IMPLEMENTATION SCIENCE CONSORTIUM IN CANCER

MEETING SUMMARY REPORT

Wednesday, July 10, 2019–Friday, July 12, 2019

National Cancer Institute, Shady Grove Campus
Rockville, Maryland

NATIONAL CANCER INSTITUTE
Division of Cancer Control & Population Sciences

ISCC

INTRODUCTION

The first Implementation Science Consortium in Cancer (ISCC) meeting was held at the National Cancer Institute (NCI) Shady Grove Campus in Rockville, MD, from Wednesday, July 10, 2019 to Friday, July 12, 2019, to establish expectations of how researchers in the field can work together to address key challenges and identify and develop areas of research that require ongoing relationships and facilitation toward advancing the implementation science (IS) agenda in cancer control.

In-person attendees included 111 cancer control and implementation researchers, representing 73 institutions, with an additional 136 unique participants joining through the web. Objectives of the consortium include (1) fostering communication among investigators engaged in IS projects across the cancer continuum; (2) promoting collaborative research projects to fill IS gaps that would extend beyond a single study; and (3) identifying and developing solutions for common theoretical, methodological, or empirical challenges in IS.

The format of the three-day meeting included panels and town hall discussions in the mornings, and breakout sessions in the afternoons. Each of the first two days was anchored around a panel discussion with the entire audience in the morning, and seven concurrent breakouts around specific IS themes. The third day culminated in presentations from the breakout sessions of project ideas developed during Days 1 and 2 and ended with a full proceedings overview that allowed for a question and answer session and participant input on the meeting record.

WELCOME ADDRESS

The consortium kicked off with a welcome address from Dr. Robert Croyle, Director of the NCI's Division of Cancer Control and Population Sciences (DCCPS), who began with a brief history of implementation science (IS) at NCI. Dr. Croyle expressed a need for a high level of theoretical and methodological rigor within the field, with expectations for the IS community to provide ongoing mentoring and technical assistance.

He was followed by Dr. David Chambers, Deputy Director for Implementation Science, DCCPS, who gave an overview of implementation science at NCI in recent years, along with an introduction to the purpose and intended outcomes of an Implementation Science Consortium in Cancer. NCI planned the consortium to bring together a diverse community to think about "public goods" for implementation science in cancer, with an emphasis on inclusivity, transparency, strategy, and efficiency. Dr. Chambers noted that the breakout sessions should generate, expand upon, and prioritize new focus areas for the field. He further explained that NCI assesses its research portfolio frequently to identify key areas for growth, and then mines incoming grant applications for reference to those same subjects. The consortium is one of many ways that NCI is building consensus on ways to advance the field.

PANEL DISCUSSIONS

Panel discussions were conducted in order to stimulate thought and ideas for advancing the IS agenda around two specific "fieldwide" challenges. For each of the two panels, held in the mornings of Days 1 and 2, members of the IS community discussed key challenges for advancing IS in cancer, with opportunities from the audience to comment and ask questions following all presentations. The Day 1 panel focused on whether the existing "research to practice" pathway successfully enables the optimization of evidence-based cancer control within clinical and community settings. The Day 2 panel discussion, which was preceded by a presentation related to the theme of the panel discussion, concentrated on building capacity within clinical and community sites to establish "laboratories" for implementation science.

Day One Panel: Implementation Science in Cancer: Rethinking the Research to Practice Pathway?

Panelists Dr. Rinad Beidas of University of Pennsylvania, Dr. Rani Elwy of Brown University, Dr. Karen Emmons of Harvard T.H. Chan School of Public Health, and Dr. Russell Glasgow of University of Colorado School of Medicine Denver opened the discussion by making remarks on the need to use IS to advance cancer research and disrupt the "replication crisis," improve health care, and show researchers and practitioners how best to effect change. To transform the current research-to-practice pathway, Dr. Beidas suggested the field consider focusing on the actual context within which an intervention is taking place, possibly considering doing away with efficacy trials. Dr. Emmons added that health care practitioners are extremely knowledgeable and have key insights to share from practice settings that should be incorporated into the IS agenda.

The discussion frequently referenced the importance of stakeholder engagement. Dr. Beidas stated that she encourages engagement with anyone who may be affected by an implementation effort, including stakeholders who may not agree or who have different views. She suggested identifying a shared goal in the approach to stakeholders. Dr. Emmons agreed that it's important to cast a wide net when identifying stakeholders, and to try to understand their goals and priorities. She suggested that building relationships with state and local health departments helps in this regard. Dr. Glasgow noted the importance of a strategic, multilevel community perspective—and not insisting every stakeholder be at every meeting;

pinpoint subgroups and individuals who would be best for various stages of an intervention. He suggested that collaboration is necessary on measures that commonly weigh heavily on participants, like costs, resources, and other burdens. Dr. Elwy discussed the challenge of engaging and convincing stakeholders to buy into an intervention prior to securing funding. How can we reduce this gap? She answered that the field has a "need for more people trained in implementation science and policy."

Audience participants suggested a value in the inclusion of health care administrators and practitioners and community members in activities such as the ISCC, not just researchers. Other ideas around "rethinking the research to practice pathway" included "train the trainers" activities, streamlining educational materials, and identifying sponsors who can help reduce costs to patients enrolled in interventions. Additionally, there exists a challenge for practitioners at community-based organizations spending significant resources vying for grant funding and struggling to compete with practitioners from large, municipal health systems.

Day Two Panel: Building Capacity for Implementation Science: Considering Implementation Laboratories

Dr. Noah Ivers of Women's College Hospital, University of Toronto kicked off the second panel discussion, sharing his experience with implementation science laboratories. He shared the potential for implementation science laboratories to help with progress in the area of audit and feedback strategies, which he believes leads to less research waste.

Laboratories are "places providing opportunity for experimentation, observation, or practice in a field of study" stated Ivers. For implementation science, this translates to a situation where organizations delivering interventions at scale and optimizing intervention partners with researchers is critical to advancing generalizable knowledge in implementation.

His discussion included the benefits of conducting sequential trials over years within a set of clinical and community settings, which helps organizations achieve their goals and produce generalizable knowledge. Additionally, he discussed optimizing interventions or clinical outcomes by partnering with community organizations to deliver those interventions at scale. This requires a common paradigm among stakeholders; implementation science laboratories could help align that point of view.

Dr. Ivers' final points offered a segue into the panel discussion that followed. He suggested that researchers must invest in and commit to relationships, and that mutually beneficial partnerships between researchers and organizational stakeholders will lead to sustainable and scalable interventions.

Panel Discussion

The panel for "Building Capacity for Implementation Science: Considering Implementation Laboratories" included Dr. Amy Kilbourne of VA Ann Arbor Healthcare System, Dr. Simon Craddock Lee of UT Southwestern Medical Center, and Dr. Melissa Simon of Northwestern University. Some of the discussion centered around the community in which implementation is taking place. Dr. Kilbourne stated that IS is a great way to give back to the community. It allows frontline practitioners to guide research based on their observations of what the community needs. Dr. Craddock Lee emphasized that creating long-term relationships between researchers and communities leads to long-term growth in the field, and recommended that IS should approach communities like consultants, asking what the community needs, and how the researcher can support those needs. Investigators sometimes go into the community with a research question and leave just as soon as they collect the data they need. Clinicians want to trust that meeting with a researcher will offer something in return for their organization and their stakeholders, many of whom researchers fail to recognize. Understand where the community fits in clinical settings and understand that implementation science also happens outside of clinics.

Additional comments made by panelists focused on funding and health equity. Dr. Kilbourne discussed public-private funding, like state Medicaid-matching programs; there's an opportunity for investigators to implement best practices in low-income communities, with buy-in from community and governmental organizations. Investigators may lose some autonomy in these cases, but sometimes the best ideas come from community partners. Dr. Craddock Lee pointed out that community practices are often concerned with revenue drivers from a quality perspective. Dr. Simon's comments reflected the need for researchers to rethink how studies are conducted and how to close policy gaps through IS, the field with the most opportunity to do good on the ground. She also shared that leadership should understand the value of IS and design and align incentives grounded in health equity.

Finally, the panelists and attendees recognized the importance of establishing shared meaning for what is meant by the concept of an implementation laboratory and whether alternative names (e.g., collaboratory, practice-based research network) may be more helpful depending on the perspectives of different stakeholders.

Breakout sessions were held the first two days of the consortium and centered around seven topic areas previously

identified by the consortium steering committee (see appendix). Successive sessions were attended by participants on a rotational basis, and with topic areas assigned based upon participant responses to a pre-meeting survey. Participants were given an opportunity to focus deeply on key issues, identify major themes, and propose next steps for advancing the field. Through these sessions, 20 ideas for concrete projects were proposed, developed, and presented.

Topic areas for the seven breakout groups were: Economics and Costs, Context and Equity, Implementation Laboratories, Policy, Precision Health and Big Data, Rapid Cycle Design, and Technology and Health Communication. The following are summaries of the topic areas that were distributed to participants to describe the focus of the breakout sessions, and the corresponding project ideas that emerged from the small-group discussions. All project ideas were presented in the morning of Day 3, and were prioritized by in-person attendees and virtual attendees via Mentimeter.

Economics and Costs

(Facilitators: Gila Neta, Jasmin Tiro, Heather Taffet Gold; 2 projects [see appendix])

A paucity of economic and cost-effectiveness analyses within the implementation science portfolio highlights a need to focus on methodological, field-capacity, and measurement issues. We need to better understand implementation costs and who bears them, and to distinguish between the intervention and implementation costs.

Implementation costs affect health care and research outcomes, which makes cost analyses critical. To convince stakeholders to invest in an intervention, you must demonstrate cost-effectiveness. But we lack methodologic guidance in identifying, measuring, and valuing different costs. Specific settings and stakeholders may affect costs, which, in turn, affect the adoption of interventions and perpetuate disparities.

1. Develop Standardized Measures for Cost Analyses

Distinguish different types of costs, such as implementation costs, intervention costs, adaptation costs, and others, and all potential cost impacts. Identify cost-related data sources and quality. Define the timeframe, perspectives, and scope of cost analyses.

Use the Delphi method to gain consensus on what should be measured, and report guidelines for costs and cost-effectiveness in implementation science. The goal is to increase comparability across studies.

Next steps:

- Review resources across disciplines, including gray literature and websites, and talk to experts to identify any existing materials on the subject.
- Analyze cost assessments: What measures did they use? How did they measure? How did they define outcomes?
- Calculate baseline measures to include in guidelines.
- Convene the Delphi group to prioritize shared measures.
- Draw financial support for building consensus and drafting the measures.
- Partner with organizations that can help disseminate the measures.
- After developing the measures, offer training on measuring and analytic methods.

2. Develop Tools to Engage Stakeholders in Cost Collection

Identify stakeholders who will use standardized cost measures and interpret results. These may include patients/consumers, practitioners, health care systems, academia, government public health departments, the community, and others. Then, link the implementation science community with identified stakeholders who can assist with cost collection and help with identification of important cost outcomes.

Develop technical assistance for implementing standardized measures. Implementation science teams across the country can use these resources to engage stakeholders. Provide guidance to implementation science teams to better communicate with stakeholders and to facilitate communication among stakeholders on the collection of cost data.

Next steps:

- Review stakeholders across a broad cross-section of projects to identify their cost-related responsibilities, perspectives, and needs.
- Through mixed-method research, identify pain points and interests on cost-data collection for all relevant stakeholders in health care settings and the community.
- Include project leaders, quality improvement or population health management offices, economists, and human resource practitioners in these conversations.
- Identify stakeholders in low-resource settings to discern who to include in these conversations.
- Determine how this project syncs with the development of standardized measures.

Context and Equity

(Facilitators: Prajakta Adsul, Rachel Shelton; 3 projects)

Achieving health equity goals when conducting implementation research requires an in-depth understanding of the context in which implementation takes place. Historically, there has been a narrow focus on racial/ethnic health disparities (often implicitly), and there is great opportunity to expand the focus more explicitly on promoting health equity using multiple social dimensions (e.g., sexual orientation, gender, disability, geographic location).

1. Promote Implementation Strategies That Increase Equity

Start with a scoping review of engagement frameworks applied to implementation science. Convene a meeting with framework developers and equity framework developers. Consider existing definitions and constructs and how you may modify or frame them to address health equity issues. Draft guidelines to help people consider health equity issues, apply equity frameworks, and develop strategies. Describe processes for selecting or developing implementation strategies that explicitly address health equity issues.

Next steps:

- Convene a planning group.
- Refine and prioritize objectives.
- Secure funding and resources:
  - Funding for the framework developer meeting, plus consensus meeting or guidelines
  - Human resources to do the scoping review
  - Human resources to write report/manuscripts
- Plan activities.

2. Promote Contextual Inquiry to Address Health Equity Issues

Identify and address how people use contextual inquiry to address health equity issues. (Contextual inquiry first asks users a set of standard questions and then observes and questions them while they work in their own environments.)

Develop a list of methods and measures for contextual inquiry that includes health equity issues. Develop guidelines, recommendations, and best practices on the same. Then, disseminate those deliverables and promote their adoption in the field.

To start, a project champion will need to be identified along with participants and practitioners, time allotment, institutional support, and funds.

Next steps:

- Put together a workgroup.
- Design the scoping review and other protocols.
- Form a project timeline.
- Rally stakeholders in health equity issues—outside public health and implementation science.

3. Develop Health Equity Resources for Implementation Science

Health equity should be foundational for implementation science. This project aims to make it easier for researchers to incorporate health equity considerations in implementation science—and to avoid creating or exacerbating inequities. The short-term goal is to define health equity in implementation science, create a checklist for ensuring health equity in research studies, and draft program announcement requirements.

Next steps:

- Form a working group of 8–10 people who are interested in these products and have access to a wide range of stakeholders or partners.
- Include someone new to the concept of health equity, as well as researchers outside implementation science.
- Create an online space to collaborate.
- Maintain access to National Institutes of Health (NIH) program staff and NIH Center for Scientific Review (CSR) program staff to support the development of definitions and program announcements.
- Garner support for the literature review and the production of final resources.

Implementation Laboratories

(Facilitators: David Chambers, Russ Glasgow; 4 projects)

Implementation scientists are advancing the field through a range of studies in community and clinical settings, but our capacity to iteratively and continuously launch studies in those settings is lacking. Alternatively, we can stage studies in "implementation laboratories"—places providing opportunity for experimentation, observation, or practice to build the knowledge base on implementation processes—but we have done only a limited amount of work to validate them. An implementation science consortium can advance our thinking on laboratories by identifying common standards for data capture and analysis; leveraging existing networks that could host laboratories; building capacity in new community and clinical sites; and improving methods and measurement for conducting studies in laboratories.

To stage studies in implementation laboratories—places providing opportunity for experimentation, observation, or practice in a field of study—we need to identify common standards for data capture and analysis; leverage existing networks that could host laboratories; build capacity in new community and clinical sites; and improve methods and measurement for conducting studies in laboratories.

1. Identify Essential Characteristics in Existing Laboratories

Robust and sustainable infrastructure is critical to successful research. Analogous "laboratories" could advance the field of implementation science. The purpose of our project is to conduct an environmental scan using mixed-methods (e.g., interviews, document review) and literature review.

Specifically, we will:

1. Identify and describe national and international examples of implementation laboratories that span the clinical and community care continuum.
2. Describe their essential characteristics.
3. Identify successes and gaps in existing research-practice networks, as well as opportunities to build capacity.
4. Draw on literature and networks from outside cancer care.

Success would result in a clear, operational definition of an implementation lab and its aims. Other markers of success include:

- Some type of open source contribution, probably in collaboration with other consortium efforts
- An understanding of factors affecting the life cycle of implementation labs (engagement, implementation, sustainment)
- A publication on implementation labs
- Adoption of any recommendations in new funding announcements

Resources needed to complete this project:

- Support to carry out the environmental scan
- Mixed methods support
- Committed investigators
- Refining the project's scope

Next steps:

- Include leaders in existing research-practice networks/groups.
- Refine the scope of the scan and develop templates to guide assessments.
- Review the NCI/NIH portfolio for similar projects that have been funded.

2. Develop Sustainable Implementation Laboratories

Our purpose is to determine the principles and best practices needed to sustain implementation labs by:

- Identifying core principles through an expert, consensus workgroup
- Using environmental scans to identify high-quality models of sustainment
- Estimating economic costs versus benefits and quantifying the return on investment
- Using policy to encourage cancer centers to have a sustainable implementation laboratory
- Promoting the development and sustainment of implementation labs in other settings

To succeed, the project would have to gain support for:

- An expert, consensus workgroup
- An environmental scan
- A cost-effectiveness analysis by an operations or business analyst and economist
- Assembly and editing of a toolkit that consolidates and summarizes principles and best practices for lab growth and sustainment

A successful project would result in:

- A high-value, practical toolkit
- Blended, co-funded or in-kind investment and defined dual roles
- The development of new laboratories outside cancer centers and P50s
- A requirement that the core of an implementation research lab should be in all P50 cancer center grants

Next steps:

- Convene a small workgroup to develop a project plan to achieve these objectives.

3. Improve Methods and Measures for Conducting Studies in Laboratories

Determine a standard operating procedure, with measures and methods (all of which may inform future common data elements). Key project objectives include:

- Engaging stakeholders to elicit priorities, balancing ideal measures and costs
- Prioritizing a set of common methods and measures
- Validating partners' existing data-collection practices
- Distinguishing between construct, the actual field, and potential proxies, and identifying any potential overlap

The project could deliver a toolkit to help people achieve these key objectives and apply the process in implementation labs. Other resources needed to launch the project could include:

- IT support to determine the ideal platform
- A dedicated project webpage
- Mechanisms for audit and feedback for validation
- Incentives for stakeholder engagement

Next steps:

- Define what exactly we mean by "implementation laboratory."
- Engage representatives from across the lab and its stakeholders.

4. Coordinate Functions Across Labs

This project would set up a hub/resource center to help widen the use of implementation science and share best practices. The hub would track and report on the progress of implementation labs, set standards, and build capacity of labs through trainings and coaching.

The hub would also coordinate health service organizations looking to establish a lab by clinical topics and implementation strategies. It would assist academic centers with institutional review board and regulatory guidance (e.g., waiver of consent, bridge funding for community needs assessments, launch funding).

Next steps:

- Conduct a high-level review of similar centers.
- Define key terms in the search.
- Develop a learning center.
- Start by focusing on only one or two parts of the continuum of care and refine the process in pilots. Start with groups that have received funding with NCI and then expand.
- Consider who should we include in the conversation.

Policy

(Facilitators: Cindy Vinson, Karen Emmons, Bob Vollinger; 3 projects)

As an emerging field, this workgroup will focus on generating ideas on how to move evidence-based policy implementation forward, specifically focused on cancer control. The ISCC can advance this important area of research by addressing a variety of policy-related topics, including (1) how to develop policy-relevant evidence, (2) identification of policy research data resources, (3) theoretical frameworks that can guide policy implementation, (4) identification and testing of policy implementation strategies and methods to improve use of evidence by policymakers, (5) development of measures/metrics specifically focused on evidence-based policy implementation, and (6) participatory methods in policy implementation.

1. Review the Policy Implementation Landscape

Gather existing knowledge on policy levels, levers, and outcomes, and synthesize that information in developing a toolkit. Key elements of the project include:

- Reviewing theories and information on policy implementation, evaluation, and competencies
- Convening an expert panel to assess results from the review, identify areas that require further examination, and plan the toolkit
- Building a web-based toolkit on how to implement and evaluate policy that includes:
  - Strategies for implementing policies based on landscaping review
  - Evidence-based recommendations for evaluating implementation strategies
- Once the toolkit is assembled, a group of stakeholders can be asked to conduct a 360° evaluation of the toolkit.

The following resources will be needed to get the project off the ground:

- To conduct the review, an interdisciplinary group of experts, researchers, librarians, fellows, and support staff who want to volunteer their time
- To build and review the toolkit, a web host, graphic designer, and team of stakeholders

Next steps:

- Assemble a landscape review team and identify a team lead.
- Pull together a diverse group of stakeholders with varying policy-related expertise (e.g., researchers, policymakers at various levels, policy organizers, cancer care providers).
- Create forums for diverse stakeholders to participate in the toolkit's development.
  - For example, policymakers could offer insight on how to implement policy projects.

2. Expand Implementation Science Stakeholders

Engage a broader spectrum of stakeholders in implementation science, with a focus on policy adoption and implementation. Key elements of the project include:

- Creating a collaborative site where people can share tools, evaluation reports, and journal articles organized by adoption versus implementation
- Linking the wiki site to established organizations that adopt evidence-based policies (e.g., Change Lab, Community Toolbox)
- Developing a strategic approach for infusing implementation science with policy adoption and implementation and publishing that approach in a diverse set of journals (e.g., political science, public policy, law, business, organizational psychology)
- Cataloging existing efforts to link researchers with policymakers and identifying effective characteristics
- Identifying a mechanism to incentivize non-traditional research partners
- Bringing a broad group of stakeholders together to address the scope of this workgroup
- Creating a network of people to serve as consultants

Next steps include sharing the idea with existing research-practice networks and exploring how to integrate efforts in an existing, national, research-based partnership.

3. Build a Data Warehouse and Mapping Tool for State Cancer Prevention Policies

The project is to create a data warehouse that provides interactive state maps with policies and contextual data for cancer prevention. The interactive maps will include states that have implemented cancer prevention policies and a detailed description of the policies and related outcomes. Policies could include:

- Tobacco 21
- Indoor smoking laws
- Tanning bed laws
- HPV vaccine requirements and education
- Physical education in schools
- School lunch nutrition

Academics and practitioners could use this tool to develop, refine, implement, and study the implementation of state cancer prevention policies.

Next steps:

- Determine which cancer prevention policy topics to target.
- Assess available data resources.
- Assess how to integrate data effectively.

Precision Health and Big Data

(Facilitators: Mindy Clyne, Muin Khoury, Alanna Rahm; 1 project)

Advances in precision medicine and precision public health (or "precision health" for short) are producing extremely large and varied sources of data ("big data"), such as genomic and other "omics" markers, as well as sociodemographic, geographic, and environmental data. Such advances, evidence, and methods in precision health and big data are evolving faster than traditional effectiveness and implementation studies can manage, promising a new era of challenges and opportunities for implementation science.

An implementation science consortium can guide and support efforts on emerging precision health activities along the cancer care continuum; build capacity through training programs for precision health researchers, clinicians, and communities; establish networks to develop measures and analytic tools specific to precision health and big data; and conduct pragmatic studies using learning health care system models.

1. Provide Guidance for Implementing Precision Health

Using an existing multilevel model, this project would provide guidance for assessing contextual factors in the implementation of precision health. Key elements of the project include:

- Extending a published framework to include the broader definition of precision health and, specifically, focusing on contextual factors that are unique to public health
- Conducting a scoping review to see if our adaptation of the model fits within the literature
- Determining whether the literature describes elements that are missing in our model

Next steps:

- Find people to work on the project.
- Define terms.
- Conduct a literature review.
- Develop a table for data collection.

Rapid Cycle Design

(Facilitators: Wynne Norton, Donna Shelley, Brian Mittman; 3 projects)

Implementation science uses a range of qualitative, quantitative, and mixed-methods study designs. In recent years, rapid cycle designs have become more popular in implementation studies. These designs include Plan-Do-Study-Act cycles from quality improvement, rapid ethnographic studies, rapid qualitative data collection, analysis, and feedback, and some multiphase optimization strategy implementation trials (MOST) and Sequential Multiple Assignment Randomized Implementation Trial (SMART) designs. Advancing methodology related to rapid cycle designs is critical for studying and guiding implementation processes and the ongoing adaptation and tailoring required to respond to heterogeneous and changing local contexts. We need to develop guidance to balance internal and external validity in studies designed to develop high-quality, useful evidence in the face of extreme heterogeneity and complexity.

An implementation science consortium can advance this important area of research by (1) clarifying the issues and features of implementation phenomena requiring rapid cycle designs; (2) identifying the range of rapid cycle designs that are best suited to study implementation processes characterized by high levels of heterogeneity and complexity; (3) classifying what types of rapid cycle designs are best suited for answering which categories of implementation research questions; (4) developing best practices and guidance for using these designs; and (5) highlighting additional research designs and methods needed to fully capture complexity and variability in implementation studies.

1. Define Rapid Cycle Design

Our goal is to provide methodological guidance to investigators who would like to integrate rapid cycle design into their implementation studies. We would like to identify and fill gaps in knowledge on this important topic, which is crucial if we are to apply implementation science in real-world settings.

Core project elements include reviewing the literature, identifying any gaps in the literature, and interviewing experts to better understand:

- The current use of rapid cycle design—why (research question), when (at what stage of research), how (what design), what level, and in what context
- Requirements (e.g., enablers, predisposing factors)

Next steps:

- Recruit project staff.
- Convene a working group.
- Create a shared web-based space for collaboration.
- Refine our objectives and core questions for review.

2. Develop Guidance on Using Rapid Cycle Design

This project builds upon the previous one, which reviewed the literature and interviewed experts to better understand the use of rapid cycle design and its requirements. Next, we will create a taxonomy that organizes the information conceptually, answers key questions, and describes evidence as appropriate. We will also conduct gap analysis where evidence is lacking.

The goal is that organizations will fund more grants that incorporate rapid cycle design into implementation science.

Next steps:

- Use products resulting from the first project to create taxonomy.
- To create the taxonomy, pull together a stakeholder advisory group with potential end-users, including researchers, thought leaders, administrators, project leader, and others.
- Solicit funds to help pay for the group's time.
- Use comments from the public, participants in the first project, and other stakeholders to refine the project scope, ensure that we ask the right questions, and frame the taxonomy to produce information that end-users need.
- Consider how we might disseminate the product upon completion.

3. Promote the Use of Rapid Cycle Design in Implementation Science

Researchers are increasingly recognizing that rapid cycle design is optimal for many implementation research questions, but the design's acceptance remains quite limited. Our purpose is to design and deliver a multilevel, multicomponent plan to expand the appropriate use of rapid cycle research approaches in implementation science. Core elements of the project include:

- Identifying key barriers and key stakeholders involved in decisions to use rapid cycle approaches (e.g., researchers, trainees, funders, educators, consumers, clinicians, health system leaders, peer reviewers, institutional review board staff, federal and state policy staff)
- Identifying each group's goals and interests in these approaches
- Developing specific education and advocacy materials and activities for all target stakeholder groups
- Establishing technical assistance resources to support acceptance and use of rapid cycle approaches
- Launching a multilevel, multicomponent campaign to address barriers and achieve desired levels of awareness, acceptance, and adoption via training, advocacy, and policy development

These outreach efforts will help expand the use of rapid cycle design in implementation science and enhance the field's value.

Next steps:

- Identify and engage a broad array of stakeholders to support a series of working sessions.
- Identify barriers to stakeholder awareness of rapid cycle approaches in implementation science.
- Provide support and training to overcome barriers and promote stakeholder engagement in rapid cycle implementation science.
- Plan how to develop materials and follow through with outreach and advocacy.

Technology and Implementation Science

(Facilitators: April Oh, Mike Fiore, Rita Kukafka; 4 projects)

Technology (e.g., mHealth, digital health, electronic health records [EHRs]) has extended the potential reach and effectiveness of evidence-based programs and practices. In particular, health care practitioners use EHRs and patient health portals for decision support; behavioral interventions; surveillance and monitoring of cancer prevention behaviors and outcomes; collecting health-related data; risk stratification; predictive modeling; and delivering quality care.

This workgroup sought to identify ways to advance technological applications, particularly EHRs, in implementation science.

1. Document Best Practices in Technology and Health

Gather success stories from all kinds of communities, so that others may learn from them, and store them in a repository. The stories would cover any barriers to success, implementation strategies, and tools. The goal is to drive the use of technology in implementation science, and to offer resources to researchers working on technology-based projects.

To plan next steps, bring together:

- Organizations that may fund the repository
- Implementation science and biomedical informatics researchers working in this field
- Regional Extension Center (REC) staff
- Individuals who are reviewing the literature
- Project champions
- Practice facilitators
- EHR vendors
- World Health Organization or other global leaders

2. Bring Implementation Science and Technology Closer Together

This project would advance use of technology (particularly EHRs) in implementation science, cancer control, and health equity efforts. The goal is to bring stakeholders together to:

- Learn about each other's priorities, workflow, requirements, and constraints
- Develop a common language
- Create synergistic solutions to advance health equity and cancer control using technology

Core elements for the project include:

- Establishing a training institute, similar to the mHealth Training Institute, that will offer introductory implementation science and technology sessions for a diverse audience (e.g., practitioners, researchers, end-users, developers)
- Rotating mini institutes/trainings that are part of society meetings (e.g., an implementation science session at the American Medical Informatics Association)
- Partnering with another workgroup to choose topics for the training institute
- Developing curriculum

Next steps:

- Bring together experts in curriculum development and subject matter experts to help develop a curriculum.
- Find the right partners and instructors.

3. Use Technology to Transform Health Care into Health Improvement

This project would advocate for more flexibility in technological adaptations, in data quality, and in the integration of implementation science to advance evidence-based interventions that improve population health.

A need exists to understand what stakeholders want, so they can be offered something of value. This information could come from an environmental scan. For example, what are the key levers like healthcare quality measures (e.g., HEDIS) measures and others? The value proposition could show how technology and implementation science can work together to help improve health care delivery.

Next steps:

- Convene a think tank to start developing and advising on the value proposition.
- Invite a diverse set of organizations like RWJF, EHR Vendors, Apple, Microsoft, Communications organizations, and Office of the National Coordinator for Health Information Technology to participate in the think tank.

4. Offer Technology Infrastructure Support

Create a national support system to empower community clinics and practitioners to best leverage their local health technology (e.g., EHR systems). The support system could build on Regional Extension Centers (RECs)—organizations that received funding under the Health Information Technology for Economic and Clinical Health Act—to assist health care providers with the selection and implementation of EHR technology.

Core elements in the project would include:

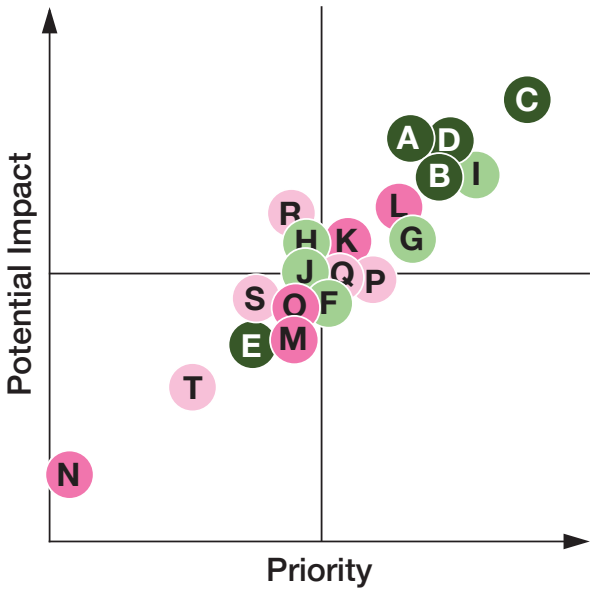
- Assisting in the implementation of EHR technology
- Providing on-the-ground technical assistance to medical organizations lacking technology infrastructure or expertise
- Improving the capacity of local organizations so they may better leverage technology for implementation science research

Next steps:

- Convene a group of community health stakeholders and public health practitioners to champion the project.
- Assess existing clinic EHRs and what RECs are doing.

Participant Ranking of All Projects

Participants at the Implementation Science Consortium in Cancer voted, for each of the projects, to rank them by priority and potential impact. Both online and in-person participants were able to cast their votes after being presented with short-form reports from the small-group facilitators. These are the weighted results of that exercise.



Total Dots Weighted
Scale of In-Person Meeting Dots Data

	67.61-115.55
	46.98-65.61
	32.65-46.97
	17.66-31.31

- A ECON: Standardized measures for cost analyses
- B EQUITY: Equity constructs for IS models, frameworks, strategies
- C EQUITY: Building health equity into IS: definition, checklist, PA req.
- D RAPID CYCLE: Develop guidance for rapid cycle design use
- E TECH: National Technology Infrastructure
- F ECON: Tools to engage stakeholders in cost collection
- G EQUITY: Assess methods for contextual inquiry for health equity
- H LABS: Environmental Scan of Implementation Labs
- I LABS: Develop sustainable IS collaboratories
- J TECH: Increasing IS and IT Team Science Capacity
- K POLICY: Policy Implementation Landscape Review (PILR)
- L POLICY: Strategic Expansion of IS Stakeholders
- M POLICY: Data Warehouse/Mapping Tool for Local Policies
- N PRECISION: Contextual Phenome for Precision Health Implementation (via GMIR Framework)
- O TECH: Technology to Transform Health Care to Health Improvement
- P LABS: Common (Pragmatic) Measures, Methods needed from labs
- Q LABS: Support center across Implementation Labs
- R RAPID CYCLE: Define what is known about Rapid Cycle Design
- S RAPID CYCLE: Multi-stakeholder initiative: promote adoption of rapid cycle research
- T TECH: Brightspots: scan of IT challenges opportunities

PRIORITY	TOPIC	PROJECT	POTENTIAL IMPACT
1	Context and Equity	Develop health equity resources for implementation science	3.29
2	Economics and Costs	Develop standardized measures for cost analyses	2.83
3	Rapid Cycle Design	Develop guidance on using rapid cycle design	2.98
4	Context and Equity	Promote implementation strategies that increase equity	3
5	Implementation Laboratories	Develop sustainable implementation laboratories	3.05
6	Policy	Expand implementation science stakeholders	2.81
7	Context and Equity	Promote contextual inquiry to address health equity issues	2.83
8	Rapid Cycle Design	Define rapid cycle design	2.45
9	Policy	Review the policy implementation landscape	2.56
10	Implementation Laboratories	Identify essential characteristics in existing laboratories	2.48
11	Technology and Implementation Science	Bring implementation science and technology closer together	2.48
12	Implementation Laboratories	Improve methods and measures for conducting studies in laboratories	2.67
13	Implementation Laboratories	Coordinate functions across labs	2.55
14	Economics and Costs	Develop tools to engage stakeholders in cost collection	2.52
15	Rapid Cycle Design	Promote the use of rapid cycle design in implementation science	2.34
16	Technology and Implementation Science	Use technology to transform health care into health improvement	2.38
17	Policy	Build a data warehouse and mapping tool for state cancer prevention policies	2.37
18	Technology and Implementation Science	Offer technology infrastructure support	2.32
19	Technology and Implementation Science	Document best practices in technology and health	2.02
20	Precision Health and Big Data	Provide guidance for implementing precision health	1.54

PROCEEDINGS SUMMARY

Three main questions posed by NCI to the attendants of the meeting were (1) How shall we advance this consortium? (2) How did participants like the way the event was structured? and (3) What are opinions on the mix of participants? The participants offered suggestions and brought up points for consideration moving forward. Additionally, a poll was conducted online to get participants who were unable to attend in person to also provide feedback. The paragraphs that follow are compiled from the responses to the three questions posed.

Advancing the consortium can be achieved through creation of tools and partnerships, which would offer a more action-oriented structure. Quickly generating breakout. workgroup activities with coordinating support will help continue the momentum. Suggestions to set up a one-stop communication shop for viewing information coming out of the consortium would be helpful. Point people could be identified who could provide templates and other resources on specific topics. Finally, a debrief and consolidation of consortium outcomes, proposals, and key takeaways was suggested.

In response to how the meeting was structured, some participants thought it would have been more beneficial to stay within the same breakout group for successive sessions. Another suggestion was that if background material were provided on topic areas for breakout group attendees, they would have been better prepared. Some participants countered that this could have potentially turned people off due to requiring pre-meeting work and could also have affected the brainstorming dynamic. Some participants suggested narrowing the topic areas that were covered, and spending more time considering how topic areas were cross-cutting. It was unclear to some participants whether they were supposed to make choices for which breakout groups to select in a pre-meeting questionnaire based upon whether they were experts in the topic area, or for learning more regarding that topic area. Finally, it was suggested that components and forums for the consortium could be built online to better accommodate busy researchers and practitioners.

In addressing the mix of participants, participants echoed what others said after the first panel discussion, namely, there is a need for a better balance of practitioners, policymakers, researchers, community members, and industry partners (e.g., mobile technology, data sequencing). In a follow up to this sentiment, it was suggested that in order to encourage community members to attend, we must first build trust and define what they will gain in attending, start engaging the community now, and meet with community advisory boards to hear about their priorities. Concern for how community members would be engaged in the consortium and across topic areas from breakout groups was raised. Ideas for how to engage beyond simple passive attendance would be an expectation. An alternative to including community groups and partners would be to share resources in ways that benefit them; gather their feedback; and engage in bidirectional learning. By getting the input of community members, it will help to determine how to build local partnerships.

APPENDIX

Steering Committee

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