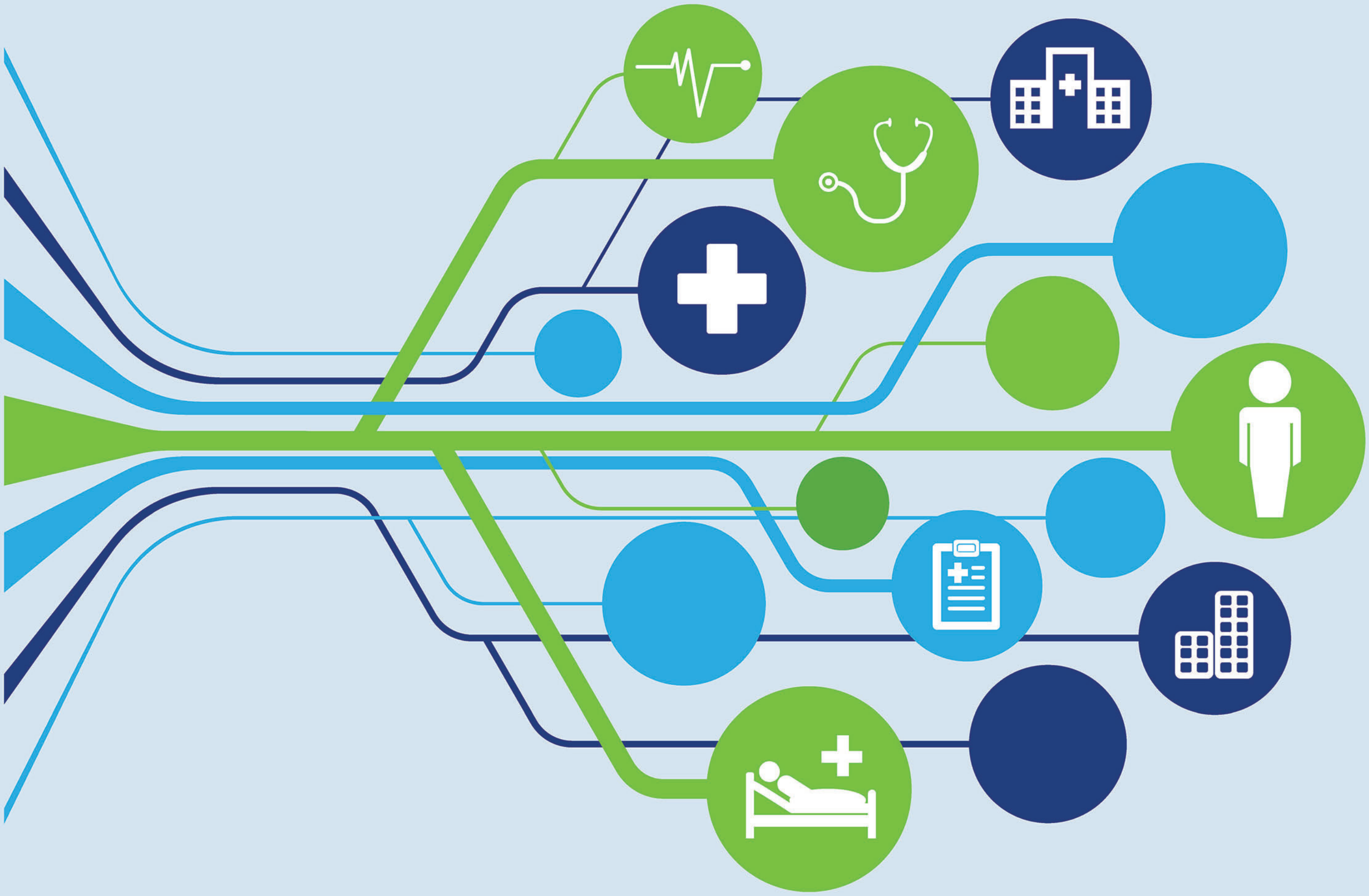
PCORI
Dissemination & Implementation

Toolkit



February 2015

MATHEMATICA
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ACKNOWLEDGMENTS

A team led by Mathematica Policy Research prepared this report for the Patient-Centered Outcomes Research Institute (PCORI). We are grateful to many people for their input and contributions to the project.

First, we would like to acknowledge our project officer, Orlando Gonzales, whose thoughtful review of the Framework and Toolkit, and other documents associated with the project, was invaluable. We are also grateful to many other PCORI leaders and staff, including Dr. Joe Selby, Ms. Jean Slutsky, Dr. Bridget Gaglio, Ms. Sue Sheridan, Ms. Susan Hildebrandt, Mr. William Silberg, Mr. Greg Martin, and Ms. Emily Gagola. We would also like to thank members of PCORI Engagement, Dissemination, and Implementation Committee who provided thoughtful feedback on the project.

We are grateful to the members of the Stakeholder Council who provided guidance and insights throughout the development of the Framework and Toolkit: Dr. Andrew Baskin, Dr. Kathleen Blake, Mr. Henry Claypool, Ms. Kristen Cox Santiago, Dr. Linda Cummings, Ms. Joyce DuBow, Dr. Newell McElwee, Ms. Marjorie Ginsburg, Dr. Jessie Gruman, Dr. George Isham, Dr. Marguerite Koster, Dr. Julie Kroviak, Dr. David Lansky, Dr. Sanne Magnan, Mr. Michael Millenson, Dr. Judy Mohr Peterson, Ms. Margaret Murray, Dr. Robert Phillips, Dr. Anne Sales, Dr. John Santa, Mr. Dwayne Spradlin, Mr. Gary Schwitzer, Dr. Elizabeth Yano, Mr. Richard Zaldivar, and Dr. Judy Zerzan.

The Framework and Toolkit could not have been completed without the work of many colleagues and friends not listed as authors but who made significant contributions. From Mathematica, Jennifer de Vallance provided leadership and guidance to enhance the presentation and content of the products and led the development of the Stakeholder Workshop. Adam Coyne and Dr. Nyna Williams provided feedback to us at many important points of this work. Dr. Sarah Forrestal coordinated stakeholder feedback activities on the Mathematica team and conducted data collection efforts. Amanda Lechner conducted stakeholder feedback activities and designed the layout of the documents. Rituparna Ganguly, Rebecca Gourevitch, Ananya Khan, Dr. Frank Martin, Julita Milliner-Waddell, Betsy Santos, and Abigail Zier contributed to the stakeholder feedback activities. Brigitte Tran designed the framework visual. Carmen Ferro, Christal Stone Valenzano, and many other staff managed plans for the Stakeholder Workshop. We are indebted to Heather Gordon, who managed the project budget, developed time lines, and organized project meetings.

We are appreciative for the contributions of our partners from AcademyHealth, WebMD, and Palladian Partners, who contributed in a number of ways and provided valuable feedback on the Framework and Toolkit. From AcademyHealth, which led the stakeholder feedback activities and drafted two spotlights, we thank Alison Rein, Kristin Rosengren, Dr. Lisa Simpson, and Kelsi Feltz. From WebMD, which recruited participants for patient, caregiver, and clinician webinars, we thank Jane Lowers, Matthew Holland, Steven Murphy, Keri Hooper, and Marc Rogers. Lastly, we thank our colleagues at Palladian Partners for working on the literature review and stakeholder feedback activities: Karen Eddleman, Amy Ewing, Catherine Harmon, Bethany Hoffman, Susan Keown, Donna Messersmith, Heather Pierce, Terry Taylor, and Laura Zeifang.

IN MEMORIAM

The team that developed the Dissemination & Implementation Framework and Toolkit for the Patient-Centered Outcomes Research Institute is grateful for the contributions of **Dr. Jessie Gruman** who was a Stakeholder Council member and emphasized the importance of the patient perspective in her comments on this project. A tireless advocate for patients, Dr. Gruman passed away on **July 14, 2014.** As founder and president of the Center for Advancing Health, she was a **pioneer** in promoting patient engagement in health care. Dr. Gruman will be missed and never forgotten.

CONTENTS

FIGURES

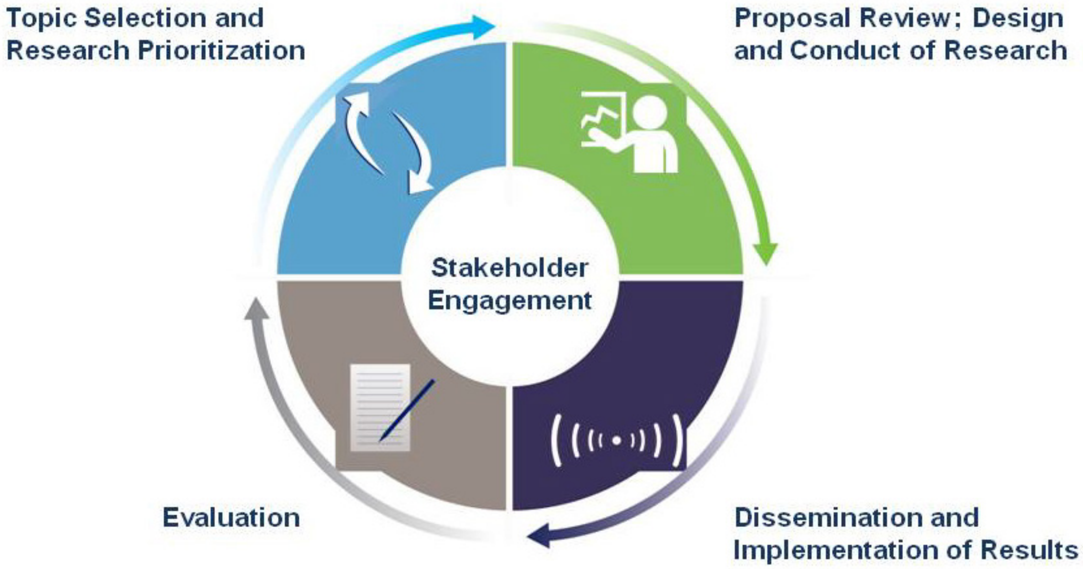
EXHIBITS

I. INTRODUCTION

The Dissemination and Implementation (D&I) Toolkit is a companion document to the D&I Framework that describes the core components of dissemination and implementation. The Toolkit is a hands-on resource, grounded in D&I best practices, for the Patient-Centered Outcomes Research Institute (PCORI) and its partners. This chapter describes the purpose and goals of the Toolkit, its intended audiences, and its contents, as well as how it was developed. This chapter also includes the visual representation of the D&I Framework and an expanded discussion of the importance of context, engagement, and evaluation to effective dissemination and implementation.

In addition to increasing the quantity, quality, and timeliness of useful information available to healthcare decision makers, PCORI aims to speed the use of comparative effectiveness and patient-centered outcomes research (CER and PCOR). Effective dissemination and implementation are critical to achieving this goal. **D&I activities are complex and costly**, however. The Toolkit seeks to address this by providing PCORI and its partners with actionable steps for dissemination and implementation to manage the complexity and identify trade-offs to make with scarce resources. As already identified by PCORI, this is not possible without **broad and ongoing engagement of stakeholders** (Figure I.1).

Figure I.1. Broad and Ongoing Stakeholder Engagement Is Central to Success



Stakeholders include patients, caregivers, patient advocacy organizations, clinicians, clinician specialty societies, policymakers, healthcare delivery systems, payers, insurers, employers, purchasers, life sciences industry leaders, hospitals, funders, researchers, journal editors, training institutions, publishers, healthcare journalists, and bloggers.

Start D&I Activities Before Findings Are Ready

Effective dissemination and implementation start at the point of research topic selection. To truly understand the ***needs of audiences*** who will use evidence to make real-world health and healthcare decisions, research must address ***questions that are relevant and meaningful*** to those audiences. To that end, individuals and organizations who partner with PCORI to disseminate and implement evidence should be engaged as ***partners from the beginning.***

- ### Goals of the D&I Toolkit

This Toolkit is intended to be a resource for PCORI and its collaborators in developing D&I plans for CER and PCOR evidence. The Toolkit is not a how-to manual; rather, it is a flexible, living document that can help PCORI and its partners **develop a comprehensive approach** to the dissemination and implementation of health and healthcare evidence from all PCORI National Priority Areas for research. Every D&I plan developed using the tools in this document will be different from prior and subsequent plans because successful D&I activities account for **the nature of the evidence, the audience, the setting, and other factors** that vary among plans.

A Focus on PCOR and CER Evidence

The D&I Toolkit focuses on the dissemination and implementation of CER and PCOR that provide information on different health or healthcare choices, rather than population health-level research or efficacy studies. The type of evidence of interest to the planning efforts described in the Toolkit includes ***findings that have the potential to have considerable impact on health and healthcare decision making***.

Although *evidence* is the preferred term to describe CER and PCOR findings to be disseminated and implemented, related terms are also used. Evidence is referred to as *practices*, *programs*, *interventions*, and *innovations*; in addition, evidence may be implemented as *policies* and *guidelines*. These terms capture the variation in the complexity of evidence and reflect the terminology used by the healthcare community and the literature.

- ### Intended Audience

The Toolkit's intended audience is **PCORI leadership and staff, as well as members of PCORI advisory panels and committees**. In addition, the Toolkit should be valuable to many other health and healthcare entities, organizations, and agencies, as well as healthcare purchasers that disseminate and implement CER or PCOR evidence. These stakeholders include, but are not limited to, the Agency for Healthcare Research and Quality (AHRQ), health delivery systems, payers, insurers, and other funders.

What Is in the Toolkit?

The Toolkit is organized according to the core components of the D&I Framework, which depicts the process of dissemination and implementation. The Framework shows how dissemination and implementation **occur at the same time as and build upon other PCORI activities**. Chapter II presents recommendations on foundational elements for dissemination and implementation that PCORI could develop. Chapters III through VII discuss how PCORI and its partners could approach each component of the Framework by identifying action steps, potential challenges, and ways in which stakeholder engagement can improve the likelihood of success.

The Toolkit identifies questions that constitute practical considerations that PCORI and its partners could consider when developing a D&I plan.[1] These questions are included throughout the Toolkit in **worksheets** that can be used to develop the elements of D&I plans (all are in Appendix A). The Toolkit also includes several examples of best practices for different Framework components, referred to as ***Spotlights***, which provide users with real-world context. Common threads running through these spotlights include stakeholder engagement, the importance of context, and evaluation of D&I efforts. Each chapter on the core components of the Framework also includes **considerations for underserved populations** in the form of a highlight or within a spotlight. Many people provided feedback that helped shape the Toolkit, and some of that feedback is included under the title **"What Stakeholders Are Saying About…"** in Chapters III to VII. These summaries remind planners that stakeholder input is central to dissemination and implementation.

How Was the D&I Toolkit Developed?

The Framework and Toolkit were informed by a review of peer-reviewed and grey literature and discussions with people from 15 stakeholder groups. Discussions with the PCORI Advisory Panels on Addressing Disparities and Patient Engagement, the PCORI Engagement, Dissemination, and Implementation Committee, PCORI staff and leadership, and leadership at AHRQ[2] also shaped these documents. Stakeholder feedback was solicited through interviews, focus groups, and webinars from people representing diverse stakeholder groups, including patients, caregivers, clinicians, healthcare delivery systems, policymakers, and payers. Appendices B and C contain, respectively, a description of the methods used and an acknowledgment of the people who provided feedback.

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[1] This Toolkit is one resource among many that exist and could be useful to diverse audiences. Other resources include a **Dissemination & Implementation Models** website and a **Users' Guide to Dissemination and Implementation** developed by the Center for Research in Implementation Science and Prevention.

[2] AHRQ is, of course, an important stakeholder in the dissemination of PCOR. Section 937 of the Patient Protection and Affordable Care Act of 2010 states "(1) Dissemination.--The Office of Communication and Knowledge Transfer (referred to in this section as the `Office') at the Agency for Healthcare Research and Quality (or any other relevant office designated by Agency for Healthcare Research and Quality), in consultation with the National Institutes of Health, shall broadly disseminate the research findings that are published by the Patient Centered Outcomes Research Institute established under section 1181(b) of the Social Security Act (referred to in this section as the `Institute') and other government-funded research relevant to comparative clinical effectiveness research."

Defining Dissemination and Implementation

Several terms synonymous with dissemination and implementation are used in practice and in the literature. Through a review of definitions in the peer-reviewed literature and from stakeholder input (see Appendix D for more information), the following definitions were developed. These definitions are not specific to PCORI D&I activities but reflect the culmination of perspectives regarding the nature and goals of these processes.

- **Dissemination** is the intentional, active process of identifying target audiences and tailoring communication strategies to increase awareness and understanding of evidence and to motivate its use in policy, practice, and individual choices.
- **Implementation** is the deliberate, iterative process of integrating evidence into policy and practice through adapting evidence to different contexts and facilitating behavior change and decision making based on evidence across individuals, communities, and healthcare systems.

Dissemination and implementation are overlapping yet distinct. They overlap because knowledge and awareness of the evidence influence its use. They are distinct in that dissemination spreads knowledge of evidence, and implementation considers evidence in context and develops strategies to make the use of evidence easier and routine. Exhibit I.1 presents defining elements of these processes, highlighting their overlap.

Exhibit I.1. Defining Elements of Dissemination and Implementation

Elements	Dissemination	Implementation
Involves stakeholders who help to develop and execute strategies	✓	✓
Active, planned, and intentional; focuses on desired actions and outcomes given the evidence	✓	✓
Targeted and tailored to audiences	✓	✓
Focuses on taking evidence to scale	✓	✓
Uses evidence-based strategies where possible	✓	✓
Is iterative and focuses on sustained change, involving ongoing monitoring, feedback, and refinement	✓	✓
Aims to increase awareness, understanding, and motivation to use and sustain knowledge of evidence	✓	
Aims to integrate evidence into policy and decision making and to change behavior and practice and sustain use of evidence		✓
Accounts for financial and non-financial incentives for change and barriers that must be resolved	✓	✓
Requires balancing adaptation of the evidence to the context, setting, and population with fidelity to the core components of the evidence-based practice		✓

- **PCORI D&I Framework**

Several models and frameworks exist that represent dissemination or implementation separately or consider one context, such as health systems or public health settings (Appendix E). The PCORI D&I Framework incorporates aspects of existing models to understand dissemination and implementation within the context of PCORI's goal to speed adoption of PCOR. The fundamental characteristics of PCOR—stakeholder-informed research that brings real-world relevance and the study of the effectiveness of options for diverse decision makers—helped to guide the development of the Framework. Figure I.2 shows the Framework, highlighting the iterative process of dissemination and implementation and the basic questions and challenges that PCORI and its partners will encounter when developing D&I plans. Takeaways from the framework for PCORI and its partners include:

→ **Engagement is central** to accelerating the use of PCOR in health and healthcare decision making and is bi-directional in that PCORI and partners both share and receive information and feedback from one another. It is necessary to engage all types of stakeholders, and engagement begins at the priority-setting stage.

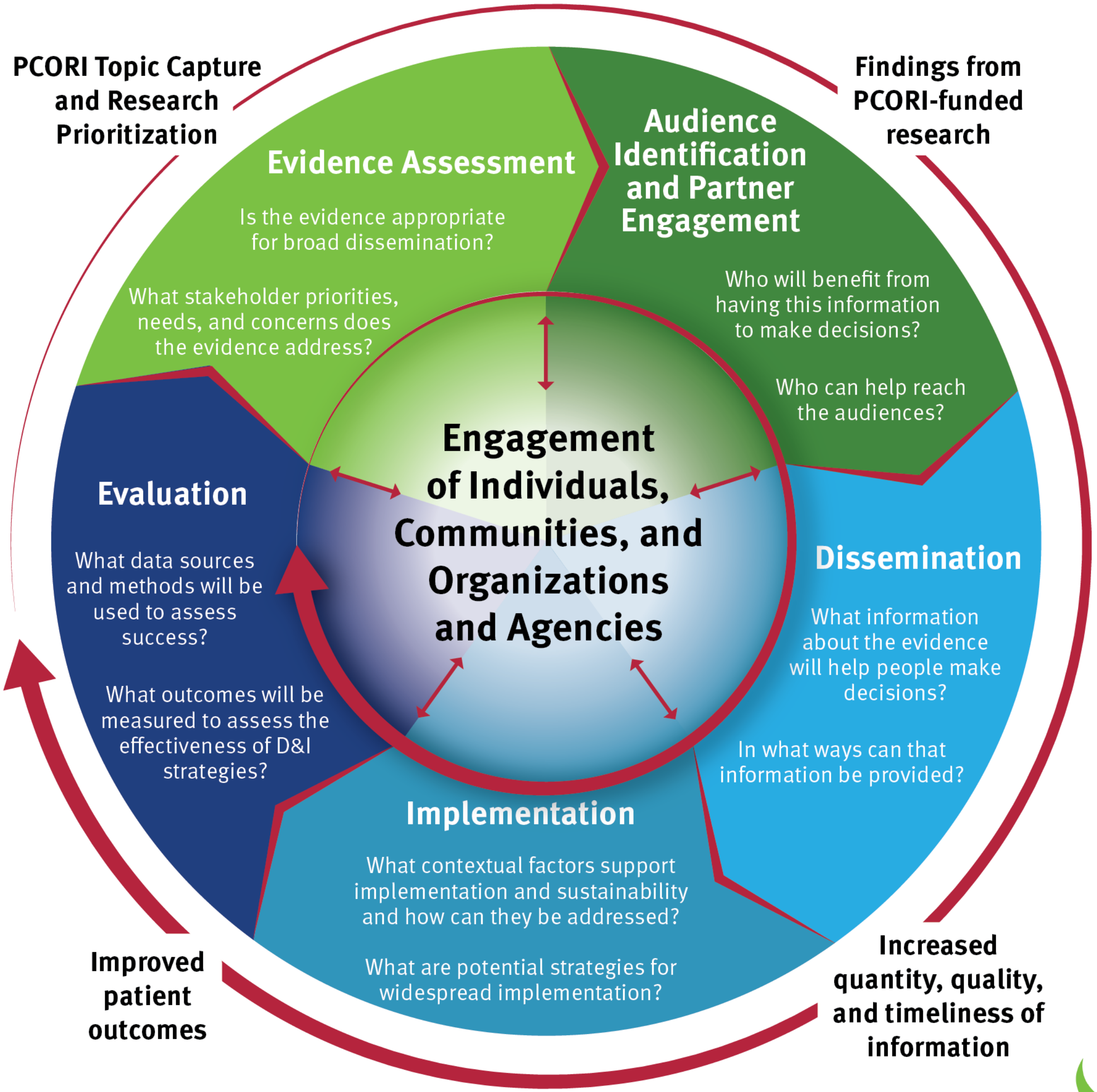
→ **D&I plans should address primary questions and challenges** that should frame plans at the start of a D&I effort and serve as a validity check after a draft plan is complete.

→ **The D&I process is iterative** and informs subsequent efforts.

→ **Dissemination and implementation build upon other initiatives** that identify target audience and partners; after evidence is assessed, additional work to refine target audiences and engage partners should occur.

An adequately resourced multidisciplinary team is needed to plan and implement successful D&I strategies. The execution of D&I plans would likely require different partners, stakeholders, and experts as part of teams. Such a team could, at the minimum, include program management staff employed by PCORI to steward the D&I process, **stakeholders** with relevant expertise to provide context to D&I activities, **communications experts** to help shape messages to target audiences, **implementation experts** to provide context for the evidence for adopters, and **evaluation experts** to help identify how to assess the effects of D&I activities. The mix of experts and stakeholders will vary from one effort to the next because the goals and needs will vary with the evidence being shared. For example, the people needed to disseminate information about treatments for hypertension are likely to be different from those who can help shape a plan to share new evidence on treatment options for lower back pain. These two examples are likely to have overlapping but different target audiences.

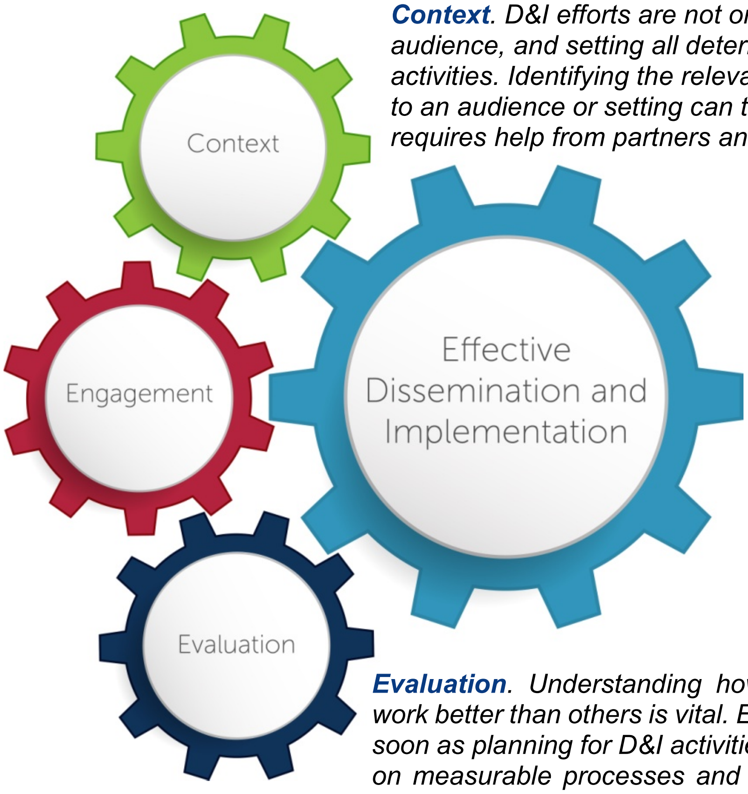
Figure I.2. A Framework for the Dissemination and Implementation of Patient-Centered Outcomes Research



- ## Primary Takeaway Points

Three concepts fundamental to effective dissemination and implementation informed the recommendations and action steps included here and in the Toolkit: context, engagement, and evaluation (Figure I.3). The literature identifies these as critical to success. Stakeholders emphasized context and engagement as fundamental but identified evaluation of D&I efforts as less salient to success, noting that it was often not conducted due to resource constraints. When PCORI and its partners develop plans, they should keep in mind that **context matters**, and all efforts are not one size fits all (Pentland et al. 2011); **engagement is central** to success in the planning and execution of D&I activities (Greenhalgh et al. 2004; Glasgow et al. 2012); and **evaluation of those activities is necessary** to inform subsequent D&I efforts of how and why decision making, practice, or policy changed (Brownson et al. 2012; Neta et al. 2014).

Figure I.3. Fundamental Concepts of Effective Dissemination and Implementation



Context. *D&I efforts are not one size fits all. Evidence, audience, and setting all determine the context for D&I activities. Identifying the relevant aspects of context related to an audience or setting can take time and resources, and requires help from partners and stakeholders.*

Engagement. *D&I efforts will not succeed without ongoing stakeholder engagement to provide the context needed to tailor D&I activities. Ongoing support for engagement can help activate stakeholders and encourage capacity building among partners.*

Evaluation. *Understanding how and why certain D&I activities work better than others is vital. Evaluation should be considered as soon as planning for D&I activities begins. Evaluation should focus on measurable processes and short-term outcomes that provide timely information on the effectiveness of D&I activities. Ongoing feedback based on assessment of processes and short-term outcomes can inform future D&I efforts.*

Context matters

Dissemination and implementation are complex processes because any one approach might not fit every situation. Every D&I plan is different and **tailored to the context** of the evidence to be shared, the target audiences to be reached, and the setting in which evidence is adopted. Context matters when assessing evidence; tailoring messages to target audiences; adopting evidence in individual decision making, practice, or policy; and evaluating the effectiveness of D&I activities. Context also includes existing practices, geography, and decision makers' relationship to the broader healthcare system. Stakeholders and partners that PCORI engages to develop D&I plans, particularly those with strong ties to specific target audiences and settings, can help identify context and the underlying motivations for change among the audiences. This is especially true when decision makers who might use the evidence are members of underserved or hard-to-reach populations for whom little knowledge exists on how to best serve their needs for evidence. Challenges to identifying context include engaging partners with the expertise to advise on dissemination and implementation, securing the resources (financial and nonfinancial) to sustain a knowledge base, tailoring messages for specific audiences without losing the primary message the evidence conveys, and managing changes in context over time.

Engagement is essential

Without ongoing engagement of stakeholders who can provide insight into context, D&I activities will not succeed. Stakeholder feedback and input into D&I processes can lend **credibility to the evidence** and can help ensure that target audiences find the evidence relevant and useful. Stakeholders can also help ensure that messages about evidence are understandable, describe the options clearly, and convey the costs of making one decision over another or changing or not changing behavior based on the evidence. Similar to its existing stakeholder engagement activities in priority setting, proposal review, and evidence generation, PCORI could develop an engagement strategy specific to dissemination and implementation. Such engagement could be most useful if it included an element of preengagement with stakeholders, including participants in PCORI projects, to keep them informed of the progress of PCORI research and the implications of potential findings for decision makers. In this way, dissemination and implementation would **begin before research findings are final**. Making resources available to sustain ongoing engagement will be crucial to the success of future D&I efforts and offers the chance to enable partners to develop capacity in dissemination or implementation.

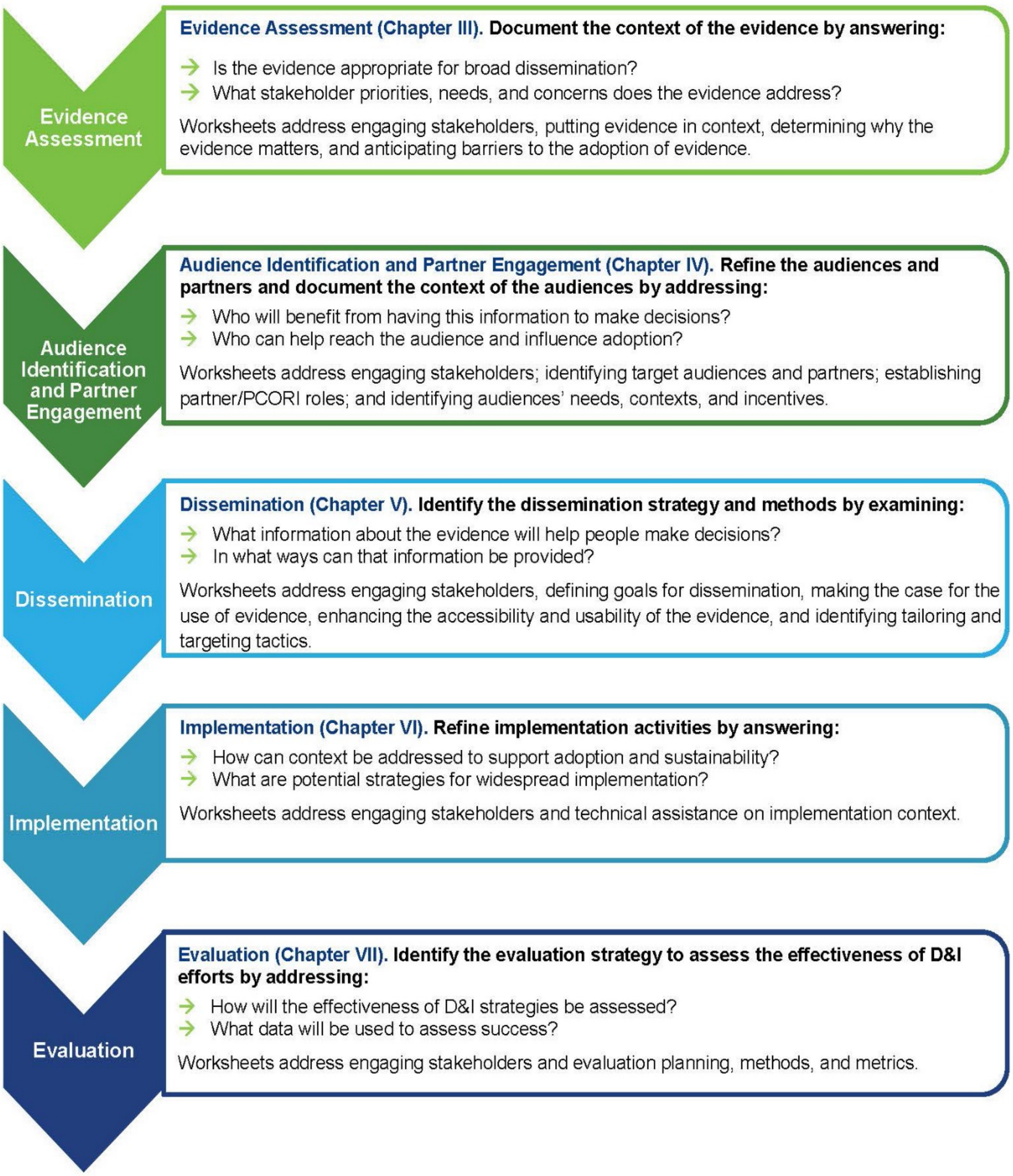
Evaluation is critical

Conducting dissemination and implementation without evaluation is insufficient. Ongoing, successful D&I efforts are shaped not only by what happens now but also by what is **learned from previous efforts**. Therefore, PCORI evaluation of D&I efforts is critical to identifying how and why certain activities work better than others. Evaluation should focus on processes and short-term outcomes that can be measured easily, are sensitive to change, and are tailored to suit the particular context and circumstances. Evaluation of D&I activities should include active participation by stakeholders, be designed at the start of planning for dissemination and implementation, incorporate the measurement of patient-centered outcomes, identify potential long-term outcomes, and include a plan to provide ongoing feedback to inform future efforts.

A Roadmap for the D&I Toolkit

The Toolkit includes resources and information that can be useful to D&I planning. To help orient readers, the D&I Toolkit Roadmap (Figure I.4) is included at the start of chapters III to VII and identifies the primary questions addressed by those chapters and the topics considered in the worksheets.

Figure I.4. Dissemination and Implementation Toolkit Roadmap



Evidence Assessment (Chapter III). Document the context of the evidence by answering:

→ Is the evidence appropriate for broad dissemination?
→ What stakeholder priorities, needs, and concerns does the evidence address?

Worksheets address engaging stakeholders, putting evidence in context, determining why the evidence matters, and anticipating barriers to the adoption of evidence.

Audience Identification and Partner Engagement (Chapter IV). Refine the audiences and partners and document the context of the audiences by addressing:

→ Who will benefit from having this information to make decisions?
→ Who can help reach the audience and influence adoption?

Worksheets address engaging stakeholders; identifying target audiences and partners; establishing partner/PCORI roles; and identifying audiences' needs, contexts, and incentives.

Dissemination (Chapter V). Identify the dissemination strategy and methods by examining:

→ What information about the evidence will help people make decisions?
→ In what ways can that information be provided?

Worksheets address engaging stakeholders, defining goals for dissemination, making the case for the use of evidence, enhancing the accessibility and usability of the evidence, and identifying tailoring and targeting tactics.

Implementation (Chapter VI). Refine implementation activities by answering:

→ How can context be addressed to support adoption and sustainability?
→ What are potential strategies for widespread implementation?

Worksheets address engaging stakeholders and technical assistance on implementation context.

Evaluation (Chapter VII). Identify the evaluation strategy to assess the effectiveness of D&I efforts by addressing:

→ How will the effectiveness of D&I strategies be assessed?
→ What data will be used to assess success?

Worksheets address engaging stakeholders and evaluation planning, methods, and metrics.

II. A FOUNDATION FOR PCORI D&I ACTIVITIES

Effective D&I activities are predicated on strong foundational or infrastructure elements. These elements are based on best practices from the literature and stakeholder feedback and are directly associated with the concepts of context, engagement, and evaluation. Throughout the Toolkit, these elements are referenced to highlight how they could contribute to and strengthen PCORI D&I efforts. This chapter describes each element and the importance of a strong relationship between PCORI and AHRQ, identifying at a high level how the two can collaborate to accelerate the use of evidence by decision makers.

• Develop a Network of Organizational Partners

PCORI cannot be expected to conduct most D&I activities independently, nor would this approach likely be successful. Therefore, PCORI should collaborate and coordinate with organizational partners at the **community, regional, and national levels** to achieve D&I goals and develop the infrastructure to support dissemination and implementation of CER and PCOR over the long term (Kreuter et al. 2012; PIPC 2014). These partners would collaborate on D&I plans and also would work with PCORI to conduct D&I activities. Organizational partners could be represented on a dissemination advisory panel, facilitating future partnerships with PCORI and other partners. This network would be a natural extension of PCORI's existing partnerships in developing priorities and in research with the National Institute on Aging, AHRQ, the John A. Hartford Foundation, the National Institutes of Health (PCORI 2014) and the work being conducted regularly by the PCORI engagement team with stakeholders from all areas of the healthcare system. Such a network would enable PCORI to convene diverse organizations to achieve common goals, a role identified as important by stakeholders.

Organizational partners understand local context and have experience with understanding the needs and motivations of their audiences. These organizations are the **trusted sources** among the audiences that PCORI would like to learn more about new evidence and likely have skilled communications experts with whom PCORI staff could collaborate. A network could be diverse and include partners from (but not limited to) healthcare delivery systems, hospitals, insurers, patient advocacy organizations, clinician associations, healthcare purchasers, healthcare journalists, and life sciences companies. In addition, organizational partners could, and likely should, include groups not typically associated with healthcare but that can provide valuable input to D&I efforts. For example, entities that represent specific ethnic or minority groups, such as the Urban League, or groups that convene policymakers, like the National Governors Association, could be partners with PCORI in disseminating information to stakeholders that those organizations represent. Additionally, PCORnet partners who have experience with and access to many diverse audiences could be partners in the dissemination of new PCOR and CER evidence through their existing channels of communication.

• Establish a Dissemination Advisory Panel

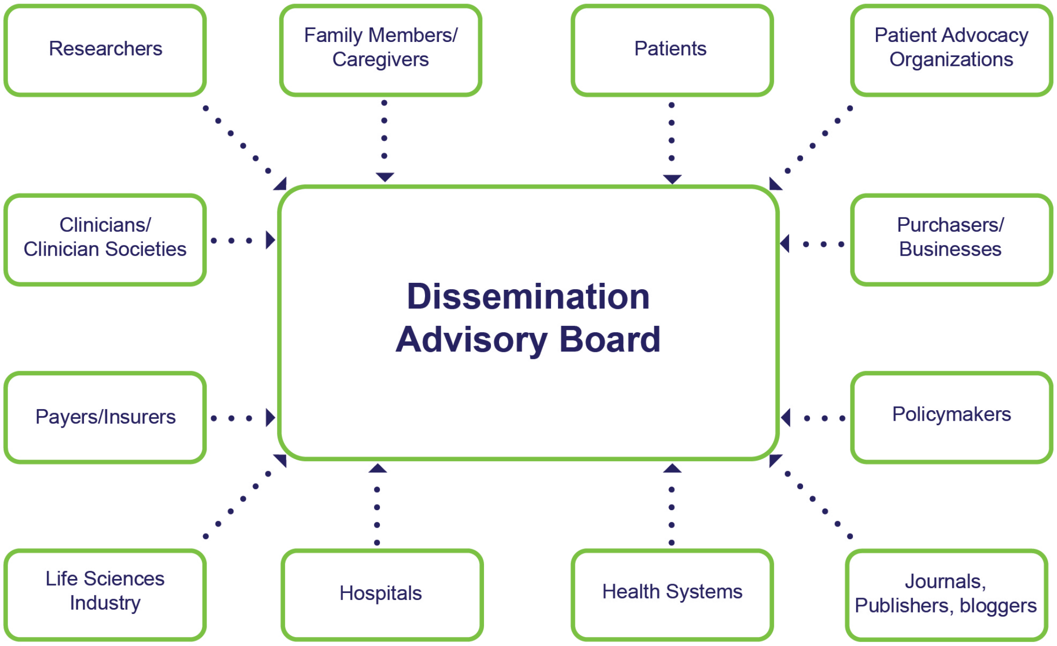
As PCORI already recognizes, stakeholder engagement is central to achieving dissemination and implementation success. To enhance its existing engagement efforts, PCORI could establish a dissemination advisory panel of stakeholders whose members would be partners in the development of D&I plans and potentially the conduct of D&I activities (Kreuter et al.

2012; PIPC 2014). A similar Advisory Panel on Communication and Dissemination Research plans to advise PCORI on research priorities in communication and dissemination and could support or conduct activities similar to the proposed dissemination advisory panel. Existing PCORI ambassadors could also be members of a dissemination advisory panel. Ideally, engagement of the dissemination advisory panel **begins when research priorities are identified** before research is conducted so that the evidence generated from research is informed by end users and relevant to them. It is particularly important for PCORI to engage end users who are also policy makers so that policy and programmatic needs are considered when generating and prioritizing research topics. Ongoing and early engagement also benefits PCORI because panel members can quickly identify potential barriers to evidence use, and benefits panel members because they can have an active role in the D&I process.

A dissemination advisory panel could include representation from all stakeholder groups relevant to PCORI (Figure II.1). In particular, the panel could include people who have participated in PCORI-funded research so that their engagement extends into the dissemination phase. Members of this advisory panel would help develop and offer input on specific D&I activities **from the perspectives of the stakeholder groups they represent**, providing the context needed to tailor D&I efforts. For example, if PCORI planned to disseminate evidence on asthma treatments, a dissemination advisory committee of panel members could include people engaged in relevant PCORI-funded projects, clinicians who treat people with asthma, leaders of community organizations, and researchers, among others. Moreover, for implementation activities, experts in implementation science and investigators who lead implementation efforts in the field would be valuable partners. Dissemination advisory panel members also would provide connections to their specific stakeholder groups, offering the opportunity for PCORI to engage those groups for advice and counsel, not only on D&I activities, but also on other priority-setting and research activities. In this way, they become **conduits and ambassadors** of PCOR for their respective stakeholder groups.

Operationally, the panel could consist of many people who could meet virtually (for example, by teleconference or webinar) to learn more about what PCORI is planning in dissemination and implementation and offer feedback and input. PCORI and its partners could seek out members of the panel to serve on committees that would help plan specific D&I efforts. These committees could include PCORI staff who are leading D&I efforts as well as stakeholders with specific knowledge or expertise that would help inform a particular D&I effort. However, because any single planning process is likely to span multiple months, it will also be important for PCORI to understand the potential burden that such collaboration might place on stakeholders who agree to participate. At the same time, stakeholders must understand the importance of their ongoing participation and commitment. As such, the D&I planning must be transparent, flexible, and open so that stakeholders understand the anticipated process and the reasons for making certain decisions, and also have the opportunity to provide their input on those decisions.

Figure II.1. Stakeholders Represented on the Dissemination Advisory Panel



- ### Establish a Repository of D&I Information

It is important that PCORI and its partners identify and document information valuable to D&I activities as collected by PCORI-funded investigators and learned during D&I efforts. Investigators can provide much needed contextual information on audiences who might use new evidence and settings in which the evidence could be used. For example, having a stronger understanding of the needs of particular communities would inform the tailoring of future D&I efforts, such as the mode of communication. PCORI could establish a repository of information gathered from its investigators and its D&I efforts, as well as from activities conducted by other funders and organizations, so that successful practices are replicated and unsuccessful ones are avoided. By doing so, PCORI could establish a public resource for itself and other organizations that would inform the spread of CER and PCOR to decision makers. Making the resource available to others would enhance its usefulness and likely encourage others to actively contribute to it.

A repository could inform all facets of D&I planning and execution, from evidence assessment and audience identification to evaluation of D&I efforts. This information could be used by PCORI and its partners as they design and execute D&I activities. For example, D&I planning teams could review lessons from previous efforts to determine how those lessons apply to a new effort and identify ways to mitigate potential barriers to success. Lessons learned about the process and outcomes of dissemination and implementation are highly associated with context, however, and must be viewed through the lens of each individual D&I effort. A repository could also identify effective tools for dissemination and implementation and catalogue potential partners with whom to conduct D&I activities. However, such a repository would be different from a potential warehouse for findings from PCORI-funded work, including final reports from projects and abstracts of findings, which is planned to be located on the PCORI website.

- **Collaborate with AHRQ on D&I Infrastructure**

PCORI and AHRQ have a unique opportunity to collaborate, given AHRQ's existing D&I infrastructure and PCORI's mission to increase the quantity, quality, and timeliness of useful information. Although details of any collaborative activities should be formalized by PCORI and AHRQ leadership, there are at least three areas where they might benefit from each other's expertise and existing resources and knowledge. These are:

- → **Engaging stakeholders and organizational partners.** PCORI and AHRQ could collaborate in engaging organizational partners, leveraging existing relationships at the national and regional levels formed via AHRQ's **Effective Healthcare Program National Partnership Network**. Together, they could develop a strategy on how to approach existing members to collaborate on D&I activities and how to recruit new members.
- → **Collaborating on evidence assessment.** AHRQ-funded **Evidence-based Practice Centers** conduct systematic reviews of medical technologies and health care treatments to inform decision makers of existing evidence. Because evidence assessment involves determining how new evidence relates to an existing evidence base, AHRQ's infrastructure could support future PCORI evidence assessment efforts to help contextualize where new evidence fits.
- → **Developing a D&I repository.** PCORI and AHRQ could collaborate on a repository to document successful D&I practices and identify lessons learned on contextual barriers and facilitators to dissemination and implementation. AHRQ has a long history of research on clinical practice transformation, the integration of evidence into care processes and decision making, and the evaluation of implementation approaches in clinical decision making.

Dissemination and Implementation Toolkit Roadmap

Evidence Assessment

Evidence Assessment (Chapter III). Document the context of the evidence by answering:

→ Is the evidence appropriate for broad dissemination?
→ What stakeholder priorities, needs, and concerns does the evidence address?

Worksheets address engaging stakeholders, putting evidence in context, determining why the evidence matters, and anticipating barriers to the adoption of evidence.

Audience Identification and Partner Engagement

Audience Identification and Partner Engagement (Chapter IV). Refine the audiences and partners and document the context of the audiences by addressing:

→ Who will benefit from having this information to make decisions?
→ Who can help reach the audience and influence adoption?

Worksheets address engaging stakeholders; identifying target audiences and partners; establishing partner/PCORI roles; and identifying audiences' needs, contexts, and incentives.

Dissemination

Dissemination (Chapter V). Identify the dissemination strategy and methods by examining:

→ What information about the evidence will help people make decisions?
→ In what ways can that information be provided?

Worksheets address engaging stakeholders, defining goals for dissemination, making the case for the use of evidence, enhancing the accessibility and usability of the evidence, and identifying tailoring and targeting tactics.

Implementation

Implementation (Chapter VI). Refine implementation activities by answering:

→ How can context be addressed to support adoption and sustainability?
→ What are potential strategies for widespread implementation?

Worksheets address engaging stakeholders and technical assistance on implementation context.

Evaluation

Evaluation (Chapter VII). Identify the evaluation strategy to assess the effectiveness of D&I efforts by addressing:

→ How will the effectiveness of D&I strategies be assessed?
→ What data will be used to assess success?

Worksheets address engaging stakeholders and evaluation planning, methods, and metrics.

Dissemination and Implementation Toolkit Roadmap

Evidence Assessment

Evidence Assessment (Chapter III). Document the context of the evidence by answering:

→ Is the evidence appropriate for broad dissemination?
→ What stakeholder priorities, needs, and concerns does the evidence address?

Worksheets address engaging stakeholders, putting evidence in context, determining why the evidence matters, and anticipating barriers to the adoption of evidence.

Audience Identification and Partner Engagement

Audience Identification and Partner Engagement (Chapter IV). Refine the audiences and partners and document the context of the audiences by addressing:

→ Who will benefit from having this information to make decisions?
→ Who can help reach the audience and influence adoption?

Worksheets address engaging stakeholders; identifying target audiences and partners; establishing partner/PCORI roles; and identifying audiences' needs, contexts, and incentives.

Dissemination

Dissemination (Chapter V). Identify the dissemination strategy and methods by examining:

→ What information about the evidence will help people make decisions?
→ In what ways can that information be provided?

Worksheets address engaging stakeholders, defining goals for dissemination, making the case for the use of evidence, enhancing the accessibility and usability of the evidence, and identifying tailoring and targeting tactics.

Implementation

Implementation (Chapter VI). Refine implementation activities by answering:

→ How can context be addressed to support adoption and sustainability?
→ What are potential strategies for widespread implementation?

Worksheets address engaging stakeholders and technical assistance on implementation context.

Evaluation

Evaluation (Chapter VII). Identify the evaluation strategy to assess the effectiveness of D&I efforts by addressing:

→ How will the effectiveness of D&I strategies be assessed?
→ What data will be used to assess success?

Worksheets address engaging stakeholders and evaluation planning, methods, and metrics.

III. EVIDENCE ASSESSMENT

PCORI Action Steps

- **Engage stakeholders to help assess the usefulness and relevance of the evidence.** To what extent do stakeholders perceive the evidence as useful and relevant to their decision making? In their view, is the evidence compelling enough to act now, or is further evidence needed?
- **Develop a process to assess whether broad or limited dissemination is appropriate.**
    - **Determine how the evidence relates to existing evidence.** What is the potential impact, or relative advantage, of the evidence? How might the body of evidence affect decision making, practice, or policy?
    - **Determine why the evidence matters to patients, other stakeholders, health policy, and practice.** What about the evidence is important enough to cause people or organizations to use it or consider it in their decision making?
    - **Anticipate barriers to use in decision making.** How might the evidence affect current practice? Are there limitations to the evidence that would affect its applicability to multiple populations?

This chapter describes action steps for the assessment of CER or PCOR evidence in relation to an existing body of evidence and its suitability or readiness for broad dissemination. In parallel to the D&I Framework and Toolkit, PCORI is developing a peer review process to evaluate the scientific and methodological quality of all studies in its portfolio. After one of its studies undergoes this review, PCORI will publish its findings on its website. This peer-review process is **distinct from the evidence assessment action steps** included in this chapter, which focus on assessing the usefulness of a body of evidence for stakeholders and end users.

Challenges in Evidence Assessment

- Developing a process and standards for determining how broadly new PCOR evidence should be disseminated
- Obtaining stakeholder input on the importance of the evidence to policy and practice
- Evaluating the usefulness, relevance, and value of evidence in the context of existing evidence and findings
- Determining whether evidence is appropriate for dissemination across multiple audiences

Engage Stakeholders to Help Assess the Evidence

Stakeholders can help PCORI assess the usefulness and relevance of evidence and determine whether it warrants broad dissemination. Not all PCORI research initiatives will result in evidence that can immediately inform decision making. For some findings, such as those in a new research area or with weak external validity, the most appropriate dissemination strategy will be to make the results readily available to other researchers and stakeholders so the new findings can seed new investigations.

PCORI and its partners should engage members of the dissemination advisory panel, study participants, researchers who conducted the work, and potential end users of the evidence, including clinicians, payers, purchasers, patients and caregivers, hospitals, health systems, and policymakers, some of whom may not have previous experience participating in research. It is assumed that many stakeholders will have contributed to the overall PCORI research process, including topic review and prioritization, so this engagement would **build on established stakeholder engagement** activities. If some stakeholders are new to PCORI, some basic education or training on PCOR may be needed before they can provide input and feedback. Exhibit III.1 presents potential methods of engagement for different types of stakeholders.

Exhibit III.1. Methods of Engagement by Stakeholder Type

Type of stakeholder	Methods of engagement
Dissemination advisory panel members and other PCORI partners	→ Regular standing meetings to discuss project progress and relevance → Working meeting at project conclusion at which PCORI presents findings for review and consideration
Research participants	→ Interviews, focus groups, and surveys throughout project participation
Anticipated end users, including patients, caregivers, and clinicians	→ Interviews; focus groups involving presentation of research findings and evidence context

What stakeholders are saying about Evidence Assessment

- Engage stakeholders, including patients and caregivers, early. Stakeholders' input on the research questions will ensure that the research is **relevant and meaningful**, and their early, active participation will help lay the groundwork for future adoption.
- A single study is not enough to use evidence. It is more compelling to **communicate new findings in relation to an existing body of evidence**.
- Understanding the external validity of the evidence, or the extent to which it can be generalized, is an important prerequisite to later steps in the D&I process. PCORI could play a central role in this effort, as could other trusted third parties, such as organizations that develop clinical practice guidelines.
- The perceived strength and importance of the evidence depend on how well it can be **matched to a patient population**, the **relative importance** of the research to stakeholders and audience members, and the **need for evidence** on the topic.

Themes identified from feedback received from more than 300 people as part of preparing the D&I Framework and Toolkit.

Stakeholders can provide advice on the extent to which the outcomes associated with the evidence justify the costs of broad dissemination, given competing priorities. In addition, PCORI can engage stakeholders to learn whether they view the evidence as credible, useful, and relevant, and whether they identify any limitations or inadequacies (perceived or real) about the evidence. Insights into perceived limitations of a body of research are especially useful because they can serve to make dissemination plans stronger, or to motivate future research. Stakeholders can provide input on the following questions:

- What issues does the evidence address for people, communities, and organizations?
- Is the evidence compelling enough to warrant dissemination?
- What would make this evidence more useful and relevant? What else, if anything, do decision makers need to know to be able to use the evidence?
- What concerns exist about the strength or external validity of the evidence?

The *Spotlight* on the next page provides an example of engaging partners to assess evidence and of enhancing its understandability and usability. Worksheet SE1 identifies questions for PCORI to answer when considering stakeholder engagement.

Spotlight on Evidence Assessment

Health Extension Rural Office: Translating Research Into Localities (HERO TRaILs)

→ **HERO TRaILs provides an example of engaging partners to assess evidence and of enhancing its understandability and usability.**

The Health Extension Rural Office: Translating Research Into Localities (HERO TRaILs) was established in New Mexico in 2013 through funding from AHRQ. Its purpose is to provide rural primary care providers with a toolkit of evidence-based information on the treatment of chronic noncancer pain.

As HERO TRaILS staff developed the toolkit to inform providers who prescribe opiates in rural New Mexico, it engaged a number of partners. For example, project leaders partnered with a pain clinic at the University of New Mexico (UNM) to identify best practices and gaps in treatment of chronic noncancer pain. HERO TRaILs staff then conducted a literature review to address gaps identified by staff at the pain clinics. Throughout the project, staff has obtained feedback from an internal executive advisory board, which consists of the groups that HERO TRaILs works with at UNM, and a community stakeholder advisory board, which includes the New Mexico Primary Care Association, Molina Health Care, the New Mexico Department of Health, the State Board of Pharmacy, and the New Mexico Prescription Monitoring Program.

Two HERO TRaILs partners are clinic systems that serve underserved, multiethnic populations. HERO TRaILs has involved clinical and nonclinical staff at these clinics, while accounting for their needs as an audience for the toolkit. For example, input from clinic staff (on the kinds of patients they served and whether protocols developed for the toolkit could support their work) informed the project design. In-person meetings were an important engagement method; to avoid the perception that the team is interested only in identifying weaknesses in clinical treatment, project leaders did not rely solely on telephone and videoconferencing. Instead, they emphasized that the clinics are part of the process and that their feedback is important to inform ongoing adaptations.

Worksheet SE1. Engage Stakeholders in Evidence Assessment

Goal of this Worksheet. Identify the stakeholders with whom to collaborate, their information needs and ways to fill those needs, and the frequency of collaboration.

Context. Briefly describe the scope of the evidence or research findings.

→ **Which stakeholders involved in selecting research topics and in conducting the research can help assess the body of evidence?**

→ **Who else can help assess the evidence? Whose perspectives are relevant to the evidence?**

→ **What information will stakeholders need before they can help to assess the evidence? In what ways can this information be provided to stakeholders (e.g., through educational activities)?**

→ **In what ways can collaboration with stakeholders happen? How often should stakeholders be brought together to assess the evidence?**

Develop a Process to Assess Whether Broad or Limited Dissemination Is Appropriate

As stated in the beginning of this chapter, the PCORI peer review process will evaluate the scientific and methodological quality of all studies in its portfolio. While this peer-review process is important to determine the quality of each study, it is not designed to determine whether evidence should be disseminated broadly or narrowly. Synthesizing findings from its peer review process along with an additional assessment of existing evidence in context, PCORI and its stakeholders may classify evidence into one of the following high-level categories:

- **Appropriate for broad dissemination.** The evidence has high external validity, is relevant to stakeholders, is supported by and supports existing evidence, and can have an important impact on patient health.
- **Appropriate for limited dissemination.** The evidence is missing one or more factors, such as high external validity, unique contribution to an existing evidence base, relevance to stakeholders, or usefulness to decision makers, or the evidence originates from a single study.

To make this determination, PCORI and its D&I partners and stakeholders should take three steps: (1) determine how the evidence relates to existing evidence; (2) determine why the evidence matters to patients, other stakeholders, health policy, and practice; and (3) anticipate barriers to use of the evidence in decision making for multiple populations. Exhibit III.2 suggests approaches and resources for each of these action steps, and the remainder of this chapter discusses each step in more detail.

In feedback received on an earlier version of this Toolkit, stakeholders emphasized the importance of making this process public and transparent. Reviewers also would like PCORI to identify the principles on which the review will be based, details of the review process, standards against which existing evidence would be assessed, and membership of an assessment body. PCORI and AHRQ could collaborate to develop more specific standards and tools for each of these steps.

Exhibit III.2. Approaches and Resources for Evidence Assessment

Determine how the evidence relates to existing evidence	→ Review existing systematic reviews, such as those from AHRQ's EPCs and **the Cochrane Collaboration Reviews** → Conduct a systematic review using the **AHRQ Methods Guide for Effectiveness and Comparative Effectiveness Reviews** → Review **AHRQ's Developing a Protocol for Observational CER Studies: A User's Guide**
Determine why the evidence matters to patients, other stakeholders, health policy, and practice	→ Engage stakeholders, including study participants, to assess the importance, relevance, and usefulness of evidence → When available, use objective data sources (such as program documents, healthcare system reports, utilization data, and publicly available statistics) to help determine available resources and importance of outcomes. If relevant, try to obtain input and data from different stakeholders.
Anticipate barriers to use in decision making	→ Elicit feedback from stakeholders on the findings and explore reactions, uncertainty, and outstanding questions → Work with stakeholders to assess risk-benefit tradeoffs in use of the evidence in decision making

Determine how the evidence relates to existing evidence

PCORI and its stakeholders should determine how the evidence relates to existing evidence. Much of this work might have been completed by PCORI researchers as they planned their research projects, and AHRQ's EPC evidence reports can be a resource for assessing the evidence context. However, where systematic reviews are lacking or new evidence has emerged since the start of a PCORI-funded project, PCORI may have to conduct additional evidence reviews. This context scanning helps to reveal how this evidence differs from existing evidence, also termed the **relative advantage of the evidence** or its **potential impact**. When end users perceive a relative advantage of the evidence, they are more likely to adopt it (Greenhalgh et al. 2004). Relating new evidence to existing evidence also reveals how the new evidence contributes to a body of evidence and what other types of information may influence end users to adopt it. Stakeholders who provided feedback on the Toolkit corroborated this view, indicating that a **body of evidence** is more compelling for action than single studies; the literature also support this (Lavis et al. 2003). Another important aspect of putting the evidence in context is **understanding whether the evidence generalizes to populations other than those studied** (Green et al. 2009). Worksheet EA1 poses questions about the relationship of the new evidence to existing evidence.

Worksheet EA1. Put Evidence in Context

Goal of this Worksheet. Identify the similarities and differences of new CER or PCOR evidence to existing evidence in the same research area and assess the generalizability of the evidence.

Context. Briefly describe the scope of the evidence or research findings.

→ **How many studies have been conducted that address the research question(s)? How large were the studies?**

→ **What was known about this issue before these findings? How does the new evidence offer an advantage over existing evidence? To what extent does it corroborate or counter established evidence, practice, or policy?**

→ **What differences in measurement and methodology are there among other studies compared with the study in question?**

→ **How consistent are the results of the other studies with the results of the study in question in direction and magnitude of effect?**

→ **Are findings generalizable beyond the population(s) studied? To which populations or settings are the findings most relevant?**

Determine why the evidence matters to patients, other stakeholders, health policy, and practice

PCORI should collect feedback from members of the dissemination advisory panel, the Health Disparities Advisory Panel, and the Patient Engagement Advisory Panel, as well as other stakeholders, on the value of the evidence to patients, policy, and practice and whether the evidence is transferable across settings and populations. It might also conduct further data collection (for example, by reviewing study participants' experiences) to understand why and to whom the evidence matters. Early engagement of policymakers and decision makers, starting in the research prioritization phase and continuing when there are preliminary findings, can help ensure that the evidence addresses real-world needs (Jewell and Bero 2005; Lavis et al. 2003).

Worksheet EA2 presents questions to identify why the evidence is important and the groups for which it might address stakeholder needs.

Worksheet EA2. Determine Why the Evidence Matters

Goal of this Worksheet. Identify why the evidence is important to the stakeholder groups for which the evidence might address priorities and needs.

Context. Briefly describe the scope of the evidence or research findings.

→ **Who might want to learn about this evidence (that is, who are the potential end users)?**

→ **What problem(s) faced by potential audiences does the evidence address?**

→ **What implications does the evidence have for current practice or policy that might either detract from or support adoption or use of the evidence?**

Considering Underserved Groups in Evidence Assessment

- Some groups may be underrepresented in the research that generated the evidence. Engaging members of **underserved groups and partnering with community organizations** that have close connections with these groups can help translate evidence for populations and contexts (Napoles et al. 2013).
- Understanding why the evidence matters to health policy, practice, and patient and caregiver decision making requires **understanding the circumstances of potential target audiences.** Groups with certain vulnerabilities may have basic needs that affect their choices and priorities. When basic needs are unmet, more intense, multifaceted interventions may be necessary (Kreuter et al. 2014).
- Assessment of the evidence must take into consideration **what is known about effectiveness of the evidence for which groups and where gaps exist.** This informs D&I strategies and may inform research on underrepresented groups.

Anticipate barriers to use in decision making

In determining whether the evidence is appropriate for broad or limited dissemination, PCORI should consider potential reactions to the evidence or uncertainty about it. For example, if the evidence contrasts with previously held beliefs or practices or is not culturally appropriate, end users may choose not to use it to inform decisions. A **RAND technical report** on dissemination and implementation of CER where findings contradict current practice presents five informative case studies. PCORI should also consider whether the evidence is equally useful for different patient populations, particularly those that are underserved. Limited generalizability may be a particular barrier for underserved populations (Nápoles et al. 2010).

This also involves helping stakeholders to assess tradeoffs and considering their views on those tradeoffs. In feedback gathered on an earlier version of this Toolkit, stakeholders emphasized the importance of **conveying how much is known about the risk-benefit trade-offs** of treatment options across patient groups in dissemination, because this informs decision making. This is important because uncertainty about the evidence can lead to unintended consequences, such as underuse of the evidence (Velentgas et al. 2013). Finally, PCORI should consider stakeholder views on the relative importance of the evidence and its associated outcomes, given the costs (financial, opportunity, or transaction) of dissemination and implementation (Dearing 2009). This input can help determine the relevance of the evidence and inform D&I strategies.

Worksheet EA3 contains questions about barriers to the use of evidence in audiences' decision making.

Worksheet EA3. Anticipate Barriers to Use in Decision Making

Goal of this Worksheet. Develop a list of potential barriers to inform dissemination or implementation activities.

Context. Briefly describe the scope of the evidence or research findings.

→ **Does the evidence counter previously held beliefs or established practices? If so, which groups, if any, might resist the evidence?**

→ **If evidence points to uncertainty about effectiveness or is limited for certain subgroups of patients, how might this affect use or adoption of the evidence?**

→ **What potential risks does the evidence involve for patients or patient subpopulations?**

→ **To what extent do end users and other stakeholders consider the outcomes associated with the evidence to be important enough to warrant the resources required for dissemination and implementation? What might hinder the adoption and use of evidence?**

→ **Is the evidence significant enough to justify potential costs associated with adoption by end users? And for whom? If it is not significant enough, what additional evidence would be needed by end users to shift the balance toward adoption?**

Dissemination and Implementation Toolkit Roadmap

Evidence Assessment

Evidence Assessment (Chapter III). Document the context of the evidence by answering:

- Is the evidence appropriate for broad dissemination?
- What stakeholder priorities, needs, and concerns does the evidence address?

Worksheets address engaging stakeholders, putting evidence in context, determining why the evidence matters, and anticipating barriers to the adoption of evidence.

Audience Identification and Partner Engagement

Audience Identification and Partner Engagement (Chapter IV). Refine the audiences and partners and document the context of the audiences by addressing:

- Who will benefit from having this information to make decisions?
- Who can help reach the audience and influence adoption?

Worksheets address engaging stakeholders; identifying target audiences and partners; establishing partner/PCORI roles; and identifying audiences' needs, contexts, and incentives.

Dissemination

Dissemination (Chapter V). Identify the dissemination strategy and methods by examining:

- What information about the evidence will help people make decisions?
- In what ways can that information be provided?

Worksheets address engaging stakeholders, defining goals for dissemination, making the case for the use of evidence, enhancing the accessibility and usability of the evidence, and identifying tailoring and targeting tactics.

Implementation

Implementation (Chapter VI). Refine implementation activities by answering:

- How can context be addressed to support adoption and sustainability?
- What are potential strategies for widespread implementation?

Worksheets address engaging stakeholders and technical assistance on implementation context.

Evaluation

Evaluation (Chapter VII). Identify the evaluation strategy to assess the effectiveness of D&I efforts by addressing:

- How will the effectiveness of D&I strategies be assessed?
- What data will be used to assess success?

Worksheets address engaging stakeholders and evaluation planning, methods, and metrics.

IV. AUDIENCE IDENTIFICATION AND PARTNER ENGAGEMENT

PCORI Action Steps

→ **Engage stakeholders to help identify the audiences and partners.** Who can help PCORI identify target audiences and partners?

→ **Identify target audiences.** Who will benefit from having this information to make decisions about health or healthcare?

→ **Identify potential partners.** Who can help PCORI reach the audiences and influence adoption?

→ **Establish the roles of PCORI and its partners.** What dissemination activities should PCORI conduct? What activities should its partners conduct?

Depending on the availability of information and the capabilities and resources of partners, either PCORI or its partners may conduct the following:

→ **Identify audiences' needs and attributes.** How can PCORI and its partners tailor strategies and messages to meet audiences' needs?

→ **Assess the context for adoption.** What factors hinder or facilitate adoption?

→ **Identify the incentives necessary for adoption.** What mechanisms can PCORI and its partners use to influence adoption?

This Toolkit describes audience identification and partner engagement together because they inform one another and are both necessary to coordinating pre-D&I and D&I activities. The above activities will help PCORI identify the audiences that might benefit from the evidence to help make healthcare decisions and the partners that might collaborate with PCORI to reach those audiences. In addition, this work **formalizes PCORI's ongoing stakeholder engagement** with a subset of identified partners that PCORI must engage to define roles suited to the evidence and audiences. These activities are designed to gather and consolidate information on the audiences that will be useful in dissemination and implementation.

Although the steps to complete audience identification and partner engagement are presented linearly, they can be adapted according to specific needs for information and resources. For example, PCORI may benefit from its partners' input on narrowing the target audience, or the dissemination capabilities and resources of potential partners may influence final partner selection. Most importantly is the recognition that the activities described here are meant to **refine existing** audience identification and partner engagement activities PCORI would have already conducted as early as topic selection.

An important consideration is how PCORI and its partners will work on audience identification where gaps in knowledge exist. Assessing PCORI's resources, expertise, and connections to information relative to its partners will help establish whether PCORI or its partners can best fill these gaps.

Challenges in Audience Identification and Partner Engagement

- → Filling gaps in PCORI's knowledge of audience characteristics
- → Identifying partners, given competing priorities for their attention and resources
- → Defining roles between PCORI and partner organizations in the planning and execution of D&I activities

• Engage Stakeholders to Help Identify the Audience and Partners

PCORI can solicit stakeholder input to help identify the appropriate audiences and recruit the most effective partners for reaching those audiences. Reaching out to stakeholders is an opportunity to build on their **existing connections, knowledge, and practical perspectives** and can strengthen PCORI's audience identification and partner engagement. This, in turn, creates a foundation for later dissemination and implementation because stakeholders can become conduits for PCOR. In many instances, many of the stakeholders with whom PCORI will collaborate in audience identification and partner engagement are likely to be existing partners who have participated in topic selection and the conduct of research, and might also have been PCORI-funded investigators who conducted the research itself.

Stakeholders can help establish meaningful connections between the evidence and potential audiences, especially when the audiences include underserved groups. In doing so, they are well positioned to suggest potential audiences for a given set of findings and also explain why that audience would be particularly interested. For example, clinicians may recognize the need for certain findings in a specific care setting, or an organization that works with individuals may know a narrower segment of the population for whom the findings would be important and applicable.

Stakeholders may serve as partners to PCORI to help understand or work with the audience, or stakeholder referrals may connect PCORI to new partners who can take on these roles. As noted in this chapter, stakeholders, especially those involved in the existing research, may be promising potential partners themselves. Worksheet SE2 provides questions for PCORI to answer when engaging stakeholders in these activities.

Worksheet SE2. Engage Stakeholders in Audience Identification and Partner Engagement

Goal of this Worksheet. Identify the stakeholders with whom to collaborate and the modes of collaboration.

Context. Briefly describe the scope of the evidence or research findings.

- → **Which stakeholders can help in audience identification and partner engagement? Are these the same stakeholders who helped to assess the evidence?**

- → **What is the best way to involve them?**

- → **Which other stakeholders should be included?**

What stakeholders are saying about Audience Identification and Partner Engagement

- → Potential audiences can include decision makers who can create change and actors who carry out the change.
- → Learn about audiences' **environmental constraints and other contextual barriers**. This is also useful for identifying the right window of opportunity for dissemination and implementation.
- → PCORI could be the **convener**, by packaging information and providing resources, while partners lead other D&I activities. This would enable PCORI to collaborate with partners that understand specific target audiences and that specialize in dissemination tactics.
- → When possible, identify a target audience and engage partners whose values and priorities align with the evidence and to the values and priorities of the audience.

Themes identified from feedback received from more than 300 people as part of preparing the D&I Framework and Toolkit.

- ### Identify Target Audiences

Identifying appropriate target audiences for CER and PCOR findings is critical for successful dissemination and implementation. Potential audiences can be, or represent, people, communities, or systems (Figure IV.1). For example, audiences may include clinicians and patients choosing among treatment options, leadership of a health system developing new regulations or processes, or insurance company executives responsible for provider reimbursement decisions. Depending on the evidence-specific goals of dissemination and implementation, the audience may span several levels of the healthcare system.

Figure IV.1. Audiences at Each Level of the Healthcare System

To target audiences that need an intervention the most, as well as those for whom the evidence is most relevant, it is important to **put the audience into precise categories**. For example, it will be more difficult to target a broad group of people (such as "people with diabetes") than to target a narrowly defined group of people (such as low-income, elderly Hispanic patients newly diagnosed with type 2 diabetes). Similarly, when the target audience is clinicians, it will be important to differentiate the type of clinician (for example, physician, nurse, pharmacist, or other) or even the specific subgroup of clinicians (for example, nurse practitioner, registered nurse, and so on).

Appropriate audiences for dissemination and implementation may already be identified by PCORI or determined by the nature of the research. In these cases, PCORI may concentrate on engagement of partners that can influence the decisions of the target audience and will conduct dissemination to do so. Worksheet AP1 can help identify and narrow the target audiences, as well as establish whether PCORI has connections to them.

Worksheet AP1. Identify the Target Audiences

Goal of this Worksheet. Develop a list of potential target audiences by level of the healthcare system (people, communities, and organizations) who would benefit from receiving information about the evidence to make health and healthcare decisions.

Context. Briefly describe the scope of the evidence or research findings.

→ **Who are potential audiences for this evidence?** (List audiences in Column A below)

→ **How is the evidence or the research findings relevant to the audience(s)?** (Note in Column B)

→ **What are PCORI's connections to the audience?** (Note in Column C)

Column A Audiences	Column B Relevance of the Evidence	Column C Existing PCORI Connections

- ## Engage Partners That Can Help Reach the Audience

If PCORI lacks direct connections to a target audience, it might seek the assistance of partners that can help reach the audience. Partners may have in-depth knowledge of target audiences that can enhance the effectiveness and appropriateness of a dissemination strategy; this is particularly true for underserved or traditionally vulnerable groups (Kreuter et al. 2014; Nápoles et al. 2013). Partners may be existing stakeholders in a research project (Greenhalgh et al 2004). Asking existing stakeholders for suggestions will make the recruitment of new partners more efficient and lend **credibility** to the dissemination effort. In addition, it may be useful to consider how closely a potential partner's mission and goals align with the evidence. Partners with close alignment may be more willing to participate and may be the most effective at dissemination (Perla et al. 2013). At the same time, PCORI can also offer partners benefits in a collaborative relationship (Exhibit IV.1). The Researcher in the Room ***Spotlight*** illustrates the advantages of working with partners to reach vulnerable groups.

To be effective at D&I, partners must have access to the audience, and the audience must view them as credible and trustworthy (Kreuter and Bernhardt 2009). Access means the partner can connect to the audience and provide information through channels the audience uses. For example, organizations representing providers, such as the American Medical Association, have extensive, multilayered membership structures that can reach physicians at national, state, and local levels to inform practice in many ways (for example, continuing medical education). Credibility means that the **audience values, trusts, and is influenced by** the partner's views. Advocacy organizations representing groups of patients, such as the American Federation for the Blind or the American Association of People with Disabilities, may be perceived by their members as **credible sources**.

Exhibit IV.1. What PCORI and Partners Can Offer Each Other

→ **Connections to the audiences.** A necessary condition for trust and credibility and includes prior engagement of stakeholders.

→ **Experience with dissemination tactics.** Knowledge of broad and targeted tactics and the implementation of tested and innovative approaches.

→ **Experience with implementation in relevant settings.** Necessary to consider the context for specific situations.

→ **Experience with conducting research.** Pertinent to the conduct of PCOR and the evaluation of D&I activities.

→ **Mission and goals.** The more these align and are shared from the beginning of the research process, the more effective D&I activities will be.

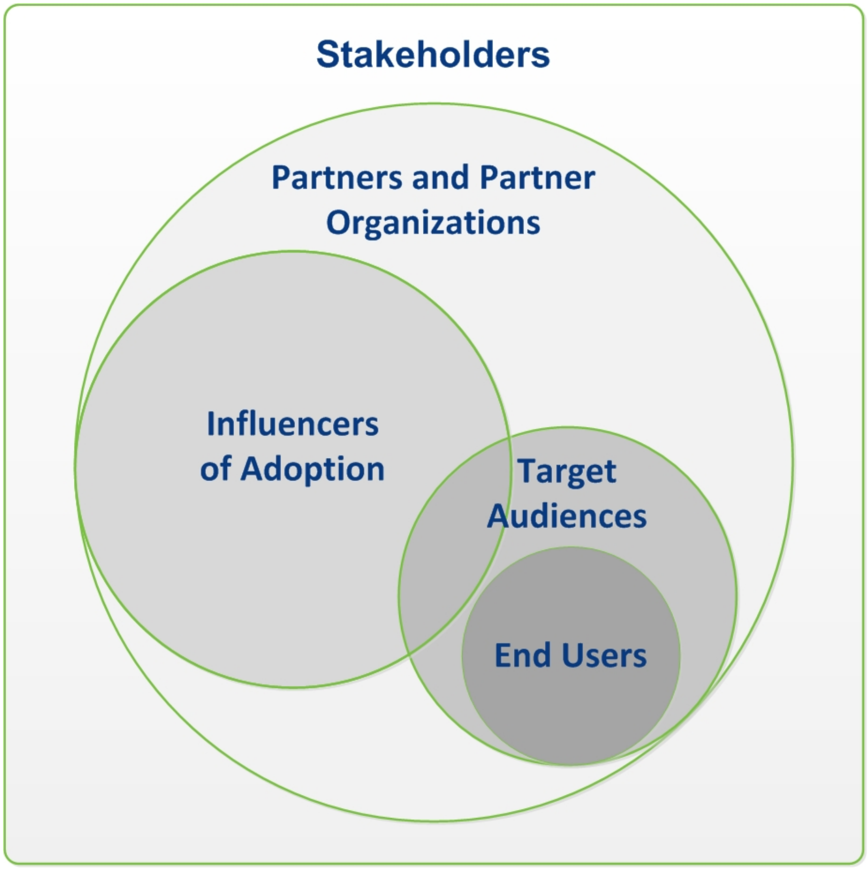
→ **Previous experience with other partners.** Partnerships are more than one organization to another and rely on all existing connections to potential partners.

→ **Resources.** D&I efforts require financial and nonfinancial resources to be successful, commitment of resources signals commitment to success.

Another way to reach the audience is through partners who can influence use of evidence through leadership, decision making, or other influential roles. These partners may also be members of the audience or may function solely as partners (Figure IV.2). Damschroder et al. (2009) identified four types of actors who can help with dissemination and implementation: (1) **opinion leaders**, who influence others' attitudes and beliefs regarding the evidence; (2) **formally appointed implementation leaders**, who implement the evidence; (3) **champions**, who strongly believe in the evidence and promote it and its implementation; and (4) **change agents**, who facilitate movement toward adoption of evidence.

In addition to considering potential partners' relationships with PCORI, the evidence, and the target audience, PCORI can review the trade-offs of different partnering structures. For example, engaging a small number of organizations may lead to more in-depth representation of findings and practices, but partnering with many organizations may lead to wider dissemination of findings. It is also necessary that potential partners believe that partnership with PCORI will be beneficial to them. Lastly, partners should possess the right skills and expertise to plan D&I efforts because this type of collaboration is more likely than not to lead to effective dissemination and implementation of CER and PCOR evidence. Worksheet AP2 helps assess whether PCORI will need to connect with new partners, how well partners' goals align with the evidence, and whether partners can help with the goals of D&I.

Figure IV.2. Stakeholders, Partners, Audiences, and End Users



Note: End users include anyone who might benefit from having information on new CER or PCOR evidence to help make healthcare decisions, including patients and caregivers as well as other decision makers.

Worksheet AP2. Partners with Whom to Collaborate

Goal of this Worksheet. Develop a list of partners with whom to collaborate.

Context. Briefly describe the scope of the evidence or research findings.

→ **Who are the potential partners for this work?** (List partners in Column A below)

→ **What audience(s) can the partners reach?** (List audiences in Column B)

→ **What are PCORI's existing connections to each partner?** (Note in Column C)

→ **What are potential roles for each partner?** (Note in Column D)

Column A Partners	Column B Audiences	Column C Connections	Column D Roles

Note: See Appendix F for a list of potential organizational partners.

Spotlight on Audience Identification

Researcher in the Room

→ **Two aspects of this work that relate to PCORI’s role in dissemination are (1) partnering with trusted local organizations that could identify and conduct outreach to community practitioners (or other target audiences); and (2) considering the information needs of the audience when selecting the presenters, types of research, and presentation style and content.**

The Johns Hopkins University Institute for Clinical and Translational Research (ICTR) developed the Researcher in the Room program to help researchers disseminate their research findings through identifying community-based practitioners. Research topics explored by the program included intimate partner violence and school violence. In each quarter over a two-year period, the program featured a presentation by a Johns Hopkins researcher with recent work in one of these areas. Program leaders strove for diverse types of research, including such areas as intervention, screening and assessment, and policy advocacy.

For each presentation, ICTR staff partnered with a community organization in Baltimore that recruited providers and program administrators who would benefit from the information that researchers presented, thus also helping with the identification of the target audience. For example, investigators partnered with a women’s shelter for the presentation on intimate partner violence and with the Maryland Mental Health Association for the meeting on school violence. Program leaders leveraged the contacts and communication channels of these community organizations, involving them in outreach. The ICTR staff supplemented this list with contacts they thought might want to attend the sessions.

Sessions were held in community settings with 20 to 100 participants. ICTR staff worked with researchers to present findings in lay language and to focus the presentations on the implications of their research findings, rather than on statistical methods, and on ways for audience members to put findings into practice. Investigators selected researchers who would be amenable to this approach and who could reach the audience without extensive coaching. A key component of each presentation was an extended question-and-answer session between the researcher and the community practitioners.

- ### Establish PCORI and Partner Roles

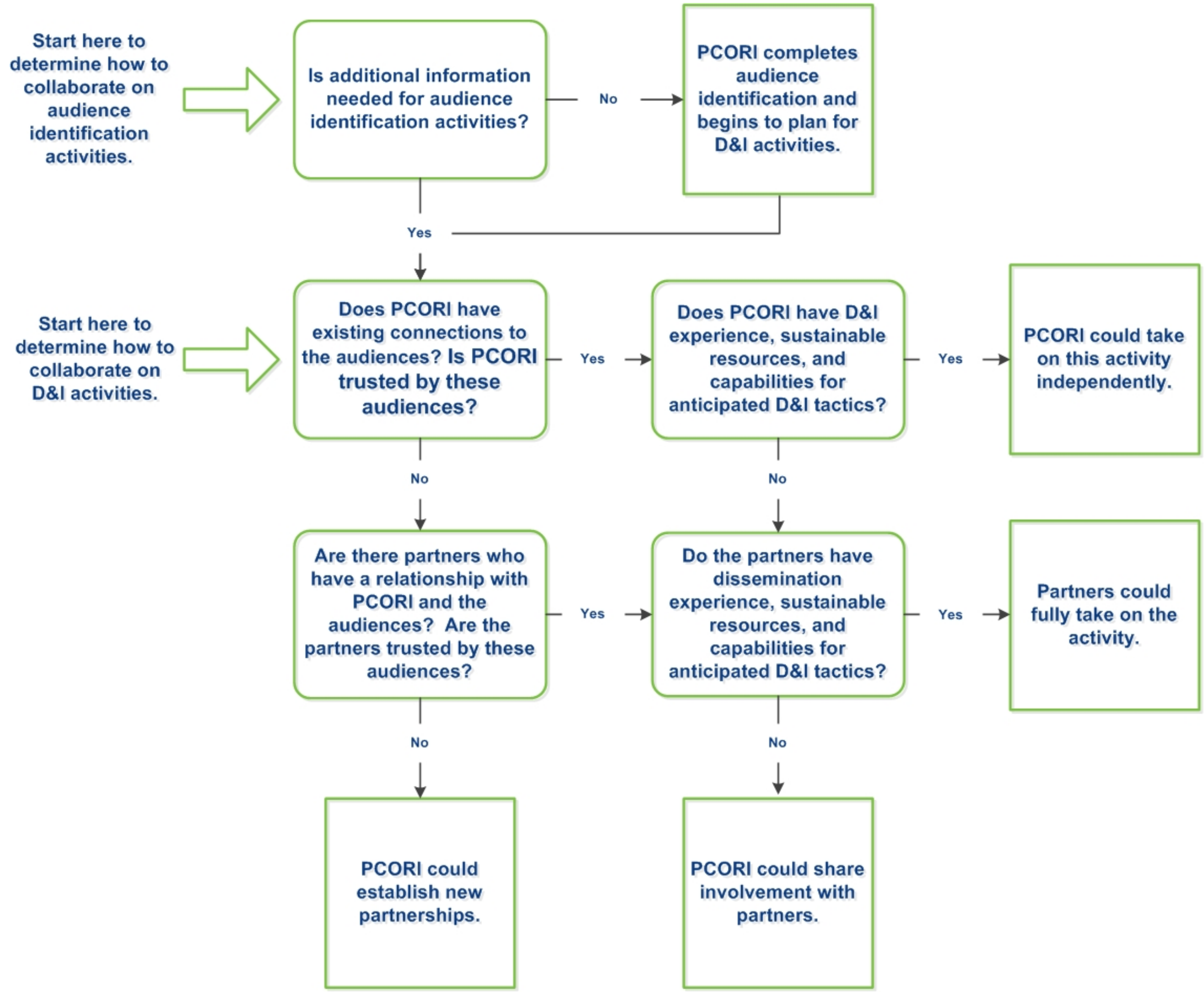
The activities PCORI conducts as part of dissemination and implementation can be determined according to the most effective and efficient way to collaborate and coordinate with partners. To be successful, **the work** of dissemination and implementation **must be shared** between PCORI and its partners. How collaboration occurs depends on factors unique to the evidence, including audience, potential partners, PCORI's relationships with partners, the resource intensiveness of audience-appropriate dissemination tactics, and the partners' resources and ability to conduct D&I activities. For example, PCORI might not conduct direct dissemination to individuals if it has less access to people than its potential partners or is not considered a trusted source of information.

PCORI and its partners might have different levels of involvement in different D&I efforts. Following are examples, from the simplest level of involvement to the highest: (1) PCORI might create and post mandated research summaries but rely on partners to broadly disseminate findings, (2) PCORI might host a webinar or contribute resources to D&I work conducted by partners, or (3) PCORI might itself disseminate findings to end users but plan the tactics with partners. Worksheet AP3 suggests a method for balancing roles in collaborations between PCORI and its partners.

Worksheet AP3. Establish PCORI and Partner Roles

Goal of this Worksheet. Identify the extent to which and the ways in which PCORI and partners could collaborate on specific D&I activities.

Context. Briefly describe the scope of the evidence or research findings.



Note: This decision tree is a general guide that is meant to be adapted for specific situations. Actions for dissemination and implementation are explored in later chapters and can also inform how PCORI and its partners collaborate.

Identify the Audiences’ Needs, Values, Motivations, and Expectations

In seeking to share new evidence, PCORI and its partners should gather information on the needs, values, motivations, and expectations of the target audiences (Greenhalgh et al. 2004; Perla et al. 2013). These characteristics shape the communication methods of the messages, which, in turn, are shaped by how the audience accesses information and the information sources the audience perceives as credible. Messages also should be linguistically and culturally appropriate (Nápoles et al. 2013) and account for the literacy and numeracy of audiences. For example, communication to people with disabilities should anticipate the need for accessibility, interactions with low-income populations should not rely solely on technology and internet access, and information for populations who have limited access to care should not be shared only at doctor visits.

Understanding the information needs and other characteristics of the target audience will provide important insights for developing a D&I strategy, including the best methods to reach the audience, when the audience needs the information, how to tailor information, and barriers to delivering information. For example, appeals to clinicians may emphasize the value of adoption to patient care or the tradeoffs associated with a change to practice. An example of adapting to the audience is presented in the ***Spotlight*** on the Community Liaison Program. Worksheet AP4 is a guide to gathering and consolidating information on the audience that can be used to tailor strategies for working with partners and conducting dissemination.

Exhibit IV.2. Audience Needs and Attributes Relevant to D&I Planning

What audience attributes are most relevant to planning D&I?

- Values, attitudes, and beliefs in general and specific to the evidence
- Knowledge about the evidence and behaviors related to the specific topic
- Beliefs about why evidence is used or not used
- Behaviors related to evidence use
- Self-efficacy to accomplish implementation goals
- Expectations for how information will be presented to them
- Motivations to use evidence

How can PCORI and its partners learn more about audience needs and attributes?

- Conduct key informant interviews with representatives from the target audience.
- Consider conducting focus groups, observational research, or surveys to learn more about audience characteristics.
- Draw on lessons learned by researchers conducting the initial PCOR.
- Facilitate or support further information gathering by D&I partners, including both stakeholders involved in initial PCOR and new partners recruited to conduct dissemination.

Source: Damschroder et al. 2009.

Worksheet AP4. Audiences’ Needs, Values, Motivations, and Expectations

Goal of this Worksheet. For each audience, identify their needs for information about the evidence and for how and when the evidence is communicated.

Context. Briefly describe the scope of the evidence or research findings.

→ **How are the audiences’ needs met by the evidence? What was identified during evidence assessment about the relevance and usefulness of the evidence to audiences?**

→ **How do the audiences access information? Who or what do the audiences view as trusted sources of information?**

→ **What linguistic, cultural, or other factors might be relevant when communicating about the evidence with these audiences?**

→ **When are the audiences most or least likely to act on the evidence given competing priorities?**

Spotlight on Audience Identification

Community Liaison Program

→ **This work spotlights the importance of stakeholder engagement in local communities in identifying audience members' needs and providing them with new information. PCORI can provide guidance on how to engage partners to ensure that new information addresses users' needs.**

The Community Liaison Program was a collaboration between the Center for Health & Risk Communication at George Mason University and the National Minority AIDS Council, funded by the National Institute of Allergy and Infectious Diseases, to increase minority awareness of HIV and acceptance of HIV vaccine trials. The research team successfully identified project partners within minority communities in urban areas by recruiting community liaisons at the council's annual U.S. Conference on AIDS. By doing so, the research team leveraged an important source of information on the needs of target audiences.

Community liaisons acted as cultural informants for the research team, helping it to understand the best ways to communicate with the audiences. These partners helped the team understand that formal or governmental sources of scientific information were not trusted sources of information on AIDS in urban minority communities. In fact, the audience sometimes reacted negatively to messages about AIDS prevention from these official sources of health information. The minority audiences often did not trust government sources, and some actually thought that the government was trying to force AIDS upon community members. In contrast, when community liaisons delivered similar messages through social networking, the messages were better received.

Community liaisons helped the research team to deliver needed information and to identify additional liaisons. The project began with seven community liaisons in five U.S. cities. Based on data collected by six of the seven community liaisons, the project was able to reach 660 community members. Of this group, 400 community members reported an increase in knowledge about HIV/AIDS, and 343 community members agreed to serve as community liaisons themselves.

Assess the Context for Adoption

The more PCORI and its partners know about context, the greater the chances of informing decisions. Understanding environmental, social, and organizational contexts in which target audiences make health and healthcare decisions (Mendel et al. 2008) is important to the success of dissemination and implementation (Dearing 2009). These contextual factors have varying degrees of influence over the willingness of a target audience to adopt and use PCOR findings. Environmental factors that facilitate adoption might include a **business case for change**, available resources to implement change, the leadership culture at an organization, and openness to learning. Barriers could include previous reliance on conflicting evidence, lack of alignment with existing priorities or practices, insufficient resources, or **not having an advocate for change or a champion**.

Understanding the environmental context will not only increase the likelihood of success for D&I efforts that target specific audiences but may make broader adoption easier. This is essential when evidence is translated from or into settings associated with underserved populations. PCORI may be able to increase its impact by recognizing the interplay between care of patients and the larger policy and political environment. Worksheet AP5 summarizes the barriers and facilitators to change that will inform dissemination strategy.

What contextual characteristics are important to assess?

- Beliefs about environmental, social, and organizational barriers and supports
- Resources or assets of a community or an organization
- Procedures and policies that can affect decisions about evidence
- Networks of social and professional relationships and systems of support
- Organizations and individuals viewed as leaders in a community

Worksheet AP5. Environmental Context

Goal of this Worksheet. Identify the contextual factors associated with potential audiences that can inform dissemination and implementation strategies.

Context. Briefly describe the scope of the evidence or research findings.

→ **In what settings will the evidence be shared? How is the evidence relevant to those settings?**

→ **To what extent do the audiences have resources (such as finances or personnel) to adopt evidence? What is the business case for the audiences to adopt evidence?**

→ **Do the settings contain champions for the evidence? Does the team have established connections to those champions?**

→ **To what extent do the environment, social, and organizational contexts encourage, allow, or facilitate change?**

→ **What are the primary environmental, social, or organizational barriers to adopting evidence?**

- ## Determine the Incentives Necessary for Change

Identifying the incentives that encourage the adoption of evidence is critical for successful dissemination and implementation (Damschroder et al. 2009; Dearing 2009). An incentive can be thought of as a policy or practice to encourage a particular behavior or activity. Incentives can be either *extrinsic*, in which the reward for a behavior or activity is external to the actor, or *intrinsic*, in which the reward is internal. While financial incentives are extrinsic, setting organizational goals and demonstrating the impact of changes to care on individual patients are intrinsic. For each D&I effort, PCORI and its partners should establish if incentives for change already exist, can be amplified by D&I partners, or are lacking and whether barriers to change are significant. Worksheet AP6 explores how the audience might respond to various incentives and how effective the incentives might be in dissemination.

An important aspect of assessing the need for incentives is exploring whether the benefits of adoption outweigh the costs to a participating entity. Many stakeholders will want to know about the **resources necessary to adopt the evidence**; any financial advantages or disadvantages to change, such as increased or reduced reimbursements from insurance providers; and anticipated positive outcomes, such as health improvements or cost efficiency. When there is a strong case for adoption because the benefits outweigh the costs, the need for formal incentives may be smaller because tradeoffs may be more apparent.

PCORI and its partners should also identify the barriers, or disincentives, that may hinder successful D&I efforts (Exhibit IV.3, Worksheet AP6). This will help identify target audiences more prepared to adopt, as well as potential ways to overcome barriers to dissemination of evidence by emphasizing incentives for change. Furthermore, PCORI should identify non-aligned values and incentives among different audiences, and potential misalignment between target audiences and entities that control incentives for change. For example, it may be difficult to motivate adoption even if evidence suggests that physicians should deliver specific care for which reimbursement is absent or relatively low. In such cases, incentives that appeal to intrinsic motivation may be most effective.

Exhibit IV.3. Example of Incentive Types

→ **Economic incentives** can be motivators for adoption of PCOR evidence. Many established theories of organizational change that hinge on resource-based goals and organizational self-interest.	PCORI and its partners might be able to leverage economic incentives that motivate organizations or policymakers to adopt findings that would improve the effectiveness or efficiency of health care or public health programs.
→ **Organizational goals as incentives** rely on the power of the goal related to adoption. Similarly, the extent to which evidence is tied to a compelling organizational goal influences the readiness and willingness of people within the organization to adopt (Yuan et al. 2010).	For example, the Institute for Healthcare Improvement's 100,000 Lives and 5 Million Lives campaigns put forth compelling goals to reduce patient harm—a goal that is highly motivating and a powerful tool for engagement (Perla et al. 2013).
→ **Leveraging data to amplify incentives** can motivate healthcare professionals by indicating that what they are doing matters (Greenhalgh et al. 2004). PCORI may be able to amplify existing incentives for change by sharing data that characterizes the impact of adoption.	"Personalizing the policy case" can engage decision makers and policymakers by explaining how the implementation of evidence or the absence of action would affect specific people or groups (Jewell and Bero 2008).

Worksheet AP6. Audience Incentives for Change

Goal of this Worksheet. Develop a list of potential incentives and disincentives among target audiences to inform dissemination and implementation strategies.

Context. Briefly describe the scope of the evidence or research findings.

→ **How do the costs compare to the benefits across the various audiences?**

→ **What economic and noneconomic incentives might motivate the audiences to adopt or use the evidence? What has been effective with these audiences in the past?**

→ **Who can encourage adoption? Can partners' existing formal or informal networks be leveraged to reach decision makers?**

→ **What incentives might work against adoption?**

→ **To what extent do the audiences and those who reach the audiences, such as partners, have similar interests in encouraging the adoption of the evidence?**

Dissemination and Implementation Toolkit Roadmap

Evidence Assessment

Evidence Assessment (Chapter III). Document the context of the evidence by answering:

→ Is the evidence appropriate for broad dissemination?
→ What stakeholder priorities, needs, and concerns does the evidence address?

Worksheets address engaging stakeholders, putting evidence in context, determining why the evidence matters, and anticipating barriers to the adoption of evidence.

Audience Identification and Partner Engagement

Audience Identification and Partner Engagement (Chapter IV). Refine the audiences and partners and document the context of the audiences by addressing:

→ Who will benefit from having this information to make decisions?
→ Who can help reach the audience and influence adoption?

Worksheets address engaging stakeholders; identifying target audiences and partners; establishing partner/PCORI roles; and identifying audiences' needs, contexts, and incentives.

Dissemination

Dissemination (Chapter V). Identify the dissemination strategy and methods by examining:

→ What information about the evidence will help people make decisions?
→ In what ways can that information be provided?

Worksheets address engaging stakeholders, defining goals for dissemination, making the case for the use of evidence, enhancing the accessibility and usability of the evidence, and identifying tailoring and targeting tactics.

Implementation

Implementation (Chapter VI). Refine implementation activities by answering:

→ How can context be addressed to support adoption and sustainability?
→ What are potential strategies for widespread implementation?

Worksheets address engaging stakeholders and technical assistance on implementation context.

Evaluation

Evaluation (Chapter VII). Identify the evaluation strategy to assess the effectiveness of D&I efforts by addressing:

→ How will the effectiveness of D&I strategies be assessed?
→ What data will be used to assess success?

Worksheets address engaging stakeholders and evaluation planning, methods, and metrics.

Dissemination and Implementation Toolkit Roadmap

Evidence Assessment

Evidence Assessment (Chapter III). Document the context of the evidence by answering:

- → Is the evidence appropriate for broad dissemination?
- → What stakeholder priorities, needs, and concerns does the evidence address?

Worksheets address engaging stakeholders, putting evidence in context, determining why the evidence matters, and anticipating barriers to the adoption of evidence.

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- → Who will benefit from having this information to make decisions?
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Dissemination

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- → What information about the evidence will help people make decisions?
- → In what ways can that information be provided?

Worksheets address engaging stakeholders, defining goals for dissemination, making the case for the use of evidence, enhancing the accessibility and usability of the evidence, and identifying tailoring and targeting tactics.

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Implementation (Chapter VI). Refine implementation activities by answering:

- → How can context be addressed to support adoption and sustainability?
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Evaluation (Chapter VII). Identify the evaluation strategy to assess the effectiveness of D&I efforts by addressing:

- → How will the effectiveness of D&I strategies be assessed?
- → What data will be used to assess success?

Worksheets address engaging stakeholders and evaluation planning, methods, and metrics.

V. DISSEMINATION

PCORI Action Steps

- → **Engage stakeholders in planning and executing dissemination.** Who can help PCORI develop a dissemination strategy given the evidence and target audiences?
- → **Design a multifaceted dissemination strategy**. What different dissemination tactics can be used together to reach the target audiences?
- → **Define the goals for dissemination.** Given the evidence, what changes to practice, policy, and decision making are warranted?
- → **Identify contextual facilitators and barriers to use of evidence in decision making.** What do end users want and need from the evidence?
- → **Make the case for the evidence.** How can the case for the evidence be made to be meaningful and personal to the target audiences?
- → **Enhance the accessibility and usability of the evidence.** How can the evidence be made to be more accessible and ready to use?
- → **Choose dissemination tactics.** What messages and modes are most appropriate for the target audiences? How can multiple tactics be used?

This chapter provides guidance on how to develop a dissemination plan and strategies to increase the likelihood that target audiences will use the evidence. The action steps are not listed in sequential or priority order but are rather intended to serve as guideposts in planning dissemination strategies. Dissemination is a dynamic and complex process, involving several challenges in its planning and execution. It seeks to inform the adoption decision and end users' motivation to use evidence in decision making; therefore, planning for dissemination requires considering adoption and use of evidence by various target audiences. Through ongoing collaboration with partners, PCORI can begin to address these challenges. The right mix of expertise either at PCORI or other organizations would include communication experts and people or groups who understand specific dissemination tactics.

Challenges in Dissemination

- → Translating evidence to account for the diverse needs of multiple audiences
- → Making evidence accessible and usable across many audiences and user contexts
- → Making a compelling case for adoption of evidence to overcome potential resistance to changes in practice or policy and competing interests
- → Addressing limited experience and existing beliefs about the evidence; adoption costs, transaction, opportunity; and potential misalignment of incentives
- → Addressing potential uncertainty about the external validity of the research and limited information to inform adaptation and replication

Engage Stakeholders in Planning and Executing Dissemination

To enhance the effectiveness of dissemination plans, PCORI should engage stakeholders in designing and carrying out dissemination strategies. The principal stakeholder groups to engage include partners who can help carry out the dissemination strategy, end users, and decision makers who need to be aware of the evidence to facilitate adoption. Stakeholders whom PCORI could engage in planning might already be identified as members of the dissemination advisory panel or recommended by panel members and can also include PCORI-funded investigators who have conducted research that aligns with the evidence to be shared. Worksheet SE3 identifies questions for PCORI and its partners to answer when they consider stakeholder engagement for dissemination planning. The box that follows this worksheet provides a summary of themes from the stakeholder feedback activities conducted to develop this toolkit.

In the planning phase, partners and other stakeholders play a fundamental role in tailoring the communication strategies to target audiences, building momentum for adoption, and acting as ambassadors for CER and PCOR evidence. Because partners have **on-the-ground knowledge of the target audiences**, their involvement enhances the likelihood of success. **AHRQ's Dissemination Planning Tool** emphasizes the importance of identifying **partners with existing networks** at the local level that can distribute information to end users and bolster the dissemination message (Carpenter et al. 2005). Other planning tools, such as **Make Research Matter**, are also useful. The ***Spotlight*** on the Partnership for Healthy Asians project also speaks to the importance of using community-based organizations to build distribution networks that reach various target audiences.

PCORI's partners in dissemination can provide valuable insights to inform efforts to reach the target audiences and understand the local context, function as information intermediaries to reach target audiences, and lend credibility and visibility to the evidence (Nápoles et al. 2013; Yuan et al. 2010; Perla et al. 2013).

PCORI's dissemination efforts must also include engagement of end users, such as patients and caregivers, to identify needs for evidence, communication needs, and decision making contexts to help audiences understand the evidence, its impact on patient health, and how it relates to individual circumstances and health choices. Efforts should also include policymakers and health system leaders who are positioned to take action on the evidence. The PCORI dissemination advisory panel should include representatives from these groups and provide connections with these critical players and other local champions, so that PCORI can continue to develop relationships with them. These stakeholders function in highly contextualized, complex environments and have multiple competing demands on their resources and attention. Their engagement early in the dissemination process is vital because their buy-in is crucial and change is often challenging and costly. Engaging leadership can bring prominence to the issue, reveal barriers to adoption, and enable **collaborative problem-solving**. PCORI could also seek to work with organizations known for being receptive to innovation; these early adopters of evidence can in turn influence others to adopt (Berwick 2003).

Worksheet SE3. Engage Stakeholders in Dissemination

Goal of this Worksheet. Identify the stakeholders with whom to collaborate, the ways in which the stakeholders will collaborate, and the frequency of the collaboration in planning dissemination of the evidence.

Context. Briefly describe the scope of the evidence or research findings.

- → **How will PCORI and various stakeholders work together to develop a dissemination plan? Which groups or individuals are most likely to influence the audiences and help encourage adoption of the evidence?**

- → **Are these the same stakeholders who have been involved in other D&I activities? If not, who else should be included in this work? Are end users (including patients and caregivers) represented?**

- → **At what points in the process will stakeholders meet? What are the objectives of the meetings?**

What stakeholders are saying about Dissemination

- → Conduct dissemination through **trusted sources**, such as peers. Although these sources are likely to vary by audience, multiple stakeholders, including clinicians, policymakers and patients, named their peers as a trusted source.
- → Messages should be **repeated, consistent, and communicated through multiple channels**, including through journal article reviews; by making information available online; or via community engagement, such as in schools and churches.
- → **Tailoring information to the target audiences' needs** in terms of the format, language, and content enhances the usefulness and accessibility of the evidence. Clinicians, for instance, indicated that they prefer short summaries of peer-reviewed literature.
- → Messages should include information about the evidence and its **impact to specific patient populations**; when gaps in the evidence appear, they should be communicated.

Themes identified from feedback received from more than 300 people as part of preparing the D&I Framework and Toolkit.

Spotlight on Dissemination

Partnership for Healthier Asians

→ **Identifying the needs of target audiences through engagement with local community members and organizations and tailoring dissemination to address these needs are fundamental components of dissemination planning.**

The AHRQ-funded **Partnership for Healthier Asians** brings together leaders of Asian community-based organizations and academic leaders in Chicago, Illinois, to disseminate and implement evidence-based practices through a stronger understanding of the health care information preferences and needs of immigrant Asian communities.

Researchers at the University of Chicago have leveraged 15 years of collaboration with community-based organizations representing diverse Asian populations—including Cambodian, Chinese, Filipino, Korean, Laotian, and Vietnamese groups—to develop the partnership. Investigators used a practical, market-oriented framework to disseminate and implement evidence-based practices with the aim of co-creating a multilevel approach to accelerating the D&I process.

Investigators have convened two distinct groups of leaders to **mobilize their partners in the community and the academic environment** to support dissemination and capacity-building, as needed, at community-based organizations. Together they developed a Push-Pull-Infrastructure Model to build a marketing and distribution system to disseminate evidence-based practices among Asians. This infrastructure will enable investigators to disseminate evidence-based health care information on a number of topics to these diverse communities.

Despite cancer being the most common cause of death among Asians, these communities have low levels of awareness of and are under-screened for colon cancer. To better understand perspectives on cancer screening and colon cancer, and to identify facilitators of and barriers to screening, the Partnership for Healthier Asians used a community-based participatory research approach to conduct focus groups and individual client surveys in Asian communities. They identified considerable variation across communities in terms of cancer screening awareness, precipitating a substantial need to tailor campaign messages for the intended audience. Investigators will use a community health advisor model to enhance social influence through the use of tailored social media campaigns. By building an academic–community infrastructure, engaging community members, and activating both information and influence channels, investigators hope to improve awareness and uptake of colon cancer screening.

Design a Multifaceted Dissemination Strategy

Evidence suggests that addressing barriers to use of evidence with **multifaceted efforts** is more effective than single-pronged attempts; **tailoring** to needs, values, motivations, preferences, cultural and linguistic characteristics matters; **understanding the context** within which end users function helps; and using **practical tools** can facilitate adoption (Nápoles et al. 2013; Yuan et al. 2010; Carpenter et al. 2005). Exhibit V.1 presents a range of dissemination tactics and their level of targeting, level of tailoring, evidence of effectiveness, and relative costs.[1] Any dissemination effort will have its own set of tradeoffs and this exhibit provides an at-a-glance summary of some of the primary factors to consider; however, the evidence of effectiveness will continue to evolve. Furthermore, other considerations such as scalability of the tactics, are not presented because these factors are determined by the degree of tailoring involved, the nature of the audience, and the respective roles of PCORI and its partners in carrying out dissemination. For example, many tactics have high initial costs, such as website development, but smaller ongoing costs; others may have pieces that are readily adaptable for new audiences, making them more scalable and, potentially, less costly.

This chapter focuses on identifying the relevant channels or modes for disseminating evidence to the target audiences and determining the content of the dissemination messages. PCORI and its partners should **plan for dissemination early—**when preliminary findings build on an existing body of evidence and suggest the results will be worth sharing broadly—and should continue to monitor the implications of the evidence to practice, policy, and decision making (Avorn and Fischer 2010). PCORI and partners might also consider building on the dissemination activities planned and/or carried out by PCORI investigators as part of their individual projects.

The tools included in this chapter facilitate the development of an overall strategy by breaking down the planning process into its component parts. When planning dissemination strategies, PCORI and its partners should address four fundamental questions:

- Who are the target audiences?
- How will the audiences receive information about the evidence?
- What will be the message?
- How will the effectiveness of the strategy be assessed?

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[1] Although Exhibit V.1 includes clinical guidelines, PCORI's authorizing legislation mandates that it cannot develop such guidelines. The exhibit includes these guidelines as an example that partners might consider.

Exhibit V.1. Dissemination Tactics

Dissemination tactic	Level of targeting	Level of tailoring	Effectiveness	Relative costs
Academic detailing or educational outreach	●●●	●●●	●●●	$$$
Clinical care bundles	●●○	●●○	●●●	$$
Consumer decision aids	●●●	●●●	●●●	$$
Continuing medical education (CME)	●●●	●●○	●●●	$$$
Facilitated workshops and small group interactive educational meetings	●●●	●●●	●●●	$$
Interactive health applications[a]	●●●	●●●	●●●	$$$
Shared decision making tools	●●●	●●●	●●●	$$
Audit, data monitoring, and feedback on performance	●●●	●●●	●●○	$$$
Clinical care guidelines	●●○	●○○	●●○	$$
Educational materials	●●●	●●●	●●○	$
Large-scale educational conferences	●●○	●○○	●●○	$$
Learning collaboratives, communities of practice, practice-based research networks	●●●	●●●	●●○	$$
Mass media	●○○	●○○	●●○	$
Reminder systems and computer-based clinical decision support (CDS)	●●●	●●●	●●○	$$$
How-to guides and toolkits	●●●	●●●	●○○	$
Multimedia, including videos, podcasts, and slide presentations	●●○	●●○	●○○	$
Evidence and policy briefs, fact sheets, infographics, research summaries	●●○	●○○	●○○	$
Electronic mailing lists	●●●	●●○	●○○	$
Publication in books (for research or broader audiences), technical reports, chartbooks, trade magazines, and special interest newsletters	●●○	●●○	●○○	$
Social media, including blogs and tweets; online discussion forums; open and closed platforms	●●○	●●○	●○○	$
Small media (brochures, newsletters, posters, and flyers)	●●●	●●●	●○○	$
Websites	●●○	●●○	●○○	$$

Note: Targeting refers to efforts to reach intended audiences. Tailoring refers to efforts to adapt information and messages to intended audiences. Effectiveness is defined based on source articles' definitions and can vary across topics, target audiences, and when multiple tactics are used.

●●●, ●●○, ●○○ = high, medium, or low opportunity for targeting or tailoring; high (medium, low) evidence of effectiveness.

$$$, $$, $ = generally high, medium, or low cost or risk.

[a] Computer-based information packages that combine health information and decision, social, or behavior change support (Grimshaw et al. 2012).

Define the Goals for Dissemination

This task includes defining goals for the dissemination strategy related to who is reached and what they learn and the goals related to the adoption and use of evidence. This step builds on the efforts conducted when assessing the evidence and determining the importance of the evidence to various target audiences. There are several questions to consider: What do target audiences need to know about the evidence to be able to use it? Given the evidence, what specific changes to practice or decision making are warranted? How should the evidence be used? Worksheet DIS1 can help define goals for dissemination.

In defining the goals, PCORI might consider identifying potential proximal outcomes, such as increased knowledge and motivation to use the evidence, which can be used to monitor the effectiveness of the dissemination strategy on an ongoing basis. Doing so would help PCORI and its partners refine their approach to dissemination midstream and inform future dissemination efforts. In addition, PCORI and its partners could also identify and communicate the outcomes associated with the use of evidence as part of the dissemination message (Jewell and Bero 2008). Stakeholders who provided feedback on the Toolkit underscored the importance of demonstrating the outcomes associated with the evidence to motivate adoption and use of the evidence in decision making.

Identify Contextual Facilitators and Barriers to Adoption

In collaboration with its partners and other stakeholders, PCORI can identify the contextual facilitators and barriers that may affect adoption and use of evidence among the target audiences. These contextual factors are derived from the organizational, community, and broader environment, such as sociopolitical context, where end users will use the evidence. Examples of the contextual factors to consider include but are not limited to costs, existing policy or programmatic initiatives, geography, available resources, community needs and interest, organizational culture, professional norms, payment changes, delivery system redesign, patient characteristics, and local public health infrastructure. Based on best practices from the literature and stakeholder input related to context, PCORI and its partners should:

- Identify audiences' information needs. Target audiences want to know why they should use the evidence and to understand **the advantages, disadvantages, risks, and costs** associated with the evidence and its applicability to their decision making.
- Consider adoption contexts in dissemination, as this supports tailoring tactics to end users' environments (Perla et al. 2013; Mendel et al. 2008).
- Distinguish and communicate core mechanisms of the evidence that should not change from setting to setting from the adaptable components that can be modified across different contexts (Dearing 2009; Damschroder et al. 2009; Greenhalgh et al. 2004).

Worksheet DIS2 provides questions that will help to collect information relevant to target audiences in their decision to adopt and use the evidence.

Worksheet DIS1. Defining Goals for Dissemination

Goal of this Worksheet. Develop goals for the dissemination strategy pertaining to reach, knowledge and understanding, and use of evidence.

Context. Briefly describe the scope of the evidence or research findings.

- → **What share of the target audiences should receive information about the evidence (or reach) and over what time period?**

- → **What do the target audiences need to know and understand about the evidence to be able to use it? What do they want to know? How does this correspond to what was learned about the relevance and usefulness of the evidence during Evidence Assessment?**

- → **How widely should the evidence be adopted or used, and over what period of time?**

- → **How might the evidence affect practice, policy, or decision making among members in each of the target audiences?**

Worksheet DIS2. Information Needs Related to the Use of Evidence

Goal of this Worksheet. Develop a working list of elements that should be incorporated into messages about the evidence to increase the likelihood of adoption and use.

Context. Briefly describe the scope of the evidence or research findings.

→ **What should messages say to address factors that may help or prevent the adoption and use of evidence?**

→ **What should messages include for decision makers and organizations that might adopt the evidence?**

→ **Does the evidence need to be adapted to make adoption easier or more appropriate, and if so, for which groups or settings does it need to be adapted?**

→ **What should messages include about how the benefits compare to the risks associated with use or adoption? What are the potential consequences of not adopting the evidence and for whom? How should the messages address these consequences?**

→ **What is known about the benefits and risks to patients across various subgroups addressed by the evidence? How should the messages address the tradeoffs or limitations relevant to subgroups?**

→ **What are the costs (transaction, opportunity, or financial) associated with adoption? How can messages about the evidence address these costs?**

Make the Case for the Evidence

Making the case for the evidence involves developing a message that articulates the choices available and reasons for choosing one treatment over another—namely, the impact to patient health and the benefits of one option over another—and identifying messengers who are trusted by and influential within the target audiences. Use of evidence in decision making is more likely if it has a clear relative advantage over existing evidence and the status quo and has implications for current behavior and practice (Greenhalgh et al. 2004). Therefore, the dissemination strategy must be **audience-specific and personal to end users, and must appeal to end users' goals**. In addition, the source of the message can add credibility and can influence the perception of the evidence (Berwick 2003; Yuan et al. 2010; Perla et al. 2013). Messages might also include information about individuals or groups who believe the evidence is important, which can influence others to adopt and use the evidence. When messengers are not available, the task becomes more challenging and will require the development of relationships with target audiences through ongoing engagement, similar to the work already conducted by PCORI staff and PCORI-funded investigators.

PCORI's role in making the case should focus on communication regarding evidence of effectiveness of one approach or treatment over another. Efforts to assess the evidence context are foundational to this step, and engaging partners will help to tailor the case to all target audiences and end users at all levels of the healthcare system. Tailoring to target audiences' attributes—such as goals, values, and norms—can facilitate effective dissemination. Insights gleaned from stakeholder engagement in planning the dissemination strategy regarding these attributes can be leveraged in making the case for adoption, which includes conveying potential risks and uncertainty as much as it includes describing benefits. Worksheet DIS3 includes questions that address how to build a case for the evidence.

Enhance the Accessibility and Usability of the Evidence

Dissemination tactics are most effective when they make the evidence accessible—in terms of both availability and interpretability—and usable through tools that are instructive and supportive of the use of evidence (Yuan et al. 2010; Greenhalgh et al. 2004). Multifaceted strategies increase accessibility. For example, PCORI could engage health bloggers who write about recently published evidence, thus expanding its accessibility to specific audiences. It could also supplement publications with evidence briefs or partner with the ***Prescriber's Letter*** when findings pertain to pharmaceutical interventions, providing targeted communications to augment the peer-reviewed publication. PCORI and its partners can also make the evidence accessible by selecting distribution channels and working with organizations that will promote the spread of evidence. Partners can help to tailor information to increase interpretability, which is particularly important for partners who serve consumer groups who may be unfamiliar with evidence. The Healthy Living Study ***Spotlight*** points to the importance of multipronged dissemination strategies to affect patients' care, by training community health workers and making available educational, easy-to-use DVDs to educate patients.

Dissemination tactics that support the use of evidence, such as data monitoring and performance feedback, are more effective than education or training alone (Franklin and

Hopson 2007). Effective dissemination requires going further by meeting end users in their environments and building tools, processes, or resources that translate the evidence to the context **and make the evidence easy to use** (Mendel et al. 2008; Yuan et al. 2010). PCORI can make evidence more usable by creating high-level products, such as supplemental tools aimed at addressing the knowledge or skills required to use the evidence, that partners can adapt and through ongoing consultation with the dissemination advisory panel. Worksheet DIS4 includes questions on making evidence accessible and usable for the target audiences; it should be completed separately for each target audience, because their needs will vary.

Worksheet DIS3. Make the Case for the Evidence

Goal of this Worksheet. For each target audience, develop a list of elements that identify the case to make for the evidence and identify how partners and stakeholders can help develop messages.

Context. Briefly describe the scope of the evidence or research findings.

→ **What is different about the new evidence compared with existing evidence and what should the message include about these differences to help people make decisions?**

→ **Based on stakeholder input, why is the evidence important? How does the evidence affect patient health, decision making or healthcare choices, policy, or practice? How can the message reflect this?**

→ **How can partners and stakeholders help to develop messages that are meaningful and personal to the audiences?**

Spotlight on Dissemination

The Healthy Living Study

→ **This project presents an example of developing a dissemination plan and choosing tactics that address the needs of target audiences. Practices that are relevant for PCORI include delivering research findings through local partners as trusted sources of information and through media that meet audiences’ needs.**

The Healthy Living Study strives to help Alabamans with diabetes achieve better functional status through the use of cognitive behavioral training and evidence-based strategies to manage pain. Based at the University of Alabama-Birmingham, the research team developed the study in response to observations by community health workers (CHWs) in Alabama’s Black Belt that many patients with diabetes were in too much pain to exercise. Disseminating evidence on pain management to this study population presents multiple challenges—patients are geographically remote and many have limited education and low incomes or are elderly.

To overcome these challenges, the study team developed dissemination strategies that met the needs of this audience: partnering with CHWs as trusted sources of information to disseminate evidence and delivering content through educational DVDs. CHWs helped the project address barriers presented by patients’ lack of trust in the medical system; they served as intermediaries between researchers and clinicians and the target patient audience. As the study team assessed the evidence and developed content for dissemination, it made sure that the CHWs felt confident about their ability to deliver that information—a step that was critical to successful dissemination given the large amount of information on diabetes and chronic pain management. The team conducted a series of training sessions that engaged the CHWs in clinician–patient role plays and in discussions of previously assigned training material. These trainings doubled as a pilot test of the intervention materials, providing the study team with CHWs’ input on ways to improve the content.

The study team developed DVD education modules to disseminate information on pain management to patients and selected an easy-to-use portable DVD player to give to patients. This strategy solved multiple challenges. It improved CHWs’ confidence in their role as peer coaches because the DVDs contained answers to most patients’ questions about medication and cognitive behavior training. Use of the DVDs also alleviated local physicians’ concerns about advice given to patients through CHWs. The DVDs solved logistical problems unique to the intervention area: because some residents lack reliable electricity, it was important that DVD players could be charged by plugging into cars. And because the DVDs were simple for patients to operate, the CHWs could consult with patients and troubleshoot basic operational issues via telephone.

Worksheet DIS4. Enhance the Accessibility and Usability of the Evidence

Goal of this Worksheet. For each target audience, identify ways to tailor the dissemination strategy to make the evidence more comprehensible and easier to use.

Context. Briefly describe the scope of the evidence or research findings.

Target Audience:

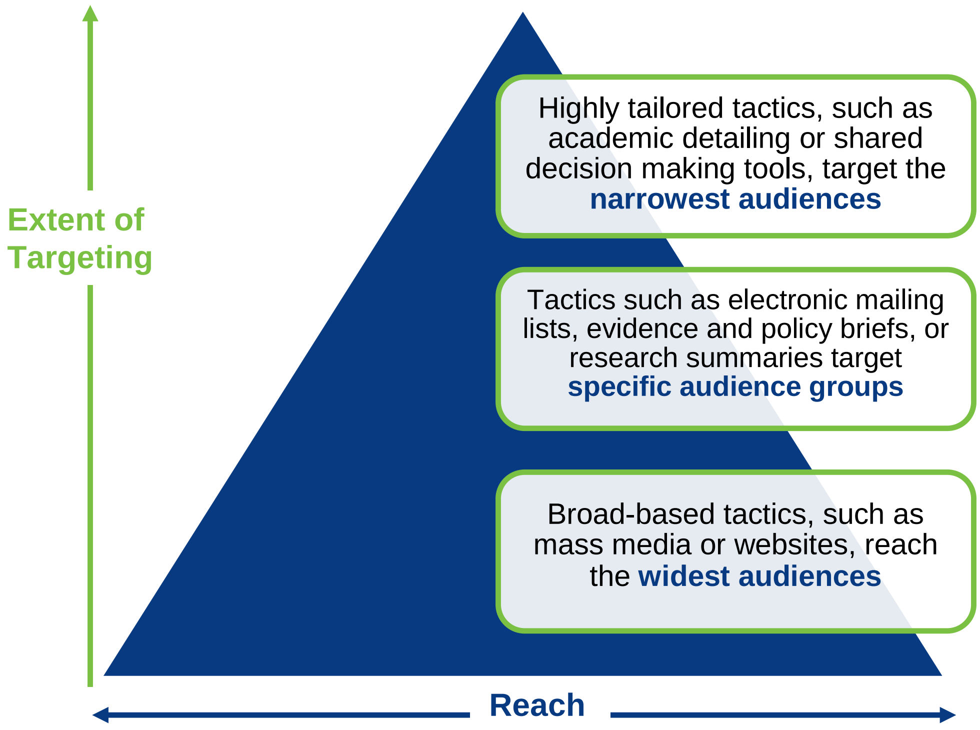
- → **What is known about the audiences' needs for information? What are their needs related to accessing, understanding, and interpreting health information in general and the evidence in particular? How can these needs be met in dissemination?**
- → **What would enhance the interpretability of the evidence for these groups? What actions can be taken to address this? What role can partners play in doing so?**
- → **What knowledge or skills do end users need to use the evidence? How can the messages address these needs? What role can partners play to address these needs?**
- → **What tools could be developed to support use of the evidence (for example, checklists)?**

Choose Dissemination Tactics

Dissemination tactics consist of efforts to target, or reach, certain audiences and efforts to tailor the messages and modes to their needs, motivations, beliefs, values, and preferences. PCORI and its partners should consider developing targeted and tailored strategies that make use of a variety of media, modes, and messages because such approaches are more effective than standalone broad diffusion efforts. The appropriate tactics will vary across target audiences; stakeholders and partners can help to develop the approaches. Figure V.1 depicts the tradeoff between two key aspects of dissemination: reach and targeting. Along the continuum, broad-based tactics reach a range of audiences, with limited targeting to specific audiences or their environments, while more tailored tactics reach specific end users and entail customization of the tactics to the users based on their attributes, environments, or experiences with the evidence.

Dissemination tactics should ultimately be patient-centered and provide information relevant to decisions made by end users. For example, when disseminating evidence relevant to patients or their caregivers, there should be information about outcomes associated with treatment options that patients care about, such as side effects, morbidity, mortality, or quality of life. That is, in order to be patient-centered, the information that is provided about the evidence must matter to patients. Many organizations already provide similar information in many different forms. One example are POEMs (Patient-Oriented Evidence that Matters) developed by the American Association of Family Physicians, which are research summaries targeted to physicians and their patients (Shaughnessy and Siwek 2003).

Figure V.1. Dissemination Tactics Defined by Reach and Extent of Targeting



Highly tailored tactics, such as academic detailing or shared decision making tools, target the **narrowest audiences**

Tactics such as electronic mailing lists, evidence and policy briefs, or research summaries target **specific audience groups**

Broad-based tactics, such as mass media or websites, reach the **widest audiences**

A Necessary Condition for Dissemination: Peer-reviewed Publication

Peer-reviewed publication is a necessary but not sufficient condition for dissemination. It is a highly valued and trusted source of information and predicates many dissemination tactics. However, opportunities to tailor content are minimal. For example, stakeholders emphasized the importance of describing the implications of the evidence to their contexts, decision making, and behaviors. Thus, additional tactics will be needed to support adoption.

As shown earlier in Exhibit V.1, highly targeted and tailored strategies tend to be the most effective but are also associated with the highest costs. Because multifaceted strategies are most effective, using effective strategies in combination is likely to have the greatest impact. Although the exhibit summarizes the tradeoffs among these tactics, the most effective tactics—and combinations of tactics—will vary depending on the context. Appendix G describes the evidence of effectiveness and contextual factors that have been found to influence success.

Dissemination Tactics with Evidenced Effectiveness for Specific Audiences

Academic detailing or educational outreach→ Clinicians

Clinical care bundles→ Multidisciplinary care teams in hospitals and health systems

Consumer decision aids→ Consumers and patients

Continuing medical education→ Physicians

Facilitated workshops, small group interactive educational meetings → Healthcare professionals and clinicians

Interactive health communications→ Consumers and patients

Targeting messages for dissemination

Best practices in dissemination include using appropriate communication channels to reach target audiences, such as publication sources, champions, knowledge brokers, academic detailing, and so forth (Greenhalgh et al. 2004; Carpenter et al. 2005), and using multiple tactics (Franklin and Hopson 2007). Stakeholders who provided feedback on the Toolkit and best practices in the literature emphasize the importance of **using multiple channels—broad-based and specific—to reach the target audiences;** doing so increases the likelihood that the evidence will reach the intended audience and motivate use. For example, PCORI and its partners should couple broad-based tactics, such as peer-reviewed publication, with specific tactics that target various audiences, such as newsletters slated for specific readerships. Moreover, targeting requires the identification of entities with clear needs for the evidence—for example, targeting specific communities or health professionals—because by **addressing a stated need**, there might be more willingness to adopt the evidence.

Targeting and Tailoring for Underserved Groups

- → **Place-based strategies.** By meeting individuals where they live and work, such as by placing interactive kiosks in laundries and libraries, these strategies can effectively bring health information to target consumer groups (Kreuter et al. 2014).
- → **Value-based message framing.** Various groups have salient values that affect their health behavior and decision making. Shaping messages based on values central to certain groups can be effective; for example, one study found that messages framed around four key values were associated with protective health behaviors among African American women (Kreuter et al. 2014).
- → **Broad-based technologies, with additional outreach.** Mobile technologies and the Internet make reaching a wide variety of audiences possible, and some evidence suggests these tools can reach underserved groups as well. However, it is likely that these approaches should be augmented with additional outreach.

PCORI and its partners could function as a distribution network for PCOR findings. They should also determine whether the necessary intermediaries, such as local community groups or champions, are engaged in the dissemination process. Worksheet DIS5 presents questions to address about ways to reach each target audience.

Worksheet DIS5. Targeting Tactics

Goal of this Worksheet. For each target audience, develop a list of tactics that can be used to share information to that target audience.

Context. Briefly describe the scope of the evidence or research findings.

→ **What challenges or difficulties in reaching the target audience exist? How might these be overcome?**

→ **What broad-based tactics should be used? Are they effective with this audience? What more targeted tactics are effective with this audience? How can the tactics be used together?**

→ **What other tactics or channels have been effective with this audience? Are any appropriate and feasible now?**

Tailoring the dissemination message

Two fundamental components comprise dissemination messages about CER and PCOR: what the audiences should know about the options studied and the evidence to inform their health decisions and what the audiences want to know to motivate them to adopt and use the evidence in their decisions. Different audiences will be interested in different aspects of the evidence (Carpenter et al. 2005), so identifying the pieces relevant to particular audiences is important.

Message components for the dissemination of CER/PCOR

- → What the audiences should know about the options studied and the evidence to inform their health or health care decisions
- → What the audiences want to know that will motivate them to adopt and use the evidence in their health or health care decisions

Tailoring can affect the content of the messages, the framing of information, and its nature and format. For example, patients and caregivers might need plain language descriptions of treatment options like the information available on the AHRQ **Treatment Options Awareness Campaign** website. Fundamental to this process are efforts to build on the information-gathering conducted through stakeholder engagement activities related to adapting messages to the target audiences' needs, values, norms, and contexts, including incentives available to influence them. As PCORI and its partners build a case for adoption (described earlier), they will also begin to develop the core messages that will motivate use of the evidence among their various target audiences.

As PCORI and its partners develop an understanding of the contexts within which target audiences function, they can begin to understand users' needs related to the use of evidence and determine the need for tools that support use. For example, as is highlighted in the ***Spotlight*** on the Family Involvement Network of Educators, the use of practical, on-demand tools to disseminate information about effective approaches can generate community-based learning opportunities for children. Worksheet DIS6 presents questions to address tailoring and should be completed for each target audience type, because their needs for tailoring will vary. Based on what is identified through the worksheet, PCORI and its partners can determine who is best positioned to conduct this tailoring.

Exhibit V.2 presents examples of activities relevant to targeting and tailoring. In many cases, PCORI's partners are potentially best positioned to tailor information to target audiences.

Exhibit V.2. Example Dissemination Tactics for Targeting and Tailoring

Targeting messages to reach audiences

Where do the target audiences get their information? How can information be shared with them?

Examples of tactics and modes

- Put evidence in sources accessed by target audiences; for example, use blogs and the web for patients and caregivers or peer-reviewed journals for clinicians
- Distribute information through trusted networks; for example, use peers and community-based organizations for patients and caregivers or peers and professional societies for clinicians
- Facilitate professional networking and involve champions of the evidence; for example, use disease-specific associations or organizations for patients and caregivers or clinical experts for clinicians

Tailoring messages to raise awareness and understanding

What are the audiences’ information needs? What concerns do they have? How does the evidence address those concerns? What would make the information appropriate and accessible?

Examples of tactics and modes

- Make content relevant locally, such as policy briefs tailored to state or local policy issues
- Adapt content based on cognitive, cultural, or linguistic needs, such as educational or outreach materials appropriate for knowledge and skill levels and perspective
- Deliver information based on preferred modes of delivery among subpopulations of the target audiences

Tailoring to support use of the evidence

How should the case for adoption be made? What types of information addresses the target audiences’ concerns, values, motivations, and expectations? What tools do they need to address barriers to use?

Examples of tactics and modes

- Develop toolkits, how-to guides, and resources that can support use; adapt them to specific audiences and contexts as appropriate
- Collaborate to bundle best practices in similar areas when appropriate
- Develop decision support aids or provide guidance on opportunities for decision support
- Facilitate communities of practice and learning collaboratives related to the use of evidence

Spotlight on Dissemination

The Family Involvement Network of Educators (FINE)

→ **Best practices at FINE that PCORI could apply as it develops dissemination plans include being familiar with audiences' needs and the contexts in which they live and work, presenting materials in multiple ways, and monitoring the ways in which materials are adapted by users to assess fidelity and identify new opportunities for sharing innovations.**

FINE, part of the Harvard Family Research Project, brings stakeholders together to advance forward-thinking perspectives on family and community engagement research, practices, policies, and strategies. Its work in family engagement focuses on developing frameworks and tools to promote involvement from early childhood through young adulthood—anywhere, anytime children learn—in the home, in school, and in community settings. Its community engagement efforts concentrate on building the quality, accessibility, and sustainability of learning environments outside of school, including early childhood and afterschool programs.

A primary challenge that FINE encounters is that the community actors to whom it hopes to disseminate evidence must navigate massive amounts of information to get what they need, much like many of PCORI's stakeholders. FINE addresses that challenge by understanding its audiences and their needs—what we identify as context—and evaluating strategies through a lens focused on adaptation and application.

The FINE team reviews promising interventions and evaluations of family and community engagement approaches to education. The team then shares that information in ways that encourage people to distill tips and ideas and apply them in their own communities. The FINE dissemination approach consists of combining practical and accessible tools (such as webinars, newsletters, email lists, and trainings) to share what works and provide the information in tangible but manageable increments that stimulate dialogue. According to one member of the team, "You never know necessarily what's going to stick or what our audience will deem most important, telling the whole story to everyone in a language that they can understand … [is what] we're constantly trying to do through that dialogue."

Worksheet DIS6. Tailoring Tactics

Goal of this Worksheet. For each target audience, identify factors that will inform the tailoring of the dissemination tactic to that specific target audience.

Context. Briefly describe the scope of the evidence or research findings.

- → **To what extent does the evidence address needs of the target audience? Where the evidence is not addressing a need or gap but stakeholders view it as appropriate for broad dissemination, how can attention be drawn to the evidence and its importance?**

- → **How does the evidence address the audience's concerns, values, motivations, and expectations? How can the dissemination strategy be tailored with these in mind?**

- → **What are the communication needs of the target audience (for example, language needs), and how can information about the evidence be tailored to meet those needs? What tactics (messages, modes, ways of conveying the information, and so forth) help to make the information appropriate and accessible?**

- → **What tools does the audience need to address barriers to use and its environment? Who could develop those tools, and how could end users be included in their development?**

VI. IMPLEMENTATION

PCORI Action Steps

- **Engage stakeholders.** Who can help PCORI encourage end users use of evidence in decision making?
- **Provide technical assistance.** How can PCORI bring attention to the implementation context? How can PCORI encourage piloting to build experience with the evidence? How can PCORI encourage implementation partners in promoting and sustaining long-term change?
- **Facilitate the use of multipronged strategies.** How can PCORI help its partners identify multiple strategies for implementation?

Speeding the implementation and use of PCOR and CER evidence is one of PCORI's three strategic goals. Although putting evidence into practice on a broad scale is not a part of PCORI's mission, it can potentially facilitate implementation in several ways, such as by providing technical assistance to organizations that conduct implementation activities. PCORI can also help its partners navigate contextual factors related to implementation, challenges associated with replication through piloting, and facilitators and barriers to sustainability.

This Toolkit does not include activities, such as the creation of guidelines, that focus directly on changing behavior, because PCORI's authorizing legislation does not allow it to conduct such activities. Instead, the Toolkit focuses on ways PCORI can communicate information to end users of evidence to support implementation. Thus, this chapter describes ways PCORI and its partners can engage stakeholders to facilitate and support implementation. The type of actors needed for the activities described here will vary substantially based on context, but experts in the field of implementation science or with specific expertise in specific settings will be valuable.

Challenges to Implementation

- Competing priorities among end users in choosing to adopt new evidence and implement it in practice or policy
- Adapting interventions or practices to a local context while ensuring fidelity to essential elements of the original interventions or practices
- Encouraging sustainability of interventions beyond a pilot phase or phases
- Identifying and applying the right combination of strategies to facilitate adoption and implementation

Engage Stakeholders Who Can Influence Adoption Among End Users

PCORI and its partners should collaborate with stakeholders who can facilitate adoption by engaging members of the target audiences. Input from end users is essential to successful adoption, because they can provide insights about their local context and their buy-in can facilitate implementation. Although PCORI might not have direct relationships with end users, it can **facilitate adoption by partnering with stakeholders** who can both engage end users and influence their use of the evidence. These include payers, employers, federal agencies, patient advocacy organizations, and other entities that maintain relationships with end users, such as investigators who conducted the research. PCORI might also rely on members of the dissemination advisory panel to connect with end users and be ambassadors for PCOR, as well as investigators whose research it has funded who might have expertise in a particular area.

Engaging end users is important because it can inform the implementation strategy, identify barriers, foster problem solving, and accelerate uptake (Green et al. 2009; Franklin and Hopson 2007; Greenhalgh et al. 2014). The ***Spotlight*** on the Depression Medication Choice Decision Aid provides such an example. Furthermore, involving end users in developing an implementation strategy informs the intervention's adaptation to local contexts and increases the usefulness of the approach. For example, engaging patients and caregivers requires different approaches than does engaging clinicians, hospitals, health systems, or payers. PCORI can support engagement efforts by **convening end users and stakeholders who have ties to end users** and encouraging the formation of additional partnerships.

> Engaging end users can inform adaptation to local context and make evidence more **relevant and usable**, maximizing the chances of positive outcomes. Adaptation is especially important when end users are members of underserved or vulnerable groups (Nápoles et al. 2013).

PCORI should also consider partnering with organizations and people that can communicate with end users about the evidence. These stakeholders may be knowledge brokers, expert opinion leaders, or other trusted sources. Dearing (2009) among others described leveraging key influencers as an efficient means of facilitating implementation because they have high reach at a low cost. Depending on the target audience and the end users, PCORI itself, and AHRQ, could be among these influencers. For example, AHRQ's **National Partnership Network** encourages the use of CER findings developed through AHRQ's Effective Health Care Program, with materials developed in consultation with providers and patients.

Spotlight on Implementation

The Depression Medication Choice Decision Aid

→ **PCORI can support efforts like this through stakeholder engagement to ensure interventions address users' needs and by identifying metrics to evaluate adoption.**

Using systematic reviews of the comparative effectiveness of antidepressant medications, Mayo Clinic researchers, funded through an AHRQ grant, developed a shared decision-making tool referred to as Depression Medication Choice for primary care providers and their patients with depression. Investigators developed the tool to foster shared decision making in treating depression in primary care and to put the evidence on antidepressant medications into practice.

Investigators sought feedback from multiple stakeholders on their review of the evidence and the decision aid. For example, to ensure the tool was patient centered, investigators conferred with two patient advisory groups at the Mayo Clinic. In addition, the team gathered an advisory group of psychiatrists, primary care clinicians, patients, and health plan representatives. While soliciting feedback on the evidence review, the researchers also observed encounters between patients with depression and their providers to ensure that the tool would support, not replace, conversations on medication choice.

Through this stakeholder engagement, investigators developed a prototype of the decision aid and solicited feedback from clinicians and patient advisory groups on its content, format, usability, and the degree to which it facilitated shared decision making. After incorporating this feedback, investigators used an iterative process to refine the tool and conducted a randomized trial of the decision aid in primary care practices in Minnesota and Wisconsin. As a part of that trial, the research team evaluated the reach and effectiveness of the decision aid, focusing on patients' knowledge and satisfaction, clinicians' comfort using the aid, and patients' adherence to treatment recommendations.

Worksheet SE4. Engage Stakeholders in Implementation Activities

Goal of this Worksheet. Identify the stakeholders with whom to collaborate and the modes of collaboration.

Context. Briefly describe the scope of the evidence or research findings.

→ **Who could collaborate with PCORI and its partners to share information on implementation facilitators and barriers and the local contexts of the target audiences?**

→ **Are these the same stakeholders collaborating in other D&I activities? If not, who else should be included in this work? Are end users (including patients and caregivers) represented?**

→ **In what ways will PCORI, its partners, and stakeholders collaborate on implementation activities?**

→ **In what ways could PCORI and partners encourage long-term stakeholder engagement to promote sustainability?**

→ **How often will everyone meet to discuss the work and share information?**

What stakeholders are saying about Implementation

→ Implementation might have to occur at multiple levels: a broad level to achieve leadership and infrastructure support for change and an individual level among those who must behave differently to carry out the change.

→ In settings where change is lengthy or complex, consider **piloting implementation** to get started and to generate buy-in.

→ Adoption hinges on whether a change is supported by the existing payment structure and there is a **business case for adoption**. Therefore, communication on these issues is critical.

→ Fostering **sustainability** is a significant challenge, and many stakeholders need additional resources and other supports to do this effectively.

Themes identified from feedback received from more than 300 people as part of preparing the D&I Framework and Toolkit.

Implementation is highly contextualized. What works in one setting or for one target audience might not work as well or in the same way—or at all—under different circumstances or for another audience.

Provide Technical Assistance

Address implementation context

PCORI and its partners can work with stakeholders to assess local context to facilitate adoption of evidence (Greenhalgh et al. 2004 among others). Addressing context is important for several reasons. First, any single study, small number of studies, or even a larger body of evidence cannot account for all potential contexts, and implementing interventions in settings that were not represented in the original research study might be inappropriate or harmful. Second, stakeholders such as organizational leaders can be more willing to support change if information is available about **how to adapt evidence to their contexts**. Third, understanding the regulatory, payment, process, and policy levers at work in a particular context is a prerequisite for implementation success. Implementation efforts are facilitated when tied in to an existing policy or process.

PCORI can play an important role in implementation by providing guidance to partners on how to adapt interventions to fit new contexts. For example, PCORI can work with implementers to address vulnerabilities and needs of specific target audiences, such as functional or cognitive limitations among patients, cultural characteristics of communities, or legal or procedural requirements of health systems. The ***Spotlight*** on the YMCA Diabetes Prevention Program is an example of a project that adapted to local contexts and the needs of end users. PCORI can also address context by providing guidance about **how best to translate evidence** to different groups. There is scant evidence related to D&I that is relevant to some of PCORI's priority populations, including those with genetic or rare diseases, rural populations, those with limited literacy skills or English proficiency, or low-income groups. Absent extensive evidence, it is critical that implementers include the target audiences in implementation planning efforts to ensure that the strategy is appropriate.

At the same time, PCORI should help its D&I partners balance adaptation and fidelity to essential components of the intervention. PCORI can help distinguish the components of an intervention that are highly associated with desired outcomes from those that can be modified without compromising the intervention's integrity. Making this distinction requires identifying essential components during the initial research and monitoring the effects of any subsequent replications. The balance between maintaining fidelity to the original intervention and adapting to the local context is a challenge that PCORI can help mitigate.

Encourage piloting and consider sustainability

In addition to information about context, fidelity, and adaptation, PCORI and its partners can provide guidance to support piloting and promote sustainability. For example, stakeholders interested in replicating successful practices might need guidance on implementation, adaptation, overcoming challenges, and seeking additional partners to facilitate adoption. The sustainability of interventions is another challenge that PCORI can help address by providing technical assistance to stakeholders. Finally, PCORI can provide guidance on the delivery of interventions, such as the types of staff and expertise necessary to implement and sustain a new practice and patient experience in the process. This is particularly important because factors affecting the decision to adopt the evidence may be different from those associated with whether adoption is sustained.

Supporting pilots can help establish a body of evidence sufficient to influence widespread adoption. Encouraging repeated demonstrations can yield multiple specific benefits, such as evidence about practices that are effective for different populations and under what conditions. Organizations implementing interventions can use this evidence to plan for their own roll-out, increasing their chances of success. Providing technical assistance related to piloting and replication can also help PCORI ensure that assessments of pilots or demonstrations are similar and designed to provide timely information, yielding **more reliable evidence about interventions**. Furthermore, in addition to providing technical assistance, PCORI can directly support piloting by partnering with AHRQ to support demonstration projects and studies that explore adaptations for priority populations.

Worksheet IMP1 will assist PCORI in designing technical assistance for implementation that emphasizes context assessment, replication, and sustainability.

• Facilitate the Use of Multipronged Strategies

PCORI and its partners can assist with implementation activities by helping stakeholders identify an appropriate combination of implementation strategies. Strategies described in the literature fall into six broad domains: planning, education, financial, restructuring, quality management, and attention to policy context (Exhibit VI.1).[1] Using combinations of these strategies to drive change among different stakeholders at different levels (individual, community, or system) increases the likelihood of success. Because implementation takes place across multiple stages, draws on new knowledge and skills, and can involve multiple actors, implementation strategies should be dynamic, **multifaceted, tailored, and context-specific**. The combination of multiple drivers of integrating evidence into practice also increases the likelihood of long-term adoption. In addition, combining strategies enables implementers to address each group’s needs. Financial incentives can be very powerful, but resolving conflicting financial incentives may be even more important. For example, if clinicians have a financial incentive to do something that conflicts with the intervention, the use of multiple non-financial strategies to drive change may not outweigh the effect of that conflict. Moreover, because many organizations that are likely to partner with PCORI are attempting to become or developing into learning organizations, a better understanding of multipronged strategies aligns with their priorities and goals for the use of evidence.

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[1] See Powell et al. (2012) and Rabin et al. (2010) for additional implementation strategies.

Worksheet IMP1. Technical Assistance for Implementation

Goals of this Worksheet. Identify the factors needed to adapt an intervention to a new setting and develop guidance on piloting and sustainability that implementers can use in new settings.

Context. Briefly describe the scope of the evidence or research findings.

Addressing Implementation Context

→ **How does the context or setting differ from the context or setting in which the evidence was generated?**

→ **What adaptations would increase the relevance and usability of the evidence for these target audiences and settings? What adaptations are needed to meet the needs of the audiences?**

→ **What essential components of the intervention should be preserved to maintain fidelity?**

Encouraging Piloting and Sustainability

→ **What guidance can PCORI provide about the evidence to inform other healthcare organizations considering new pilot programs?**

→ **What guidance can PCORI or its partners provide on assessing resources and other factors needed to sustain long-term change?**

→ **How can PCORI and its partners support implementation through ongoing assistance and monitoring?**

Spotlight on Implementation

The YMCA’s Diabetes Prevention Program

→ **This is an example of implementing an evidence-based intervention and tailoring program operations to local context and audience needs. The primary takeaway for PCORI is the importance of collaborating with local partners to identify and meet the needs of audiences.**

The **YMCA’s Diabetes Prevention Program** is a community-based program that helps overweight adults at high risk of developing type 2 diabetes reduce their risk for developing the disease. Over a 12-month period, participants work in small groups with a trained lifestyle coach in a classroom setting, where they learn how to incorporate healthier eating, moderate physical activity, and problem solving and coping skills into their daily lives. The program is based on research from the National Institutes of Health, and is being scaled and disseminated to local YMCA communities throughout the country in partnership with YMCA of the USA and supported by the Centers for Disease Control and Prevention. The program provides insights into the process of adapting to local contexts and addressing local needs.

Healthcare providers are the primary referral source for program participants. To engage providers, program coordinators work to identify and reach leaders in local healthcare communities, share information on the evidence supporting the program, and reduce the administrative burden of the referral process. Determining the right healthcare leaders to engage, such as a health system administrator or provider organization leader, is not always obvious. To better target their message to clinical audiences, program coordinators collaborate with local partners to enhance their understanding of how providers and health systems are organized in their community. In some communities, this partner is another healthcare provider affiliated with the local YMCA and connected to local health systems and physician organizations.

After connecting with provider organizations or health system leadership, program coordinators share information on the evidence supporting the program and its effectiveness. Often, provider or health system champions help promote the program to other local physicians. Integrating the YMCA’s Diabetes Prevention Program into electronic referral systems has also reduced the administrative burden of referring patients and increased physician referrals.

Program coordinators also tailored their operations to address the needs of the participants in their communities by providing transportation, adapting program delivery to account for the spoken language and literacy levels of participants, and hiring coaches who are culturally sensitive and aware of varying socioeconomic needs. Lack of transportation to some YMCA branches can be a barrier to participant enrollment and attendance. Strategies to address this include collaborating with local social services departments to expand transportation services and holding classes in locations that participants regularly visit, such as churches, health clinics, and senior centers.

Exhibit VI.1. Implementation Strategies

Questions for choosing among implementation strategies

- → **What is the value proposition of implementing the new evidence for each stakeholder group? What benefits do they accrue from participating in the activities? How do the outcomes benefit them?**
- → **What are the costs of or barriers to each stakeholder group implementing the evidence?**
- → **For each stakeholder group, which strategies minimize the costs and maximize the benefits?**
- → **What combination of strategies is likely to lead to sustained use of evidence?**

→ **Planning**	Conduct a needs assessment; build a coalition; develop an implementation plan; or engage end users at the individual, community, or system levels.
→ **Education**	Develop educational materials, conduct ongoing training and monitoring or consultation, or create a learning collaborative.
→ **Financial**	Alter incentive structures, reduce or increase fees, or access new funding opportunities. Highlight the business case for adoption.
→ **Restructuring**	Revise professional roles or change facilities, equipment, or records systems.
→ **Quality management**	Develop monitoring systems and tools, solicit and use stakeholders' feedback, or test small changes iteratively.
→ **Attention to policy context**	Change requirements for accreditation, credentialing, or licensing; assess system-level facilitators and barriers; and consider the need for local, state, or federal policy changes.

Dissemination and Implementation Toolkit Roadmap

Evidence Assessment

Evidence Assessment (Chapter III). Document the context of the evidence by answering:

→ Is the evidence appropriate for broad dissemination?
→ What stakeholder priorities, needs, and concerns does the evidence address?

Worksheets address engaging stakeholders, putting evidence in context, determining why the evidence matters, and anticipating barriers to the adoption of evidence.

Audience Identification and Partner Engagement

Audience Identification and Partner Engagement (Chapter IV). Refine the audiences and partners and document the context of the audiences by addressing:

→ Who will benefit from having this information to make decisions?
→ Who can help reach the audience and influence adoption?

Worksheets address engaging stakeholders; identifying target audiences and partners; establishing partner/PCORI roles; and identifying audiences' needs, context, and incentives.

Dissemination

Dissemination (Chapter V). Identify the dissemination strategy and methods by examining:

→ What information about the evidence will help people make decisions?
→ In what ways can that information be provided?

Worksheets address engaging stakeholders; defining goals for dissemination; making the case for the use of evidence; enhancing the accessibility and usability of the evidence; and identifying tailoring and targeting tactics.

Implementation

Implementation (Chapter VI). Refine implementation activities by answering:

→ How can context be addressed to support adoption and sustainability?
→ What are potential strategies for widespread implementation?

Worksheets address engaging stakeholders and technical assistance on implementation context.

Evaluation

Evaluation (Chapter VII). Identify the evaluation strategy to assess the effectiveness of D&I efforts by addressing:

→ How will the effectiveness of D&I strategies be assessed?
→ What data will be used to assess success?

Worksheets address engaging stakeholders and evaluation planning, methods, and metrics.

VII. EVALUATION

PCORI Action Steps

- → **Engage stakeholders throughout the evaluation.** How can PCORI involve stakeholders to ensure that the assessment of the effectiveness of D&I strategies is useful and credible?
- → **Make plans for the evaluation of D&I activities.** How can PCORI plan for early and ongoing evaluation and monitoring of D&I activities to support a feedback loop that informs continuous improvement?
- → **Collect information in different ways, using multiple data sources.** How can PCORI guide and encourage the use of both qualitative and quantitative methods of evaluation through the use of multiple data sources?
- → **Identify valid and reliable metrics for process and outcome measures.** How can PCORI guide the selection of metrics and encourage standardization of process and outcome metrics across D&I activities?

PCORI and its partners should plan for ongoing evaluation of D&I activities to ensure that those activities are meeting their intended goals and to inform future activities. D&I evaluation should focus on assessing the effectiveness of D&I activities while they are still occurring, as well as on short-term outcomes, to **foster continuous improvement** of D&I efforts. Early evaluation of D&I strategies can therefore lead to midcourse corrections to D&I efforts as well as refined strategies for use in the next initiative.

PCORI's support of early and ongoing evaluation is particularly important because many stakeholders do not focus on this. Lack of time and monetary resources for evaluation present serious barriers; furthermore, when stakeholders are able to evaluate D&I efforts, they tend to focus on long-term outcomes of evidence-based interventions. PCORI and its partners can play a helpful role in assessing the success of dissemination and implementation by supporting evaluations of the D&I activities themselves.

For example, PCORI can help stakeholders identify the elements of an intervention that are most effective. In addition, PCORI can identify circumstances that influence whether particular strategies are effective and can inform its D&I partners about those findings. Finally, comprehensive assessment of D&I activities can **increase opportunities to scale up** within a particular site or organization and replicate successful practices elsewhere.

Challenges in Evaluation

- Collaborating with stakeholders with varied expertise and experience in evaluation and evaluation methods
- Identifying the evaluation methods that balance rigor and timeliness to assess the effectiveness of D&I activities and inform changes to D&I strategies
- Identifying metrics to assess the effectiveness of D&I activities that are useful for current and future initiatives

The question of who evaluates a D&I effort depends on the context, and separate evaluators for dissemination and implementation may be required. Although possible evaluators might include staff from the program conducting the D&I activities, if PCORI or other funders provide resources for evaluation, evaluators could also be external staff working parallel to program staff. An advantage to using an independent evaluation team is that it is more likely to approach the research without preconceived ideas about processes, potential successes, or potential failures. In particular, to **build a body of evidence** on dissemination effectiveness, PCORI might consider providing resources to assess dissemination activities.

If neither external nor internal resources support a comprehensive evaluation, some evaluation activities may still be feasible and beneficial. For example, program staff could arrange for a limited number of focus groups with patients, providers, or other individuals who are the target audience of the D&I effort. Similarly, providing time throughout the D&I process for implementers and end users to debrief and reflect on implementation is not typically resource intensive and can provide valuable **insights about gaps and barriers** to D&I and potential ways to overcome any challenges.

• Engage Stakeholders Throughout the Evaluation

PCORI and its partners should work with stakeholders, including members of a dissemination advisory panel, end users, investigators who conducted the research, and those involved in decision making to design and conduct evaluation activities. Involving stakeholders is consistent with the standards of patient centeredness established in the PCORI Methodology Report (PCORI Methodology Committee 2013). Worksheet SE5 can guide the process of stakeholder engagement to facilitate evaluation.

Evaluation teams should consult stakeholders when identifying evaluation goals, selecting metrics and data sources, and interpreting findings (Proctor et al. 2011). The types of stakeholders involved, their input, and the frequency of their input may evolve over the course of an evaluation. In addition, new stakeholders may be identified as the evaluation is underway, providing insights that may not previously have been considered.

> Stakeholder input can improve evaluation efforts by providing implementation context and by refining evaluation goals, measure selection, and interpretation of findings. Stakeholders' involvement in evaluation can increase support for further dissemination and implementation.

Stakeholder engagement can improve D&I evaluations in multiple ways. First, end users can evaluate processes and procedures by explaining how dissemination or implementation activities worked in a particular setting. End users can also provide insights during analysis of findings, explaining unexpected or limited findings. Second, stakeholders can pinpoint data sources that may not have been identified early in the project and may even participate in data collection. For example, investigators who conducted the research may have insights into how to collect data for an evaluation. Third, involving stakeholders ensures that the evaluation produces **useful, relevant, and actionable information**. This may have an added benefit of helping PCORI advance the science on development of valid and reliable outcomes measures.

PCORI should emphasize the importance of sharing final evaluation findings with stakeholders and informing them about what the evaluation team gained from their participation. Creating this kind of feedback loop is critical to ongoing stakeholder input into and support of D&I efforts (Brownson et al. 2012). Feedback loops can help PCORI and its partners leverage stakeholder buy-in to support widespread adoption and future D&I efforts.

What stakeholders are saying about Evaluation

- PCORI could develop measures—or engage stakeholders to develop measures—to evaluate D&I efforts. These measures could assess implementation fidelity and **short-term outcomes** of dissemination and implementation, such as knowledge of the evidence.
- To evaluate the implementation of a specific D&I effort, PCORI, its partners, or a third party could conduct qualitative interviews of leaders, implementers, and targeted users.
- Pre–post comparisons using surveys, electronic health records, or claims data may reveal the impact of D&I activities on end users' use of evidence.
- Evaluation should be conducted **across multiple time points** with a mix of quantitative and qualitative methods.

Themes identified from feedback received from more than 300 people as part of preparing the D&I Framework and Toolkit.

Worksheet SE5. Engage Stakeholders in Evaluation

Goal of this Worksheet. Identify the stakeholders with whom to collaborate, ways to gather input throughout the evaluation process, and the modes of collaboration.

Context. Briefly describe the scope of the evidence or research findings.

→ **Which stakeholders can help in the evaluation of dissemination or implementation activities? Are these the same stakeholders engaged in other D&I activities?**

→ **How can stakeholders provide input during the different phases of the evaluation?**

→ **How will PCORI and stakeholders work together during the evaluation activities?**

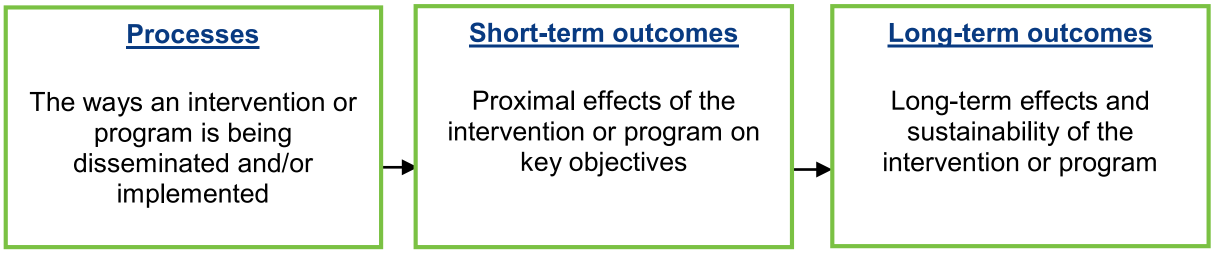
→ **At what points in the process will the stakeholders meet to discuss the evaluation?**

Make Plans for the Evaluation of D&I Activities

Planning an evaluation is an important first step when undertaking D&I activities and should occur before those activities are finalized (Gaglio and Glasgow 2012). PCORI and its partners should address whether an evaluation is feasible and, if so, how it might be implemented. Feasibility depends on a number of factors, including the availability of resources such as staff time, costs associated with conducting the evaluation, and anticipated barriers. Before deciding whether to proceed, it is important to have a **clear understanding of the goals** of the D&I effort and to include a plan to monitor for unintended consequences. Worksheet EVAL1 provides guidance on evaluation planning.

Planning an evaluation requires clearly identifying both processes and outcomes. Generally speaking, processes are the ways in which an intervention or program is being disseminated or implemented, whereas outcomes include both short- and long-term effects of the intervention or program (Figure VII.1).[1]

Figure VII.1. Logic Model for Evaluating Dissemination and Implementation



PCORI and its partners should focus on evaluating processes first because changes in many outcomes, particularly patient outcomes, may take a long time to materialize. More importantly, process (or formative) evaluation has multiple benefits. First, it can build evidence related to the adaptation and use of a specific intervention, and it can also contribute to the evidence base related to D&I. Second, ongoing monitoring can help evaluators and D&I teams incorporate feedback loops that can **support midcourse corrections** and increase the likelihood of achieving stated goals. For example, if early findings indicate that certain messages are not clear to target audiences, that information should be used to improve the messages. Third, understanding how D&I activities are working sheds light on how to influence the use of evidence and helps D&I teams understand the **drivers of long-term outcomes and sustainability**. Finally, early implementation of evaluation plans can help evaluators collect baseline data and establish reliable sources of information.

Several helpful references on implementation research can help D&I teams plan and conduct the work of process evaluation. The **UK Medical Research Counsel Guidance** provides a detailed discussion of the importance of process evaluation and suggestions on best practices. The U.S. Department of Veterans Affairs has developed an **interactive guide to**

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[1] This framework is based in part on work by Jacobs et al. (2012) and the Performance of Routine Information System Management (PRISM) framework (Aqil et al. 2009).

implementation research. And the Society for Implementation Research Collaboration provides a review and synthesis of implementation science measurement tools.

Although PCORI and its partners may usually focus on process evaluation, evaluation could continue after the D&I effort has been completed. Incorporating evaluation of outcomes can shed light on sustainability, particularly if the effects of the intervention on long-term outcomes such as changes in health status are to be effectively measured. Proctor and Brownson (2012) provide a comprehensive list of dissemination and implementation outcomes, including acceptability, reach, adoption, appropriateness, feasibility, fidelity, cost, penetration, and sustainability.

Worksheet EVAL1. Evaluation Planning

Goal of the Worksheet. Outline a plan for the evaluation of D&I activities.

Context. Briefly describe the scope of the evidence or research findings.

→ **What are the goals of the D&I activities? What are the research questions about adoption and use of the evidence related to those goals that an evaluation should address?**

→ **What resources are available to conduct the evaluation and who will provide those resources? Who will be included on the team to conduct the evaluation?**

→ **What is the time frame for the evaluation and how often will data be collected to assess effects of D&I activities? How will early and ongoing monitoring be achieved?**

→ **What challenges might be encountered and how can those challenges be mitigated?**

→ **How will a feedback loop be incorporated to support continuous improvement of D&I activities?**

- **Collect Information in Different Ways, Using Multiple Data Sources**

To address both process and outcome evaluations, PCORI and its partners can guide evaluation teams on data sources and study design. A number of factors drive selection of data and study design, such as the setting, desired metrics, and evaluation feasibility, including financial and nonfinancial resources available for the evaluation.

Evaluation of D&I strategies often requires both quantitative and qualitative data and methods, particularly where quantitative outcomes may be influenced by external factors and attributing outcomes to the intervention may be tenuous (Proctor et al. 2011; Gaglio and Glasgow 2012). Qualitative data are especially useful for addressing process questions because they can provide insight into not just what happened but also how and why (Proctor et al. 2011). Qualitative data are also useful for early assessments of dissemination or implementation and in other situations where quantitative data are limited. For example, the lack of **race, ethnicity, and language data** can be a particular challenge that necessitates qualitative assessments of D&I activities across various subgroups.

Collecting Data to Support Underserved Groups

- **Patient-reported outcomes:** Involving patients in assessing their own outcomes can mitigate the challenges of patients' mistrust of research and a history of paternalistic approaches to research.
- **Race, ethnicity, and language (REL) data:** More detailed REL data can increase the usefulness of administrative data by improving researchers' ability to distinguish among different populations as they consider the effectiveness of interventions.
- **Community-level outcomes:** In addition to individual-level outcomes data, changes in knowledge, social participation, and other data that reflect the health of communities can help researchers address disparities (Nápoles et al. 2013).

Qualitative data can be analyzed in a number of ways, ranging from the informal (for example, one individual reading all interview notes and identifying common themes) to the more rigorous analysis (for example, two or more people applying a list of codes to interview notes, using software designed for qualitative analysis, and including checks to ensure that all reviewers applied codes similarly). Evaluators can also use established coding and rating processes, such as the **Consolidated Framework for Implementation Research**.

Quantitative data and methods are useful for process evaluations of D&I strategies but can also measure short- and long-term effects. The primary strength of quantitative studies is their ability to identify the associations, and in some cases the causal relationships, between an intervention or specific activities and outcomes. Study designs that can establish causality, such as randomized controlled trials, are often highly resource intensive. For this reason, PCORI and its partners should consider quasi-experimental and observational options (Glasgow and Steiner 2012; Ammerman et al. 2014). For example, evaluators could use a pre–post design, but assessing the relationship between interventions and outcomes may be confounded by many factors, including environmental changes, concurrent interventions, and contextual factors. The PCORI Methodology Report (2013) provides guidance on separating the effects of the treatment from other factors that may vary between treatment and comparison groups. Exhibit VII.1 provides considerations and examples of qualitative and quantitative data sources.

Exhibit VII.1. Qualitative and Quantitative Data Sources

Key considerations:

- **The types of data available and the resources to access them**
- **The size of the population to which the information or intervention is being disseminated**
- **The metrics to evaluate dissemination or implementation activities or the intervention**
- **The availability of data at different time points**

Qualitative data source	Process metric	Short-term outcome	Long-term outcome
Document review	✓	✓	
Interviews (leaders at different levels of the organization, the implementation team, and targeted users of the program)	✓	✓	
Focus groups	✓	✓	
Direct observation	✓	✓	
Project meeting notes	✓	✓	
Online or social media tools	✓	✓	
Questionnaires	✓	✓	✓
Chart review		✓	✓
Quantitative data source			
Clinical data			✓
Administrative data (for example, claims/utilization)		✓	✓
Cost data		✓	✓
Patient surveys	✓	✓	✓
Surveys of leaders and staff at different levels of the organization	✓	✓	✓
Electronic health records		✓	✓

Worksheet EVAL2. Evaluation Methods

Goal of the Worksheet. Identify evaluation methods to be used to assess the effectiveness of D&I activities.

Context. Briefly describe the scope of the evidence or research findings.

→ **How can the evaluation be designed to assess whether the D&I activities have met their goals on process, short-, and long-term outcomes?**

→ **What quantitative methods can be used to evaluate D&I activities? How do they address the research questions of interest? Who will participate in data collection?**

→ **What qualitative methods can be used to evaluate D&I activities? How do they address the research questions of interest? Who will participate in data collection?**

→ **What data sources can be used to conduct each evaluation activity? How will quantitative and qualitative data sources be combined to address research questions?**

→ **What is the sequence of evaluation activities? When will outcomes be measured?**

Identify Valid and Reliable Metrics for Process and Outcome Measures

Successful evaluation of D&I activities requires defining processes and expected short- and long-term outcomes and reliable and valid metrics and measures. Because the number of metrics or measures may be large, PCORI and its partners should consider constraints such as time, staff, financial resources, and the availability of data. Metrics and measures should also be **easy or feasible to collect and sensitive to change**. However, identifying and creating metrics to evaluate D&I activities can be challenging, particularly when data are limited; when data are available, gaining access for an evaluation can be complex and resource intensive. Existing initiatives, such as the **GEM-D&I initiative**, might provide information on existing metrics used by others.

Include metrics that reflect the process of implementation. Without assessing the implementation of an intervention, it is difficult to interpret findings about intervention outcomes.

As discussed in the previous section, to correctly assess the ultimate success or failure of a D&I effort, investigators must identify whether planned activities were conveyed or deployed correctly. To this end, clearly defined process metrics are critical. As detailed in Exhibit VII.2, process metrics attempt to measure the attributes of activities or tools used in D&I (Proctor et al. 2011). The ***Spotlight*** on Success for All describes a well-established program in education that uses process measures to gauge effectiveness during implementation and progress of schools at achieving goals.

Short-term outcomes are those that evaluators can measure relatively soon after the start of D&I activities, sometimes at more than one time point. These outcomes can include the number and types of people served and changes in their knowledge, attitudes, and behavior (that is, uptake and use). Other short-term outcomes might include whether the intervention serves appropriate types and numbers of people (reach) and settings (adoption) (Glasgow et al. 1999; Feldstein and Glasgow 2008). Implementers and evaluators often use the **RE-AIM framework** to develop plans for implementation and evaluation. Changes in knowledge, attitudes, and behavior can be measured for a variety of audiences, such as patients, providers, or payers, and over a variety of time periods such as quarterly, biannually, or annually.

The association of D&I activities to long-term outcomes is not always direct because changes in these outcomes are influenced by multiple factors, but these outcomes are nonetheless important to define (Proctor & Brownson 2012). They include the desired effects of an intervention on the health of individuals or the broader target population and may include changes in perceived or actual morbidity, reductions in injuries, improved self-reported health, or reductions in mortality. As noted in the PCORI Methodology Report (2013), studies should measure outcomes that people representing the population of interest notice and care about, such as survival, function, symptoms, and health-related quality of life. Patient-reported outcomes are a source of this type of information. Practice variation or disparities in care are often important to measure, particularly when the evidence being disseminated or intervention being implemented is associated with specific hard-to-reach or vulnerable populations.

Worksheet EVAL3 includes questions to answer about metrics and outcomes to assess the effectiveness of D&I activities. After that, Worksheet EVAL4 provides a place to develop an overall summary of the design of the evaluation based on worksheets EVAL1 to EVAL3.

Exhibit VII.2. Metrics to Assess the Effectiveness of D&I Activities

Process metrics: Monitoring the use of D&I activities or tools to measure progress toward goals of D&I plans

Example activities or tools

- → Brochures or other materials describing the evidence, provided to decision makers
- → Seminars offered to decision makers to present the evidence
- → Continuing medical education activities
- → Emails sent via a listserv

Attributes of activities or tools to measure to monitor progress toward goals

- → Duration and frequency of use by target audience and/or implementers
- → Acceptability and appropriateness across different target audiences
- → Fidelity to core components of an original intervention, when applicable
- → Consistency across implementation settings, when applicable
- → Interactions between activities or tools and the broader setting, including unanticipated influences and changes

Short-term outcomes: Measuring early, or proximal, effects of D&I activities that provide information on progress toward goals of D&I plans

- → **Reach**. The types and numbers of people the D&I activity serves, such as the number of providers who receive training or number of patients who receive information about the evidence
- → **Adoption**. The types and numbers of settings or organizations that initiate an intervention or evidence-based practice, such as the number of primary care practices that implement an intervention and whether those that implement are representative of the target audience
- → **Short-term outcomes relevant to individuals** (for example, patients, clinicians, or caregivers)
  - ○ Changes in knowledge or attitudes
    - ▪ Awareness and acceptability of the evidence
    - ▪ How well individuals understand the information
    - ▪ Degree to which patients find the evidence useful or incorporate the evidence in decision making
  - ○ Changes in behavior, such as screening completion or the number of recommended procedures conducted
- → **Other potential short-term outcomes**
  - ○ Changes in coverage by payers as a result of the new evidence
  - ○ Reorganization of programs and resources within an health care organization or system in response to new evidence, such as altering procedures or hiring new staff to implement
  - ○ The use of evidence as part of purchasing negotiations for Medicaid and the Children's Health Insurance Program
  - ○ Changes to clinical practice guidelines
- → **Sustainability**. The extent to which activities or use of evidence become institutionalized or routine

Long-term outcomes: Measuring the desired effects of an intervention or program

- → Health outcomes, such as injuries, self-reported health, or mortality
- → Patient-reported outcomes, such as health-related quality of life or functional status
- → Health risk appraisal tools that assess perceived and actual risk to morbidity and mortality
- → Changes in service utilization, such as hospitalization
- → Reductions in health care expenditures
- → Reduction in practice variation or disparities

Sources: Glasgow et al. (1999); Proctor et al. (2011).

Worksheet EVAL3. Evaluation Metrics

Goal of the Worksheet. Develop a list of measures to assess the effectiveness of D&I activities.

Context. Briefly describe the scope of the evidence or research findings.

- → **What metrics can be used to measure progress on D&I activities to share PCOR evidence?**

- → **What short- and long-term outcomes can be measured during the time frame of the evaluation?**

- → **How do the previously identified data sources correspond to process metrics, short-term outcomes, and long-term outcomes? Do additional data sources need to be identified or additional data collected?**

- → **How will metrics be analyzed and measures collected?**

Worksheet EVAL4. Summary of Evaluation Design

Goal of the Worksheet. Summarize the evaluation design for the dissemination or implementation activity based on answers to questions from Worksheets EVAL1, EVAL2, and EVAL3.

Context. Briefly describe the scope of the evidence or research findings.

Goals or Objectives (from EVAL1)	Outcomes or Metrics (from EVAL3)	Data Sources (from EVAL2)	Evaluation Methods (from EVAL2)

Spotlight on Evaluation

Success for All

→ **Success for All's evaluation techniques, including evaluating process measures to assess program implementation and outcome measures to assess the success of the program on achieving desired goals, are particularly relevant to PCORI's role in monitoring implementation.**

For nearly 30 years, **Success for All** has worked to promote the success of children in high-poverty schools with a focus on developing children's reading skills, using a long-term, multipronged approach that emphasizes cooperative learning. Success for All's strategies include professional development for teachers, classroom management techniques, computer-assisted tutoring, assistance for children with particular difficulties, parent engagement, and improvement in attendance, among others. The broad goals of the program are improved achievement outcomes, reduced special education placements, and decreased retention in grade levels. On average, Success for All schools have been participating in the program for 11 years.

The program grew out of an effort to examine cooperative learning strategies and to compile the available evidence on learning into a whole-school approach. Program leaders' background in education research informed, and continues to inform, their emphasis on building evidence on learning and education. For example, Success for All encourages large-scale experiments—some randomized, others using a matched comparison group design—to evaluate program outcomes. The program evaluates both established program elements as well as newly incorporated strategies based on emerging evidence.

Success for All distinguishes between outcomes research and evaluation of interventions. For research purposes, the program measures outcomes at the end of each school year but evaluates implementation throughout the school year. The program assesses the quality of each implementation using a tool called the "Snapshot," which includes a list of program elements that both the school and Success for All staff track. Use of the Snapshot begins immediately for each school engagement. In addition, Success for All conducts quarterly formal assessments of student progress to assign children to the right groups for instruction, identify children not on a trajectory toward success in reading, identify problems within the teams of teachers focused on particular program elements, and assess the progress of the school overall. In general, these process measures have not been used in the outcomes research, although program leaders are interested in linking Snapshot measures to achievement outcomes.

VIII. NEXT STEPS IN DISSEMINATION AND IMPLEMENTATION

Accelerating the use of patient-centered outcomes research cannot happen without intentional and active dissemination and deliberate implementation. A summary of recommendations from the Toolkit follows; PCORI should consider these as it plans its immediate next steps in dissemination and implementation.

Continue to Build a Network of Organizational Partners

Successful dissemination and implementation are unlikely to occur without collaborating with partners that can provide essential information about target audiences and local settings needed to tailor messages about CER and PCOR evidence. PCORI should continue to develop the connections it has already established through the work of its patient and stakeholder engagement staff. Through a partnership with AHRQ, which has developed a network of regional and national partners, PCORI could accelerate the development of the **infrastructure necessary to share information** on CER and PCOR using methods trusted by target audiences. If resources to sustain such a network exist, it offers the opportunity to build capacity in dissemination and implementation that PCORI can use for all D&I efforts.

Establish a Dissemination Advisory Panel

Establishing the makeup of a panel, how members work with PCORI, and resources for engaging the panel are necessary steps. The panel ideally would include members from all stakeholder groups so that **all perspectives are represented** and all groups have the opportunity to collaborate when PCORI develops research priorities, reviews the progress of existing research, initiates D&I plans, and conducts D&I activities. When developing the panel, PCORI should consider identifying how members can **facilitate connections** with their stakeholder groups to provide broader input and feedback on D&I efforts.

Establish a Process to Assess If Broad Dissemination Is Appropriate

Determining whether evidence is appropriate for broad or limited dissemination is the first step in a D&I process that builds on ongoing PCORI initiatives. Ideally, the process would identify how findings from PCORI-funded projects relate to **existing evidence**, meet **stakeholders' needs**, and are **relevant to target audiences** through stakeholder engagement. The PCORI Methodology Committee and stakeholders such as AHRQ and other healthcare organizations that assess evidence could develop such a process to inform healthcare decision making and help determine what research warrants broad dissemination.

Build on Existing Efforts to Synthesize D&I Lessons

Effective dissemination and implementation of CER and PCOR are difficult to achieve without understanding what worked well in past efforts and what to avoid in the future. AHRQ and other federal agencies are developing and curating resources to synthesize evidence on D&I best practices. By developing a D&I repository, PCORI could capitalize on these efforts and contribute to the knowledge base for itself and its partners.

Test the Process and Document Lessons

Although the materials presented in the Toolkit are based on best practices in the literature and stakeholders' feedback, their usefulness to PCORI and its partners can be assessed only by using them and documenting how well they work. After identifying evidence that is ready for broad dissemination to multiple audiences, the tools included here can guide PCORI and its partners through D&I planning. After each planning exercise, users should identify **elements of the tools that work**, what would enhance the tools' usefulness, best practices to communicate to other users, and whether the context of a specific exercise influenced the tools' usefulness. Answers to these questions will help to refine the tools and begin to **build a base of D&I knowledge** that PCORI can use for future efforts.

In addition to documenting how the tools work in developing D&I plans, PCORI should also consider beginning the process of D&I evaluation. Assessing the effectiveness of D&I activities is vital to developing subsequent plans. Doing so will provide developers with **timely information** as new evidence becomes available. Information on the degree of success of various D&I activities and lessons learned from conducting them, particularly **lessons on the importance of context**, could be stored in a D&I repository for the benefit of future D&I planning teams.

Final Thoughts

Decision makers need useful information that is relevant to health and healthcare choices they make every day. To generate that information from research that it funds and effectively increase understanding and awareness of evidence, PCORI must engage stakeholders as partners in research from the beginning—topic selection. In this way, PCORI can ensure the relevance of its research to target audiences and improve the likelihood of speeding the implementation of PCOR by decision makers. When evidence is ready, the action steps identified in the Framework and Toolkit can help PCORI and its partners navigate the complex process of dissemination and implementation.

Although the project to develop the D&I Framework and Toolkit has concluded, the work ahead for PCORI and its partners is just beginning. New, real-world evidence from PCORI-funded projects is coming. When that evidence arrives, the process of assessing the quality of that evidence along with its relevance and usefulness by PCORI, its partners, and all stakeholders will start. Dissemination and implementation of CER and PCOR to diverse audiences will be complex, and will require vast financial and nonfinancial resources to be done effectively as well as the ongoing commitment of all actors involved. However, through investment in ongoing stakeholder engagement, starting at topic selection, to uncover the needs and motivations of different audiences and context of different settings, these processes can be made less complex one effort at a time. And, through ongoing evaluation of D&I activities and documentation of successful practices, the resources needed to plan for and conduct dissemination and implementation will begin to look more like investments than costs.

REFERENCES

Aarons, G. A., M.G. Ehrhart,, and L.R. Farahnak. (2014). "The implementation leadership scale (ILS): development of a brief measure of unit level implementation leadership." Implementation Science, vol. 9, no. 1, 2014, pp. 45-54.

Aarons, G.A., D.H. Sommerfeld, and C.M. Walrath-Greene. "Evidence-Based Practice Implementation: The Impact of Public Versus Private Sector Organization Type on Organizational Support, Provider Attitudes, and Adoption of Evidence-based Practice." *Implementation Science,* vol. 4, 2009, pp. 83–95.

Allen, Jennifer, Laura Linnan, and Karen Emmons. "Fidelity and Its Relationship to Implementation Effectiveness, Adaptation, and Dissemination." In *Dissemination and Implementation Research in Health: Translating Science to Practice*, edited by Ross Brownson, Graham Colditz, and Enola Proctor. New York: Oxford University Press, 2012.

This book is a comprehensive discussion of dissemination and implementation in health, and this chapter highlights the need to balance between adaptations of evidence to fit the context and fidelity to the core components of the original evidence.

Ammerman, A., T. Woods Smith, and L. Calancie. "Practice-Based Evidence in Public Health: Improving Reach, Relevance, and Results." *Annual Review of Public Health,* vol. 35, 2014, pp. 47–63.

Aqil, A., T. Lippeveld, and D. Hozumi. "PRISM Framework: A Paradigm Shift for Designing, Strengthening and Evaluating Routine Health Information Systems." *Health Policy Plan,* vol. 24, no. 3, 2009, pp. 217–228.

Bennett, Gavin, and Nasreen Jessani (eds.). *Knowledge Translation Toolkit. Bridging the Know-Do Gap: A Resource for Researchers*. New Delhi, India: Sage Publications Pvt Ltd., 2011.

Bennett, G.G., and R.E. Glasgow. "The Delivery of Public Health Interventions via the Internet: Actualizing Their Potential." *Annual Review of Public Health*, vol. 20, 2009, pp. 273–292.

Bernhardt, J.M., D. Mays, and M.W. Kreuter. "Dissemination 2.0: Closing the Gap Between Knowledge and Practice with New Media and Marketing." *Journal of Health Communication,* vol. 16, suppl. 1, 2011, pp. 32–44.

Berwick, D.M. "Disseminating Innovations in Health Care." *JAMA,* vol. 289, no. 15, April 16, 2003, pp. 1969–1975.

Brown, D.R., J. Soares, J.M. Epping, T.J. Lankford, J.S. Wallace, D. Hopkins, L.R. Buchanan, and C.T. Orleans. "Stand-Alone Mass Media Campaigns to Increase Physical Activity: A Community Guide Updated Review." *American Journal of Preventive Medicine*, vol. 43, no. 5, November 2012, pp. 551–561.

Brown J.J., G.D. Salinas, M. Cohen, J.K. Jones, B.L. Olson, A. Vaida, and D.W. Bates. "Improving safe use of medication through Internet education for healthcare providers: a case-controlled study." CE Measure, vol. 5, no. 1, 2011, pp. 6-12.

Brownson, Ross C., Mariah Dreisinger, Graham A. Colditz, and Enola Proctor. "The Path Forward in Dissemination and Implementation Research." In *Dissemination and Implementation Research in Health: Translating Science to Practice*, edited by Ross Brownson, Graham Colditz, and Enola Proctor. New York: Oxford University Press, 2012.

Cain, M., and R. Mittman. "Diffusion of Innovation in Health Care." Oakland, CA: California HealthCare Foundation, May 2002.

Carpenter, Deborah, Veronica Nieva, Tarek Albaghal, and Joann Sorra. "Development of a Planning Tool to Guide Research Dissemination." In *Advances in Patient Safety: From Research to Implementation* (*volume 4: Programs, Tools, and Products),* edited by Kerm Henriksen, James B. Battles, Eric S. Marks, and David I. Lewin. Publication no. 05-0021-4. Rockville, MD: Agency for Healthcare Research and Quality, February 2005.

This report is a step-by-step guide to planning and executing dissemination of health research.

Casebeer L., J. Brown, N. Roepke, C. Grimes, B. Henson, R. Palmore, U.S. Granstaff, and G.D. Salinas. "Evidence-based choices of physicians: a comparative analysis of physicians participating in Internet CME and non-participants." BMC Medical Education, vol. 10, 2010, pp-42-47.

Cilenti, D., R.C. Brownson, K. Umble, P.C. Erwin, and R. Summers. "Information-Seeking Behaviors and Other Factors Contributing to Successful Implementation of Evidence-Based Practices in Local Health Departments." *Journal of Public Health Management and Practice,* vol. 18, no. 6, November 2012, pp. 571–576.

Community Alliance for Research and Engagement. *Beyond Scientific Publication: Strategies for Disseminating Research Findings.* New Haven: Yale Center for Clinical Investigation, 2009.

Cucciare, M.A., K.R. Weingardt, and S. Villafranca. "Using Blended Learning to Implement Evidence-Based Psychotherapies." *Clinical Psychology: Science and Practice,* vol. 15, no. 4, December 2008, pp. 299–307.

Damschroder, L.J., D.C. Aron, R.E. Keith, S.R. Kirsh, J.A. Alexander, and J.C. Lowery. "Fostering Implementation of Health Services Research Findings into Practice: A Consolidated Framework for Advancing Implementation Science." *Implementation Science,* vol. 4, August 7, 2009.

This article presents the Consolidated Framework for Implementation Research, a framework that presents the process of adoption and use of evidence in health care settings.

Dearing, J.W. "Dissemination of Innovation: The Will to Change an Organization." *Permanente Journal,* vol. 12, no. 3, summer 2008, pp. 75–77.

Dearing, J.W. "Applying Diffusion of Innovation Theory to Intervention Development." ***Research on Social Work Practice,*** **vol. 19, no. 5, September 1, 2009, pp. 503–518.**

Dearing discusses the application of Rogers' Diffusion of Innovations theory to social work, highlighting intervention attributes, contextual factors, adaptations, and opinion leadership, among other aspects of the diffusion of innovations theory.

Dobbins, M., S. Jack, H. Thomas, and A. Kothari. Public Health Decision-Makers' Informational Needs and Preferences for Receiving Research Evidence. *Worldviews on Evidence-Based Nursing*, vol. 4, no. 3, 2007, pp. 155–163.

Ehrhart, M. G., G.A. Aarons, and L.R. Farahnak. Assessing the organizational context for EBP implementation: the development and validity testing of the Implementation Climate Scale (ICS). Implementation Science, vol. 9, no. 1, 2014, pp. 157-167.

Feldstein, A.C., and R.E. Glasgow. "A Practical, Robust Implementation and Sustainability Model (PRISM) for Integrating Research Findings into Practice." *Joint Commission Journal on Quality and Patient Safety*, vol. 34, no. 4, April 2008, pp. 228–243.

Fixsen, Dean L., Sandra F. Naoom, Karen A. Blase, Robert M. Friedman, and Frances Wallace. ***Implementation Research: A Synthesis of the Literature.*** **FMHI Publication no. 231.Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, National Implementation Research Network, 2005.**

Based on a systematic review of the literature, Fixsen and colleagues present a comprehensive report to implementation of research findings in organizational settings, discussing the core components of interventions, the development of implementation sites, organizational and external factors affecting implementation, and evaluation.

Franklin, C., and L.M. Hopson. "Facilitating the Use of Evidence-Based Practice in Community Organizations." *Journal of Social Work Education,* vol. 43, no. 3, fall 2007, pp. 377–404.

Gaglio, Bridget, and Russell Glasgow. "Evaluation Approaches for Dissemination and Implementation Research." In *Dissemination and Implementation Research in Health: Translating Science to Practice*, edited by Ross Brownson, Graham Colditz, and Enola Proctor. New York: Oxford University Press, 2012.

Glasgow, R.E., T.M. Vogt, and S.M. Boles. "Evaluating the Public Health Impact of Health Promotion Interventions: The RE-AIM Framework." ***American Journal of Public Health*****, vol. 89, no. 9, September 1999, pp. 1322–1327.**

Glasgow, Vogt, and Boles present the RE-AIM Framework, a framework to inform the evaluation of dissemination and implementation in health that describes the constructs of reach, efficacy, adoption, implementation, and maintenance.

Glasgow, R.E., C. Vinson, D. Chambers, M.J. Khoury, R.M. Kaplan, and C. Hunter. "National Institutes of Health Approaches to Dissemination and Implementation Science: Current and Future Directions." *American Journal of Public Health,* vol. 102, no. 7, July 2012, pp. 1274–1281.

Glasgow, Russell, and John Steiner. "Comparative Effectiveness Research to Accelerate Translation: Recommendations for an Emerging Field of Science." In *Dissemination and Implementation Research in Health: Translating Science to Practice*, edited by Ross Brownson, Graham Colditz, and Enola Proctor. New York: Oxford University Press, 2012.

Green, L.W., J.M. Ottoson, C. García, and R.A. Hiatt. "Diffusion Theory and Knowledge Dissemination, Utilization, and Integration in Public Health." *Annual Review of Public Health,* vol. 30, 2009, pp. 151–174.

Greenhalgh, T., G. Robert, F. Macfarlane, P. Bate, and O. Kyriakidou. "Diffusion of Innovations in Service Organizations: Systematic Review and Recommendations." ***Milbank Quarterly,*** **vol. 82, no. 4, 2004, pp. 581–629.**

This is a systematic review of diffusion in service organizations, in which Greenhalgh and colleagues present a comprehensive conceptual model for diffusion of innovations, building on Rogers' theory and synthesizing the evidence regarding innovation attributes; individual adopter attributes; system antecedents for adoption; the diffusion, dissemination, and implementation processes; and outer context to inform the adoption and implementation of new evidence in service organizations, such as healthcare settings.

Grimshaw, J.M., M.P. Eccles, J.N. Lavis, S.J. Hill, and J.E. Squires. "Knowledge Translation of Research Findings." *Implementation Science,* vol. 7, May 2012.

Grol, R., and J. Grimshaw. "From Best Evidence to Best Practice: Effective Implementation of Change in Patients' Care." *Lancet*, vol. 362, no. 9391, October 2003, pp. 1225–1230.

Hamm, M.P., J. Shulhan, G. Williams, A. Milne, S.D. Scott, and L. Hartling. "A Systematic Review of the Use and Effectiveness of Social Media in Child Health." *BMC Pediatrics*, vol. 14, 2014.

Harmsworth, Sally, Sarah Turpin, and TQEF National Co-ordination Team. *Creating an Effective Dissemination Strategy: An Expanded Interactive Workbook for Educational Development Projects*. With additions by Alexandra Rees and Godfrey Pell, Bridging the Gap – Innovations Project 2001. July 2000.

Harris, J.R., A. Cheadle, P.A. Hannon, M. Forehand, P. Lichiello, E. Mahoney, S. Snyder, and J. Yarrow. "A Framework for Disseminating Evidence-Based Health Promotion Practices." *Preventing Chronic Disease,* vol. 9, 2012, p. E22.

Homer, C., O. Susskind, H.R. Alpert, C. Owusu, L. Schneider, L.A. Rappaport, and D.H. Rubin. "An Evaluation of an Innovative Multimedia Educational Software Program for Asthma Management: Report of a Randomized, Controlled Trial." *Pediatrics,* vol. 106, no. 1, July 2000, pp. 210–215.

Jacobs, J.A., E. Jones, B.A. Gabella, B. Spring, and R.C. Brownson. "Tools for Implementing an Evidence-Based Approach in Public Health Practice." *Preventing Chronic Disease,* vol. 9, 2012, p. E116.

Jacobs, S. R., B.J. Weiner, and A.C. Bunger. Context matters: measuring implementation climate among individuals and groups. Implementation Science, vol. 9, no. 1, 2014, pp-46-59.

Jewell, C.J., and L.A. Bero. "'Developing Good Taste in Evidence': Facilitators of and Hindrances to Evidence-Informed Health Policymaking in State Government." *Milbank Quarterly,* vol. 86, no. 2, June 2008, pp. 177–208.

Kelley, R., A. Hannans, G.L. Kreps, and K. Johnson. "The Community Liaison Program: A Health Education Pilot Program to Increase Minority Awareness of HIV and Acceptance of HIV Vaccine Trials." *Health Education Research,* vol. 27, no. 4, 2012, pp. 746–754.

Kitson, A., G. Harvey, and B. McCormack. "Enabling the Implementation of Evidence-Based Practice: A Conceptual Framework." *Quality in Health Care*, vol. 7, 1998, pp. 149–158.

Kreuter, M.W., D.L. Oswald, F.C. Bull, and E.M. Clark. "Are Tailored Health Education Materials Always More Effective Than Non-Tailored Materials?" *Health Education Research*, vol. 15, no. 3, 2000, pp. 305–315.

Kreuter, M.W., and J.M. Bernhardt. "Reframing the Dissemination Challenge: A Marketing and Distribution Perspective." *American Journal of Public Health,* vol. 99, no. 12, December 2009, pp. 2123–2127.

Kreuter, M.W., C.M. Casey and J.M. Bernhardt. "Enhancing Dissemination through Marketing and Distribution Systems: A Vision for Public Health." In *Dissemination and Implementation Research in Health: Translating Science to Practice*, edited by Ross Brownson, Graham Colditz, and Enola Proctor. New York: Oxford University Press, 2012.

Kreuter, M.W., T.D. McBride, C.A. Caburnay, T. Poor, V.L. Sanders Thompson, K.S. Eddens, S. Rath, H. Perkins, and C. Casey. "What Can Health Communication Science Offer for ACA Implementation? Five Evidence-Informed Strategies for Expanding Medicaid Enrollment." ***Milbank Quarterly,*** **vol. 92, no. 1, 2014, pp. 40–62.**

Kreuter and colleagues from the Health Communication Research Laboratory at Washington University in St. Louis present lessons learned from more than 40 original studies with more than 30,000 participants addressing how to improve the reach to, and effectiveness of, health information for low-income and racial/ethnic minority populations.

Lachman, P., and S. Yuen. "Using Care Bundles to Prevent Infection in Neonatal and Paediatric ICUs." *Current Opinion in Infectious Diseases,* vol. 22, no. 3, June 2009, pp. 224–228.

Lavis, J.N., D. Robertson, J.M. Woodside, C.B. McLeod, and J. Abelson; Knowledge Transfer Study Group. "How Can Research Organizations More Effectively Transfer Research Knowledge to Decision Makers?" *Milbank Quarterly,* vol. 81, no. 2, 2003, pp. 221–248.

Lomas, J. *Improving Research Dissemination and Uptake in the Health Sector: Beyond the Sound of One Hand Clapping.* Hamilton, Ontario, Canada: McMaster University Centre for Health Economics and Policy Analysis, 1997.

Maibach, E.W., M.A. Van Duyn, and B. Bloodgood. "A Marketing Perspective on Disseminating Evidence-Based Approaches to Disease Prevention and Health Promotion." *Preventing Chronic Disease,* vol. 3, no. 3, July 2006, p. A97.

Marinopoulos, S.S., T. Dorman, N. Ratanawongsa, L.M. Wilson, B.H. Ashar, J.L. Magaziner, R.G. Miller, P.A. Thomas, G.P. Prokopowicz, R. Qayyum, and E.B. Bass. "Effectiveness of Continuing Medical Education." Evidence Report/Technology Assessment, no. 149. AHRQ Publication no. 07-E006. Rockville, MD: Agency for Healthcare Research and Quality, January 2007.

McCormack, L., S. Sheridan, M. Lewis, V. Boudewyns, C.L. Melvin, C. Kistler, L.J. Lux, K. Cullen, and K.N. Lohr. "Communication and Dissemination Strategies to Facilitate the Use of Health-Related Evidence." Evidence Report/Technology Assessment, no. 213. Report no. 13(14)-E003-EF. Rockville, MD: Agency for Healthcare Research and Quality, November 2013.

McGowan, B.S., M. Wesko, B.S. Vartabedian, R.S. Miller, D.D. Freiherr, and M. Abdolrasulnia. "Understanding the Factors That Influence the Adoption and Meaningful Use of Social Media by Physicians to Share Medical Information." *Journal of Medical Internet Research*, vol. 14, no. 5, September 2012.

Mendel, P., L.S. Meredith, M. Schoenbaum, C.D. Sherbourne, and K.B. Wells. "Interventions in Organizational and Community Context: A Framework for Building Evidence on Dissemination and Implementation in Health Services Research." *Administration and Policy in Mental Health,* vol. 35, nos. 1–2, March 2008, pp. 21–37.

Merchant, R.M., S. Elmer, and N. Lurie. "Integrating Social Media into Emergency-Preparedness Efforts." *New England Journal of Medicine*, vol. 365, July 2011, pp. 289–291.

Moore, Graham, Suzanne Audrey, Mary baker, Lyndal Bond, Chris Bonell, Wendy Hardeman, Laurence Moore, Alicia O'Cathain, Tannaze Tinati, Danny Wight, and Janice Baird. "Process Evaluations of Complex Guidelines: UK Medical Research Council (MRC) Guidelines." London: MRC, 2014. Available at http://decipher.uk.net/wp-content/uploads/2014/11/MRC-PHSRN-Process-evaluation-guidance.pdf. Accessed January 14, 2014.

Nápoles, A.M., J. Santoyo-Olsson, and A.L. Stewart. "Methods for Translating Evidence-Based Behavioral Interventions for Health-Disparity Communities." ***Preventing Chronic Disease,*** **vol. 10, 2013, p. E193.**

Nápoles, Santoyo-Olsson, and Stewart outline seven steps for translating and implementing evidence-based interventions in community settings to reduce health disparities.

Neta, G., R.E. Glasgow, C.R. Carpenter, J.M. Grimshaw, B.A. Rabin, M.E. Fernandez, and R.C. Brownson. "A Framework for Enhancing the Value of Research for Dissemination and Implementation." American Journal of Public Health, vol. 105, no. 1, January 2015, pp. 49-57.

O'Brien, M.A., S. Rogers, G. Jamtvedt, A.D. Oxman, J. Odgaard-Jensen, D.T. Kristoffersen, L. Forsetlund, D. Bainbridge, N. Freemantle, D. Davis, R.B. Haynes, and E. Harvey. "Educational Outreach Visits: Effects on Professional Practice and Health Care Outcomes (Review)." *Cochrane Library*, no. 4, 2008.

O'Connor, A.M., H.A. Llewellyn-Thomas, and A. Barry Flood. "Modifying Unwarranted Variations in Health Care: Shared Decision Making Using Patient Decision Aids. A Review of the Evidence Base for Shared Decision Making." *Health Affairs*, October 2004, pp. 63–72.

Owen, N., K. Glanz, J.F. Sallis, and S.H. Kelder. "Evidence-Based Approaches to Dissemination and Diffusion of Physical Activity Interventions." *American Journal of Preventive Medicine,* vol. 31, no. 4(suppl.), October 2006, pp. S35–S44.

Oxman, A.D., M.A. Thomson, D.A. Davis, and R.B. Haynes. "No Magic Bullets: A Systematic Review of 102 Trials of Interventions to Improve Professional Practice." *Canadian Medical Association Journal*, vol. 153, no. 10, 1995, pp. 1423–1431.

Partnership to Improve Patient Care (PIPC). "PIPC and Families USA Roundtable: Summary and Recommendations." Washington, DC, August 2014. Available at http://www.pipcpatients.org/resources-detail.php?id=295#.VHtWzMIo5ok, accessed on September 21, 2014.

Patient-Centered Outcomes Research Institute Methodology Committee. "The PCORI Methodology Report." Washington, DC: PCORI, November 2013.

Patient-Centered Outcomes Research Institute. "PCORI November Newsletter: Hypertension Initiative, Engagement Awards, Upcoming Webinars." Washington, DC: PCORI, November 12, 2014.

Pentland, D., K. Forsyth, D. Maciver, M. Walsh, R. Murray, L. Irvine, and S. Sikora. "Key Characteristics of Knowledge Transfer and Exchange in Healthcare: Integrative Literature Review." *Journal of Advanced Nursing,* vol. 67, no. 7, July 2011, pp. 1408–1425.

Perla, R.J., E. Bradbury, and C. Gunther-Murphy. "Large-Scale Improvement Initiatives in Healthcare: A Scan of the Literature." ***Journal of Healthcare Quality,*** **vol. 35, no. 1, 2013, pp. 30–40.**

Perla, Bradbury, and Gunther-Murphy present results from a literature scan of large-scale health system improvement efforts and outline four primary drivers of implementation effectiveness: planning and infrastructure; individual, group, organizational, and system factors; the process of change; and performance measures and evaluation.

Powell, B.J., J.C. McMillen, E.K. Proctor, C.R. Carpenter, R.T. Griffey, A.C. Bunger, J.E. Glass, and J.L. York. "A Compilation of Strategies for Implementing Clinical Innovations in Health and Mental Health." *Medical Care Research and Review,* vol. 69, no. 2, April 2012, pp. 123–157.

Prior, M.P., M. Guerin, and K. Grimmer-Somers. "The Effectiveness of Clinical Guideline Implementation Strategies – A Synthesis of Systematic Review Findings." *Journal of Evaluation in Clinical Practice*, vol. 14, no. 5, October 2008, pp. 888–897.

Proctor, E., H. Silmere, R. Raghavan, P. Hovmand, G. Aarons, A. Bunger, R. Griffey, and M. Hensley. "Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda." ***Administration and Policy in Mental Health,*** **vol. 38, no. 2, March 2011, pp. 65–76.**

Proctor and colleagues present a taxonomy of eight implementation outcomes and propose a research agenda to advance implementation evaluation.

Proctor, Enola, and Ross C. Brownson. "Measurement Issues in Dissemination and Implementation Research." In *Dissemination and Implementation Research in Health: Translating Science to Practice*, edited by Ross Brownson, Graham Colditz, and Enola Proctor. New York: Oxford University Press, 2012.

Prohaska, T.R., and C.D. Etkin. "External Validity and Translation from Research to Implementation." *Generations,* vol. 34, no. 1, spring 2010, pp. 59–65.

Rabin, B.A., R.E. Glasgow, J.F. Kerner, M.P. Klump, and R.C. Brownson. "Dissemination and Implementation Research on Community-Based Cancer Prevention: A Systematic Review." *American Journal of Preventive Medicine,* vol. 38, no. 4, April 2010, pp. 443–456.

Ranmuthugala, G., J.J. Plumb, F.C. Cunningham, A. Georgiou, J.I. Westbrook, and J. Braithwaite. "How and Why Are Communities of Practice Established in the Healthcare Sector? A Systematic Review of the Literature." *BMC Health Services Research*, vol. 11, 2011.

Resar, R., P. Provonost, C. Haraden, T. Simmonds, T. Rainey, and T. Nolan. "Using a Bundle Approach to Improve Ventilator Care Processes and Reduce Ventilator-Associated Pneumonia." *Joint Commission Journal on Quality and Patient Safety*, vol. 31, no. 5, May 2005, pp. 243–248.

Resar, R., F.A. Griffin, C. Haraden, and T.W. Nolan. "Using Care Bundles to Improve Health Care Quality." Innovation Series 2012. Cambridge, MA: Institute for Healthcare Improvement, 2012.

Robb, E., B. Jarman, G. Suntharalingam, C. Higgens, R. Tennant, and K. Elcock. "Using Care Bundles to Reduce In-Hospital Mortality: Quantitative Survey." *British Medical Journal,* vol. 340, 2010.

Robertson, R., and K. Jochelson. "Interventions that Change Clinician Behaviour: Mapping the Literature." November 2006.

Robinson, M.N., K.A. Tansil, R.W. Elder, R.E. Soler, M.P. Labre, S.L. Mercer, D. Eroglu, C. Baur, K. Lyon-Daniel, F. Fridinger, L.A. Sokler, L.W. Green, T. Miller, J.W. Dearing, W.D. Evans, L.B Snyder, K. Kasisomayajula Viswanath, D.M. Beistle, D.D. Chervin, J.M. Bernhardt, and B.K. Rimer. "Mass Media Health Communication Campaigns Combined with Health-Related Product Distribution: A Community Guide Systematic Review." *American Journal of Preventive Medicine*, vol. 47, no. 3, September 2014, pp. 360–371.

Rogers, Everett M. *Diffusion of Innovations*. New York: Free Press, 1995.

In this seminal dissemination and implementation book, Rogers outlines the innovation attributes, such as "relative advantage" of the innovation, that influence dissemination, adoption, and use.

Rycroft-Malone, J., K. Seers, J. Chandler, C.A. Jawkes, N. Crichton, C. Allen, I. Bullock, and L. Strunin. "The Role of Evidence, Context, and Facilitation in an Implementation Trial: Implications for the Development of the PARIHS Framework." *Implementation Science*, vol. 8, no. 28, March 2013, pp. 1–13.

Shaughnessy, A.F. and J. Siwek. "Introducing POEMs." American Family Physician, vol 67, no. 6, 2003, pp. 1196-1199.

Shay, L.A. and J.E. Lafata. Where is the Evidence? A Systematic Review of Shared Decision Making and Patient Outcomes. Medical Decision Making, 2015, pp. 114-131.

Soydan, H. "Evidence-Based Medicine and Knowledge Dissemination, Translation, and Utilization: Challenges of Getting Evidence-Based Treatments to Patient Care and Service Delivery." *Journal of Evidence-Based Medicine,* vol. 2, no. 3, August 2009, pp. 143–149.

Stetler, C.B., L.J. Damschroder, C.D. Helfrich, and H.J. Hagedorn. "A Guide for Applying a Revised Version of the PARIHS Framework for Implementation." *Implementation Science,* vol. 6, August 30, 2011, p. 99.

Tabak, R.G., E.C. Khoong, D.A. Chambers, and R.C. Brownson. "Bridging Research and Practice: Models for Dissemination and Implementation Research." *American Journal of Preventive Medicine,* vol. 43, no. 3, September 2012, pp. 337–350.

Tabak, R.G., E.C. Khoong, D. Chambers, and R.C. Brownson. "Models in Dissemination and Implementation Research: Useful Tools in Public Health Services and Systems Research." *Frontiers in Public Health Services and Systems Research,* vol. 2, no. 1, 2013, article 8.

Tabak and colleagues synthesize 61 models of dissemination and implementation to inform the selection of a model to guide dissemination and implementation activities in public health and healthcare.

Thaker, S.I., A.S. Nowacki, N.B. Mehta, and A.R. Edwards. "How U.S. Hospitals Use Social Media." *Annals of Internal Medicine,* vol. 154, 2011, pp.707–708.

Tsui, Lily, Sherry Ann Chapman, Laurie Schnirer, and Sheena Stewart. *A Handbook on Knowledge Sharing: Strategies and Recommendations for Researchers, Policymakers, and Service Providers.* Edmonton, Alberta, Canada: Community-University Partnership for the Study of Children, Youth, and Families, 2006.

A comprehensive guide to dissemination presenting an overview of dissemination strategies and recommendations for the selection of appropriate strategies.

van Achterberg, T., L. Schoonhoven, and R. Grol. "Nursing Implementation Science: How Evidence-Based Nursing Requires Evidence-Based Implementation." *Journal of Nursing Scholarship,* vol. 40, no. 4, 2008, pp. 302–310.

Velentgas, P., N.A. Dreyer, P. Nourjah, S.R. Smith, and M.M. Torchia (eds.). *Developing a Protocol for Observational Comparative Effectiveness Research: A User's Guide.* AHRQ Publication no. 12(13)-EHC099. Rockville, MD: Agency for Healthcare Research and Quality, January 2013.

Vinnard, C., D.R. Linkin, R. Localio, C.E. Leonard, V.L. Teal, N.O. Fishman, and S. Hennessy. "Effectiveness of Interventions in Reducing Antibiotic Use for Upper Respiratory Infections in Ambulatory Care Practices." *Population Health Management*, vol. 16, no. 1, 2013.

Wandersman, A., J. Duffy, P. Flaspohler, R. Noonan, K. Lubell, L. Stillman, M. Blachman, R. Dunville, and J. Saul. "Bridging the Gap Between Prevention Research and Practice: The Interactive Systems Framework for Dissemination and Implementation." *American Journal of Community Psychology,* vol. 41, nos. 3–4, June 2008, pp. 171–181.

Wilson, P.M., M. Petticrew, M.W. Calnan, and I. Nazareth. "Disseminating Research Findings: What Should Researchers Do? A Systematic Scoping Review of Conceptual Frameworks." *Implementation Science,* vol. 5, 2010, p. 91.

Yuan, C.T., I.M. Nembhard, A.F. Stern, J.E. Brush, Jr., H.M. Krumholz, and E.H. Bradley. "Blueprint for the Dissemination of Evidence-Based Practices in Health Care." *Issue Brief (Commonwealth Fund),* no. 86, 2010, pp. 1–16.

Yuan and colleagues present a conceptual framework for the diffusion of innovations in health care based on a synthesis of the literature on large-scale quality improvement initiatives, ultimately presenting lessons learned from four campaigns and a blueprint of eight strategies for dissemination and implementation.

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