

Centers for Disease Control and Prevention (CDC)
Center for Surveillance, Epidemiology, and Laboratory Services (CSELS)
CDC OE22-2201: Strengthening the Population & Public Health Workforce Pipeline
Catalog of Federal Domestic Assistance (CFDA): 93.967

Workforce Improvement Project (WIP) Funding Opportunity

ASPPH is one of the three recipients of CDC funding through the OE22-2201 Strengthening the Population & Public Health Workforce Pipeline: *Enhancing the Capacity of the Nation's Public Health Workforce to Advance Health Equity* cooperative agreement. Through this cooperative agreement, ASPPH members have the opportunity to apply for CDC-funded Workforce Improvement Projects (WIP). Members who apply must be a US institution and full member of ASPPH.

Application Deadline:

CDC has extended the deadline for ASPPH's submission. WIP applications must be submitted to ASPPH via email at grants@aspph.org no later than **5:00 pm (ET) on April 14, 2023**.

Project and Budget Period:

9/1/2023 – 8/31/2024

WIP Funding

The following list identifies each WIP opportunity and expected award amount. Per CDC, award amounts will be based on availability of funding.

The description, special eligibility requirements, and review criteria of each WIP follows on pages 4-24. Applicants who meet the eligibility criteria for a WIP may apply for through ASPPH.

WIP Proposal Title	Funded through CDC CIO	Award Amount
1. Part II: Public Health Emergency Preparedness and Response Applied Research and Practice Training Program Funding Withdrawn by CDC due to changes to congressional appropriation intent.	DDPHSIS/CPR/OSPHP	\$386,100
2. STEM Teachers as Public Health Ambassadors	CSELS Division of Scientific Education and Professional Development	\$1,286,100
3. Technical Advising for Accelerating Federal Public Health Data Science Projects	CSELS Division of Scientific Education and Professional Development	\$126,000

4. Leveraging Academic Expertise to Deliver the Content of the Big Data Analytics & Applications in Public Health (BDAAPH)	CSELS Division of Scientific Education and Professional Development	\$126,000
5. CHES and MCHES Certification Support for Health Education Fellows	CSELS Division of Scientific Education and Professional Development	\$17,942
6. Instructor-Led Training for Health Education Competency Development	CSELS Division of Scientific Education and Professional Development	\$37,175

All federal grant regulations including [2 CFR Part 200](#) Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards and [45 CFR Part 75](#), Uniform Administrative Requirements, Cost Principles, and Audit Requirements for HHS Awards apply as well as the [CDC General Terms and Conditions for No-Research Awards](#).

Please contact grants@aspvh.org with questions.

To Apply

- Submit an application package to ASPPH via email (grants@aspvh.org) that includes the following items. To apply to more than one WIP, please submit separate application packages.
 1. Application Cover Sheet with the following information:
 - Institution name and address
 - Institution EIN and UEI number
 - Project Director name/address/email/phone #
 2. Project Narrative - Format requirements are:
 - Maximum of 20 pages, each page numbered
 - One-inch margins
 - 1.5 line spacing
 3. Budget
 - SF-424A (Available from [grants.gov](https://www.grants.gov) or email grants@aspvh.org)
 - Line-item budget and budget justification – No page limit and is not included in the Project Narrative page limit
 - The budget justification must be prepared in the general form, format, and to the level of detail as described in the [CDC Budget Preparation Guidelines](#).
 4. Indirect Cost Rate Agreement if requesting IDC
- All files submitted to ASPPH should be in PDF file format.
- CDC has extended the deadline for ASPPH's submission. WIP applications must be submitted to ASPPH via email at grants@aspvh.org no later than **5:00 pm (ET) on April 14, 2023**.
- Please email grants@aspvh.org with your intent to submit by **5:00 pm (ET) March 25, 2023**. Send

a brief email identifying the name of the institution, the contact person's name and email, and the name of the Workforce Improvement Project(s)(WIP) for which you intend to submit an application. This email is non-binding but helps CDC plan for the number of reviewers required based on expected applications.

- Questions regarding the WIPs can be sent to grants@aspph.org. Technical questions will be submitted to CDC for response. ASPPH will share CDC responses to all submitted questions with those contacts who have submitted an email of intent.

Workforce Improvement Project Descriptions

~~1. **Title:** Part II: Public Health Emergency Preparedness and Response Applied Research and Practice Training Program~~

Funding Withdrawn by CDC due to changes to congressional appropriation intent.

2. **Title:** STEM Teachers as Public Health Ambassadors

Description: Teachers are instrumental to health literacy and can play a critical role starting students on a pathway into the future public health workforce. They can open doors for students by getting them interested in science, making math fun, and inspiring passion for the communities they live in. Overwhelmed and underappreciated during the COVID-19 pandemic, teachers were unsung public health heroes determined to calm fear and squelch misunderstanding by teaching epidemiology while they learned it. Post-pandemic, public health remains prominent in the lives of youth—from opioid misuse to vaping to racism and obesity. Yet, our teachers largely remain unequipped to incorporate fundamental public health concepts in the classroom and beyond.

In a time when health literacy, a critical determinant of health, is failing so many, teachers can be one of our greatest assets in public health. The WHO is calling for health literacy interventions that involve a range of community organizations, including schools. Specifically, that such programs should be part of school curricula and be adapted to the needs of communities through the involvement of students and teachers. To do this well, teachers need resources, and a practical training on public health to learn how to teach it in a meaningful way.

By investing in our teachers, we are building an alliance among those shaping future generations. Teachers spark connections between a lesson and a future career. They help students learn essential cross-cutting skills, like critical thinking and problem-solving, and encourage students to pursue their interests. Effective teachers guide students towards careers. As such, according to education literature, students who receive effective science, technology, engineering, and math (STEM) education as early as middle school are more likely to pursue STEM careers, including public health.

It is our vision to create a collective of teachers who are ambassadors for public health in their classrooms and communities. Our goal is to equip them with resources such as quality public health STEM curricula and a practical training on how to effectively integrate basic public health concepts in the classroom across the United States.

Problem Statement: Training teachers to use STEM curricula focused on basic public health concepts in middle and high school can support lifelong health literacy in students, helping them build essential skills for the future while promoting an interest among students to pursue public health careers.

CDC's Science Ambassador Fellowship (SAF) is inspiring the next generation of Disease Detectives by training educators to get middle and high school students excited about epidemiology and public health and engage in local public health issues. Since 2003, SAF has provided training and support to 500+ STEM teachers reaching over 1M students across 40 U.S. states. Each year the number of teachers applying for the fellowship is five times greater than the number of available spots. SAF provides teachers with training and exercises based on real data on pressing public health issues. Due

to the COVID-19 pandemic, the demand and need for public health training among teachers is unprecedented. SAF is critical to teachers building science literacy among students, introducing public health as a career, and ultimately building a more robust public health workforce.

During the COVID-19 pandemic, CDC and the CDC Foundation developed CDC NERD Academy — an educational resource to teach STEM students about public health, epidemiology, and related careers. CDC NERD Academy includes an 8-module, standards-based STEM curriculum that uses engaging

videos and STEM classroom activities centered around a fictional novel emerging respiratory disease (or NERD for short). Each module includes a STEM lesson plan, an educational video for students, an activity demonstration video for teachers, and a career spotlight video and poster. Designed as a collaboration between STEM teachers and CDC public health experts, the CDC NERD Academy curriculum modules are age-appropriate and use relatable scenarios. The curriculum can enrich classroom engagement and help empower students to make informed public health decisions for themselves and their communities and to see themselves in public health careers.

Through this three-year project, it is our vision to create a collective of at least 3,000 STEM teachers who have practical training in public health and who are ambassadors for public health in their classrooms and communities. Our goal is to equip teachers with quality public health STEM curricula like CDC NERD Academy and practical training on how to effectively integrate basic public health concepts in the classroom across the United States. Quality STEM curricula includes a Spanish version of CDC NERD Academy and a new STEM curriculum focused on the science behind non-infectious and chronic disease. Practical training in public health includes a series of two-day trainings offered locally for teachers in partnership with local groups, such as teacher associations, university systems, or health departments.

Key outcomes: The goal is to provide quality educational resources for and train a larger and more diverse group of STEM teachers across the United States. We want teachers, especially those in underserved areas, to be ambassadors of public health education educating youth on the science behind public health issues to improve health literacy and to ignite student interest in public health careers to create a more diverse, skilled future workforce.

Main outcomes for this project include:

- Increased availability of quality public health STEM curricula and resources for grade 6–12 STEM teachers and other educators. Quality is defined by:
 - Use of STEM pedagogy and best practices
 - Alignment with national standards
 - Use of diverse scenarios and characters
 - Accessibility (e.g., offered in other languages, 508-compliant)
- Increased access to training on how to teach public health among a diverse group of grade 6–12 STEM teachers and other educators. A diverse group is defined by participants:
 - from communities underserved, disadvantaged, and underrepresented populations in the STEM workforce, including Black or African American, Hispanic or Latino, and American Indian or Alaska Native persons; women; and persons with disabilities
 - from Title 1 schools and school districts
 - from private, public, and independent schools
 - from both rural and urban school districts or areas
 - from different U.S. states
- Increased knowledge, skills, confidence, and capacity among grade 6–12 STEM teachers and other educators to effectively teach **basic** public health content
- Increased awareness among grade 6–12 STEM teachers and other educators of public health as a STEM field
- Improved integration of public health STEM curricula into secondary school STEM curricula and extracurricular experiences
- Increased exposure to public health among students

Contribution to the public health workforce: Training teachers to use STEM curricula focused on basic public health concepts in the classroom and afterschool programs can spark student interest in public health and start them on a pathway into a public health career. Through broad availability of practical teacher training and special efforts focused on serving teachers who teach students from groups underrepresented in STEM, this project can help build a future skilled diverse workforce that represents the populations they serve.

Awardee Strategies and Approaches:

Training (Year 1–3)

1. Train at least 3,000 middle and high school STEM teachers or other educators in person on how to teach public health STEM curricula in the classroom. Awardees would be expected to provide two-day in-person trainings at a minimum of 15 sites per year for three years. Trainings should be coordinated with STEM or public health partners to host trainings, such as teacher organizations or school districts who offer professional development workshops, local universities or schools of public health who work with local schools, national STEM organizations who offer clinics for teachers or afterschool program coaches, or state or local health departments. Trainings are intended to be modeled after CDC Science Ambassador Regional Training Workshops. The awardee will:
 - Identify partners and venue sites to host training opportunities.
 - Subcontract with partners to host trainings.
 - Subcontract with venues to provide space, AV equipment, and other physical site needs.
 - Coordinate logistics with partners and venue sites
 - Lead promotion, marketing, and teacher recruitment for all sites in collaboration with partners.
 - Provide an online registration portal and e-mail for inquiries, manage inquiries and communication with registrants.
 - Work with CDC staff to set a training agenda, including but not limited to interactive sessions that walk through ready-to-use CDC NERD Academy classroom lesson plans, sessions that pilot new CDC STEM curricula, and panels with local public health experts (such as state and local public health professionals, university faculty and students).
 - Provide or coordinate staff at each site to facilitate each session of the training agenda. Of note, CDC will fund travel for at least one CDC staff person per site to support sessions focused on walking through or piloting CDCSTEM curricula.
 - Provide travel, housing, and per diem or a stipend for at least one STEM teacher per site to facilitate at least one session. STEM teachers must have previously participated in the CDC Science Ambassador Fellowship.
 - Recruit panels with local public health experts (such as state and local public health professionals, and university faculty and students) to participate in the trainings.
 - Provide printed copies of training agenda and STEM curricula materials for participants.
 - Provide documentation of professional development for teachers, which can include Continuing Education Units (CEUs), badges, or certificates.
 - Facilitate and support CDC evaluation efforts, including disseminating evaluation surveys with participants and partners.

Curriculum development (Year 1–2)

1. Facilitate/subcontract vendor to re-produce CDC NERD Academy student educational videos (8),

teacher demonstration videos (8), and promotional video (1) in Spanish (17 videos total, estimated at 122 minutes of content). (Year 1)

2. Facilitate/subcontract vendors and teacher scholars to help develop a new CDC STEM curriculum. The CDCSTEM curriculum will be developed by CDC staff, STEM teachers, and an epidemiology consultant. Modeled after CDC NERD Academy, it will include a series of five ready to use classroom lesson plans, videos, and resources: based on national teaching standards, focused on the science behind current public health issues using real data and public health careers. Awardees will:
 - Subcontract a vendor to produce student educational videos (five videos, 12–15 minute each) and teacher demonstration videos (five videos, 2–4 minutes each) in both English & Spanish (20 total videos). CDC will provide scripts. Vendor is expected to provide white-board style storyboards, voiceover, and animation for videos. Deliverables will include high- and low-resolution versions of each video, resized version of each video thumbnail, and native image files. (Year 1)
 - Subcontract vendor for graphic design of 508 compliant lesson plans and promotional materials. (Year 1)
 - Provide scholarships for two, part-time STEM teachers to help CDC staff develop the CDC STEM curriculum. STEM teachers are expected to contribute 20 hours per month (~5 hours per week) up to a one-year period. (Year 1)
 - Provide a contract for a part-time epidemiology consultant to support review and clearance of curriculum content. The consultant is expected to contribute 20 hours per month (~5 hours per week) for up to a one-year period. (Year 1 or 2)
3. Develop and execute a communications plan to promote the CDC STEM curriculum. Activities could include:
 - Distribution of links to materials such as through listservs and partnership networks.
 - Sharing information and weblinks through different social media outlets.
 - Promoting during meetings or events, including webinars and conferences.

CDC-CIO Staff Activities: CDC will provide a technical monitor to act as the liaison for this project. The CDC technical monitor will meet with awardees to help oversee timelines, deliverables, and provide technical assistance, as needed.

Awardees are expected to facilitate regular meetings with CDC staff, including the CDC technical monitor, as agreed upon.

Awardees are expected to provide short summaries after each training including an overview of participants, successes, notable challenges, and pictures taken during the trainings. Each year, awardees are expected to provide an annual report summarizing progress toward project goals and overall themes of successes and challenges.

Training

- CDC will support the development of a training agenda template that can be modified for each training site. The awardee will be responsible for modifying and implementing it for each training site. CDC will provide technical assistance as needed.
- CDC will lead evaluation efforts. Awardees will help facilitate data collection.
- CDC will fund travel for at least one CDC staff person per site to support sessions focused on walking through or piloting CDC STEM curricula.

Curriculum development

- CDC will lead development and CDC clearance of curriculum content. The awardee will facilitate vendors and teacher scholarships to support this work.

Special Eligibility Requirements: Experience with curriculum-based interventions for youth, instructional design for adult learning, training for adults, or a wide-network of partners across the United States that are invested in STEM or public health education is a plus, but not required.

Review Criteria: Applications will undergo an objective review. Clearly describe the criteria that will be used to evaluate applications. List criteria by importance in descending order and assign scored values for each criterion; the total value should equal 100.

Approach: 40

- Strategies and activities that align with the scope of the project.
- Collaborations and partnerships that can support the work.
- Diversity of target population and

expected reach. Workplan and Evaluation: 30

Organizational Capacity: 30

- Experience with public health or STEM programming for teachers, other educators, or youth.
- An existing network of organizations or sites across the United States that may have interest in co- hosting teacher trainings focused on public health.
- Ability to execute subcontracts, as needed.
- Staff with experience in teaching or facilitating trainings.

Other Information: The curriculum will be modeled after [CDC NERD Academy](#). The trainings could be modeled after [CDC Science Ambassador Regional Training Workshops](#) with flexibility.

Total Duration of Project: 3 years

Approximate Average Award: Year 1: \$1,286,100; Year 2: \$936,100; Year 3: \$636,100

3. **Title:** Technical Advising for Accelerating Federal Public Health Data Science Projects

Description: The Data Science Upskilling (DSU) Program in the Division of Scientific Education and Professional Development (DSEPD) is an internal data science public health upskilling program that aims to increase data science capacity and capabilities at the Centers for Disease Control and Prevention (CDC). DSU provides an applied learning environment to DSU teams of staff and fellows. DSU is a 10-month team-based and project-based program that uses a tailored technical advising (TA) approach to aid teams of DSU learners apply new data science knowledge directly to a CDC data modernization project. TA is described as providing DSU teams with tailored data science support to mentor on the skills and knowledge gained while in the program and to accelerate their data science projects. TA includes regular, ongoing advising and coaching for DSU teams as they work through capstone projects and provision of interactive workshops designed to improve DSU program participant skills in specific aspects of data science. This can include side-by-side coding and/or trying out new data science tools using the project data. DSU's current mechanism for TA is limited. The Workforce Improvement Project (WIP) aims to identify academic partners, with a breadth of data science mentoring expertise, who can serve as TAs to DSU teams.

Problem Statement: The DSU program is currently supporting its 4th cohort. The program has grown 176% in the four years from 13 teams to 36 teams. In these 4 years, DSU has upskilled over 360 learners in data science skills that translate to their current CDC Center, Institute, and Office (CIO) work and activities. The ability of DSU to continue to offer its highly regarded training opportunities to CDC learners is limited by TA expertise. One major need in managing DSU is the identification of highly skilled data scientists to serve as mentors to the learners. Currently, DSU relies on internal and external resources to fill these roles. In the current DSU TA model, there is a 1:5 ratio of technical advisors to DSU teams. As the program grows, the amount of TA support needed will also grow beyond what the current resources can manage. Another opportunity DSU is encountering, is identifying TAs to ensure they reflect a balance of data science and interpersonal skills, with both sufficient technical expertise and the capacity to effectively engage and mentor learners. DSU is exploring alternative approaches, like engaging academia to ensure that DSU learners get real-time, highly skilled TA to support their projects. For success to be realized, many staff will need additional upskilling to meet the dynamic demands of an everchanging data science landscape. Identification of new resources, like academia, can help support those efforts.

Key outcomes: The expected outcomes are:

- CDC staff and fellows engaged in the DSU program develop and apply critical skills in data science that can be used on future projects in public health.
- CDC staff and fellows are trained in approaches and data science skills to provide technical advisory services to future DSU cohorts through the DSU program.
- CDC staff and fellows increase their familiarity with data science tools and technology.
- CDC staff and fellows have an opportunity to apply their data science knowledge to their current projects.
- CDC staff and fellows advance their DSU projects.
- CDC staff and fellows increase their confidence in making data science decisions.
- CDC staff and fellows are prepared to present their final project at the DSU symposium, to an agency- wide audience.

The WIP will allow DSU to test academics, combined with in-house technical advisors, in an updated and sustainable technical advising model.

Contribution to the public health workforce: DSU teams work on mission critical data science public health projects at CDC. The academic technical advisor will mentor DSU teams to increase their data science knowledge and skills to accelerate their CDC projects. DSU teams come from across the agency. Their public health impacts are in all areas, including the Data Modernization Initiative, COVID-19, emergency response, CDC Winnable Battles, and Health Equity.

Awardee Strategies and Approaches: DSU will pair academic partners with DSU teams that align with their data science expertise. DSU has in-house TAs and a program lead to mentor the academic partners in their new roles. The academic partners will deliver high-quality TA to DSU teams and/or a group of DSU teams during reoccurring sessions throughout the 10-month program. Academic partners with expertise in data science domains as they relate to DSU team projects, public health data experience, and experience mentoring adult learners will be able to deliver the quality expected of DSUTAs. Academic partners will also collaborate with DSU staff to develop data science workshops tailored to the cohort.

Academic partners will be involved early in team projects to guide teams through problem formulation activities and help scope and define projects that balance production and learning. Most TA happens through biweekly sessions during November – June (following program launch up through preparation for the DSU symposium). During this ongoing advising time TAs also share resources and engage with their teams asynchronously. As the DSU program approaches its conclusion at the DSU symposium, TAs support teams in preparing and refining their final project presentations that will be delivered at the DSU symposium.

CDC-CIO Staff Activities: Each TA (academics included) will have a particular area, or areas, of expertise and can rely on the experience of other program TAs to support answering questions. The DSU program will provide academic partners with structured opportunities for DSU TAs to engage with one another (weekly team meetings and an asynchronous Microsoft Teams chat), but also rely on TAs to connect directly with one another as needed for the benefit of their DSU teams. The DSU program will provide academics with guidance on how to effectively engage with an advising team.

Academic partners will be expected to provide monthly summary reports on each DSU they are assigned to provide TA. DSU staff will support project management, scheduling, monitoring and evaluation, and TA in collaboration with the academic(s).

Special Eligibility Requirements: This requirement may be filled with 2-3 academic partners (depending on budget) with doctoral level data science training, and/or masters level with 5+ years of teaching/applied work experience will be considered. Some may specialize in the following data science domains: machine learning, statistics, data visualization, computer science, natural language processing, computer vision, and/or deep learning.

The following are preferred qualifications critical for successful implementation of the project:

- Expertise in Python and/or R
- Expertise in computational analytics
- General data science domain knowledge
- Familiarity with data science tools and platforms e.g., data visualization tools (Power BI, Tableau, R- Shiny), Microsoft Azure Machine Learning, Databricks

Experience teaching, and/or mentoring and working with busy public health scientists/professionals with varying level of data science experience. This experience should also include:

- Experience teaching/mentoring remotely in a virtual environment
- Passionate about teaching (Enthusiastic)
- Excellent verbal communication skills
- Professional and well organized in their exposition of concepts
- Encourage curiosity and promote creativity among the learners
- Capable to engage learners through active interaction and the facilitation of discussions

The DSU program operates 9am-4pm EST. DSU resources are expected to be available during this window to deliver TA services.

Review Criteria: Applications will undergo an objective review. Clearly describe the criteria that will be used to evaluate applications. List criteria by importance in descending order and assign scored values for each criterion; the total value should equal 100.

- Experience leading public health or related data science projects – 30 points
- Teaching adult learners experience. Experience mentoring and/or supporting adult learning experiences will be considered – 30 points
- Consulting experience – 10 points
- Knowledge of data science tools – Python, R, Data Visualization Software – 30 points

Other Information: The Data Science Upskilling (DSU) Program offers CDC full-time employees (FTEs) and fellows an opportunity to build their knowledge and skills in data science. Teams are invited to apply with a proposed data science project to take part in the program. See attachment for more information on DSU.

Total Duration of Project: 1 year

Approximate Number of Awards: 2-3 awardees, depending on degree level and/or availability (part-time, full-time). This can be a combination, such as 2 full-time master's level and 1 part-time PhD.

4. **Title:** Leveraging Academic Expertise to Deliver the Content of the Big Data Analytics & Applications in Public Health (BDAAPH)

Description: The use of Big Data and BDA is rapidly evolving, and its application is becoming crucial to public health research. Public health professionals need to harness the potential and opportunities in BDA to use their benefits for disease prediction, prevention, and health promotion. However, there remain some gaps between potential users and BDA knowledge, its applications, and their existing tools. The BDAAPH Program aims to advance the use of BDA techniques in the public health sector using data from sources within and outside of the Centers for Disease Control and Prevention (CDC). BDAAPH in collaboration with the Georgia Tech Research Institute (GTRI) co-created the BDAAPH training curriculum incorporating instructional guides for learners with hands-on practical experience using real world public health examples. BDAAPH will bridge the gap in knowledge and application through live, instructor-led courses, project-based learning, and technical advising provided by subject matter experts (SMEs) from academic institutions. The purpose of this proposal is to identify a scholastic expert to deliver the BDAAPH curriculum. The curriculum is already established by CDC and instructor will not be creating it, only implementing and delivering content.

Problem Statement: Need for the BDAAPH Program: A Baseline Knowledge Assessment Survey was developed and distributed to the Division of Scientific Education and Professional Development's (DSEPD) Population Health Workforce Branch (PHWB) fellowships and related programs. The purpose of the survey was to measure potential learners' familiarity with and proficiency in Big Data competencies. The results reveal that respondents have limited familiarity with Big Data, tools, and analytics in general and indicate the need for a program like BDAAPH to advance Big Data Analytics (BDA) knowledge and applications in the public health field. Furthermore, an environmental scan of different learning portals revealed no readily available courses on how Big Data and BDA can be applied specifically to public health. Academic articles and textbooks reviewed also support this conclusion.

Need for an Academic Expert/Instructor: The BDAAPH curriculum aims to advance and reinforce the capacity and technical skills of public health professionals in the use of BDA to increase the capability of addressing public health challenges. The program has strong educational and pedagogical components embedded in the curriculum and relies on the synergy between BDA and public health practice. Therefore, to implement the BDAAPH curriculum, the effort of a highly competent and experienced instructor is needed to lead live, didactic sessions and facilitate hands-on interactions with BDAAPH learners.

Key outcomes: The expected outcomes of the BDAAPH Curriculum Implementation & Content Delivery through the academic expert include:

- Availability of a fully developed BDAAPH course curriculum implementation and content delivery framework.
- Increased knowledge and capacity of CDC public health professionals through trainings evidenced by:
 - The number of trainings conducted during the review period (monthly, quarterly, annually).
 - The number of CDC public health professional participants trained on BDA and related topics.
 - The number of learners who applied BDA skills to solving existing or new public health problems after the training.

- The number of BDA projects supported by the awardee.
- The number of articles developed and/or published by learners following completion of a BDAAPH course.
- An online pre-course Module for learners' access facilitated by the awardee.
- Improved decision making due to increased business intelligence across CDC's centers, institutes, and offices.
- Evaluations, to include measuring skills application, cohort identified and tracked.

Contribution to the public health workforce: The BDAAPH program is designed to contribute to the agency's workforce capacity efforts for data modernization and data science. Leveraging an academic expert to implement the BDAAPH curriculum will:

- Bridge the gap in knowledge and application of BDA within the agency using Big Data technologies, tools, and techniques to solve public health problems.
- Build the capacity of public health professionals with little or no knowledge and skills in BDA.
- Increase the number of skilled public health workforce with the ability to analyze existing CDC data set and draw insights for evidence-based decision making at all levels.
- Provide a continuous learning opportunity and problem-solving framework for public health research.
- Improve the skills and technical capacity of the data science community of practice to solve public health problems using data within or outside CDC.

Awardee Strategies and Approaches:

- **Develop Curriculum Implementation Frameworks:** The BDAAPH curriculum includes Basic, Intermediate and Advanced competency modules with courses to build the capacity of public health professionals to solve public health problems using BDA. The awardee will be required to work closely with the BDAAPH team to create a Curriculum Implementation Framework that maps out the critical steps involved in preparing for and delivering BDAAPH course content in line with learners' needs.
- **Develop Pre-Intermediate Course Module:** Create an online pre-course module to showcase the use of BDA, BDA technologies, and example data sets to solve a public health problem. This module will provide learners with the opportunity to view and learn how a public health problem is solved using CDC supported big data technologies, tools/techniques, and data sets within or outside CDC. This pre- course module aims to motivate learners to actively inquire about and engage in using Big Data technologies, tools, and techniques to solve real world public health problems.
- **Deliver live, instructor led training workshops:**
 - 1. As part of the BDAAPH Basic Competencies Module, a beginner's course titled, "Big Data Analytics for Non-Data Scientists" will be delivered by the academic expert in collaboration with the BDAAPH team. The aim of this course is to build the capacity of public health professionals with little or no knowledge and skills in BDA. Learners do not require any pre- requisites to participate in this course.
 - 2. An Intermediate learner's course titled, "Big Data Analytics for Public Health Science" will be delivered by the awardee as part of the Intermediate BDAAPH Competencies Module. The purpose of this course, which involves a training component and Peer Learning Projects, is to strengthen the capacity of public health professionals with basic BDA competencies to use BDA tools and techniques in solving public health problems. It will

combine instructor-led courses, project-based learning, and technical advising.

- To participate in the course, learners should have satisfied the following prerequisites:
 - Certificate of completion confirming previous participation in the beginner’s course, “Big Data Analytics for Non-Data Scientists”
 - Certificate of completion of recommended online courses by course instructors
 - Certificate of Completion of the Pre-Intermediate Course Module
 - A fully developed team’s project with approved data sets for applied learning
 - Upon completion of the “Big Data Analytics for Public Health Science” course, learners will be able to:
 - Identify BDA framework (architecture, tools, platforms, etc.) using public health use cases.
 - Demonstrate application of BDA framework, platforms, and tools in solving public health problems.
 - Take on and deliver related projects using BDA with little or no supervision.
 - 3. The delivery of the Advanced BDAAPH Competencies Module is critical to continuous and sustained learning aimed at strengthening the capacity of trained public health professionals. The Advanced BDAAPH courses will cover BDA refresher courses, related courses for innovative/changing technologies and public health research courses. The awardee will work with the BDAAPH team to deliver selected instructor led courses in line with learner’s requirements post completion of the intermediate course. Additionally, selection of the advanced courses will also be guided by the awardee’s recommendation of what additional skills/tools learners require to successfully complete a BDA project.
 - To participate in the advanced BDA module, learners should have satisfied the following prerequisites:
 - Certificate of completion confirming previous participation in the intermediate course, “Big Data Analytics for Public Health Science”
 - Participation in assigned peer learning project post intermediate training, evidenced by project completion for BDAAPH showcase
 - The learning objectives of the Advanced course include: Strengthen the capacity of learners to apply innovative BDA techniques to solve public health problems.
 - Provide technical support for learners to complete individual projects post advanced course participation.
 - Support learners to communicate project results and findings through public health research designs and methods.
- Technical advising for project-based learning and application: CDC employees have on-going projects requiring live technical advising to support CDC’s data modernization efforts. The awardee will host office hours with learners to solve their project specific problems.
- Strategic Partnership & Collaborations: The BDAAPH program thrives on collaborations with relevant programs, communities of practice, and support services within and outside the agency. These collaborative efforts will bolster the implementation of a robust BDAAPH curriculum and delivery of course contents for public health professionals. The following are

BDAAPH's current collaborators/partners that will be leveraged for this project:

- CDC Data Hub (CDH)
 - Support projects with relevant data sets for analysis
 - Support BDAAPH team with technical advising for learners on the use of CDC supported BDA infrastructure
- CDC Education and Training Services Branch (ETSB)
 - Support BDAAPH team with CDC training development standards and delivery options including utilizing CDCTRAIN
- Data Science Upskilling (DSU)
 - DSU supported the implementation of the BDAAPH's Baseline Knowledge Assessment Survey by involving DSU learners as participants
 - The DSU Program Lead serves as the BDAAPH Project Lead
 - BDAAPH is currently part of the DSU program and as such, DSU learners will be participants of the BDAAPH courses
 - BDAAPH program continues to seek possible collaborations with additional relevant programs and subject matter experts within and outside CDC to ensure the sustainability of the BDAAPH program.

CDC-CIO Staff Activities: CSELS\DSEPD\PHWB staff members will be actively involved throughout the life cycle of project. The following are some of the activities of the project staff:

- Project Management: Staff will develop and disseminate project workplans and statement of work to all project team members.
- Course Development: Staff will work closely with the academic expert to develop the online pre-course module and support course content delivery in line with agreed schedule.
- Training Coordination: Staff will recruit learners for the BDAAPH courses. Staff will also support the facilitation of workshops and delivery of content in collaboration with the academic expert.
- Maintenance of Quality Training Standards: Staff will ensure training development and implementation aligns with the CDC's Education and Training Services Branch's quality of training standards.
- Monitoring & Evaluation (M&E): Staff will develop a M&E framework and measurement indicators to routinely track and report all project activities and indicators over an agreed reporting period.
- Technical Assistance: Staff will provide technical advising for learners before, during, and at the end of their learning in collaboration with the academic expert.

Special Eligibility Requirements: The following are preferred qualifications critical for successful implementation of the project:

- Minimum Educational Qualification: A Doctorate or master's degree in Mathematics, Statistics, Computer Science or equivalent.
- Primary Expertise: Ability to conduct advanced data analysis and Artificial Intelligence (AI), digital transformation, probabilistic modeling for decision making with applications in various fields especially public health (familiar with the content, both big data analytics and public health)
- Research Areas: Statistical modeling, statistical learning, and predictive analytics; Machine Learning, AI, industrial, and enterprise systems
- Teaching Experience: Not less than 4 years teaching experience

- Experience teaching remotely in a virtual environment
- Passionate about teaching (Enthusiastic)
- Excellent verbal communication skills
- Professional and well organized in their exposition of concepts
- Encourage curiosity and promote creativity among the learners
- Capable to engage learners through active interaction and the facilitation of discussions

Review Criteria: Applications will undergo an objective review. Clearly describe the criteria that will be used to evaluate applications. List criteria by importance in descending order and assign scored values for each criterion; the total value should equal 100.

- Demonstrated expertise in developing and delivering trainings including, effective verbal communication, promoting an active learning environment by fostering engagement and encouraging questions, motivating learners, providing feedback, and evaluating impact and adjusting as needed. (30 points)
- Demonstrated expertise in Big Data and Big Data Analytics (BDA), including data engineering, machine learning, artificial intelligence, and software solutions and technology. (30 points)
- Demonstrated understanding of the application of Big Data and BDA primarily in a public health context as well as other industries. (20 points)
- Demonstrated expertise and experience in teaching in a live, virtual environment, including familiarity with using collaboration tools. (20 points)

Other Information: None.

Total Duration of Project: 1 year

Approximate Number of Awards: 1

5. **Title:** CHES and MCHES Certification Support for ASPPH/CDC Public Health Fellowship's Health Education Fellows

Description: Health educators are an important part of the workforce needed to meet current and future public health challenges. There has been a recognized workforce gap for health education. A recent article focused on the governmental health education workforce shared that from 2015-2018, the number of students with concentrations in health education/behavioral sciences from schools and programs of public health was second only to general public health. However, graduates of these programs are not showing up in the government public health workforce, even though a 2016 survey of local health departments found that 53% of respondents indicated health education as a high-priority occupation in their agencies. The authors stated the need to focus on health educator recruitment and retention and use recruitment incentives, fellowships, and paid internships among other things, to build a governmental pipeline. In addition, the number of Health Education Specialist positions, a role intended specifically for this educational background and skill set, has continued to decrease at CDC. In January 2016 there were 81 health education specialists at CDC, as of October 2022 there were only 53.

To help address this gap and build a pipeline, a Health Education Track is in development as part of the ASPPH/CDC Public Health Fellowship program, with the first class of fellows to start in August 2023. The fellows will receive a curriculum focused on the areas of responsibility, competencies, and sub-competencies for Health Education Specialist Practice. These are based on the 2020 Health Education Specialist Practice Analysis II project that also serve as the basis for the Certified Health Education Specialist (CHES®) and Master Certified Health Education Specialist (MCHES®) exams. Training content, host-site assignments, projects, and professional development will align with these areas.

This WIP is intended to support these health education fellows in studying for and taking the exam to achieve certification as CHES® or MCHES® and set up the foundation for their professional growth and development as health education specialists.

Key outcomes: By August 2024 at least four of seven Health Education Fellows will have prepared for and registered to take the Certified Health Education Specialist exam in October 2024.

Contribution to the public health workforce: This project helps a specific group of the public health workforce, health educators, build knowledge and skills and achieve certification that reinforces the knowledge and skills. Health educators are an important part of the workforce needed to meet current and future public health challenges. For example, health educators have played an essential role in the COVID-19 response by engaging partners and coalitions across sectors to collaborate in strategic planning, assessing community needs and assets with a health equity lens, using behavioral and health education science theory and frameworks to develop education materials and health promotion/disease prevention intervention programs, sharing health information with community members, training many of the new people entering the public health workforce, evaluating behavioral science outcomes to contribute to the evidence base, and disseminating effective health promotion interventions. Health educators are trained to address social determinants of health through multi- level approaches in behavioral, policy, systems, and environmental change.

By supporting the fellows in obtaining certification as Health Education Specialists, this project will help ensure competency across the domains of assessing needs and capacity; program planning, implementation, and evaluation; research; advocacy; communication; leadership and management; and ethics and professionalism.

Health education is central to several strategic priorities CDC identified in 2022: prioritizing public health communications, disseminating findings and data faster, and translating science into practice and policy in a way that is easy to understand. The field of health education, and the domains emphasized in health education training and certification, also directly support measures of success CDC has outlined for 2023-2027: improving messaging relating to maternal and child health; reducing tobacco use rates among youth; reducing health disparities, particularly for cardiovascular diseases among Black Americans; reducing diabetes diagnosis rates; modifying provider behavior to reduce antibiotic use and opioid over-prescribing; reducing rates of suicide and homicide; reducing disparities in influenza vaccination rates, and increasing rates overall. Each of these identified success indicators relies on health communication and/or behavioral changes, key focus areas for health educators, the Health Education Fellowship training plan, and reinforced through the certification process.

Awardee Strategies and Approaches: Describe possible strategies or approaches the awardee will address to implement the project. Note any required or recommended strategic partnerships or collaborations for implementing the project.

Possible strategies to support fellows in achieving certification may include purchasing NCHCEC study guides, providing access to the SOPHE preparatory course and learning management system, facilitating a session about the certification and process, facilitating preparation/study sessions and practice exams for fellows with trained facilitators, covering the exam fee. Recommended strategic partners include NCHCEC (National Commission for Health Education Credentialing) and SOPHE (Society for Public Health Education).

CDC-CIO Staff Activities: CDC-CIO project staff will be facilitating the curriculum and providing on-the-job support for the health education fellows. CDC-CIO project staff will need to be involved in the coordination (e.g., timing, delivery approach) and communication with the fellows on the various opportunities and activities that will be facilitated by the recipient of this WIP. CDC-CIO project staff will want to hold a kick-off meeting and meet on a recurring basis, at least monthly for collaboration and communication. Reporting requirements will be process indicators for the various support activities (e.g., # of fellows who participated in prep sessions, # of fellows who received study guides, # of fellows who registered for the exam, etc.) submitted within 1 week of the completed milestone.

Special Eligibility Requirements: Based on the focus of the project, the ideal applicant has familiarity and experience facilitating educational opportunities for fellowship programs and experience supporting credentialing for a group of people.

Review Criteria: Applications will undergo an objective review. Clearly describe the criteria that will be used to evaluate applications. List criteria by importance in descending order and assign scored values for each criterion; the total value should equal 100.

Technical Approach: 50

The Applicant shall provide a description of the strategies and approach they propose to apply to this WIP in the form of a project plan. The project plan should correlate to the Applicant's cost proposal and include a timeline for key milestones to illustrate a logical sequence of proposed activities.

Management Plan: 20

The Applicant shall demonstrate an overall understanding of the project and what is required to manage the project successfully. This includes a description of their organizational structure and how they propose to manage the project, including a discussion of timelines and proposed milestones, potential problems and plans for addressing them, and how they will communicate with CDC-CIO. The Applicant shall clearly indicate how achievement of milestones will be monitored.

Similar Experience: 15

The Applicant shall provide a description of two projects completed within the past seven years that clearly demonstrates the Applicant's experience in performing projects of similar scope, size, and complexity to the WIP. The following information shall be provided for each project reference:

- a. Brief narrative description of the work performed for each project, including a discussion of any problems encountered/corrective actions and significant accomplishments.
- b. Dollar value, period of performance, partners/collaborators, and the number and types of personnel used in the project

Staffing and Collaboration Plan:15

The Applicant shall provide qualified technical labor resources in numbers adequate to address the WIP. The description shall also include:

- a. A staffing matrix showing type and number of staffing resources, including breakdowns by project roles. The matrix of proposed personnel shall also include their experience, education, skills, and qualifications to do the job. The backgrounds of the personnel will reflect the length and variety of experience and expertise in tasks similar to the tasks required by this project and any relevant training. The percentage of time each staff member shall contribute to the project will be adequately identified. The extent to which outside consultants or specialists will be used shall be indicated.
- b. If collaboration with other partners/organizations is proposed, provide information to support their qualifications/relevance to the project. Identify any portions of the project that partners will collaborate on.

Other Information: Provide additional information that would be useful for applicants, such as web links to more information about the CDC program or other reference materials.

<https://www.nche.org/>

<https://www.sophe.org/membership/join-sophe/>

<https://www.sophe.org/professional-development/certified-health-education-specialist/>

<https://www.sophe.org/professional-development/certified-health-education-specialist/> <https://aspph.org/students-alumni/fellowships-internships/>

Total Duration of Project: 4 years

Approximate Number of Awards: 1

6. **Title:** Instructor-Led Training for Health Education Competency Development

Description: Health educators are an important part of the workforce needed to meet current and future public health challenges. There has been a recognized workforce gap for health education. A recent article focused on the governmental health education workforce shared that from 2015-2018, the number of students with concentrations in health education/behavioral sciences from schools and programs of public health was second only to general public health. However, graduates of these programs are not showing up in the government public health workforce, even though a 2016 survey of local health departments found that 53% of respondents indicated health education as a high-priority occupation in their agencies. The authors stated the need to focus on health educator recruitment and retention and use recruitment incentives, fellowships, and paid internships among other things, to build a governmental pipeline. In addition, the number of Health Education Specialist positions, a role intended specifically for this educational background and skill set, has continued to decrease at CDC. In January 2016 there were 81 health education specialists at CDC, as of October 2022 there were only 53.

To help address this gap and build a pipeline, expansions to the ASPPH/CDC Public Health Fellowship's Health Education Track is in development. The incoming class of master's level fellows commencing in September 2023 a Health Education Track is in development as part of the ASPPH/CDC Public Health Fellowship program, with the first class of fellows to start in August 2023. The fellows will receive a curriculum developed by CDC that focuses on the areas of responsibility, competencies, and sub-competencies for master's level Health Education Specialist Practice. These are based on the 2020 Health Education Specialist Practice Analysis II project that also serve as the basis for the Certified Health Education Specialist (CHES®) and Master Certified Health Education Specialist (MCHES®) exams. Training content, host-site assignments, projects, and professional development will align with these areas.

This WIP is intended to support the competency-based curriculum with 12 virtual or hybrid Instructor-led training sessions over the course of the performance period. The sessions should follow CDC's Quality Training Standards and deliver curriculum content that is best facilitated in an instructor-led format and provide real-world public health practice examples that highlight health education work in a variety of settings. The project involves working closely with CDC to identify topics/content for the sessions, recruiting instructors, and facilitating sessions for the fellows.

Problem Statement: The ASPPH/CDC Public Health Fellowship Health Education Fellowship Track contributes to key areas of the public health workforce, including health education, behavioral health, leadership, and health communication. In recent years, the need for skilled health communication professionals has become increasingly apparent. Through a curriculum designed to address areas of responsibility, competencies, and sub-competencies for master's-level Health Education Specialist Practice, the Health Education Fellows will develop health communication and education skills that will enable them to fulfill this public health workforce need and apply effective health education and communication techniques to facilitate the attainment of public health goals. Following best-practices in learning design, the curriculum will use a blended-learning approach that includes asynchronous self-paced online learning, opportunities to practice on-the-job in host-site assignments, and with the support of this project, will be supplemented by virtual or hybrid instructor-led courses. Instructor-led courses can improve learner engagement, allow for interaction with an expert, adapt content to make it timely and relevant, provide inspiration, and give learners an opportunity for peer learning. Some topics in the curriculum may fit better with this format. Another

goal of the fellowship is to showcase a variety of careers in health education at a variety of levels of governmental public health service to inspire fellows to pursue careers in governmental public health. This format can be used to provide insights and awareness of health education practice in the real-world.

Key outcomes: By August 2024, twelve virtual instructor-led trainings will have been delivered to the 2023 class of Health Education Fellows that meet CDC’s Quality Training Standards.

Contribution to the public health workforce: This project helps a specific group of the public health workforce, health educators, build knowledge and skills in competencies across the domains of: assessing needs and capacity; program planning, implementation, and evaluation; research; advocacy; communication; leadership and management; and ethics and professionalism. Health educators are an important part of the workforce needed to meet current and future public health challenges. For example, health educators have played an essential role in the COVID-19 response by engaging partners and coalitions across sectors to collaborate in strategic planning, assessing community needs and assets with a health equity lens, using behavioral and health education science theory and frameworks to develop education materials and health promotion/disease prevention intervention programs, sharing health information with community members, training many of the new people entering the public health workforce, evaluating behavioral science outcomes to contribute to the evidence base, and disseminating effective health promotion interventions. Health educators are trained to address social determinants of health through multi-level approaches in behavioral, policy, systems, and environmental change.

Health education is central to several strategic priorities CDC identified in 2022: prioritizing public health communications, disseminating findings and data faster, and translating science into practice and policy in a way that is easy to understand. The field of health education, and the domains emphasized in health education training and certification, also directly support measures of success CDC has outlined for 2023-2027: improving messaging relating to maternal and child health; reducing tobacco use rates among youth; reducing health disparities, particularly for cardiovascular diseases among Black Americans; reducing diabetes diagnosis rates; modifying provider behavior to reduce antibiotic use and opioid over-prescribing; reducing rates of suicide and homicide; reducing disparities in influenza vaccination rates, and increasing rates overall. Each of these identified success indicators relies on health communication and/or behavioral changes, key focus areas for health educators, the Health Education Fellowship training plan, and will be reinforced through the instructor- led training facilitated through this project.

Awardee Strategies and Approaches: Possible strategies to facilitate instructor-led training that supports the health education fellowship curriculum include reviewing the curriculum and training plan developed by CDC, making recommendations for topics/content that would be best to deliver as instructor-led training, conducting an environmental scan to identify engaging and effective instructors, and putting together a proposal that includes a schedule for the 12 sessions. Facilitation strategies might include setting up a platform to deliver virtual or hybrid sessions, working closely with instructors to facilitate payment for instruction time or honorariums as needed, developing communication material to share with fellows for awareness and planning for sessions, supporting successful “run-of-show” during sessions, recording and sharing the recordings, and developing an evaluation plan and evaluating sessions to help inform future year planning. Possible strategic partnerships might include NACCHO, ASTHO, and SOPHE to help identify instructors that can cover health education in practice and provide advice.

CDC-CIO Staff Activities: CDC-CIO project staff will be facilitating the curriculum and providing on-the-job support for the health education fellows. CDC-CIO project staff will need to be involved in the final decision-making (e.g., review and approve the proposal), coordination (e.g., timing), and communication with the fellows on the various opportunities and activities that will be facilitated by the recipient of this WIP. CDC-CIO project staff will want to hold a kick-off meeting and then meet on a recurring basis, at least monthly for collaboration and communication. Reporting shall include individual session evaluation reports that address training effectiveness within 1 week of the completed session and one final aggregate evaluation report that makes recommendations for future years at least 2 weeks before the end of the performance period.

Key outcomes: By August 2024 at least four of seven Health Education Fellows will have prepared for and registered to take the Certified Health Education Specialist exam in October 2024.

Special Eligibility Requirements: Based on the focus of the project, the ideal applicant has experience facilitating educational opportunities for fellows and/or for health educators. The applicant has familiarity with CDC's Quality Training Standards and experience facilitating engaging virtual or hybrid instructor led trainings.

Review Criteria: Applications will undergo an objective review. Clearly describe the criteria that will be used to evaluate applications. List criteria by importance in descending order and assign scored values for each criterion; the total value should equal 100.

Technical Approach: 50

The Applicant shall provide a description of the strategies and approach they propose to apply to this WIP in the form of a project plan. The project plan should correlate to the Applicant's cost proposal and include a timeline for key milestones to illustrate a logical sequence of proposed activities.

Management Plan: 20

The Applicant shall demonstrate an overall understanding of the project and what is required to manage the project successfully. This includes a description of their organizational structure and how they propose to manage the project, including a discussion of timelines and proposed milestones, potential problems and plans for addressing them, and how they will communicate with CDC-CIO. The Applicant shall clearly indicate how achievement of milestones will be monitored.

Similar Experience: 15

The Applicant shall provide a description of two projects completed within the past seven years that clearly demonstrates the Applicant's experience in performing projects of similar scope, size, and complexity to the WIP. The following information shall be provided for each project reference:

- a. Brief narrative description of the work performed for each project, including a discussion of any problems encountered/corrective actions and significant accomplishments.
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Staffing and Collaboration Plan:15

The Applicant shall provide qualified technical labor resources in numbers adequate to address the WIP. The description shall also include:

- a. A staffing matrix showing type and number of staffing resources, including breakdowns by project roles. The matrix of proposed personnel shall also include their experience, education,

skills, and qualifications to do the job. The backgrounds of the personnel will reflect the length and variety of experience and expertise in tasks similar to the tasks required by this project and any relevant training. The percentage of time each staff member shall contribute to the project will be adequately identified. The extent to which outside consultants or specialists will be used shall be indicated.

- b. If collaboration with other partners/organizations is proposed, provide information to support their qualifications/relevance to the project. Identify any portions of the project that partners will collaborate on.

Other Information:

<https://aspgh.org/students-alumni/fellowships-internships/>

<https://www.cdc.gov/training/development/standards/index.html>

<https://www.cdc.gov/training/development/evaluate/index.html>

Total Duration of Project: 4 years

Approximate Number of Awards: 1
