Cycle 1 2016 Funding Cycle

PCORI Funding Announcement: Improving Healthcare Systems

Published February 1, 2016

This PCORI Funding Announcement applies to the funding cycle that closes on June 6, 2016, at 5 p.m. (ET). Application guidelines, templates, and other resources are available at http://www.pcori.org/Cycle-1-2016-systems/.
About PCORI

The Patient-Centered Outcomes Research Institute (PCORI) is committed to transparency and a rigorous stakeholder-driven process that emphasizes patient engagement. PCORI uses a variety of forums and public comment periods to obtain public input to enhance its work. PCORI helps people make informed healthcare decisions and improves healthcare delivery and outcomes by producing and promoting high-integrity, evidence-based information that comes from research guided by patients, caregivers, and the broader healthcare community.

PCORI was authorized by Congress in 2010 as a nonprofit, nongovernmental organization. PCORI’s purpose, as defined by our authorizing legislation, is to help patients, clinicians, purchasers, and policymakers make better-informed health decisions by “advancing the quality and relevance of evidence about how to prevent, diagnose, treat, monitor, and manage diseases, disorders, and other health conditions.”

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### Overview

<table>
<thead>
<tr>
<th>Published</th>
<th>February 1, 2016</th>
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<tbody>
<tr>
<td>Letter of Intent Due</td>
<td>March 2, 2016, by 5 p.m. (ET)</td>
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<tr>
<td>Letters of Intent (LOIs) will be screened for responsiveness and fit to program goals. Only those selected will be permitted to submit full applications. Notification of request to submit full application will occur no later than April 8, 2016.</td>
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<tr>
<td>Summary</td>
<td>PCORI is seeking applications to study the comparative clinical effectiveness of alternative features of healthcare systems (e.g., innovative technologies, incentive structures, service designs) that are intended to optimize the quality, outcomes, and efficiency of care for patients and that have the most potential for sustained impact and replication within and across healthcare systems. Healthcare systems encompass multiple levels (e.g., national, state, and local health environments; organization or practice settings; family and social supports; and the individual patient) and include entities organized to deliver, arrange, purchase, or coordinate healthcare services. PCORI seeks to fund studies that will provide information of value to patients, their caregivers, clinicians, and healthcare leaders concerning which features of delivery systems lead to better patient-centered outcomes, so that those features proven to make a difference ultimately affect healthcare delivery.</td>
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<tr>
<td>Key Dates</td>
<td>Online System Opens: February 1, 2016</td>
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<td>LOI Deadline: March 2, 2016, by 5 p.m. (ET)</td>
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<td>LOI Status Notification: April 8, 2016</td>
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<td>Application Deadline: June 6, 2016, by 5 p.m. (ET)</td>
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<td>Merit Review: September 2016</td>
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<td>Awards Announced: November 2016</td>
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<td>Earliest Project Start Date: January 2017</td>
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<tr>
<td>Maximum Project Budget (Total Direct Costs)</td>
<td>$5 million for large studies</td>
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<td>$1.5 million for small studies</td>
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<td>Maximum Research Project Period</td>
<td>Five years for large studies</td>
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<td>Three years for small studies</td>
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<tr>
<td>Funds Available Up to</td>
<td>$16 million</td>
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<td>Eligibility</td>
<td>Applications may be submitted by any private-sector research organization, including any nonprofit or for-profit organization, and any public-sector research organization, including any university or college hospital or healthcare system, laboratory or manufacturer, or unit of local, state, or federal government. The Internal Revenue Service must recognize all U.S. applicant organizations. Nondomestic components of organizations based in the United States and foreign organizations may apply, as long as there is demonstrable benefit to the U.S. healthcare system and U.S. efforts in the area of patient-centered research can be clearly shown. Organizations may submit multiple applications for funding. Individuals are not permitted to apply.</td>
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| Review Criteria          | 1. Potential for the study to fill critical gaps in evidence  
|                        | 2. Potential for the study findings to be adopted into clinical practice and improve delivery of care  
|                        | 3. Scientific merit (research design, analysis, and outcomes)  
|                        | 4. Patient-centeredness  
|                        | 5. Patient and stakeholder engagement |
| Contact Us              | For programmatic questions, please email sciencequestions@pcori.org, phone (202-627-1884), or contact us online (http://www.pcori.org/PFA/inquiry). PCORI will provide a response within three business days. However, PCORI cannot guarantee that all questions will be addressed in three business days prior to an LOI or application deadline.  
|                        | Please email (pfa@pcori.org) for any administrative, financial, or technical questions. PCORI will provide a response within two business days. Please note that during the week of a deadline, response times may exceed three business days. Applicants may call the PCORI Helpdesk (202-627-1885) for technical or administrative support. Applicants are asked to plan accordingly. It is the applicant’s responsibility to submit the application on or before the application deadline. |
| Other                   | *Deadlines are at 5 p.m. (ET). If deadlines fall on a weekend or a federal holiday, the deadline will be the following Monday or the next day after the federal holiday. |

**New or Revised for the Cycle 1 2016 Funding Cycle:**  
- Updated Criterion 5 to reflect the new dual-PI plan policy  
- Updated the Budget and Project Duration section to reflect peer review process
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I. Introduction

Summary of Program

The Improving Healthcare Systems (IHS) Program within PCORI invites applications for research that studies the comparative effectiveness of alternative features of healthcare systems (e.g., innovative technologies, incentive structures, or healthcare service delivery designs) that are intended to optimize the quality, outcomes, and efficiency of patient care and that have the greatest potential for sustained impact and replication within and across healthcare systems. Healthcare systems encompass multiple levels (e.g., individual patients, family and social supports, providers and care teams, organizations or practice settings, local community resources, and the state- and national-level policy environments) and include entities organized to deliver, arrange, purchase, or coordinate health services. Healthcare delivery models (e.g., integrated health system, patient-centered medical home) and settings of care (e.g., hospital, physician practice, nursing home, community health clinic, patient’s home) also define healthcare system operations. PCORI seeks studies that will affect healthcare delivery by determining which system features lead to improved Patient-Centered Outcomes (PCOs) and which provide valuable knowledge to patients, their caregivers, and clinicians, as well as other key stakeholders, including payers and employers. The diagram below is intended to illustrate this summary. Please note that two levels, National Health Environment and State Health Environment, are shaded to indicate that, although they clearly influence and shape the broader health policy environment, PCORI does not include them as specific targets for research interventions.

The Healthcare System

Background

Healthcare organizations are under constant pressure from competing sources to improve aspects of care, but they often lack the critical information needed to guide decisions related to system-level change. Research could help develop a body of evidence supporting effective interventions that would enable organizations to provide higher-quality care that is more accessible, coordinated, effective, and efficient, and that would ultimately improve PCOs.

PCORI is entrusted by the public to fund research that will matter to patients, their caregivers, and other stakeholders (defined as clinicians and their professional societies, hospitals, health systems administrators, payers [insurance], purchasers [business], industry [pharmaceutical, medical device companies], researchers, policy makers, and training institutions). PCORI seeks to change the way in which research is conducted by emphasizing the role of diverse research teams that reflect the varying perspectives of such key stakeholders. PCORI distinguishes itself by supporting research in which patients, caregivers, and other stakeholders are actively engaged in all phases of the research process, from its inception to its conclusion, including generating research questions, reviewing research applications, conducting research, disseminating research findings, promoting the implementation of research findings, and using the results to understand and address patient and other stakeholder needs.

Over the past two decades, the Institute of Medicine (IOM) and others have sharpened the focus on ensuring that healthcare systems are designed and oriented to achieve the health outcomes most desired by individual patients—that is, to become more patient-centered. In particular, the IOM has addressed key aspects of systems improvement, including making care:

- Accessible
- Effective
- Patient-centered
- Timely
- Efficient
- Safer
- Equitable
- Coordinated

IHS seeks to fund comparative effectiveness research (CER) that addresses the areas that IOM addresses. Interventions designed to achieve the IOM aims listed above may target:

- Technology (e.g., interoperable electronic health records [EHRs], telemedicine, patient-accessible health records)
- Patient incentives (e.g., free or subsidized preventive care, automatic enrollment in certain follow-up programs)
- Provider incentives (e.g., free continuing medical education units for certain courses, reduced
paperwork, provision of key comparative quality performance information); only non-financial incentives are acceptable for providers

- Organizational models and policies within and across healthcare systems (e.g., patient-centered medical homes, standing orders)
- Personnel (e.g., multidisciplinary teams, peer navigators, community health workers)

Although personnel is a key area of intervention, the IHS portfolio is already filled with a broad representation of personnel-focused interventions designed to transform existing delivery systems. This includes patient navigator and community health worker interventions. Thus, unless the personnel intervention is part of a multicomponent intervention, or addresses issues of multidisciplinary teams, IHS is not interested in funding additional applications whose primary intervention focuses solely on the inclusion of personnel.

Innovation and changes in healthcare systems and in the behavior of healthcare system participants are often driven by economic, political, and social needs to improve access to care or quality of care, to attract patients or enrollees, and to contain costs. The effects of all such innovations may vary considerably among subgroups of the general population, but this heterogeneity of treatment effect (HTE) is often inadequately measured. Studies that include adequately powered subgroup analysis and address understudied or underrepresented patient populations in research are of particular interest to PCORI and the IHS Program. See the Populations Studied section below.

Research of Interest

PCORI seeks to fund investigator-initiated research on the effects of system changes on the broad outcomes listed below. We are especially interested in studies that conduct head-to-head comparisons with or without “usual care” as a comparator (see the Requirements for PCORI Research section for more on usual care), such as:

- Patients’ access to care, high quality of care, support for self-care, and coordination of care across healthcare settings
- Professional decision making on the basis of patients’ personal values
- Experiences that are important to patients and their caregivers, such as overall health, functional ability, health-related quality of life, stress, severity of symptoms, survival, and unanticipated healthcare utilization, such as unexpected hospital stays or visits to the emergency department (ED)
- The efficiency of healthcare delivery, as measured by the amount of ineffective, duplicative, or wasteful care provided to patients

The IHS Program is particularly interested in testing practices that combine evidence-based guidelines (such as Choosing Wisely, http://www.choosingwisely.org/) with patient incentives, provider incentives, or patient and provider incentives combined, to elicit patient preferences and reduce harms faced by patients simultaneously.
The IHS Program is also interested in funding studies that:

- Leverage existing research resources, such as adding PCOR to an existing large clinical trial, using established practice-based research networks, or analyzing large databases that contain valuable, relevant information that may be used to answer important CER questions.

- Leverage healthcare system resources in support of some or all of the requirements for the intervention. Especially attractive is the possibility of broader and sustained impact through potential adoption by participating or supporting healthcare organizations and stakeholders (e.g., payers), should the intervention prove effective.

**Sample Research Questions**

The following are examples of the types of questions that patients, clinicians, or healthcare administrators might ask and that your research might help answer. This list is by no means exhaustive.

- An 84-year-old woman in a rural community with multiple chronic diseases is having increasing difficulty managing at home alone but does not want to leave her home or neighborhood to live in a nursing home. What are the benefits and drawbacks of a new care management program designed to help her stay at home and remain safe and independent, compared with a program that links her to comprehensive community services?

- A 27-year-old Hispanic man with diabetes, chronic back pain, and depression has been invited by his public-hospital-based clinic to participate in a group visit program for patients with chronic conditions that is led by a behavioral care specialist and a health educator. How likely is it that he will benefit from this program compared with the “usual care” he has been receiving (defined by quarterly visits with his primary-care practitioner punctuated by referrals to specialists as needed)? What is the nature of the benefit? Are there any risks? What should his physician recommend?

- A 50-year-old African-American man has frequent exacerbations of his chronic obstructive pulmonary disease that trigger recurrent ED visits and acute-care hospitalizations. Does regularly scheduled home-based respiratory care reduce his ED utilization and hospital readmissions, compared to physician office visits that he or his caregiver must schedule? Does it improve functional status, health-related quality of life, or other patient-centered outcomes?

**Evidence to Action Networks**

PCORI is interested in connecting PCORI-funded investigators who are studying similar research topics and populations to help strengthen the body of research and to facilitate collaborative learning and dissemination of research findings. To meet this goal, PCORI has set up Evidence to Action Networks, whereby PCORI facilitates engagement among awardees and cross-learning between projects and teams comprised of researchers, patients, caregivers, and other stakeholders. In addition, PCORI facilitates exchanges between awardees and end-users (e.g., patients, caregivers, and other stakeholders, such as payers, employers and purchasers, clinicians, professional societies, policy makers, and training institutions) for dissemination and implementation of important research findings.

Awardees are encouraged to participate in such Evidence to Action Networks as they become available.
II. Requirements for PCORI Research

This section includes language that is specific to PCORI’s requirements for applications for funding. Applicants should use this section as guidance when preparing their applications.

Research Priorities

To be considered responsive, applications must:

- **Describe comparators.** Regardless of the approach being studied, all proposed research projects must compare at least two alternatives. If the applicant proposes “usual care” as a rational and important comparator in the proposed study, then it must be described in detail, coherent as a clinical alternative, and properly justified as a legitimate comparator (e.g., usual care is guidelines-based). Additionally, it must be accompanied by an explanation of how the care given in the usual-care group will be measured in each individual patient and how appropriate inferences will be drawn from its inclusion. “Usual care” must be described as mentioned above to ensure that it accounts for geographic and temporal variations and to ensure that it has wide interpretability, applicability, and reproducibility.

- **Describe research that compares two or more alternatives, each of which has established efficacy.** PCORI expects the efficacy or effectiveness of each intervention to be known. If the efficacy/evidence base is insufficient, then data need to be provided to document that the intervention is used widely. The application must provide information about efficacy of the interventions that will be compared; pilot data may be appropriate. Projects that aim to develop new or novel interventions that lack evidence of efficacy or effectiveness will be considered out of scope.

- **Describe research that studies the benefits and harms of interventions and strategies delivered in real-world settings.** PCORI is interested in studies that provide practical information that can help patients and other stakeholders make informed decisions about their health care and health outcomes.

- **Describe research that is based on health outcomes that are meaningful to the patient population, their caregivers, and family members under study, and that are likely to guide their decisions.** Applications must demonstrate that patients, caregivers, and/or family members influenced the choice of outcomes to be measured. These outcomes may be measures of quality of life, symptoms of disease, relevant physiological measurements, treatment-related symptoms (side effects), healthcare utilization, and/or clinical outcomes.

Leveraging Existing Resources

Investigators are encouraged to propose studies that leverage existing resources, such as adding PCOR to an existing large clinical trial or analyzing existing large databases that contain valuable relevant information that may be used to answer important clinical CER questions.

Patient-Centered Outcome Measures

PCORI encourages investigators to design their research using validated outcome measures. Include
preliminary data that support the use of the proposed measures in the study population. Investigators are encouraged to consider those measures described in the Patient Reported Outcomes Measurement Information System\(^1\) (PROMIS).

**Studies in Rare Diseases**

PCORI is interested in the investigation of strategies that address care for patients with rare diseases. These types of conditions are defined as life-threatening or chronically debilitating. They are of such low prevalence (conditions that affect fewer than 200,000 in the United States [i.e., less than 1 in 1,500 persons]) that special efforts, such as combining data across large populations, may be needed to address them.

**Studies of Cost-Effectiveness**

Applications will be considered nonresponsive if the proposed research:

- Conducts a formal cost-effectiveness analysis of alternative approaches to providing care
- Directly compares the costs of care between two or more alternative approaches to providing care

Proposals that include studies of these issues may measure and report utilization of any or all health services, but may not employ direct measurements of costs of care. For further information, please reference our cost-effectiveness analysis FAQs.

PCORI does have an interest, however, in studies that address questions about conditions that lead to high costs to the individual or to society. This is included in our review criterion on the impact of the condition on the health of individuals and populations. Thus, PCORI is interested in studies that:

- Examine the effect of costs on patients, such as patients’ out-of-pocket costs, hardship or lost opportunity, or costs as a determinant of or barrier to access to care
- Address cost-related issues, such as the resources needed to replicate or disseminate a successful intervention
- Evaluate interventions to reduce health system waste or increase health system efficiency

Addressing specifically the issue of conditions that lead to high costs, our PCORI Funding Announcements (PFAs) say that “proposals that include studies of these issues without utilizing a formal cost-effectiveness analysis or directly measuring and comparing costs of care alternatives will be considered responsive and will be reviewed.”

**Categories of Nonresponsiveness**

PCORI discourages proposals in the following categories and will likely deem them nonresponsive:

- Instrument development, such as new surveys, scales, etc.
- Developing, testing, and validating new decision aids/tools or clinical prognostication tools

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\(^1\) Available at http://www.nihpromis.org/.
• Pilot studies intended to inform larger efforts
• Comparisons of patient characteristics rather than clinical strategy options
• Applies to APDTO (Assessment of Prevention, Diagnosis, and Treatment Options), IHS (Improving Healthcare Systems) program applicants ONLY: Studies comparing interventions for which the primary focus is the role of community health workers or patient navigators

Consistent with PCORI's authorizing law, PCORI does not fund research whose findings will include:
• Coverage recommendations
• Payment or policy recommendations
• Creation of clinical practice guidelines or clinical pathways
• Establishment of efficacy for a new clinical strategy
• Pharmacodynamics
• Study of the natural history of disease
• Basic science or study of biological mechanisms

Avoiding Redundancy
PCORI encourages potential applicants to review funded research at pcori.org, because PCORI intends to balance its funded portfolio to achieve synergy where possible and to avoid redundancy.

Methodological Considerations
Regardless of study design, proposals must adhere to all relevant PCORI Methodology Standards. These include 47 individual standards that fall into 11 categories. The first five categories are cross-cutting and relevant to most PCOR studies. Researchers should refer to all of these standards when planning and conducting their research projects. These categories are:
• Standards for Formulating Research Questions
• Standards Associated with Patient-Centeredness
• Standards on Data Integrity and Rigorous Analyses
• Standards for Preventing and Handling Missing Data
• Standards for Heterogeneity of Treatment Effect (HTE)

Six other categories of standards will be applicable to certain types of study designs and methods. The standards in each of these categories should be used for guidance when they are relevant to a particular study. These categories are:
• Standards for Data Registries

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2 Available at http://www.pcori.org/sites/default/files/PCORI_Authorizing_Legislation.pdf/.
Standards for Data Networks as Research-facilitating Infrastructures
Standards for Causal Inference Methods
Standards for Adaptive and Bayesian Trial Designs
Standards for Studies of Diagnostic Tests
Standards for Systematic Reviews

Most of these standards should be considered minimal. The methodology standards\(^3\) reflect practices that should be followed in all cases, and all deviations need to be explained and well justified. Additional best practices, including accepted guidelines for the conduct of clinical trials or observational studies, should be addressed, if applicable, in the application for PCORI funding.

Applicants should discuss specifically how the planned study design will measure and adjust for potential confounding factors that may obscure or artificially create differences attributable to the alternatives being compared. Examples include, but are not limited to, baseline differences in disease severity or other risk factors within the study population, or differences in participation, adherence, or follow-up that may affect outcomes independently of the interventions being compared.

**Upcoming New and Revised Methodology Standards**

In 2015 the Methodology Committee undertook a process to review the existing Methodology Standards, updating and adding new Standards where indicated. While these proposed revised and new Standards are still under review and not yet benefited from public comment, we encourage you to refer to the potential 2015 revisions. Applicants should continue to adhere to the current Methodology Standards.

**Patient and Stakeholder Engagement**

PCORI encourages all applicants to describe clearly patient and stakeholder engagement in their research proposals. PCORI understands that patient and stakeholder engagement in research can take many forms; it is not seeking one particular type or method of engagement. Rather, applicants should communicate how patients (those with lived experience), family members, caregivers, and the organizations that represent them, as well as any other relevant stakeholders, will be involved in study activities. Because this type of engagement in research is a relatively new concept, PCORI has developed the Engagement Rubric\(^4\) to guide both applicants and merit reviewers. This rubric is intended to provide examples of engagement and is not intended to be prescriptive. As noted above, studies are expected to adhere to PCORI’s Methodology Standards Associated with Patient-Centeredness as well as to the PCOR Engagement Principles found within the rubric. These and additional resources are available on PCORI’s Engagement in Research page.

**Populations Studied**

PCORI seeks to fund research that includes populations that are diverse with respect to age, gender, race, ethnicity, geography, or clinical status, so that possible differences in outcomes may be examined in

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\(^3\) Available at http://www.pcori.org/research-we-support/the-pcori-methodology-report/.

defined subpopulations, otherwise known as heterogeneity of treatment effect (HTE). PCORI recognizes that some proposed studies may represent important PCOR opportunities even in the absence of a broadly diverse study population. However, the burden is on the applicant in such cases to justify the importance of the study in the absence of diversity and to discuss which subgroups are most important and how they will be analyzed—including whether the study will be powered to examine the question of effectiveness in subgroups. PCORI is particularly interested in the inclusion of previously understudied populations for whom effectiveness information is especially needed, such as hard-to-reach populations or patients with multiple conditions. Thus, comparisons should examine the impact of the strategies in various subpopulations, with attention to the possibilities that the effects of the strategy might differ across subpopulations. PCORI has developed a list of populations of interest to guide our efforts in research and engagement (note that the Addressing Disparities Program requires that proposed research focus on at least one of the groups indicated by an asterisk below):

- Racial and ethnic minority groups*
- Low-income groups*
- Women
- Children (age 0–17 years)
- Older adults (age 65 years and older)
- Residents of rural areas*
- Individuals with special healthcare needs, including individuals with disabilities*
- Individuals with multiple chronic diseases
- Individuals with rare diseases
- Individuals whose genetic makeup affects their medical outcomes
- Patients with low health literacy/numeracy and/or limited English proficiency*
- Lesbian, gay, bisexual, and transgender (LGBT) persons*
- Veterans and members of the Armed Forces and their families

Protection of Human Subjects

This component (up to five pages) is included in the Research Plan Template. Describe the protection of human subjects involved in your proposed research. PCORI follows the Federal Policy for the Protection of Human Subjects (45 CFR part 46), including the Common Rule. For more detailed information, please see Section 5, “Human Subjects Research Policy,” in the Supplemental Grant Application Instructions for All Competing Applications and Progress Reports, issued by the U.S. Department of Health and Human Services (HHS). PCORI does not require that applicants comply with sections of this policy that refer to requirements for federal-wide assurance (FWA) or that refer to standards for including women, minorities, and children. PCORI requires that applicants proposing clinical trials include a data- and safety-monitoring

Awardees must also comply with appropriate state, local, and institutional regulations and guidelines pertaining to the use of human subjects in research.

PCORI merit reviewers will examine plans for protection of human subjects in all applications and may provide comments regarding the plans (see How To Evaluate Human Subjects Protections⁶). Reviewers’ comments on human subjects research are not reflected in the overall application score, but PCORI staff may use them during any potential funding negotiations. Final determinations about adequacy of human subject protections rest with the Institutional Review Board (IRB) or IRBs that have jurisdiction for the study.

The Awardee Institution or organization, whether domestic or foreign, bears ultimate responsibility for safeguarding the rights and welfare of human subjects in PCORI-supported activities.

**Required Education of Key Personnel on the Protection of Human Subject Participants**

PCORI requires that all applicants adhere to the National Institutes of Health (NIH) policy on education in the protection of human subject participants in the conduct of research. This applies to all personnel listed as Key Personnel in the application. The policy and FAQs are available from the NIH website.⁷

**Replication and Reproducibility of Research and Data-Sharing Plan**

PCORI is committed to maximizing the utility and usability of data generated and collected in our funded projects. This is essential to building confidence in the accuracy of these findings. PCORI supports policies to promote sharing of study documentation (e.g., study protocol, programming code, and data definitions) so that other researchers may replicate the findings in other populations. Please propose a method for sharing data and appropriate documentation upon request.

**Recruitment**

Proposals should include information about the size and representativeness of the potential pool of patients from which recruitment will occur and the means by which this size estimate was determined. Likewise, proposals should provide evidence-based estimates of how many participants are ultimately expected in the study, based on expected recruitment, application of the study’s inclusion and exclusion criteria, anticipated acceptance (or refusal) rates, and other factors, such as loss to follow-up. Such estimates must be discussed in the applications, must be specified in the milestones, will be reviewed by merit reviewers and PCORI staff, and will be monitored by PCORI in the funded research.

**Peer Review and Release of Research Findings**

PCORI has a legislative mandate to ensure the scientific integrity of the primary research it supports and to make study findings widely available and useful to patients, clinicians, and the general public within a specific timeframe. The PCORI Board of Governors (Board) adopted the following process for peer review and public release of the results of all funded studies.

Awardee Institutions are required to submit to PCORI for peer review a draft final research report that provides the methodological details, describes the main study results, and properly interprets the findings

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in clinical or other decisional contexts. Subject matter experts, individuals with expertise on research methodology or biostatistics, and patients, caregivers, and other healthcare stakeholders, will review the draft final research report. After awardees have responded to reviewers’ comments to PCORI’s satisfaction, the report will be accepted and considered final. PCORI will then prepare a 500-word abstract summarizing the study results for patients and the general public, which the Awardee Institution will review and approve.

PCORI will post the following materials on its website no later than 90 days after the draft final research report is accepted: (1) a 500-word abstract for medical professionals, (2) a standardized summary of the study results for patients and the general public, and (3) a link to the study record on ClinicalTrials.gov (as applicable). The final research report, along with anonymized reviewer comments, will be made publicly available on the PCORI website no later than 12 months after its acceptance, except by prior mutual agreement with the Awardee Institution.

III. How To Submit an Application

Letter of Intent (LOI)

In order to submit a full application to the IHS Program, applicants are required to submit a Letter of Intent (LOI). Applicants should download the Letter of Intent Template for the Improving Healthcare Systems PFA from the PCORI Funding Center. They must complete the document and convert it to a PDF; the LOI is limited to three pages and applicants should use in-text citations. The final references page will not be included in the three-page limit. LOIs that exceed the page limit will not be reviewed. Do not upload additional documents as part of your LOI, including letters of endorsement or support, because they are not requested at this stage. Their inclusion will result in LOI rejection without review. Please visit the PCORI Funding Center for additional applicant resources, including the PFA and required templates.

LOIs are screened on five basic criteria:

1. Inclusion of a suitable comparison group
2. Exclusion of any cost-effectiveness analysis
3. Overall fit with the PCORI IHS Program’s Research of Interest section of this document
4. Responsiveness to PCORI and PFA goals, including evaluation of PCOs, patient and stakeholder engagement, and anticipated impact
5. Alignment with at least one of the IHS Program intervention targets (e.g., incentives, technology) listed in the Background section of this PFA; at this time, IHS is especially interested in applications to test the effectiveness of novel uses of technology, incentives in improving healthcare systems and patient outcomes, and organizational policies

Letter of Intent Review

In addition to the above criteria, LOIs are evaluated and competitively screened on the following criteria:

- Importance and relevance of the topics to PCORI priorities, as evidenced by critical gaps identified by clinical guidelines developers or recent relevant systematic reviews
• Clarity and credibility of applicants’ responses to the LOI questions

• Prior relevant experience of the investigators

• Programmatic fit and balance, taking into consideration whether the application overlaps with previously funded studies or concurrent applications to a significant degree or, conversely, whether the application fills a gap in the portfolio of applications with certain characteristics, including disease category, topics, priority population, methodologies, and other variables

Only applicants whose LOIs are deemed most responsive to this PFA will be invited to submit a full application. LOIs are reviewed by a minimum of two PCORI staff and are not scored during review. PCORI will notify applicants no later than April 8, 2016 as to whether or not they have been invited to submit a full application. Please refer to the Application Guidelines for due dates and information on how to submit your LOI via PCORI Online. The IHS Program will only accept full applications from those who have been invited to submit.

You are invited to submit an application based on the information provided in the LOI. Any changes to the following require PCORI's approval:

• Research question(s)

• Specific aims

• Study design

• Comparators

• Principal Investigator (PI)

• Institution

If you need to change any of this information or have any questions, please email pfa@pcori.org.

Note: A PI can only submit one LOI per PFA. However, an individual listed as a PI on one LOI may be listed as and serve in another role (e.g., co-investigator or consultant) on other LOIs within the same PFA during the same cycle. A PI may submit multiple LOIs to different program PFAs in a cycle, but the PI must ensure that the research topics and projects are not similar. If a PI submits an LOI to multiple program PFAs, LOIs that exhibit scientific overlap or that appear to be duplicate submissions will be disqualified. PCORI will contact the PI and provide him or her with an opportunity to choose which PFA he or she would like to apply to. This applies to single and dual-PI submissions.

Budget and Project Duration

For this PFA, PCORI intends to fund two different-sized projects: large projects (i.e., up to $5 million in total direct costs and/or up to five years in duration) and small projects (i.e., up to $1.5 million in total direct costs for up to three years in duration). Note that extending the time of the project beyond three years will put you into the “large” category. The maximum research period of performance does not include peer review. The maximum budget includes all research and peer-review-related costs. (Please refer to the Application Guidelines for further details.) Refer to Appendix 2 in the Application Guidelines for a list of allowable and unallowable costs.
Any request exceeding $5 million in total direct costs or exceeding a total of five years of research performance will be rejected and will not be reviewed.

All applications will be reviewed during the same merit review session.

Submission Dates
LOIs and applications must be submitted in accordance with the published dates and times listed in the Overview and in the PCORI Funding Center.

PCORI Online
To submit an application, you must register with PCORI Online and submit both an LOI and an application for each cycle to which you are applying.

Applicant Resources
PCORI Funding Center http://www.pcori.org/Cycle-1-2016-systems/
PCORI Online System https://pcori.fluxx.io
PCORI Funding Awards pcori.org/pfaawards

IV. Merit Review

PCORI’s merit review process is designed to support the following goals:

- To identify applications that have the strongest potential to help patients, caregivers, clinicians, and other stakeholders make informed decisions to improve patient outcomes
- To implement a transparent, fair, objective, and consistent process to identify these applications
- To elicit high-quality feedback that reflects a diversity of perspectives to ensure that the research funded by PCORI reflects the interests and views of patients and those who care for them and that it meets the criteria for scientific rigor
- To fund projects that fill important evidence gaps and have strong implementation potential
- To regularly evaluate and continually improve the merit review process and policies in support of PCORI’s mission

PCORI merit review is a multiphase process that includes PFA development; staff evaluation of LOIs; preliminary review of full applications by review panels; in-person panel discussion of a subset of full applications (identified by PCORI’s Research Priority Area Program staff, based on the preliminary review and program priorities); Selection Committee recommendation of applications for funding; and finally, Board award approval.

Preliminary Review
PCORI conducts rigorous merit review of all of the full applications it receives. Note that applications may be eliminated from the review process for administrative or scientific reasons (e.g., nonresponsiveness).
An application may be administratively withdrawn if it is incomplete; is submitted past the stated due date and time; or does not meet the formatting criteria outlined in the Application Guidelines, in the PCORI templates, and in PCORI Online. An application may be withdrawn for scientific reasons if it is not responsive to the guidelines as described in this PFA, describes research that is not comparative, includes cost-effectiveness analysis, or otherwise does not meet PCORI programmatic requirements.

PCORI Merit Review Officers (MROs) recruit each panel based on the number and topic areas represented by invited LOIs. MROs recruit the panel chair, scientist reviewers who are subject matter experts, patient representatives, and representatives of other stakeholder groups. All panel members receive training during the review cycle to ensure that they understand the programmatic and organizational goals of review.

Below are PCORI’s merit review criteria. PCORI’s merit review panels use these criteria during the preliminary and in-person review phases to evaluate and score all submitted applications:

**Criterion 1. Potential for the study to fill critical gaps in evidence**

The proposal should address the following questions:

- Does the application convincingly describe the clinical burden?
- Does the application identify a critical gap in current knowledge as noted in systematic reviews, clinical practice guidelines, or previous research prioritizations?
- Does the application identify a critical gap in current knowledge evidenced by inconsistency in clinical practice and decision making?
- Would research findings from the study have the potential to fill these evidence gaps?

**Criterion 2. Potential for the study findings to be adopted into clinical practice and improve delivery of care**

The application should describe how evidence that is generated from this study could be adopted into clinical practice and delivery of care by others. The application should address the following:

- Does the application identify who will make the decision (i.e., the decision maker) or use (i.e., the end-user) the study findings (not the intervention) produced by this study, such as local and national stakeholders?
- Does the application identify potential end-users of study findings, such as local and national stakeholders, and describe strategies to engage these end-users?
- Does the application provide information that supports a demand for this kind of a study from end-users?
- Would research findings from this study have the potential to inform decision making for key stakeholders? Provide example(s). How likely is it that positive findings could be reproduced by others, resulting in improvements in practice and patient outcomes? Identify the potential barriers that could hinder adoption of the intervention by others.
- Does the application describe a plan for how study findings will be disseminated beyond publication in peer review journals and national conferences?
Criterion 3. Scientific merit (research design, analysis, and outcomes)
The application should show sufficient technical merit in the research design to ensure that the study goals will be met.

- Does the proposal describe a clear conceptual framework anchored in background literature which informs the design, key variables, and relationship between interventions and outcomes being tested?
- Does the application provide justification that the outcome measures are validated and appropriate for the population?
- Does the research plan describe rigorous methods that demonstrate adherence to PCORI’s Methodology Standards?
- Is each of the comparators (e.g., active intervention arm and comparator arm) clearly described and well justified? If “usual care” is one of the arms, is it sufficiently justified and will it be sufficiently measured?
- Are the sample sizes and power estimates based on careful evaluations of the anticipated effect size? Is the effect size adequately justified in relation to the size or dose of the intervention and the research design (e.g., cluster randomized design)?
- Is the study plan feasible?
  - Is the project timeline realistic, including specific scientific and engagement milestones?
  - Is the strategy for recruiting participants feasible?
  - Are assumptions about participant attrition realistic, and are plans to address patient or site attrition adequate?

Criterion 4. Patient-centeredness
The application should demonstrate that the study focuses on improving patient-centered outcomes and employs a patient-centered research design (i.e., design is informed or endorsed by patients). *(Note: study can be patient-centered even if the end-user is not the patient, as long as patients will benefit from information.)* The proposal should address the following:

- Does the application include a thorough description of which outcomes (both benefits and harms) are important to patients, and are those outcomes included in the study plan?
- Does the application provide information that indicates that closing the evidence gap is important to patients and other stakeholders?
- Are the interventions being compared in the study available to patients now, and are they the best options for comparison (including whether they would be chosen by patients and their healthcare providers for managing the condition being studied)?

Criterion 5. Patient and stakeholder engagement
The proposal should demonstrate the engagement of relevant stakeholders (e.g., patients, caregivers, clinicians, hospitals and health systems, payers [insurance], purchasers [business], industry, researchers,
policy makers, and training institutions) in the conduct of the study. Quality of engagement should be evaluated based on scope, form, and frequency of patient and stakeholder involvement throughout the entire research process. The proposal should address the following:

- Does the application provide a well-justified description of how the research team is interdisciplinary? Does the study include the right individuals (researchers, patients, clinicians, other stakeholders) to ensure that the projects will be carried out successfully?
- Does the application show evidence of active engagement among scientists, patients, and others throughout the entire research process (e.g., formulating questions, identifying outcomes, monitoring study, dissemination, and implementation)? Are the frequency and level of patient and stakeholder involvement sufficient to support the study goals?
- Is the proposed engagement plan appropriate and tailored to the study?
- Are the roles and the decision-making authority of all study partners and investigators clearly described?
  - (Dual-PI Option Only) Does the leadership plan adequately describe and justify roles/areas of responsibility of the PIs?
- Are the organizational structure and resources appropriate to carry out the project?

**In-Person Review**

During preliminary review, all administratively and scientifically compliant applications are evaluated and scored based on PCORI’s merit review criteria, including evaluation of adherence to PCORI’s Methodology Standards. After the preliminary review is completed, PCORI program staff members evaluate panel scores and critiques to identify a subset of applications for merit reviewers to discuss at the in-person review meeting. Not all submitted applications move forward to in-person review.

During the in-person review, merit reviewers meet to discuss applications, to clarify further the merits of the proposed research, and to identify areas for improvement. In addition, each application is re-scored based on the content of discussion. The chair and PCORI MRO lead the in-person panel meeting and ensure that all applications receive a fair and thorough review according to the standards outlined in the PFA.

**Post-Panel Review**

After the in-person meeting, PCORI program staff evaluate final merit review panel scores and comments, identify duplication or synergy among funded projects, and consider the fit of applications within the programmatic vision. Program staff members then recommend projects to a Selection Committee, which includes members of PCORI’s Board of Governors. The Selection Committee considers recommendations and works with staff to identify a slate of applications for possible funding based on merit review scores, programmatic balance and fit, and PCORI’s strategic priorities. This slate is then proposed to PCORI’s Board for its consideration and approval.

**Summary Statements and Funding Recommendations**

Summary statements are provided to applicants approximately two weeks before funding decisions are
announced. **If an application progresses to in-person discussion**, the applicant will receive a summary statement that includes:

- In-person panel discussion notes
- Final average overall score
- Preliminary reviewer critiques
- Application quartile, which provides information for applicants to understand how they did relative to other discussed applications

**Summary statements for applications that do not progress to in-person discussion include only the preliminary reviewer critiques.**

Funding recommendations are made by identifying meritorious applications that fit the programmatic needs and that satisfactorily address the merit review criteria, including adherence to PCORI’s Methodology Standards. Programs also consider the funds allotted for the current PFA when deciding which applications to recommend to PCORI’s Board for approval. Applicants to this current cycle’s PFA will receive summary statements in October 2016 and notification of the funding status of their application no later than November 2016.