PCORI Funding Announcement: Improving Infrastructure for Conducting Patient-Centered Outcomes Research

The National Patient-Centered Clinical Research Network (PCORnet): Clinical Data Research Networks (CDRNs)—Phase II

Published December 22, 2014

This PCORI Funding Announcement applies to the funding cycle that closes on April 7, 2015, at 5:00 p.m. (ET). Application guidelines, templates, and other resources are available at http://www.pcori.org/PCORI-PFA-CDRN-Phase-2.
About PCORI

PCORI was authorized by the Patient Protection and Affordable Care Act of 2010 as a nonprofit, nongovernmental organization. PCORI’s purpose, as defined by the act, is to help patients, clinicians, purchasers, and policy makers 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.

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 in order to enhance its work. PCORI helps people make informed healthcare decisions and improve 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.

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Follow us on Twitter: @PCORI
## Overview

| Published Letter of Intent Due | December 22, 2014  
January 15, 2015, by 5:00 p.m. (ET) |
|---------------------------------|-----------------------------------|

Letters of Intent (LOIs) will be screened for responsiveness to this PCORI Funding Announcement (PFA) and fitness to program goals. Only those selected will be invited to submit full applications. Notification of invitation to submit full applications will occur no later than February 3, 2015.

Patient-Centered Outcomes Research Institute (PCORI) seeks to fund up to 13 clinical data research networks (CDRNs) as part of Phase II of the National Patient-Centered Clinical Research Network (PCORnet). A complementary PFA seeks to fund up to 22 patient-powered research networks (PPRNs).

This announcement seeks to provide infrastructure funding to CDRNs to expand on the infrastructure built during Phase I of PCORnet. PCORnet is intended to be a large, highly representative national network composed of CDRNs and PPRNs for conducting clinical research.

This PFA seeks both current Phase I CDRNs and new CDRN applicants. The funding announcement and documents are structured around goals for Phase I accomplishments and goals for Phase II. Overall, the applications should align to the overarching goal of PCORnet Phase II: the more efficient conduct of multinetwork observational and interventional research studies using the PCORnet infrastructure resources.


## Applicant Resources

### Key Dates

<table>
<thead>
<tr>
<th>Online System Opens:</th>
<th>December 22, 2014</th>
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<tbody>
<tr>
<td>LOI Deadline:</td>
<td>January 15, 2015, by 5:00 p.m. (ET)</td>
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<tr>
<td>Applicant Town Hall Sessions:</td>
<td>February 17, 2015, 3:00 p.m. – 4:00 p.m. (ET)</td>
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<td>LOI Status Notification:</td>
<td>February 3, 2015</td>
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<tr>
<td>Application Deadline:</td>
<td>April 7, 2015, by 5:00 p.m. (ET)</td>
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<td>Merit Review:</td>
<td>July 2015</td>
</tr>
<tr>
<td>Awards Announced:</td>
<td>July/August 2015</td>
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<tr>
<td>Earliest Project Start Date:</td>
<td>October 2015</td>
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## Maximum Project Budget (Direct Costs)

- $6,250,000 direct costs
- Year 1: $2.5m, Year 2: $2.5m, Year 3: $1.25m

## Maximum Project Period

- Three years

## Funds Available

- Up to $81.25 million

## Eligibility

Applications may be submitted by any private-sector research organization, including nonprofit or for-profit organizations, and public-sector research organizations, including but not limited to any university, college, hospital, healthcare system, laboratory, manufacturer, or unit of local, state, or federal government. The Internal Revenue Service (IRS) must recognize all applicant organizations. Organizations may submit multiple applications for funding. Individuals are not permitted to apply.
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<tr>
<th>Review Criteria</th>
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<tr>
<td><strong>Criterion 1:</strong> Has the current CDRN applicant described successful achievement of each of the three major Phase I goals described in this solicitation for currently funded CDRNs? Has the new applicant described expected status for the Phase I goals at six months post-contract award?</td>
</tr>
<tr>
<td><strong>Criterion 2:</strong> Has the applicant provided evidence of its ability and credible work plans to meet the various aspects of Goal 1 (highly engaged patients, researchers, clinicians, and health systems participate in network governance and research-topic generation)?</td>
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<td><strong>Criterion 3:</strong> Has the applicant demonstrated its ability and provided credible work plans to meet the various aspects of Goal 2 (analysis-ready standardized data, use of the PCORnet Common Data Model, and preserving strong privacy and data-security protections)?</td>
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<td><strong>Criterion 4:</strong> Has the applicant provided convincing evidence of its ability and credible work plans to meet the various aspects of Goal 3 (an infrastructure for supporting clinical trials embedded within network delivery systems)?</td>
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<td><strong>Criterion 5:</strong> How well has the applicant demonstrated its ability and provided credible work plans to meet Goal 4 (an oversight framework that fosters public trust in research)?</td>
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<td><strong>Criterion 6:</strong> Has the applicant provided evidence of its ability and credible work plans to meet the various aspects of Goal 5 (a collaborative community that attracts a diverse set of researchers, funders, and other networks)?</td>
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<tr>
<td><strong>Criterion 7:</strong> Has the applicant provided evidence of its ability and credible work plans to meet the various aspects of Goal 6 (research networks that are innovative and sustainable)?</td>
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<td><strong>Criterion 8:</strong> Has the applicant provided evidence of a solid and diverse staffing and management plan?</td>
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<td><strong>Criterion 9:</strong> Has the applicant provided evidence of a budget appropriate for the activities described in its work plans?</td>
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**Contact Us**

For programmatic inquiries, please e-mail (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 of receiving an inquiry but will not guarantee the same response time for inquiries received three days prior to an LOI or application deadline.

For administrative, financial, or technical inquiries, please e-mail (pfa@pcori.org). PCORI will provide a response within two business days. Please note that during the week of the application deadline, response times may exceed two business days. Applicants may call the Helpdesk (202-627-1885) for technical or administrative support. It is the applicant’s responsibility to submit the application on or before the application deadline.

*Deadlines are at 5:00 p.m. (ET). If a deadline falls on a weekend or a federal holiday, the deadline will be the following Monday or the next day after the federal holiday.*
## Contents

I. **Introduction** ..........................................................................................................................1  
   Summary of Program ................................................................................................................1  
   Background .............................................................................................................................1  

II. **Guidance for Responding to Solicitation** ......................................................................4  
   Key Goals and Accomplishments of Phase I ........................................................................5  
   Staffing and Organizational Capacity Requirements ............................................................16  
   Methodological Considerations .............................................................................................17  
   Protection of Human Subjects ...............................................................................................17  
   Budget and Project Duration .................................................................................................17  

III. **How to Submit a Proposal** .............................................................................................18  
    Letter of Intent ....................................................................................................................18  
    Submission Dates .................................................................................................................19  
    PCORI Online System ..........................................................................................................19  
    Applicant Resources ............................................................................................................19  

IV. **Merit Review** ..................................................................................................................19  
    Letter of Intent Review ........................................................................................................20  
    Preliminary Review .............................................................................................................20  
    Reviewer Discussion ............................................................................................................21  
    Applicant Interviews ............................................................................................................21  
    Selection Committee ............................................................................................................21  
    Funding Recommendations ...................................................................................................21  
    Terms and Conditions for Phase II Funding .......................................................................22
I. Introduction

Summary of Program

Beginning in 2014, PCORI provided $105 million in initial infrastructure development funds (Phase I) for the National Patient-Centered Clinical Research Network (PCORnet). Funds were awarded for the development of 11 clinical data research networks (CDRNs), 18 patient-powered research networks (PPRNs), and one coordinating center (www.pcornet.org).

CDRNs are conceived as entire populations receiving health care within specified healthcare delivery systems. These populations must be at least one million persons in size. During Phase I and II of the program, the CDRN must work to capture complete, longitudinal healthcare data on this population, including electronic health record (EHR) data from both ambulatory and inpatient care in the delivery system, and claims information or other records representing care received outside the delivery system. PCORnet is intended to be a large, highly representative national network for conducting clinical research. Once operational, it is envisioned that PCORnet will support a range of study designs, including large longitudinal observational studies, large pragmatic clinical trials conducted within delivery systems, and rapid-cycle research in concert with health systems and plans. Phase I infrastructure development will conclude in September 2015—that is, 18 months from its launch in April 2014. More information on current PCORnet activities and structure can be found at www.pcornet.org.

Background

PCORI is launching a three-year funding initiative to support the continued development and sustainability of PCORnet. In Phase I of PCORnet, PCORI funds were awarded for the development of 11 CDRNs, 18 PPRNs, and one coordinating center. The coordinating center provides PCORnet operational and logistical support, including specific technical assistance related to PCORnet’s critical goals.

In Phase II, PCORnet will be established as a national resource to support multinetwork patient-centered observational and interventional research. During this phase, the network will begin to address research queries and answer important clinical research questions as it continues to build additional infrastructure for conducting more efficient and complex clinical research.

This announcement describes the scope of work for the CDRNs for Phase II and available funding to allow for Phase II’s execution. CDRNs are system-based networks that include hospitals and community based-practices, and that may include health plans, all of which routinely and securely collect individual patient-level data. A list of currently funded CDRNs can be found at www.pcornet.org. By the end of Phase I, PCORI expects that each CDRN will have:

- Established itself as a source of standardized, accessible data on an unselected population of at least one million people
- Established its ability to conduct patient-centered, pragmatic clinical trials embedded within its parent healthcare system(s)

For this Phase II award, potential CDRNs must demonstrate how they have met (or, if a new applicant, expect to meet) these requirements and propose a work plan describing how they will address and meet the goals listed below for Phase II. PCORI intends to provide funding to ensure the continuity, sustainability, and expansion of critical CDRN resources and operations. It is also expected that CDRNs—individually and in collaboration with other PCORnet networks—will attract research funding from
A fundamental requirement for CDRNs in Phase II of PCORnet is their ability and willingness to participate in multinetwork PCORnet research (i.e., research projects involving collaboration among multiple CDRNs and PPRNs) on a wide range of study designs, topics, and conditions. Thus, strong relationships with an array of clinical researchers and clinicians within PCORnet-participating institutions is essential. It is equally important that CDRNs participate fully in developing PCORnet as a national research infrastructure by demonstrating an openness to respond to external requests for collaborative partnerships and by building the infrastructure needed to facilitate these inquiries and partnerships. PCORI anticipates that each CDRN will become increasingly mature during Phase II and will receive increasing amounts of research funding from a range of funders (including both for-profit and non-profit private-sector and public-sector entities). This will support diverse research portfolios as well as develop the CDRN’s capacity to be a self-sustaining network. Consequently, direct PCORI funding for infrastructure will decrease by 50 percent in year 3 of Phase II. Applicants should also familiarize themselves with the solicitation for PPRNs. Applicants should be aware that the milestones and deliverables agreed upon for this contract are subject to PCORI’s request for changes during the period of the award in order to ensure that the overall goals of the PCORnet program are met. Applicants should therefore make sure that they have the operational flexibility to make changes to their proposed work plans, deliverables, and timelines during the award period.

**Key Goals and Accomplishments of Phase I**

By the end of Phase I, current CDRN awardees are expected to meet contract milestones in a number of areas. For purposes of this Phase II application, current awardee applicants should describe their progress and current status regarding the following three goals of Phase I. New applicants are asked to describe how their program would achieve these same milestones within six months of the start of funding. The three goals of Phase I that applicants are expected to address are:

- Goal 1. Engagement, Governance, and Collaboration Requirements
- Goal 2. Phase I Data Infrastructure and Analysis-Ready Data Requirements
- Goal 3. Phase I Clinical Trial Infrastructure Requirements

The Phase I goals are described more explicitly in the Guidance section of the PCORI Funding Announcement (PFA).

**PCORnet Phase II Goals**

When fully mature, PCORnet is intended to serve as a national resource for conducting rapid, efficient, patient-centered observational and interventional randomized research that improves healthcare delivery and health outcomes. For this solicitation, applicants should describe their organizational achievements to date and their plans for reaching each of six specific goals for Phase II:

- Goal 1. Highly engaged patients, researchers, clinicians, and health systems participate in network governance and research topic generation
- Goal 2. Analysis-ready standardized data, use of the PCORnet Common Data Model, and

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preserving strong privacy and data-security protections

- Goal 3. An infrastructure for supporting clinical trials embedded within network delivery systems
- Goal 4. An oversight framework that fosters public trust in research
- Goal 5. A collaborative community that attracts a diverse set of researchers, funders, and other networks
- Goal 6. Sustainable research networks

The Phase II goals are described more explicitly in the Guidance section of the PFA.

**PCORnet Phase II Requirements**

All applicants should review and respond to the following requirements that represent substantial modifications or expansion of goals from those included in the Phase I solicitation and review process.

1. Because Phase II is expected to be a period of active clinical research as well as continued capacity building, PCORI requires that each CDRN propose at least two co-Principal Investigators (co-PIs) with the following qualifications:
   a. One co-PI with primary experience and expertise in clinical research, epidemiology, health services research, or comparative effectiveness research
   b. One co-PI with primary experience or expertise in clinical informatics, health system information technology, or large-scale database construction and linkage

2. CDRNs are expected to develop and maintain data linkages between CDRN data and data from private health plan or health insurance databases. Additionally, CDRNs are expected to develop the capacity for research relating to their CDRN data to be used in conjunction with public databases (e.g., Centers for Medicare and Medicaid Services [CMS] data). Applicant CDRNs and their participating health systems partners must be willing to link patient-level data to these sources—at least for individual, Institutional Review Board (IRB)-approved studies—to ensure capture of complete clinical data over time in longitudinal studies.

3. To continue extraction and standardization of EHR data during Phase II, all CDRNs must have both the access and the capability to search and extract unstructured data or narrative information from progress notes, hospital admissions and discharges, procedure reports, and diagnostic and pathology test reports, using techniques of text searching and natural language processing (NLP).

4. CDRNs are required to increase the level of collaboration with PPRNs and to have active collaborations—or commitments for collaboration—with a minimum of two PCORnet PPRNs at the time of application. In addition, any existing partnerships and collaborations, as well as planned partnerships, with PCORnet CDRNs should be described. The number of active collaborations in Phase I will not be valued over the quality of the proposed collaboration and its potential to meet PCORnet goals.

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2 Available at http://www.pcori.org/sites/default/files/PCORI-PFA-CDRN-071713.pdf
5. Where applicable (i.e., when co-located in the same academic institution with Clinical Translational Science Awards [CTSAs]), CDRNS will be expected to develop strong, synergistic activities with CTSAs and to provide an explicit plan for the collaboration.

II. Guidance for Responding to Solicitation

PCORI anticipates funding up to 13 Phase II CDRNs. The 13 CDRNs are expected to include one or more new applicants. Current CDRNs will apply for continuation funding through this PFA in competition with new applicants. To be competitive, existing CDRNs are expected to have achieved the Phase I requirements described above and detailed below in “Key Goals and Accomplishments of Phase I.” They are also expected to have participated in the planning phase (not necessarily the final application) of at least one of the three Phase I demonstration projects. Performance against Phase I milestones will contribute heavily to the scoring of the applications of existing CDRNs. Current CDRNs are not required to re-apply with exactly the same institutions or personnel as in Phase I and are encouraged to evaluate the optimal partnerships for their CDRNs for Phase II, given PCORnet’s overall goals. In evaluation of Phase I achievements, it may be acceptable to PCORI that not all constituent organizations within a CDRN have met 100 percent of the Phase I requirements—for example, some partners within the CDRN may be ready with analysis-ready data, while others are ready to implement efficient clinical trials. However, for such CDRNs, the prospects for completion of all requirements for one million persons or more, must be thoroughly described in the application and will be closely scrutinized for strength and viability.

Current CDRNs will be evaluated on:

A. Successful completion of Phase I requirements
B. Strength and credibility of proposed activities to meet Phase II goals
C. Strength of staffing and management plan
D. Proposed budget

New applicants (i.e., applicants not funded during Phase I) must provide an explicit plan and compelling evidence to demonstrate that, within six months of the date of the initiation of funding, their proposed CDRN will be able to meet these same requirements as Phase I CDRNs for a population of at least one million persons. In particular, new applicants must demonstrate their capacity to capture complete longitudinal data, including full capture of data from medical and pharmacy claims, as well as EHR data for a population of at least one million persons within six months. New applicant CDRNs that capture complete health plan enrollment and claims data should also state whether and how they may have access to claims data for some persons who may receive care in delivery systems of other, current CDRNs and whether there is ability to partner with these CDRNs to create complete longitudinal data. Robust documentation to that effect, including key leadership support, will be required.

New applicants will be evaluated on:

A. Ability to meet the same requirements for Phase I within six months, including prior experience and achievements using electronic data to conduct population-based research
B. Strength and credibility of proposed activities to meet Phase II goals
C. Strength of staffing and management plan
D. Proposed budget

Due to expedited timelines, CDRN applicants should provide evidence within the application in the form of a letter of support and language within the consortium contractual section so that subcontractor agreements and applicable institutional assurances can be executed promptly upon award announcement.

Key Goals and Accomplishments of Phase I

By the end of Phase I, current applicants are expected to have met contract milestones in a number of areas. For purposes of this Phase II application, applicants are asked to describe the progress and current status with respect to three Phase I goals. New applicants are asked to describe how their program would achieve these same milestones within six months of the award.

Goal 1. Engagement, Governance, & Collaboration Requirements

Applicant CDRNs should provide evidence of meeting the Phase I requirements related to formal network governance infrastructure involving patients, clinicians, and systems leaders; development of intra-CDRN governance policies; network agreement to abide by PCORnet-wide governance policies; and readiness to collaborate in multi-network PCORnet research. For current CDRNs, this evidence may include mention of policies that have already been submitted to PCORI, but it is not necessary to resubmit these documents with the application. New applicants must explain and demonstrate that the network will be able to achieve this goal within six months of the contract award.

The application should describe the governance structure and processes in place at the time of application (or those that will be in place by the end of Phase I) and demonstrate (i.e., using specific examples) how the governance structure and processes:

- Describe existing policies, provide organizational charts that show patient and stakeholder involvement, and include explicit agreement that the network will abide by PCORnet-wide policies.
- Describe how policies were developed and the extent of patient and stakeholder involvement.
- Describe patient, caregiver, and stakeholder roles in the governance structure.
- Acknowledge that the network will abide by PCORnet-wide policies. This may include mention of policies that have already been submitted and approved by PCORI. It is not necessary to resubmit these documents within the application.
- Describe how CDRN policies and infrastructure:
  - Facilitate engagement of patients, clinicians, and health system stakeholders in network decision-making and policy development.
  - Facilitate collaborative relationships with other CDRNs, PPRNs, and such external organizations as CTSAs (in cases where the institutions are co-located with CTSAs), or other external research partners.
  - Facilitate readiness to engage in large-scale, multinetowrk observational comparative effectiveness research (CER) studies and randomized, controlled CER studies.
Enable the CDRN to actively participate in deliberations about PCORnet demonstration studies—such as the aspirin trial or weight cohort observational study, leading to thoughtful and informed choices about whether the CDRN should apply to participate in these studies. Existing CDRNs should describe explicitly the factors that led to a decision whether to participate in these studies.

Enable the participation of the CDRN in a PCORnet rapid-cycle project (if such projects are under way at the time of application)—for example, as evidenced by proposals to participate in these studies or evidence of current participation in these studies as a research partner.

Enable the initiation of other research activities, including multinetwork clinical research with other CDRNs or PPRNs and with other external collaborators. These activities could include submitted research proposals, project abstracts, collaborative agreements, and data-sharing or data-use agreements.

**Goal 2. Phase I Data Infrastructure and Analysis-Ready Data Requirements**

Applicant CDRNs should provide evidence of meeting Phase I requirements for analysis-ready data and for the ability to rapidly query the data, as described below. New applicants must explain and demonstrate that the network will be able to achieve this goal within six-months of the contract award.

The application should describe the data infrastructure in place at the time of the application and describe how it:

- Includes the full range of quality-checked data for a population of one million individuals, transformed into the PCORnet CDM Version 2.1 or current version; for this one million-person population, provide criteria to indicate how they were included in the core population (e.g., enrollment information if health plan data are available, a certain number of visits to the health system, or other indicators that characterize the defined population); in cases where this total has not been met, or where the data are missing certain tables or fields for structural reasons, describe reasons for missing data and plans to collect the data if applicable or feasible.
- The status of the CDRNs analysis-ready data set in the appropriate template
- Includes activities to complete the capture of longitudinal data for the CDRN’s core population of at least one million persons; PCORI recognizes that some linkages may be feasible only for IRB-approved research studies and will accept evidence of agreements with suitable partners in lieu of complete data on the one million-person core population
- Includes the ability to execute data queries against the PCORnet CDM, including queries provided by the PCORnet coordinating center that are written in Statistical Analysis System (SAS) code and able to run without modification against the CDRN’s data; for existing CDRNs, this capability must be in place at the time of the award; for new CDRNs, this capability must be in place within six months of receiving the award; CDRN applicants are expected to be able to return simple query results within one week of receipt
- Includes the capacity to continue development of the CDRN data resource consistent with PCORnet CDM v 2.1 and subsequent versions.
- Includes policies and practices to ensure data security and patient privacy and confidentiality, including policies about who may access the data, under what conditions, and how the CDRN

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3 Available at http://www.pcornet.org/resource-center/pcornet-common-data-model/
will handle fully identifiable data, limited data sets, and de-identified data; Novel de-
identification strategies developed by the CDRN should be described, as applicable
- Includes creation and initial characterization of three disease or condition cohorts as
  proposed in the Phase I proposal, as evidenced by documentation of the number of cohort
  members available for data query and response rates to cohort surveys
- Enables the development, validation, and deployment of electronic algorithms for identifying
  patients with a particular condition (i.e., use of computable phenotypes)
- Allows for and facilitates the linking and sharing of patient-level data among the component
  health system data partners of the CDRN.

New applicants only: The application should describe the extent, availability, and completeness of
data, and any unique aspects of the patient population that the CDRN brings to PCORnet. For new
applicants whose institutions are not primarily part of healthcare delivery systems (e.g., an applicant
based in a health insurance plan with EHR and other clinical data on a portion of enrollees) PCORI is
particularly interested in applications that could provide or develop the capacity to link claims data for
substantial numbers of patients with EHR data from one or more existing CDRNs.

Goal 3. Phase I Clinical Trial Infrastructure Requirements

CDRN applicants should provide evidence of Phase I requirements related to the successful, efficient
embedding of clinical trials within healthcare delivery settings, including organizational support (from
leadership, IT, and clinical operations personnel), involvement of clinicians, capacity to quickly identify
eligible patients using the CDM and additional data sources, and progress toward streamlining
approaches to IRB oversight and contracting. New applicants must demonstrate that they have already
achieved these goals or will be able to do so within six months of the contract award.

The application should describe the clinical trial’s research infrastructure, policies, and procedures that
are in place at the time of application, as well as demonstrate (i.e., using specific examples) how these
structures, policies, and processes:
- Include the capacity to identify, contact, and follow up with patients for study recruitment
  using the PCORnet CDM and additional EHR data as needed
- Reflect progress toward embedding clinical trials research into routine healthcare system
  operations (e.g., as evidenced by stated IRB policies and procedures that recognize the need
  for efficient oversight and consenting requirements commensurate with each study’s risk
  level).
- Reflect support from health system leadership to encourage and support the conduct of
  embedded clinical trials (e.g., as evidenced by statements of support from health leaders in
general and for specific PCORnet associated studies conducted within the CDRN’s healthcare
systems).
- Reflect clinicians’ engagement with the network (e.g., as evidenced by clinician involvement
  in CDRN and PCORnet planning and implementation of specific multi-site clinical trials).
- Reflect the capacity to streamline contracting with other institutions participating in PCORnet
  for multi-site studies (e.g., as evidenced by in-place collaboration agreements, data-use
  agreements, contract language that all participating CDRN institutions have accepted without
  modification, and examples of studies planned or underway that have demonstrated
  efficient, streamlined procedures with accelerated timelines).
Reflect the capacity to collect patient-reported outcomes (PROs) or other patient-generated data through EHR data and health system portals (e.g., as evidenced by planned or actual acquisition of PRO data by these means).

Where applicable, for CDRNs hosted in institutions with CTSAs, describe the collaborations established with the CTSAs, such that resources dedicated to clinical-trial readiness by the CTSA and the CDRN are complementary and neither duplicative nor competitive. If applicable, applicant should discuss organizational commitment to the Accelerated Clinical Trials Agreement.

Note: For new applicants whose institutions are not primarily in partnerships between healthcare delivery systems (e.g., an applicant based in a health insurance plan with EHR and other clinical data on a portion of enrollees) PCORI may waive the requirements associated with Goal 3 in exceptional cases where the benefits for PCORnet of the availability of specific types of data outweigh the lack of clinical infrastructure in these organizations.

Scope of Work for Phase II
Applicants should describe plans and procedures within the proposed CDRN for achieving each of the six goals for Phase II, addressing specific strategies that will be employed to meet each goal as well as the management and operational details appropriate to carry out these strategies. In general, the applicant should align the scope of work to the overarching goal of PCORnet Phase II, which is the more efficient conduct of multinetwork observational and interventional randomized research studies using the PCORnet infrastructure resources. More efficient research at the individual CDRN level is seen as a by-product of infrastructure building but not a primary goal of PCORnet. Do not repeat descriptions of achievements or infrastructure already covered in addressing the goals of Phase I.

**Goal 1. Highly engaged patients, researchers, clinicians, and health systems participate in network governance and research topic generation**
Governance refers to decisions regarding the development and use of the network, its database, and research infrastructure. In Phase II, CDRNs are required to maintain and increase levels of engagement with key PCORnet stakeholders. This includes plans for keeping the patient and clinician populations as well as systems leaders informed of the network’s activities as well as sustaining the groups’ involvement in generating and prioritizing research questions. This requires these critical stakeholders to be actively engaged in both the governance and use of the network, including topic generation, approval of proposed projects, conduct of studies and analyses, and dissemination of results. Health plan partners should also be included in these activities. Clinicians who deliver care and contribute to the data captured in the EHR are important but particularly challenging to engage. The application should describe the planned approach to engage this key constituency. The goal of such engagement is to facilitate increased participation in real-world, low-burden interventional clinical trials using the PCORNet infrastructure. Health system leaders and administrators should be engaged to ensure that the value of standardized data for addressing critical questions relating to performance and quality is leveraged, with the hope that it will attract organizational support for sustaining the CDRN.

The application should describe and document the following:

- Approaches for achieving continued and enhanced levels of engagement, including a clear rationale and supporting evidence for why the approach is efficient, effective, and innovative
• Specific policies or strategies that will be implemented during Phase II for soliciting input from stakeholders about research topics, including the past and planned use of these policies and evidence that will result in meaningful stakeholder engagement.
• Specific patient-engagement policies or strategies that provide opportunities for patients and communities to co-develop communications that will heighten understanding of past, present, or future studies; opportunities to participate in research (see PCORI’s Patient and Family Engagement Rubric4); how research data are used; and the value of taking part in research.
• Systematic approaches for interacting with clinicians and administrators, including planned use of these approaches and evidence that will result in increased knowledge of, interest in, and participation by patients, clinicians, and administrators in research activities.
• Dissemination strategies for returning results to study participants as well as to participating health systems.
• Experience or plans to engage with key stakeholders through the rapid development and implementation of health system improvement research.

Goal 2. Analysis-ready standardized data, use of the PCORnet Common Data Model, and preserving strong privacy and data-security protections

Analysis-ready standardized data of increasing richness, completeness, and quality—extracted and stored in successive versions of PCORnet’s CDM—is a central expectation of all successful CDRN applicants during Phase II. All efforts must deploy state-of-the-art technical and physical safeguards to ensure that data privacy, security, and confidentiality are preserved. All efforts must aim to build capacity for rapid, repeated standardized querying as well as conduct of complex distributed or shared analyses. CDRNs will be required to include data on the care experience, including EHR-based encounter data, other electronic clinical data (e.g., laboratory results), and claims data. CDM Version 2.1 includes information on procedures, diagnosis, physician orders, prescriptions ordered and dispenses, claims paid, inpatient stays, and other facility stays. Increasingly during Phase II, the CDM will also include both structured and unstructured narrative text information captured using NLP of notes and reports contained in the EHR.

With the overarching goal of developing an efficient national resource for conducting large-scale, multinetwork patient-centered CER, CDRNs are expected, by the beginning of Phase II, to be able to carry out cohort identification and preliminary analyses by running standardized queries against analysis-ready, standardized data in the PCORnet CDM, initially Version 2.1, using the PopMedNet query tool programmed in SAS.

All participating networks will work closely with each other and with the coordinating center throughout Phase II to continue adding new standardized data elements to the CDM. This will include expanded use of the EHR to create reliable, clinically appropriate computable phenotypes by capturing detail on clinical history, diagnostic assessments, therapeutic procedures, and outcomes. Much of the richness of the EHR is only captured in narrative text. Thus, each CDRN will be expected to have access to unstructured data and to include the expertise needed to conduct text searches and NLP on the research team. The application should describe personnel to be added for this purpose, as well as their experience. Note that this announcement is not a solicitation for innovative informatics research or development of informatics applications, except for that needed to meet PCORnet goals of expanding CDM content. It is expected that most such activities will be PCORnet-wide activities identified and

4 Available at http://www.pcori.org/sites/default/files/PCORI-Engagement-Rubric-with-Table.pdf
conducted under the remit of the Data Standards, Security, and Network Infrastructure (DSSNI) Task Force.

CDRNs are also required to continue developing approaches for capturing complete longitudinal data on their patient populations, through local linkages as well as possible linkages with health plans, Food and Drug Administration’s (FDA’s) Sentinel Initiative data partners, and CMS. This will require both technical capacity and appropriate agreements between institutions to allow such data-linkage activities. PCORI recognizes that—as of the release of this announcement—there is uncertainty on whether standard approaches for partnering with the types of data sources reflected above may be possible. In their response to requirements under Phase I goals, current awardees should describe all data linkages achieved within their CDRN or anticipated by the end of Phase I, including signed data-use agreements, business associate agreements, and letters of support with suitable partners. An explanation of the numbers of persons included under such agreements should also be provided. PCORI also recognizes that some linkages may only be feasible for individual IRB-approved research studies. A clear statement should be provided of the decisions of the CDRN governance entity regarding the willingness and ability of member systems to take steps to allow linkage during Phase II (e.g., with private and public payers), including the capacity to use patient identifiers to accomplish the linkages. If permissible, direct linkages, rather than encryption methods, are preferred. Any encryption methods should be described if this is the only option for allowing linkages. These provisions apply only to currently funded CDRNs. New applicants must describe and demonstrate evidence of capacity for complete, longitudinal data capture for a population of at least one million persons. If new applicants do not have Medicare claims data—and this is the only data missing in order for them to have complete data—the new applicant must present evidence of organizational willingness and ability to share data for linkage with CMS Medicare data.

CDRNs should describe their plans and capacity to refresh their data at least quarterly. Routine quality checks using standard methods across networks participating in PCORnet will be determined by the protocols, policies, and SOPs developed by the DSSNI Task Force.

The application should describe the CDRN’s:

- Capacity and plans to continue to harmonize data with the PCORnet CDM, build new portions of the CDM as required by new studies, and contribute new data elements or additional tables to the CDM as required by new studies. Technical proposals that include specific data areas or specific elements and approaches to extracting and standardizing these elements across PCORnet are of interest
- Capacity to maintain analysis-ready, quality-checked data sets, refreshed at least quarterly, including specific procedures for refreshing data sets and checking quality and that result in data that is accurate, complete and consistent across PCORnet and procedures and processes for revising and correcting data sets when data errors are detected
- Approaches to ensuring nonduplication of patient data within a CDRN, such that if the same patient received care in multiple settings, a record-linkage strategy could be deployed to ascertain whether it is, in fact, the same patient or different patients; approaches might include probabilistic matching, deterministic matching, or comparable machine learning techniques
- Governance and technical approaches for ensuring that the CDRN has the capacity to respond to 200 simple queries per year with a turnaround time of one week or less. Applicants should provide the decision process for responding to a query, the centralized or federated technical approach to implementing the query response, and the human and technical resources

PCORI Funding Announcement: Clinical Data Research Networks (CDRNs)—Phase II 10
required and in place to meet this requirement, including the software and personnel to conduct these queries as well as more complex analyses using SAS

- Capacity and plans to link to external sources to enhance data completeness, including continuing and planned activities to link to specified external data sources; governance and technical approaches that enable the linkage; the relevance, limitations, and timeliness of the linked data; and how the completed data linkage would supplement or enhance the data already captured at the CDRN

- Capacity to collaboratively develop and validate electronic algorithms for patient identification (i.e., computable phenotypes), including planned activities to develop and validate specific computable phenotypes present in PCORnet condition cohorts, and expertise and approaches to ensure that each computable phenotype is clinically relevant, statistically valid, and adopted across PCORnet

- Capacity to continue development of the disease specific cohorts initiated in Phase I, including description of planned expert working groups during Phase II, projected status of the cohort by the end of Phase II (e.g., number of individuals expected to be accrued), data elements available, ability to contact individuals for participation in research, expectations for research funding, and commitment to cohort-specific CDRN/PCORnet research involving the cohort; New applicants should propose the development of three cohorts following the same requirements for currently funded CDRNs.

- Capacity to use NLP on unstructured, narrative text in clinical notes using statistically valid approaches to ensure the quality of the technical methods used—and the expert personnel required to implement these techniques—including plans for past, current, and future work in this area. Applicants should include past examples for case finding, validation, and so forth

- Current and planned practices, as well as specific technical approaches, for ensuring protection of the security and confidentiality of individual-level clinical data in multinetowrk studies, including in-place or planned policies, practices, and agreements to protect data during acquisition, linkage, storage, analysis, and transmission

- Compliance with federal, state, and local regulatory and legal requirements

- Policies and procedures in place for responding to a data breach, including how harm to the affected patients, clinicians, and researchers will be mitigated and how negative impacts on the capacity of the CDRN to conduct research will be minimized

Note: New applicants are expected to provide clear evidence that they have familiarity and prior experience working with common data models similar to the PCORnet CDM, ability and willingness to use SAS to respond to distributed queries without modification, and ability to work with PopMedNet. They must also provide evidence that they have the required governance agreements and data architecture to fully participate in PCORnet. The capacity and commitment to obtain complete data, including EHR data, other clinical data (e.g., laboratory results, pathology tests, and other diagnostic test reports), and health insurance claims data over time in a large population will be a critical component of the review for new applicants.

Goal 3. An infrastructure for supporting clinical trials embedded within network delivery systems

PCORnet aims to develop an efficient infrastructure that facilitates recruitment, randomization, and follow-up of subjects enrolled in both individual-level and cluster randomized trials on a range of topics. The network must involve informed and invested clinicians, supportive activated patient communities, and supportive health systems leaders.
Results of patient-centered CER studies, including randomized trials, will most likely be implemented and change practice if the studies have been integrated and embedded into care delivery settings. In collaboration with their host clinical delivery systems, CDRNs will need to establish an efficient infrastructure for conducting clinical trials with as little disturbance to clinical care delivery as possible. Supportive involvement of both systems leaders and clinicians is essential to the success and sustainability of this effort. PCORI recognizes that approaches to achieving this goal will vary markedly across systems and CDRNs, depending on the local culture, types of institutions, and reimbursement mechanisms.

The application should describe the CDRN’s:

- Specific governance structure, policies, and processes that facilitate decisions among CDRN stakeholders about participation in multi-network randomized studies while taking into account the CDRN population, established cohorts, and clinical expertise
- Health systems and clinician support to sustain recruitment, treatment, and follow-up activities, through leveraging of the CDRN EHR, patient portals, and other informatics resources, as well as existing research expertise, research cohorts, and data acquisition instruments
- Infrastructure plans to minimize research burdens for participating clinicians and systems as well as burdens on participating patients; the application should provide specific examples, if possible, from past or ongoing studies
- Past successes and ongoing efforts of the CDRN to build and use efficient clinical trial infrastructure for multi-center randomized studies. The application should provide specific examples, if possible, from past or ongoing studies that use unique and innovative resources and approaches developed by the CDRN with PCORI funding
- A list of invested clinical champions who could be expected to lead or participate in clinical trials studies
- Current capacity, if any, to acquire, store, archive, annotate, and make biospecimens available for research; including the type of biospecimens collected, facilities for quality control and storage, IT and informatics systems for inventory control and sharing, policies and procedures for informed consent, and protection of patient privacy

If the applicant (current or new) is from an institution that also houses a CTSA, the applicant must explain how the CDRN’s efforts in the areas related to clinical-trials capacity will be coordinated with those of the CTSA. Specific Letters of Intent to collaborate are required.

Note: For new applicants whose institutions are not primarily part of healthcare delivery systems (e.g., an applicant based in a health insurance plan with EHR and other clinical data on a portion of enrollees), PCORI may reduce or waive the requirements associated with Goal 3 in exceptional cases where the benefits for PCORnet of the availability of specific types of data—such as claims data for multiple CDRNs—outweighs the lack of clinical infrastructure in these organizations.

**Goal 4. An oversight framework that fosters public trust in research**

This refers to the development of an efficient IRB and human subjects research oversight framework that fully protects research participants and recognizes the importance, and typically low risk, of most PCOR studies. The oversight framework requires evidence of strong endorsement from patients cared for in the institution(s), and must avoid placing undue burden on trial participants or researchers. It should also support a significant level of coordination and eliminate repetitious oversight activity across collaborating networks.
The vision of a national resource for patient-centered clinical research relies on the support and trust of individual patients, of the clinician and healthcare systems participating in and providing data to the network, and of the public. Therefore, a trustworthy research oversight infrastructure is essential. This infrastructure must use a framework that recognizes the critical roles of protecting participant safety and preserving the confidentiality of their personal information, and it must evaluate the specific risks of exposure to treatments or approaches proposed by each proposed study. The oversight framework must also recognize the importance and clinical need for CER, and clinical research more generally, for reducing clinical uncertainty, improving health care, and improving patient outcomes. It should recognize the advantages of research that is embedded within healthcare delivery settings and that is based on broad, representative patient populations. The streamlining of policies and procedures that support appropriate protections and that allow for the identification, recruitment, and consent of eligible patients in rapid, unobtrusive ways—commensurate with the actual risks posed by the study—are critical. Complex policies and procedures that do not enhance patient well-being or protection should be streamlined or eliminated. Conducting patient-centered CER requires unobtrusive approaches to recruitment and data that can support rapid identification, recruitment and consent of eligible patients, relatively high participation rates, and subsequent data collection through a variety of channels.

By the beginning of Phase II, CDRNs are expected to have dealt with many of these issues in collaboration with local IRBs. Use of central IRBs at the CDRN level or higher (i.e., multi-network level), through reliance agreements and other arrangements at the CDRN or multinetwork level, are expected to play a part in reaching an efficient approach that sustains the trust of all parties.

The application should describe the CDRN's:

- Policies and agreements within and between CDRN institutions to facilitate and streamline IRB reviews, approvals, and monitoring of multi-site PCORnet studies
- Policies established to support the use of centralized IRBs at the multi-CDRN level for some or all PCORnet studies
- How use of a central or streamlined IRB is expected to reduce time for IRB review, including specific IRB innovations that the CDRN has developed and specific examples of how these have or could result in reduced review times
- How mechanisms for electronic consent have been explored, developed, or implemented, including descriptions of specific approaches to electronic consent that have been considered and, if appropriate, evidence of how successful such approaches have been in specific studies
- How the new applicant will comply and comport with the established data security, privacy, and other trust-building policies set by PCORnet
- How collaboration with a local CTSA, if applicable (i.e. where the CDRN institutions are co-located with CTSAs), will ensure that CDRN approaches and efforts are not conflicting or duplicative with those of CTSAs
- How patients and other stakeholders have contributed to the development of the CDRN’s oversight framework

**Goal 5. A collaborative community that attracts a diverse set of researchers, funders, and other networks**

A collaborative research resource that is open and welcoming to a diverse set of potential research partners, both within and outside PCORnet, is an essential component of the definition of a national research infrastructure. Openness to a range of funders—and to possibilities for collaboration and data linkage with other research networks and registries—is also critical, especially to network sustainability.
For PCORnet to function as a national research resource, all CDRNs and PPRNs will be required to agree to the PCORnet governance framework, which will be approved by the PCORnet Steering Committee before the beginning of Phase II, and to continue working together during Phase II to continue the development and refinement of PCORnet policies, practice, and infrastructure. This will require participation by members of every CDRN research team on PCORnet Task Forces. PCORI expects that, during Phase II, many of the task forces will be led by investigators from CDRNs and PPRNs who have the required expertise.

Each CDRN will also be expected to participate in a number of PCORnet research studies, although no CDRN or PPRN will be required to participate in a specific study against the wishes of its local governance body. The end goal is a national network that attracts a diverse set of public and private funders of research, finds ways to work with other networks and registries, and is open to use by researchers not presently affiliated with CDRNs and PPRNs funded under Phase I.

PCORI also expects an openness on the part of each CDRN toward collaboration with the Food and Drug Administration’s (FDA’s) Sentinel Initiative, which covers millions of commercially insured Americans who are cared for in CDRNs and PPRNs, and with the CTSA Initiative, which is building an EHR-driven infrastructure for clinical trials research in academic institutions. Requirements for collaborating with the Sentinel Initiative could include the development of mutually agreeable policies for data sharing between delivery system institutions and health plans, and beyond that, development of a culture of working together toward agreed-upon research and performance-improvement goals. Requirements for collaborating with CTSA will include the avoidance of duplicative or competing policies, practices, and infrastructure. CTSA and CDRN have several areas of common interest. These include the development of computable phenotypes from EHR data, rapid identifications of patients meeting specific phenotypic requirements for recruitment to research studies, enhancing clinical trials infrastructure, through rational streamlining of IRB oversight practices and inter-Institutional contracting.

The application should describe the CDRN’s:

- Ability and willingness to participate in PCORnet-wide infrastructure-building activities by volunteering specific CDRN research team members with appropriate experience and expertise, and their expected time commitment to named activities
- Ability and willingness to share knowledge and practices with other networks, by identifying areas of expertise, approaches, tools, and techniques with which the CDRN has a unique advantage or unusual degree of experience, and by describing policies, mechanisms, and tools to share and disseminate these approaches
- Ability and willingness to work with the PCORnet communications firm, as appropriate
- Ability and willingness to collaborate with CTSA (where the CDRN institutions are co-located with CTSA), including identification of specific CTSA activities that the CDRN plans to collaborate on and description of how such collaborations will result in synergies that produce mutually advantageous results for the CDRN and the collaborating CTSA
- Scalable approaches, tools, and activities that allow interested researchers and other stakeholders to become aware of, engage with, and collaborate with the CDRN on research activities, including descriptions of specific tools (e.g., Web portals and user guides); activities (e.g., workshops and webinars) developed for this purpose; and examples of past, ongoing, or planned collaborations with external researchers
- Willingness and plans to be open to collaborations with researchers outside of the broad PCORnet community; PCORnet is intended to become a resource that those not affiliated with
PCORnet may use in collaboration with institutions participating in PCORnet; tools and activities (e.g., portals) for inquiry by non-PCORnet researchers who are not affiliated with institutions participating in PCORnet are of great interest

- Capability to sustain and broaden the CDRN’s clinical research expertise, particularly as it relates to the disease or condition cohorts launched during Phase I; other notable areas of CDRN expertise and interest, including identification of individual and organizational experience, should also be mentioned with examples of past, ongoing, and planned research activities relevant to PCORnet resources
- Other potentially relevant research partnerships with external national initiatives or projects, including organizational partners, the research topic and goals, and how such experience enhances the CDRN’s capability to contribute to PCORnet
- Explicit plans to collaborate with at least two (named) PPRNs, including how the governance structure and processes will support plans to collaborate; areas of collaboration could include, but are not limited to: research prioritization; development and validation of computable phenotypes; identification of patients for PPRN outreach; identification of clinical champions to collaborate with PPRNs; co-development of the value proposition to patients and clinicians by collaborating CDRN/PPRNs; enhancement of CDRN patient engagement through collaborating PPRNs; sharing of validated surveys and other data-collection instruments (e.g., remote devices) between the CDRN/PPRN; creation of synergies in patient identification, recruitment, and retention in studies across the CDRN/PPRN; and creation of approaches to data integration across the CDRN/PPRN (e.g., combining patient-generated data from the PPRN with EHR data from the CDRN); letters of support or collaboration from the collaborating PPRNs are required; CDRNs are required to work with two PPRNs to ensure that each PPRN is able to find a collaborator; the number of collaborations will not be valued over the quality of the proposed collaboration and its ability to meet PCORnet goals

Goal 6. Research networks that are sustainable

Research networks are expected to begin to attract other funding and be sustainable as CDRNs after this three-year PCORI infrastructure-funding period. Such studies will likely include collaborative projects involving each CDRN’s obesity, common disease, and rare disease cohorts constructed during Phase I, as well as many studies originating with funders or external collaborators.

Applicants are required to present a sustainability plan for their network. It should describe strategies for sustaining itself through the conduct of multinetwork and individual network observational and interventional research. Applicants should include, in year 1, plans to secure funding for research projects that can start in year 2. Describe possible expansion or modification to the network’s governance structures that may be needed to enhance sustainability, as well as any contemplated relationships between the network and its host delivery systems or health plans.

The application should describe the CDRN’s:
- Detailed plan for sustainability, especially plans for how the CDRN intends to maintain sustainability in year 3—when PCORI infrastructure funding falls to 50 percent of the funding level in years 1 and 2—and beyond; this plan should include a proposed budget, from year 1 forward, to show how the network will be sustained
- Approach to sustainability, such as obtaining commitments from health systems for monetary or in-kind cost sharing, cost recovery from external research projects both local and through PCORnet, potential receipt of core support from other public and private funding sources,
increased economies of scale and innovation over time, and other approaches

- Willingness to work with a range of funders, including both public and private entities, including the medical products industry

**Staffing and Organizational Capacity Requirements**

Organizational capacity and the staffing plan for the CDRN are critical to its success. Appropriate staffing and management plans should be given due consideration in the application. Applicants should provide a complete description of the staffing and management plan, organizational capacity, and roles and division of operational responsibilities for the CDRN over the three-year funding period. In particular, the leadership team of the CDRN, its expertise, level of effort, and organizational functioning must be described. This should include at least one senior project manager or project director with a significant track record in managing large multi-site projects of this nature, and he or she should be dedicated at minimum 50 percent effort.

The applicant must propose two co-PIs (one of which is the lead PI named in the application and subsequent award contract). One of these two must have primary experience or expertise in clinical research, epidemiology, health services research, or comparative effectiveness research, and one should have primary experience or expertise in clinical informatics, health system information technology, or large-scale database construction and linkage. Together, the co-PIs must contribute a minimum of 65 percent Full-Time Equivalent (FTE), with the lead PI contributing 40 percent effort. The lead PI must be a full-time employee of the prime applicant. In general, PIs and co-PIs must be physically co-located at one of the network sites. In some cases PCORI will be amenable to considering a different set-up—for example, in cases where one of the co-PIs is a neutral convener not physically located at one of the constituent sites but able to play an important role in bringing disparate institutions together.

PCORI supports diversity in the staffing of the CDRN teams and encourages CDRNs to give strong consideration to qualified women and minorities in their proposed staffing plans.

New CDRN applicants must also provide detailed resource requirements to meet Phase I expectations. PCORI anticipates that much of the work needed to develop and operationalize standardized computable phenotypes as part of the CDM will require text searching and more complex NLP. Staffing allocations for all applicants must include budgeting for an informatician with expertise in text-mining and NLP technologies.

The PopMedNet query tool performs quality checks and uses SAS code to develop queries. In addition, many analysis programs will use SAS code. Therefore, every CDRN is expected to purchase or have in place a license and up-to-date SAS software and to budget for an analyst with SAS expertise. This capacity should be substantial (at least 50 percent FTE) and should be clearly described in this section of the application. Currently funded CDRNs are not required to return all participating members of the original research team nor all participating sites. CDRNs are also not restricted from adding new members or sites, as long as the total budget limits are not exceeded. If new organizations are added, particularly health plans, an appropriate budget to support these new relationships should be provided.

In Phase I, 11 task forces were co-led by a coordinating center task force member and PCORnet investigators. The organizational structure for many of the task forces will be modified in Phase II, shifting leadership responsibility from the coordinating center to appropriate CDRN- or PPRN-based investigators. Some of these task forces will be supported by PCORI staff; others will be supported by
coordinating center staff. The new structure will be more integrated into PCORnet activities, more responsive to network needs, and probably less time-intensive than the Phase I structures. PCORI is requesting networks to propose modest budgeted time for the network’s PI, co-PI, or other senior or mid-career investigator to participate on or to lead one or more PCORnet task forces, or to lead other time-limited or highly focused activities in their areas of expertise. An up-to-date list of task forces may be found at www.pcornet.org. New applicants may name individuals on their research teams who would be well suited to contribute to such PCORnet task forces.

The budget and its justification should clearly specify the following:

- **Time commitment:** together, the co-PIs must contribute a minimum of 65 percent FTE, with the lead PI at 40 percent effort
- **Affiliation requirements:** The lead PI must be a full-time employee of the prime applicant. Co-PIs should be physically co-located at one of the network sites, although other arrangements will be considered if they provide critical advantages to the network or to PCORNet.
- **A detailed, specific, and credible staffing and management plan, including budgeted amounts for research staff with expertise in NLP and SAS data management and analysis**
- **How qualified, experienced, and matched proposed personnel are in relation to their described responsibilities and activities**

**Methodological Considerations**

All PCORI proposals must adhere to relevant PCORI Methodology Standards and, in particular, to the Standards for Data Networks as Research-Facilitating Infrastructures.

To help reviewers quickly identify the adherence to a particular standard, applicants should cite each methodology standard within their proposals as the standard is addressed.

**Protection of Human Subjects**

The awardee institution or organization bears ultimate responsibility for safeguarding the rights and welfare of human subjects in PCORI-supported activities.

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 the Section 5 “Human Subjects Research Policy” from the Supplemental Grant Application Instructions for All Competing Applications and Progress Reports, issued by the U.S. Department of Health and Human Services (DHHS). Note: PCORI requires engagement in the research by patients or other stakeholders as research partners. It is generally understood that, unless co-investigators, members of the research team, or research partners are subjects of the research, human subjects research requirements do not apply to them.

**Budget and Project Duration**

The maximum budget for this PFA is $6.25 million total direct costs. Direct costs shall not exceed $2.5 million for year 1, $2.5 million for year 2, and $1.25 million for year 3. PCORI does not consider exceptions to the stated budget or period of performance limits (three years). If an applicant submits an application that exceeds the total direct cost cap or the three-year period of performance (unless the excess is related to the exception below), the application will be removed for noncompliance.

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5 See http://www.pcori.org/content/pcori-methodology-report
6 See http://grants.nih.gov/grants/funding/424/supplementalinstructions.docx
Applicants are invited to nominate research team members for leadership or participation on PCORnet task forces and to budget for them. Requests for budgets in excess of the stated funds available, for any other reason, will be considered nonresponsive and rejected at the time of initial administrative review.

Overall, the budget and budget justification must describe, in detail, the resources and associated budgetary costs needed to implement the proposed scope of work. The application should describe any ways in which the CDRN plans to leverage existing resources of the healthcare systems affiliated with the CDRN, whether the CDRN will receive any matching funds or in-kind resources for infrastructure maintenance from these healthcare systems or other sources, and how the CDRN plans to create synergies between infrastructure maintenance and ongoing research projects.

Applicants should budget for travel to Washington, DC, for the following:

- **Kick-off Meeting**: Two people for a two-day kick off meeting in September 2015—not to exceed $2,000
- **Steering Committee Meetings**: Four in-person meetings per year thereafter (12 in total); each network must budget for one attendee per steering committee meeting; total costs should not exceed $1,000 per meeting or $12,000 total over three years
- **PI and PD Retreats**: Two PI retreats a year and one project director/project manager meeting per year—not to exceed $1,000 per person, per year
- **Ad Hoc Meetings**: Up to five two-day ad hoc meetings, such as IOM, DSSNI, or clinical trials meetings; funds are not to exceed $1,000 per person, per meeting

Over the course of the three-year budget, PCORI required travel costs (prime and subcontractor combined) should not exceed $28,000 (including $12,000 for steering committee meetings, $2,000 for a kick-off meeting, $6,000 for PI retreats, $3,000 for project director/project manager meetings, and $5,000 for ad hoc meetings). Travel budget requests should be based on competitive estimates and include a detailed breakdown of expenses.

The proposed budget should address the following:

- An efficient budget over three years to develop and maintain the CDRN infrastructure, as well as the collaborative activities required as a PCORnet participant
- Plans to leverage existing resources or to obtain matching funds from other funders
- How the applicants will secure research funding to maintain their CDRN infrastructures
- A clear and adequate travel budget

### III. How to Submit a Proposal

**Letter of Intent**

All applicants are required to submit a Letter of Intent (LOI), which will be reviewed by PCORI program staff for responsiveness to PFA and application guidelines. Invitations to submit a full application will be sent to selected applicants.
Applicants should download the PCORnet Clinical Data Research Network (CDRN)—Phase II PFA LOI template from the PCORI Funding Center. They must complete the document and convert it to a PDF with a limit of five pages. LOIs that exceed the page limit (excluding references and required tables) will not be reviewed. All references must be listed at the end of the LOI. Do not upload additional documents—including letters of endorsement or support, relevant publications, or supplemental graphs—as part of your LOI; 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 application guidelines and required templates.

Applicants will be notified no later than February 3, 2015, as to whether they have been invited to submit full applications. PCORI will accept full applications only from invited organizations.

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. Refer to PCORI’s Policy on the Submission of Research Contract Applications for additional guidance on ensuring an on-time submission.

PCORI Online System

To submit a proposal, you must register with the PCORI Online System 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/PCORI-PFA-CDRN-Phase-2](http://www.pcori.org/PCORI-PFA-CDRN-Phase-2)
- **PCORI Online System**
  - [https://pcori.fluxx.io](https://pcori.fluxx.io)
- **PCORI Funding Awards**
  - [www.pcori.org/pfaawards](http://www.pcori.org/pfaawards)

IV. Merit Review

The PCORI Merit Review is a process in which applicant responses to each of the four areas described above are evaluated. These include:

1. Performance during Phase I (new applicants will be evaluated on the ability to meet the same requirements for Phase I by month 6, including prior experience and achievements using electronic data to conduct population-based research)
2. Proposed plans for the statement of work in Phase II
3. Staffing and organizational plan
4. Budget

Review is a multiphase process that includes: evaluation of LOIs; preliminary online review of full
applications of those invited to apply; PCORI staff discussion; interviews (for selected applicants); a Selection Committee recommendation of applications for funding; and, finally, Board of Governors consideration of award approval (no later than July 2015). External experts, clinicians, patients, and stakeholders will be invited to review applications based on subsets of criteria that specifically match their expertise. External reviewers will provide written reviews of their sections but will not provide scores. This review will inform PCORI staff’s full evaluation that will consist of an online review as well as panel discussions using all review criteria listed in this PFA. The Selection Committee—composed of members of PCORI’s Board of Governors and Methodology Committee members—will consider reviews of the external merit review and evaluations of PCORI staff, weigh programmatic needs, and make final recommendations to PCORI’s Board of Governors for those applications to be awarded. Final approval rests with the Board of Governors.

Letter of Intent Review

LOIs will be evaluated on the following criteria (note that PCORI does not score the LOI):

- Clarity and extent to which applicants’ responses indicate an understanding of the requirements described in the LOI
- For currently funded CDRNs, evidence of progress in meeting Phase I goals and ability to meet Phase II goals; for new applicants, description of ability to meet Phase I goals within six months of award and ability to meet Phase II goals
- Programmatic fit and balance

Only LOIs deemed most responsive to this PFA will be invited to submit a full application. Notification of request to submit full application will occur no later than February 3, 2015. Please consult the application guidelines located in the Funding Center for information on how to submit your LOI via PCORI Online.

Note: An individual may submit only one LOI per PFA as a PI. LOIs with scientific overlap or that appear to be duplicate submissions will be removed during the LOI screening process.

Preliminary Review

PCORI conducts rigorous merit review of the full applications it receives. 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 or submitted past the stated due date and time, or if it does not meet the administrative or formatting criteria (including page limits) outlined in the application guidelines, in the PCORI templates, and in the PCORI Online system. An application may be scientifically withdrawn if it is judged to be nonresponsive to the guidelines provided in this PFA, or if it does not meet PCORI programmatic requirements. External experts, clinicians, patients, and stakeholders will review sections of administratively and scientifically responsive applications based on their areas of expertise. PCORI staff will perform a review that will consist of an online review as well as panel discussions. The following are the merit review criteria to be used for this funding announcement for all submitted applications:

Criterion 1: Has the current CDRN applicant described successful achievement of each of the three major Phase I goals described in this solicitation for currently funded CDRNs? Has the new applicant described expected status for the Phase I goals at six months post-contract award?
Criterion 2: Has the applicant provided evidence of its ability and credible work plans to meet the various aspects of Goal 1 (highly engaged patients, researchers, clinicians, and health systems participate in network governance and research-topic generation)?

Criterion 3: Has the applicant demonstrated its ability and provided credible work plans to meet the various aspects of Goal 2 (analysis-ready standardized data, use of the PCORnet Common Data Model, and preserving strong privacy and data-security protections)?

Criterion 4: Has the applicant provided convincing evidence of its ability and credible work plans to meet the various aspects of Goal 3 (an infrastructure for supporting clinical trials embedded within network delivery systems)?

Criterion 5: How well has the applicant demonstrated its ability and provided credible work plans to meet Goal 4 (an oversight framework that fosters public trust in research)?

Criterion 6: Has the applicant provided evidence of its ability and credible work plans to meet the various aspects of Goal 5 (a collaborative community that attracts a diverse set of researchers, funders, and other networks)?

Criterion 7: Has the applicant provided evidence of its ability and credible work plans to meet the various aspects of Goal 6 (research networks that are innovative and sustainable)?

Criterion 8: Has the applicant provided evidence of a solid and diverse staffing and management plan?

Criterion 9: Has the applicant provided evidence of a budget appropriate for the activities described in its work plans?

Detailed explanations of the review criteria are available in the Application Review Guidance as a resource for applicants and reviewers.

Reviewer Discussion

After preliminary review is completed, PCORI program staff will consider input from external reviewers and then meet to discuss applications.

Applicant Interviews

PCORI may invite select applicants to interview with the internal PCORI review team prior to recommending a slate to the Selection Committee.

Selection Committee

The CER Methods and Infrastructure Program Director will propose a slate to be recommended to the Selection Committee that includes members of PCORI’s Board of Governors. The committee will discuss this recommendation and work with staff to make a funding recommendation to the Board of Governors based on merit review scores, programmatic balance and fit, and PCORI’s strategic priorities.

Funding Recommendations

Factoring in the total available funds allotted for this announcement, high-scoring applications that fit the programmatic needs and satisfactorily address reviewers’ critiques will be considered for funding by
the PCORI Board of Governors. It is expected that applicants will receive a funding status notification no later than July 2015.

Terms and Conditions for Phase II Funding

Applicants approved by the Board of Governors will be expected to agree to PCORI’s Phase II funding terms and conditions, and they will be expected to agree to the terms and conditions for participation as a network in PCORnet as conditions of final receipt of funding.