

# Appendix I: Workforce Development

## Focus Area Name

Workforce Development

## Focus Area Contact Information

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**Approximate Average Annual Award:** \$2,000,000

## Funding Opportunity Description

### 1. Background

The public health system is dependent on competent, prepared, and sustainable public health laboratory (PHL) and clinical laboratory workforces. However, these workforces are aging rapidly and face numerous challenges in the recruitment and retention of qualified personnel, creating skill and capacity gaps that extend from the laboratory bench to management and leadership positions. These gaps have affected the ability of laboratories to provide the critical public health services expected of them and threaten the future of the PHL system in the United States. Current laboratory professionals need effective training to address established and emerging needs. New technologies continue to replace or supplement existing testing procedures, emphasizing the need for laboratory professionals to stay current with the newest standards and technologies. In addition, emerging and re-emerging health threats require PHLs to strengthen their capacity to respond effectively.

To maintain the critical services that PHLs provide, multi-tiered workforce development strategies are needed to strengthen the competence and engagement of the PHL workforce. Any training and workforce development resources created must be data-driven in order to be directly and immediately relevant to the priorities and needs of the PHL workforce. Only then will successful transfer of knowledge occur in real-life settings to create necessary change and help strengthen the laboratory workforce.

### Healthy People 2020

This focus area supports the following Healthy People 2020 objectives:

**Public Health Infrastructure, Objective 11:** Increase the proportion of Tribal and State public health agencies that provide or assure comprehensive laboratory services to support essential public health services.

**Public Health Infrastructure, Objective 12:** (Developmental) Increase the proportion of public health laboratory systems (including State, Tribal, and local) which perform at a high level of quality in support of the 10 Essential Public Health Services.

### Other National Public Health Priorities and Strategies

- HHS Strategic Plan, 2018—2022: <https://www.hhs.gov/about/strategic-plan/index.html>



## 2. CDC Project Description

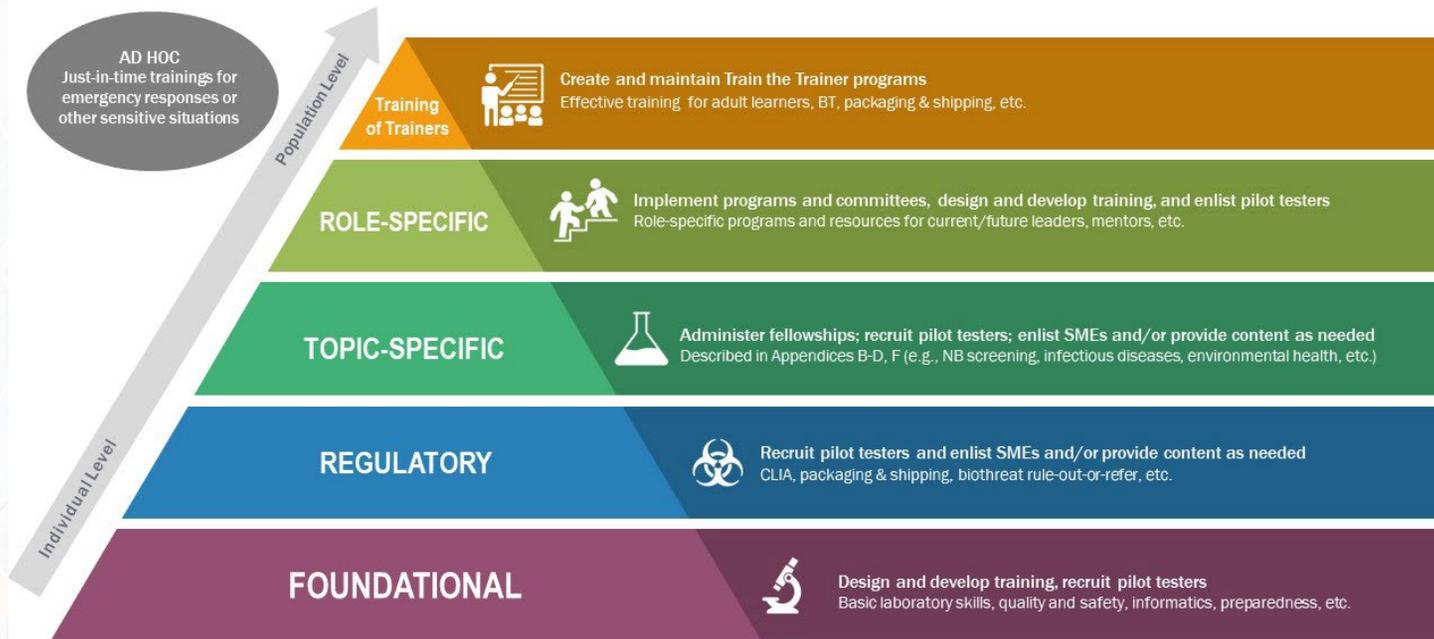
### a. Approach

#### I. Purpose

The Workforce Development (WD) focus area is intended to strengthen the competence and engagement of the public health and clinical laboratory workforce. The multi-tiered WD approach (Figure A) broadly depicts the recipient's roles and responsibilities at each tier and provides a common approach to all WD programs, products, resources, and events in this cooperative agreement. The recipient will implement a data-driven WD portfolio (Figure B), with a special emphasis on foundational needs such as basic laboratory skills, informatics, quality and safety, regulations, and leadership.

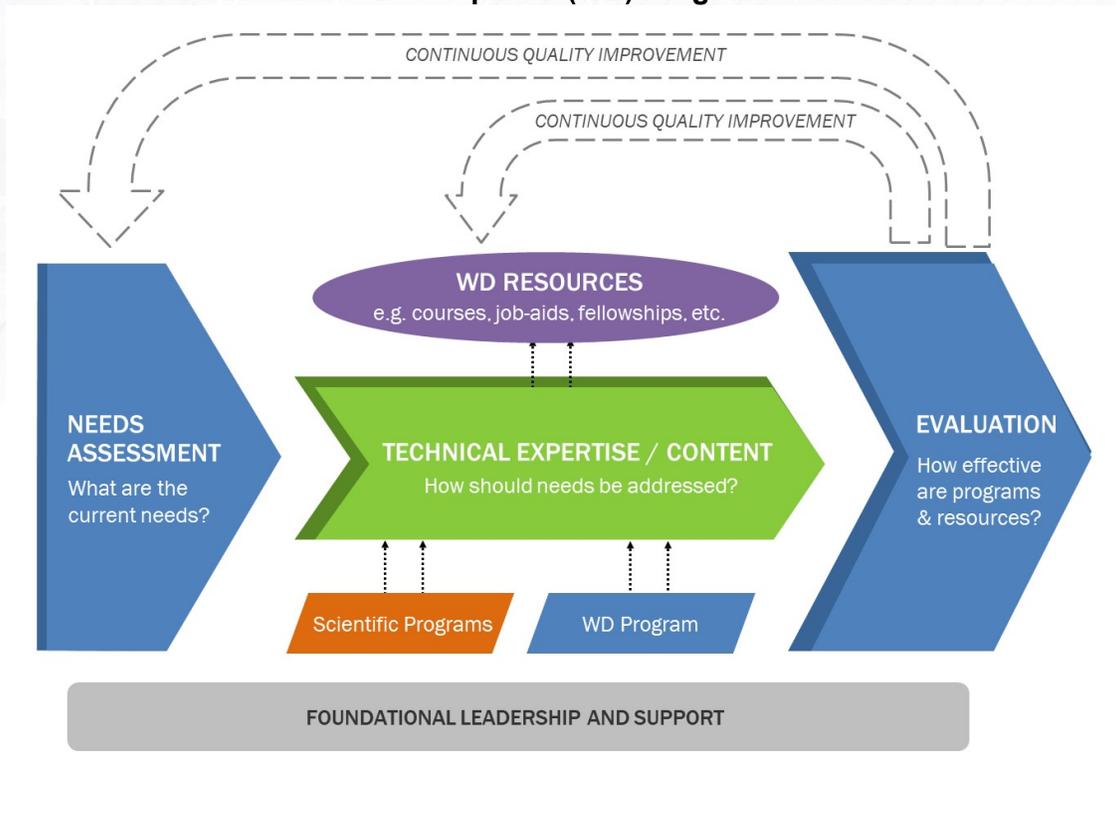
## Figure A: Workforce Development: A Multi-Tiered Approach for Recipient Strategies and Activities

(Collaborate with CDC on identifying all programs, products, resources, and events)



\*All workforce development resources are informed by competency guidelines

**Figure B: Data-driven Decision Process  
for Workforce Development (WD) Programs & Activities**



## **II. Outcomes**

Activities in this focus area should achieve or contribute to the following proximal outcomes (refer to section ii, “Outcomes” under Part II, A-2-a or the overall logic model in this NOFO for a full list of outcomes of this cooperative agreement):

**PO-4. Improved awareness of new tools and resources for public health laboratories and other stakeholders**

**PO-5. Improved awareness and understanding of public health laboratory workforce development needs and opportunities**

**PO-6. Improved access to training opportunities among laboratory professionals**

**PO-7. Enhanced technical and non-technical knowledge, skills, and abilities among public health laboratory professionals in diverse settings**

Activities in this focus area should achieve or contribute to the following intermediate outcomes (refer to section ii, “Outcomes,” under Part II, A-2-a or the overall logic model in this NOFO for a full list of outcomes of this cooperative agreement):

**IO-1. Established communities of practice and other collaborative relationships among and between laboratories and other stakeholders**

**IO-3. Improved competence and engagement of public health laboratory workforce**

## **III. Funding Strategy**

CDC funding strategy for this focus area is described in section iv, “Funding Strategy”, under Part II, A-2 (CDC Project Description; a. Approach) in this NOFO. Funds should be used for program activities, which could include: personnel, travel, supplies, equipment, contractual, and consultant support for proposed activities.

Funded recipient is expected to adhere to the requirements of the cooperative agreement. This may include:

- Identifying a designated person with overall responsibility for all activities as well as personnel responsible for each activity;
- Participating in implementation, support, and monitoring efforts at least quarterly.

Budgets should be submitted with sufficient level of detail so that the technical monitor, project officer, or the grants management officer can determine the necessity, reasonableness, and allocability of costs relative to the proposed grant activities, and their allowability pursuant to the applicable federal cost principles and requirements.

#### IV. Strategies and Activities

The recipient enhances laboratory workforce development by supporting its members in the recruitment, development, and retention of the next generation of laboratory professionals; providing laboratory training aligned with laboratory competencies; fostering the development of future laboratory system leaders; and improving access to a variety of learning resources. Activities in this focus area are expected to reinforce and further CDC efforts to enhance knowledge, skills, and abilities among laboratory professionals in diverse settings. While other focus areas in this cooperative agreement may include training and workforce development activities, the WD focus area intends for the recipient to implement a variety of training and workforce development programs, products, resources, and events with a special emphasis on foundational needs such as basic laboratory skills, informatics, quality and safety, and regulations. All workforce development resources across the cooperative agreement are expected to be informed by competency guidelines and be data-driven. All training-specific resources are expected to follow the CDC Quality Training Standards.

The recipient is not permitted to charge fees for any training and workforce development programs, products, resources, or events developed as part of this cooperative agreement.

Activities under this focus area should be guided by the Training and Capacity Building strategies (S3):

##### **S3.1. Identify training and workforce development needs among laboratory professionals in diverse settings**

- Identify training and workforce development needs by conducting regular needs assessments on a schedule determined in collaboration with CDC.
- Generate and communicate reports on results of needs assessments and recommendations to address identified training and workforce development needs.
- Develop training plans and/or modify existing ones to reflect current needs, with emphasis on basic laboratory skills, informatics, quality and safety, and regulatory topic areas.
  - Training plans should include recommendations for training products to be developed, updated, or retired and which organization should have primary responsibility (i.e., CDC, recipient, or CDC and recipient collaboratively).
  - Collaborate with CDC and the recipient's other scientific programs to determine yearly training calendars and promotion/distribution plans as needed.
- Coordinate across the recipient's individual scientific programs and evaluation program to use needs assessment results to inform the development and delivery of training and workforce development resources for PHL staff and leadership.

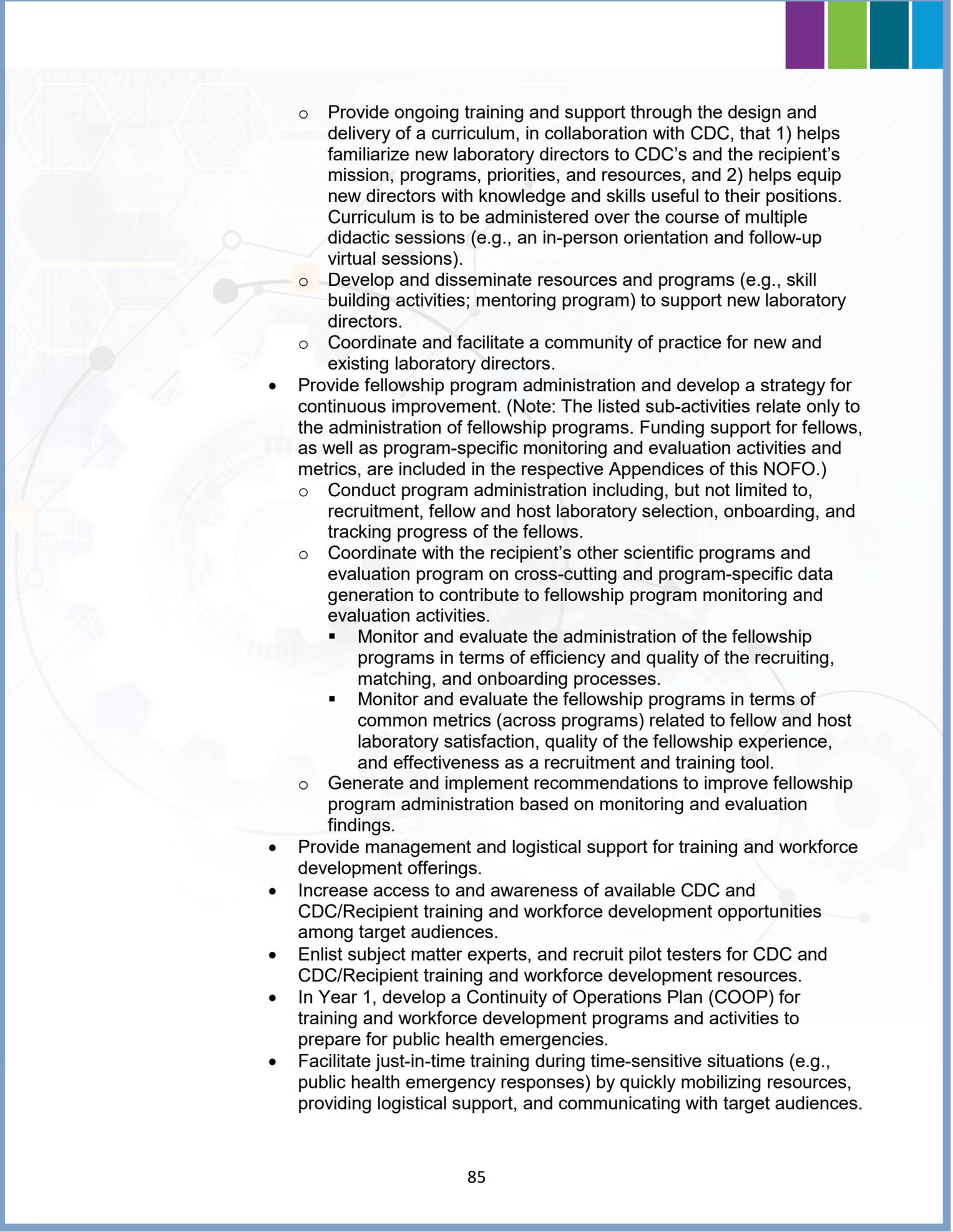


### **S3.2. Implement leadership development programs**

- Support the next generation of laboratory leaders by conducting programs that build leadership and management competencies, facilitate networking opportunities, and provide development opportunities for emerging and current leaders.
- Develop and distribute tools and resources to support leadership development in the PHL community.

### **S3.3. Facilitate the development and delivery of training and workforce development resources**

- Coordinate with the recipient's evaluation program and other scientific programs to
  - Apply best practices to all training and workforce development programs, products, resources, and events (e.g., CDC Quality Training Standards and Laboratory Competencies), and findings from needs assessments.
  - Monitor and evaluate the effectiveness of training and workforce development programs, products, resources, and events regularly and consistently.
- Provide instructional design expertise for the design, development, and delivery of training and workforce development programs, products, resources, and events.
- Collaborate with CDC to review training and workforce development programs, products, resources, and events.
- Provide technical assistance to laboratory training partners to develop and disseminate their own PHL education and training activities.
- Provide opportunities for laboratory training partners to share knowledge, build skills, and enhance collaboration.
- Foster communities of practice to advance the development of strategies, programs, and activities that address identified training and workforce development needs and challenges.
- Collaborate with CDC to hold joint biennial conferences for laboratory training partners to
  - Share CDC and recipient guidance and best practices for training and workforce development.
  - Deliver training on critical topics as identified by needs assessments.
  - Improve awareness and access to CDC and recipient programs, products, resources, and events.
  - Foster an environment for networking and sharing of lessons learned.
- Develop and implement a communication plan for established communities of practice and to reach target audiences.
- Create and implement innovative solutions for the recruitment and retention of PHL scientists to increase the pipeline of PHL leaders, managers, and scientists.
- Provide programs and resources that support new laboratory directors:

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- Provide ongoing training and support through the design and delivery of a curriculum, in collaboration with CDC, that 1) helps familiarize new laboratory directors to CDC's and the recipient's mission, programs, priorities, and resources, and 2) helps equip new directors with knowledge and skills useful to their positions. Curriculum is to be administered over the course of multiple didactic sessions (e.g., an in-person orientation and follow-up virtual sessions).
  - Develop and disseminate resources and programs (e.g., skill building activities; mentoring program) to support new laboratory directors.
  - Coordinate and facilitate a community of practice for new and existing laboratory directors.
  - Provide fellowship program administration and develop a strategy for continuous improvement. (Note: The listed sub-activities relate only to the administration of fellowship programs. Funding support for fellows, as well as program-specific monitoring and evaluation activities and metrics, are included in the respective Appendices of this NOFO.)
    - Conduct program administration including, but not limited to, recruitment, fellow and host laboratory selection, onboarding, and tracking progress of the fellows.
    - Coordinate with the recipient's other scientific programs and evaluation program on cross-cutting and program-specific data generation to contribute to fellowship program monitoring and evaluation activities.
      - Monitor and evaluate the administration of the fellowship programs in terms of efficiency and quality of the recruiting, matching, and onboarding processes.
      - Monitor and evaluate the fellowship programs in terms of common metrics (across programs) related to fellow and host laboratory satisfaction, quality of the fellowship experience, and effectiveness as a recruitment and training tool.
    - Generate and implement recommendations to improve fellowship program administration based on monitoring and evaluation findings.
  - Provide management and logistical support for training and workforce development offerings.
  - Increase access to and awareness of available CDC and CDC/Recipient training and workforce development opportunities among target audiences.
  - Enlist subject matter experts, and recruit pilot testers for CDC and CDC/Recipient training and workforce development resources.
  - In Year 1, develop a Continuity of Operations Plan (COOP) for training and workforce development programs and activities to prepare for public health emergencies.
  - Facilitate just-in-time training during time-sensitive situations (e.g., public health emergency responses) by quickly mobilizing resources, providing logistical support, and communicating with target audiences.



- Develop promotion and distribution plans for training and workforce development programs, products, resources, and events tailored to target audiences with the goal of increasing reach.
  - Training and workforce development products and resources developed in support of this cooperative agreement should be made publicly available as determined by CDC and the recipient.
- Monitor the uptake and implementation of laboratory competency guidelines among PHL audiences and identify ways to support further adoption.
- Facilitate the application of laboratory competency guidelines through practical workshops and developing guidance and other resources.
- Engage subject matter experts (SMEs) to consider and contribute to revision of laboratory competency guidelines.
- As determined by training plans based on identified needs and priorities set each year in collaboration with CDC:
  - Deliver packaging and shipping seminars and other training products, resources, and events, such as webinars or hands-on workshops.
  - Provide live and on-demand, technical and non-technical training events (e.g., basic laboratory skills, informatics, quality and safety, and regulatory topic areas).
- Develop curriculum frameworks as needed in collaboration with CDC (e.g., informatics curriculum).
- Award continuing education, including, but not limited to Professional Acknowledgement for Continuing Education (PACE) for training courses and events.
- Post on the websites of the recipient, CDC, or both, all electronic versions of products developed in support of this cooperative agreement and ensure Section-508 compliance. The following Section-508 website provides comprehensive information: [www.section508.gov](http://www.section508.gov).

**b. Evaluation and Performance Measurement**

**I. CDC Evaluation and Performance Measurement Strategy**

The CDC Evaluation and Performance Measurement Strategy for this focus area uses the guidance from the overall CDC Evaluation and Performance Measurement Strategy described in this NOFO (Part II, A-2-b-i. CDC Evaluation and Performance Measurement Strategy), to address the following specific performance measures (including process measures and outcome measures) for this focus area.

Process measures for the strategies and activities in this focus area may include:

Strategy and Activity	Process Measure
<b>S3.1. Identify training and workforce development needs among laboratory professionals in diverse settings</b>	<ul style="list-style-type: none"> <li>• Number of participants in needs assessments.</li> <li>• Response rate for needs assessments (Percent of invitees who responded) – which</li> </ul>



	<p>is an indicator of a well-defined target audience and quality of survey design.</p> <ul style="list-style-type: none"> <li>• Number of prioritized needs based on results from needs assessments.</li> <li>• Number of recommendations to address identified needs.</li> <li>• Proportion of needs assessment participants who represent key laboratory workforce subgroups (e.g., retiring within 5 years, Millennials, laboratory directors/leadership).</li> </ul>
<p><b>S3.2. Implement leadership development programs</b></p>	<ul style="list-style-type: none"> <li>• Number of tools and resources developed to support leadership development in the PHL community.</li> <li>• Number of laboratory professionals who access leadership development programs and resources.</li> <li>• Proportion of participants who complete leadership programs.</li> </ul>
<p><b>S3.3. Facilitate the development and delivery of training and workforce development resources</b></p>	<ul style="list-style-type: none"> <li>• Number of relevant committees (e.g., workforce development committee).</li> <li>• Proportion of action items completed by relevant committees.</li> <li>• Number of training and workforce development resources facilitated and/or delivered.</li> <li>• Number of trainings for which pilot testers were recruited.</li> <li>• Number of training and workforce development resources for which SMEs were enlisted or content was provided.</li> </ul>

Outcome measures for this focus area may include:

<b>Outcome</b>	<b>Outcome Measure</b>
<p><b>PO-4. Improved awareness of new tools and resources for public health laboratories and other stakeholders</b></p>	<ul style="list-style-type: none"> <li>• Number of laboratory professionals who access new tools and resources.</li> <li>• Number of annual visits to the recipient's training webpage.</li> <li>• Number of subscribers to email distribution lists.</li> </ul>
<p><b>PO-5. Improved awareness and understanding of public health laboratory workforce development needs and opportunities</b></p>	<ul style="list-style-type: none"> <li>• Proportion of learners who self-report that training and workforce development resources are relevant.</li> </ul>



<p><b>PO-6. Improved access to training opportunities among laboratory professionals</b></p>	<ul style="list-style-type: none"> <li>• Number of participants who access training and workforce development opportunities.</li> </ul>
<p><b>PO-7. Enhanced technical and non-technical knowledge, skills, and abilities among public health laboratory professionals in diverse settings</b></p>	<ul style="list-style-type: none"> <li>• Proportion of learners who self-report knowledge gain.</li> <li>• Proportion of learners with a knowledge gain of <math>\geq 10\%</math> (post-test vs. pre-test).</li> <li>• Proportion of learners who score <math>\geq 80\%</math> on post-tests.</li> <li>• Proportion of learners who self-report high level of satisfaction with training and workforce development resources and programs.</li> </ul>
<p><b>IO-1. Established communities of practice and other collaborative relationships among and between laboratories and other stakeholders</b></p>	<ul style="list-style-type: none"> <li>• Number of relevant communities of practice (e.g., training partners group).</li> <li>• Number of members of relevant communities of practice.</li> </ul>
<p><b>IO-3. Improved competence and engagement of public health laboratory workforce</b></p>	<ul style="list-style-type: none"> <li>• Proportion of laboratory professionals who self-report that training and workforce development resources are engaging.</li> <li>• Proportion of learners who self-report that they intend to apply knowledge gained through training and workforce development resources.</li> <li>• Proportion of learners who self-report that they applied knowledge gained through training and workforce development resources.</li> </ul>

**II. Applicant Evaluation and Performance Measurement Plan**

The recipient will be required to submit a detailed Evaluation and Performance Measurement plan within the first 6 months of award and work with CDC staff to ensure that the evaluation plan is feasible and consistent with proposed focus area activities, the intent of this NOFO, and CDC’s evaluation approach.

**c. Collaborations**

**With CDC funded programs**

General guidance for collaborations with CDC funded programs is described in section a, “With other CDC programs and CDC-funded organizations,” under Part II, A-2-iii-1 (Collaborations) in this NOFO. The recipient is expected to collaborate with other CDC-funded programs to maximize the use of resources and improve the sustainability of the listed activities.



While this focus area will concentrate on the stated strategies and activities with emphasis on foundational needs such as basic laboratory skills, informatics, quality and safety, and regulations, the recipient is also expected to maintain coordination and awareness of training and workforce development priorities and strategies in the other focus areas of this cooperative agreement. These other focus areas include Environmental Health; Newborn Screening and Genetics; Infectious Diseases; Foodborne, Waterborne, and Environmentally Transmitted Diseases; and Preparedness and Response.

CDC will collaborate across its many internal programs involved in this cooperative agreement to maintain general awareness of training and workforce development priorities, needs, and activities.

Competency-based training programs integrate demonstrated ability to identify and prioritize problems, choose the appropriate skills, apply them, and produce useful output in the context of a service providing organization. Competency-based training helps PHL professionals achieve successful performance in a structured approach involving on the job supervision, mentorship, and evaluation. While it may not be feasible for all workforce development programs, products, resources, and events created in support of this cooperative agreement to be competency-based, all workforce development programs, products, and activities must be based on decisions resulting from needs assessment and evaluation data.

Regular needs assessments, current technical expertise/content, and consistent evaluation are necessary in order to deliver relevant and high-quality workforce development programs, products, resources, and events. Figure B depicts the data-driven decision process expected of the recipient to support consistent quality across all workforce development programs and activities while accommodating specific scientific program needs.

#### **With organizations external to CDC**

General guidance for collaborations with organizations external to CDC is described in section b, “With organizations not funded by CDC,” under Part II, A-2-iii-1 (Collaborations) in this NOFO. The recipient is expected to provide leadership for enhancing existing and developing new strategic partnerships that best suit the needs of the nation’s PHL system, at state, territorial, tribal, and local levels. Recipient is encouraged to explore opportunities for new collaborations with additional partners to advance public health priorities.

#### **d. Target populations**

The primary target populations are PHLs and PHL professionals that support state, local, tribal, and territorial public health programs. Secondary target populations include stakeholders of the PHL system, such as clinical laboratories, clinical laboratory professionals, policy makers, healthcare organizations, and laboratory professional organizations, as well as the general public.

#### **e. Organizational Capacity**

Refer to section c, “Organizational Capacity of Recipients to Implement the Approach” under Part II, A-2 (CDC Project Description) in this NOFO.



The recipient should have expertise in instructional design, conducting needs assessments. Instructional design expertise includes developing partnerships and assessing, designing, developing, implementing, and evaluating training and workforce development programs, products, resources, and events. Expertise in conducting needs assessments includes designing needs assessments for training and workforce development programs and activities, collecting data, analyzing and communicating results, and making recommendations.

**f. Work Plan**

The recipient is required to provide a work plan for this focus area that provides both a high-level overview of the entire five-year period of performance and a detailed description of the first year of the award. The work plan should follow the general guidance provided in section d, “Work Plan” under Part II, A-2 (CDC Project Description) in this NOFO, and address the specific strategies, activities, outcomes, and performance measures of this focus area. After the award is made, the proposed work plan (including the evaluation and performance measurement plan) may be adjusted in collaboration with the CDC Technical Monitor(s) to ensure integration of the strategies and activities and achievement of the period of performance outcomes.

**g. CDC Program Support to Recipient**

CDC works to improve the knowledge, competency, reliability, and sustainability of the clinical and PHL workforce nationwide. Specifically, CDC supports the clinical and PHL workforce through the creation of strategies and initiatives that address needs in the workforce, including the development of training products and resources, and application of competency guidelines for laboratory professionals. CDC’s laboratory training and workforce development resources help laboratory professionals combat emerging threats, learn evolving practices, and stay current with the newest standards and technologies.

CDC’s Division of Laboratory Systems, in collaboration with subject matter experts across the agency, will provide technical monitoring and program support for this focus area as described in section f, “CDC Program Support to Recipients,” under Part II, A-2 (CDC Project Description) in this NOFO. In addition, CDC may participate in all relevant stakeholder and other meetings, either in-person or by teleconference.