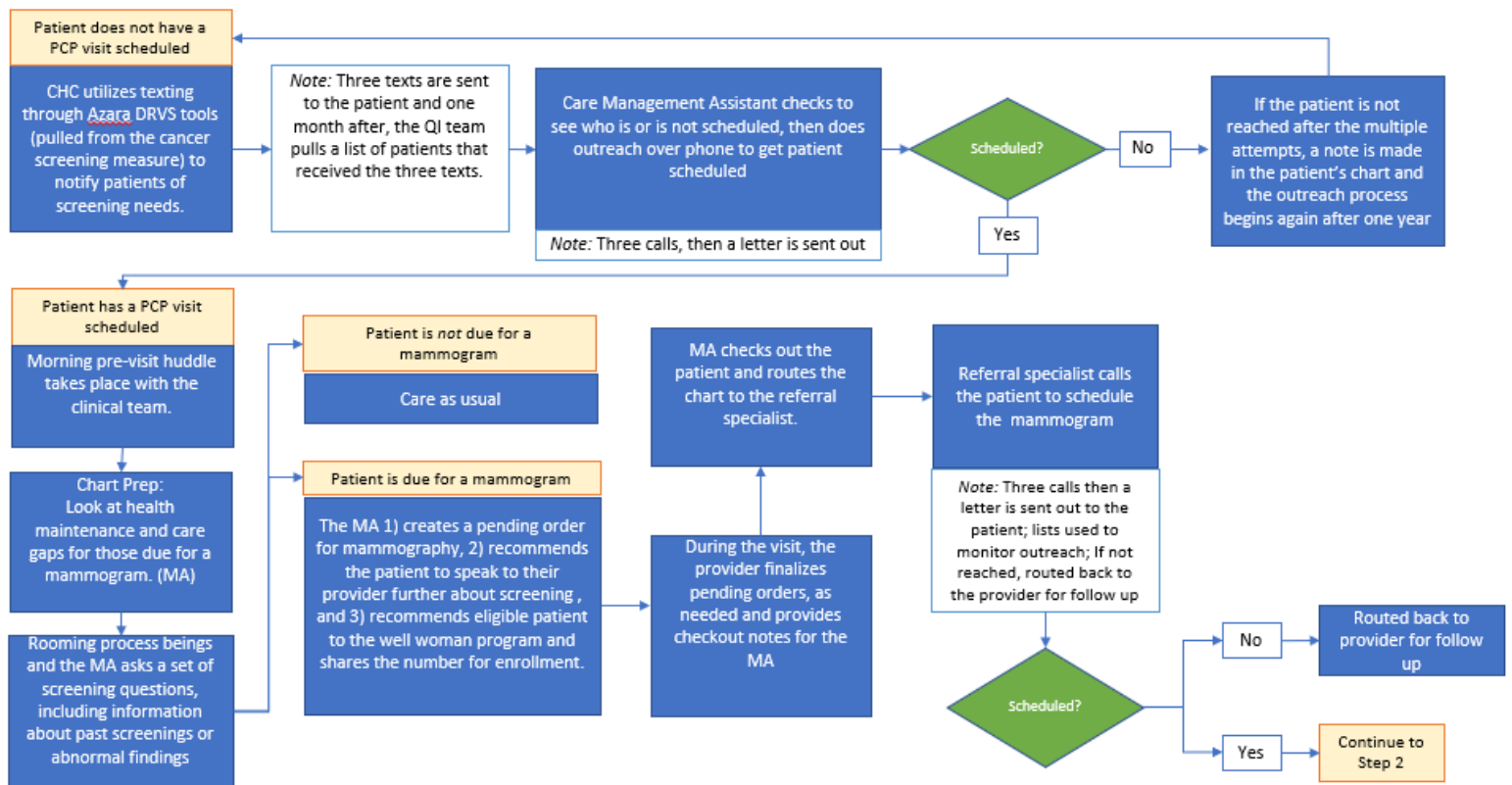
presented to start the conversation, in this case focused on screening but not surveillance.

Post-meeting with Health Care Team

- The grid with notes taken during the meeting with the health center is transformed into a workflow diagram by the research team. This can be done with PowerPoint, Miro, Figma or another editable program. A draft of the workflow diagram is shared back with the community health center to review and edit or provide feedback. It is recommended that the research team walks through the completed diagram in a subsequent meeting with the health care team to ensure it aligns with the information shared, this method enables the research team can ask clarifying questions.

Figure 2. Example of Workflow Diagram for Identifying and Engaging Patients Due for Breast Cancer Screening

Breast Cancer Screening Initial Visit Appointment



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STEP 3: Selecting Implementation Strategies

Goal: To select feasible implementation strategies that are relative to identified barriers and the health care facility's workflow.

There are three key processes that are important for selecting implementation strategies:

- 1) Matching potential strategies to address identified barriers.
- 2) Ranking the strategies based on potential impact and importance.
- 3) Assessing the feasibility of implementing the strategies, which incorporates considering the workflows and necessary conditions at the health care setting for implementation.

Prior To Meeting with Health Care Team

- Study team reviews potential implementation strategies relative to the local workflow. A list of potential strategies would be developed by the research team which would be informed by the literature such as strategies with an evidence-base from a relevant context or population, or reviewing ERIC strategies (National Collaborating Centre for Methods and Tools, n.d.; Waltz et al., 2019), or strategies developed and used in other studies in this context. Suggested strategies to address the identified barriers should be presented with evidence.
- Generate a table with columns for strategies, corresponding barriers, proximal outcomes that would represent successful implementation of the strategy, and any preconditions necessary to be able to implement the strategy. Examples of preconditions, or elements that would need to be in place at the health care setting in order for a strategy to be feasible, include lung screening mapped into the electronic health record to be able to implement pre-visit planning reports, or having available navigator time to implement a systematic navigation referral.
- In the strategy column, the study team can provide examples but it is recommended that most of the column is blank to allow for space for discussion with the community. Consider including short-term and long-term strategy examples. A prioritization column could also be included in the table. The meeting planning should focus on compiling evidence and barriers from the fish bone diagram or other methods used in Step 1. The example below is intended to show the design of the strategy table, a blank copy is linked below as well.

Table 1. Example Table of Implementation Strategies

Barrier	Strategy	Proximal outcome (s)/measure of effect	Any necessary conditions for the strategy?
Need for improvement in the process of identifying patients/competing priorities	Targeted outreach for eligible patients	Patients outreached, lung screening referrals, lung screening completed per month	Staff available for outreach
Pack years are challenging to measure/eligibility is challenging	Improving identification of eligible patients	Number of eligible patients (patients with HM item listed) per age eligible population, ? is pack year documentation completion possible	EMR trainer to support documentation, resources to support discussion with MAs
Patient lack of awareness	Patient education	Numbers of referrals to CHW team, number of educational sessions, no. of rooms with educ materials, campaigns/materials developed	Dedicated staff for educ activities, available models/tools for education or curriculum

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Meeting with Health Care Team

- Display the table and discuss the actionable barriers, strategies that target key barriers, proximal outcomes that are feasible to measure, and any preconditions that are required for each implementation strategy.
- Populate the table based on the discussion. It may be helpful to start with the barriers that are likely to have a large impact if addressed.
- If needed, schedule follow-up to continue discussion. This could involve review information gathering, discussing buy-in, or selecting final strategies that will be tested.

Box 5. Considerations When Discussing and Selecting Implementation Strategies:

- *Are there efficiencies in bundling strategies, or overlap where staffing would support two concurrent strategies? Bundling a strategy could be pairing an outreach call for a FIT test with following up on second screening that the patient may be due for (such as mammogram or social needs).*
- *Is there a way to leverage strategies already in place, or utilize efficiencies from existing workflows?*
- *What local factors at the health center could impact strategies such as electronic medical record conversion or staffing changes?*
- *Is there other information or resources that needs to be gathered (e.g. patient or provider facing materials)?*
- *Is buy-in or other support needed from the health center?*
- *Suggest the health center considers project timelines and resources in addition to priority and actionability of barriers.*

Post-meeting with Health Care Team

Once the implementation strategies have been selected:

- Propose timelines for launch, reporting, and recurring meetings by email with health care team. The timelines will vary and also be dependent on the strategies selected and the preparatory work or training needed for the strategy.
- Setting up recurring meetings with the health care project team and research team is important to have a designated time to review progress, successes, challenges, and additional support needed. Meeting for one hour biweekly to start may be a good frequency, then the teams can determine if shortening the meeting time or meeting less frequently is desirable based on implementation progress. It is helpful if the research team clarifies what the health care team might be doing between the meetings to implement the strategies.
- Define the meeting timeline and the implementation timeline between the research team and health care team and consider which team members need to attend which meetings. Consider collection of facilitation data including meeting recordings or meeting minutes.

STEP 4: Facilitating Implementation Strategies

Goal: To provide monitoring and support and facilitation to the health care team as they implement the identified strategy.

Prior To Meeting with Health Care Team

- Consider using a **facilitation guide** for meetings with the health care teams to follow-up on their implementation process. Use of the guide would help set expectations for meeting flow and enable thematic or content coding of meeting discussions.

Example of Facilitation Guide

<p style="text-align: center;">I-Lab Implementation Facilitation Meeting Guide</p> <p><i>During meetings, have the workflow and strategy maps handy to refer to. Ask for permission to record.</i></p> <p>Date: Time: Health Center: List health center team members present (name and role): List I-Lab/pilot team members present:</p> <p>Introduction</p> <p><i>We are going to ask you a few questions to guide our conversation. If it is okay with you, we will record and take notes during each of these meetings. Doing so will help our team track and analyze the implementation progress. Although one goal of this study is for our team to learn from these sessions, our main priority is to hear about how the intervention is going for you and your center and how we can help you with any challenges you may be experiencing with the implementation. Is it okay if I start recording now?</i></p> <p>Questions</p> <ol style="list-style-type: none">1. Overall, how are the implementation strategies going?<ol style="list-style-type: none">a. Probe about:2. We'd like to hear about each strategy. How is each going? What are your next steps?3. What have been the successes so far?

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- A **progress report** could also be used to collect information about implementation success and challenges and summary data prior to the meeting with the health care teams. Prior to facilitation, view the report structure to explore feasibility of data elements and to tailor the report to any demographic groups the health care facility is focused on. Ask the health care team to complete the report on a recurring basis (i.e., bimonthly or monthly). The due date should be before the meeting with the health care

team to allow time to review their responses and build the meeting agenda. Also, review the meeting notes from past meetings to develop a list of action items of other discussion points to check-in on.

- An example of a [blank progress report is linked here](#).

Meeting with The Health Care Team

- Utilize the facilitation guide to structure the meeting. One research team member takes notes during the meeting and notes attendees and date of meeting. Seek permission to record if meetings will be recorded. All facilitation meetings should be recorded to ensure the notes are accurate and the main discussion points are not missed. The recordings can also be shared with other members on the research or health care team if they can not attend.
- Review reporting tools may include qualitative descriptions of implementation successes and challenges, concrete deliverables, quantitative proximal outcomes for the strategies (e.g., training attendance, FIT kits mailed, EHR tools clicked), as well as health outcome summary data by equity metrics (e.g., breast cancer screening by race, ethnicity, language), ensure feasibility/availability of data in reporting tool.
- If the team faces unanticipated challenges such as discovering feasibility issues with all strategies or other challenges with the context (e.g., public health emergency, staffing shortages) they can return to the table of key barriers and strategies to edit preconditions or identify additional potential strategies.

Post-meeting with The Health Care Team

- Follow-up each meeting with any action items. These could be resources identified as a need from the health care team or information needed by the research team.
- An [example of a survey to measure feasibility](#) is linked here. Also, an [example of a post-study interview guide](#) is linked.

STEP 5: Supporting Sustainability

Goal: To initiate a discussion on how the implementation strategies may be sustained and what the facilitators and barriers are to sustainment.

Throughout the project period, the research team and health care teams should be thinking about approaches to sustaining the intervention. An important component of sustainability is continuing to modify elements of the intervention as needed to suit the health facility's needs and optimize feasibility. Discussion about such adaptations can be a starting point for identifying facilitators and barriers to sustainment.

Prior To Meeting with the Health Care Team

- Develop a discussion guide to inform the conversation with the health care team. Questions may include how they plan to continue the study activities, what components are particularly important, how will outcomes continue to be measured and who will be responsible for the elements of the intervention.
- Consider sharing a resource document with sustainability suggestions (from the literature and research team). [Link to example document with considerations for sustainability from the literature.](#)

Example of Sustainability Discussion Guide

<p style="text-align: center;">Sustainability Discussion Guide</p> <ol style="list-style-type: none">1. How does your team think about sustaining interventions at the end of the projects/grants? What are your plans for sustaining the activities from this project?2. What are the core elements from this project that will be important to sustain (probe with examples)?3. Are there elements that need to be adapted to improve the fit with your workflows/resources?4. Do you envision that your team will continue to meet for this intervention? How will this work be staffed? How will the staff be trained or supported to continue the intervention?5. What other factors are important for continuing this work? Probe for competing priorities, support of leadership, staffing, funding, technical assistance? For which of these do you plan to take action now to promote sustainment?6. How will the team continue to review progress towards primary and secondary screening targets? Will the team monitor continued use of the tools in this project? How will they monitor this?7. Will your team continue to look at screening rates by race ethnicity, insurance, and language or other potential screening gaps?<ol style="list-style-type: none">a. What would the process be to make practice adaptations to close gaps? Who would lead this?

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Meeting with the Health Care Team

- Implementation team leads the meeting with the community health care team. Meeting is recorded and one team member takes notes. The research team is also present to ask any follow up or clarifying questions.
- Allow the health care team to ask any questions about sustainment or the research
- End the meeting with a summary of the discussion and some sustainability considerations from the research.
- A full list can be found in the considerations document linked above but a few examples include:
 - Maintaining a project champion
 - Setting up recurring meetings
 - Check-ins with research team if interested
 - Communication to health care staff about who is leading the tools

- Maintenance of staff buy-in, training, and prioritization
- Consider how your health care setting defines sustainability as it pertains to the project
- Define outcomes or desired benefits (how will you know if partial or full sustainment?)
- Modifiable influences on sustainability (what can be leveraged in the context to promote sustainment?)

Post-meeting with the Health Care Team

- The research team organizes the meeting notes into categories/themes that can be shared back to the health centers as a resource
 - Some categories may include tools, implementation strategies, challenges, facilitators, and logistics.

Conclusion

Together with community health center partners, ISCCCE has developed this toolkit to document the process and tools their studies utilized to identify barriers, review workflows, and choose feasible and appropriate implementation strategies to improve cancer screening rates. We have found that following these steps led to strong partnerships with the health care teams and the development of implementation strategies that considered the available resources and competing priorities at the clinics. These steps could be utilized individually or in a different order depending on the timeframe of the project or study. We hope this toolkit will be useful for you and we encourage you to reach out to us with any questions.

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4