The Association of Schools and Programs of Public Health (ASPPH)\(^1\) proposes a new federal initiative across CDC, NIH, ARPA-H, AHRQ, and HRSA to bring applied research, evaluation and training to the public health practice field through grant support mechanisms that combine the expertise of faculty and students from academic public health with front-line leadership and staff from the field.

Modeled, in part, on similar approaches such as academic health departments, the initiative would foster innovative strategies to build capacity at small and midsize health departments and bring data-driven approaches that promote evidence-based and evidence-driven community interventions to tackle public health challenges.

Prompted by gaps identified in our national public health emergency response to COVID-19, ASPPH proposes that the FY 2025 President’s Budget Request for the Department of Health and Human Services (HHS) include dedicated efforts to improve public health systems with focused research and evaluation efforts that include the following increases:

- Centers for Disease Control and Prevention (CDC): $100 million for innovative grants to improve small and midsize health department capacity to implement data-driven strategies and evidence-driven, applied science;
- National Institutes of Health (NIH): $100 million for population health research and evaluation for public health systems capacity building across NIH Institutes and Centers;
- Agency for Healthcare Research and Quality (AHRQ): $20 million for integration of public health and healthcare delivery systems;
- Advanced Research Projects Agency for Health (ARPA-H): $20 million to establish a public health data systems research portfolio under a program manager; and
- Health Resources and Services Administration (HRSA): $20 million increase in support for evidence-based public health training, training in translation and research through the Public Health Training Centers (PHTC) Network.
- Designate a leader at the Department of Health and Human Services to coordinate the Academic Public Health Research and Partnerships program.

The terms “implementation science” and “applied research” are used frequently throughout this concept paper. Generally, implementation science is a specialized field that focuses on studying the process of

\(^1\) ASPPH is the voice of accredited academic public health, representing 150 schools and programs accredited by the Council on Education for Public Health (CEPH). Our mission is to advance academic public health by mobilizing the collective power of our members to drive excellence and innovation in education, research, and practice.
employing evidence-based practices and evaluating the facilitation and uptake of those practices, while applied research is a broader approach that involves the direct application of research findings to practical situations with a goal of improving outcomes, processes, or products. Similarly, “translational science” aims to produce meaningful and applicable results that can be implemented into practice.

Academic Public Health Research Partnerships would support both implementation science and applied research, and evaluation that can help address common barriers to the implementation of public health findings and recommendations. One such barrier is the research and implementation timeline. It is often cited that it takes 17 years to go from the lab bench to wide-spread implementation of new clinical care guidelines. Population health strategies may face similar delays, and for similar reasons. Another prevalent barrier is buy-in from experts in the field. Recent health crises have shed light on the issues that arise when there is a lack of awareness from the field’s experts about new findings or resistance from the field’s community to implement new guidelines. Those being asked to implement new guidelines may question a recommendation’s validity or applicability, be hesitant to learn new techniques or skills, or feel reluctant to change their current practice. Related, implementing new guidelines requires coordinated efforts across different specialties, and barriers can arise if there is insufficient communication and collaboration. A predetermined partnership between the researchers at an academic institution and the local public health program evaluator could abate this issue.

Building Capacity for Small and Midsize Health Departments Through Innovative Approaches to Applied Science and Evaluation

American public health improvements have been associated with tremendous gains in the health of our citizens including developing vaccines, improving sanitation, placing restrictions on smoking, removing lead from gasoline, and enabling the use of seatbelts and helmets. Between the 1800s and the early years of the 21st century, U.S. life expectancy more than doubled as a result of these kinds of interventions.

But public health systems don’t get the kind of attention that their outsized contributions have made to health. It is only when we see shortcomings and failures that public health draws attention. This perennial challenge has led to chronic underfunding of U.S. public health systems by multiple Administrations and Congresses. The results of that neglect are stark.

The CDC recently reported that all life expectancy gains made since 1996 have been erased, with an overall decrease to 76.1 years at birth in 2021. While we have recently seen a reverse in this trend, is 2.8 years below the peak reached in 2014 and represents the most significant decrease in life expectancy in the past century. As of December 2022, the per capita death rate from COVID-19 in the United States was notably worse than that of nations such as Germany, Canada, Costa Rica, and Japan. Moreover, the death toll of over one million Americans has contributed to an estimated $3.57 trillion in economic losses. Investments in public health have reduced healthcare costs dramatically by preventing patients from entering into the healthcare system. The public health system is in serious need of upgrades that include robust investment in infrastructure, research, surveillance, and rapid-response capabilities to better prepare for and mitigate the impact of future public health emergencies and drive new preventative measures based on evidence. We are confident that academic public health can help bridge the gap through partnership and research that leads to impactful results.
Centers for Disease Control and Prevention

Background:
- There remain gaps in the data-driven science and the evidence-based/evidence-informed science needed to address state and local public health threats and challenges.
- Post-pandemic findings showed the benefit of having academic public health and governmental public health work closely together.
- Current Congressional interest in PAHPA reauthorization and health workforce; and a new White House Office of Pandemic Preparedness that is yet to be operationalized.
- Locally-tailored solutions are often needed, but small and midsize local health departments lack the capacity to use existing data-driven approaches for the implementation of existing federal funds.
- Bridging the science gap between implementation science and applied research would solve the needs of health departments having federal funds for opioids/SUD, HIV, STDs, Hepatitis, gun violence prevention, and other challenges but lacking the scientific expertise to optimize the targeting of these resources to know if they are having an impact and being effective.
- This program fulfills the need for capacity building for small and midsize health departments that can adapt and implement the most recent, cutting-edge science.
- Both implementation science and applied research are crucial to the process of translating knowledge into practice.
- The challenge of recruiting early career public health workers would be supported with new approaches by including graduate-level fellowship training in health departments.
- The full capacity of 140+ accredited schools and programs of public health would be available through flexible CDC funding to assist all health departments at the state, local, tribal and territorial levels – across the full-span of CDC centers, missions and activities through a central “CDC-Wide” funding source for these new grants.
- This new approach would help build back trust in CDC and, more broadly, in science.

ASPPH recommends establishing a new program within “CDC-Wide Activities” for academic public health partnerships, referred to as the Academic Public Health Research Partnership, that would be a source of funding to support collaborative data analytics and scientific effectiveness evaluations/research programs and projects between academic public health research institutions and state, local, tribal, and territorial health departments. This new program would supplement, not replace, or supplant, existing research programs at CDC, such as the Prevention Research Centers, Injury Control Research Centers, and the
NIOSH research centers. ASPPH strongly supports the PRC network and other CDC-supported research centers and in no way intends to diminish their focus or duplicate their purpose. Instead, this proposal would open up the academic expertise and knowledge of many more schools and programs that are geographically and physically better able to support health departments in their local communities.

Small and midsized health departments often lack the capacity to adapt the best-available, evidence-based science to their emerging public health threats and practice. Often, they do not have the expertise or bandwidth to apply for federal grants that would provide the opportunities to work with CDC program staff and transfer knowledge and expertise to their local community needs. Academia excels in research, while health departments are primed to evaluate and adjust interventions based on circumstances. But both entities are critical to the practices of implementation science and applied research. Working in partnership could have a more profound impact on public health at local and scalable levels.

As opposed to investigator-initiated research, the research and evaluation activities under this program intend to address locally identified gaps in knowledge for the practice field in the community being served. To demonstrate effectiveness and provide sufficient geographic distribution, the goal would be to recommend an appropriations program level of at least $100 million, which may take years to reach in the current budget environment. To initiate the program, PHSA Section 301 authority could be used, pending enactment of a separate authorization for a larger appropriation level. Given the budget constraints imposed by the recent negotiations between the President and Congress, we would propose considering the use of the Public Health Service Evaluation Tap as a funding mechanism consistent with past uses of the tap to fund evaluation activities. The effort would be coordinated through the CDC Office of Policy, Performance and Evaluation.

This new, flexible source of funding would be available and used across all of CDC’s centers and programs to conduct timely, innovative solutions, evaluation and research on emerging public health issues, as well as topics that lack adequate research and evidence-based strategies. Funding can also be used for analyzing the efficacy of implementing the findings of this research. The model for allocating funding across CDC centers has already been demonstrated and currently used in the Opioids Abuse and Overdose Prevention and Surveillance program that is housed in the National Center for Injury Prevention and Control, but then allocated to other CDC Centers based on program needs and capabilities.

A key feature of the program would be a paid member of a health department as a core member of the evaluation and research team. The program would encourage the use of graduate student fellowships to be members of the research team working in health departments, and the fellowship could be supported through this grant. The academic partner would be the lead applicant for the grant, or a health department could partner as a co-applicant. Grants would be 3- to 5-year commitments, within a range of $400,000 - $800,000 annually.

Partnerships with academic institutions expand CDC’s scientific reach, put public health science closer to the communities CDC serves, and increase diversity and inclusion through support for young and emerging scientific investigators. This program also creates opportunities to enhance the pipeline of public health professionals with real world experience, carrying out applied public health research in a community setting and increasing the engagement of the academic community in public health.
Through the course of the COVID-19 pandemic, academic public health institutions worked in partnership with state and local health departments. One example, cited in the ASPPH COVID-19 Report, highlights the importance of these partnerships. “At the University of Memphis School of Public Health, Dean Ashish Joshi contacted the university president to offer the school’s services in pandemic planning and response. Their faculty served on various committees, contributing expertise to the university’s COVID policies and communication related to masking, social distancing, physical cleaning procedures, transition to online instruction, return to campus, case reporting, modified freshman orientation and campus vaccine distribution — even guidelines for the marching band’s practice. In addition, the School of Public Health collaborated with the county health department to measure compliance with Memphis’ citywide mask law. Their research examined trends in the use of masks through direct observation in retail settings and review of videotapes captured by city cameras of public areas. Results were provided to the mayor’s COVID-19 Joint Task Force to guide their continued COVID response. Those universities were hardly alone — their fast action was the norm, as ASPPH members deployed their expertise in a range of areas.”

Alternative: “A prime example of our members’ rapid deployment occurred in Ohio, where Case Western Reserve University’s (CWRU) Master’s of Public Health Program began coordinating on COVID-19 with the City of Cleveland’s Department of Public Health on March 10, 2020, the day before the city declared a civil emergency due to the pandemic. The program director and student volunteers with technical and epidemiological expertise were embedded in the health department. Their partnership was formalized in October 2020 through an agreement that formally aligned CWRU faculty, staff and students in the local public health agency to foster the cross-pollination of technologies, methods and communication. This design ensured rapid response to community health needs and emerging gaps in the public health workforce caused by unprecedented stressors of the novel and long-lasting pandemic.”

- CDC could use this program to direct funding to research that closes gaps in major public health issue areas. Research priorities may include, but are not limited to:
  - Population Health
  - Addressing the challenges of rural America
  - Interventions targeting vulnerable populations
  - Infectious diseases and vaccination
  - Emerging and re-emerging infectious diseases
  - “Preparing for the next pandemic”
  - Improving vaccination rates and coverage
  - Non-communicable diseases and risk factors
  - Obesity and physical activity
  - Tobacco and substance use
  - Mental health, well-being, and suicide prevention
  - Environmental health
  - Resilience to impacts of severe weather
  - Air and water quality
  - Injury prevention and occupational health
  - Workplace health and safety
  - Road safety and accident prevention

2 https://covid19storytelling.aspph.org/
National Institutes of Health
The Need for NIH Population-Based Translational Research to Improve Public Health

The potential of translational research to effectively bridge the gap between clinical research and real-world application is increasingly recognized. Despite this, public health policy and practice often lag behind scientific advancements due to a lack of understanding of how to implement these discoveries at a population level. This underscores a critical need for increased support of the National Institutes of Health (NIH) to carry out population-based translational research.

Such research is crucial for many reasons. First, it can inform the design of public health interventions that are effective, sustainable, and equitable. The ability to effectively implement interventions that are proven to work, at scale, is the key to improving the health of the population at large. Understanding the barriers and facilitators to the adoption of evidence-based interventions is essential to overcoming disparities in healthcare and improving overall health outcomes.

Second, translational research can aid in understanding the complexity of health behaviors and their determinants within diverse population groups. This can help design interventions that are tailored to specific populations, increasing their relevance and potential impact. This understanding can further guide the development of policies and interventions that address social determinants of health, which are often the root cause of health inequities.

In the age of digitization, we are experiencing an unprecedented opportunity to leverage computer technology, big data, and artificial intelligence (AI) to enhance population health. Consequently, the role of the NIH in conducting population-based applied research, integrated with these advanced technologies, becomes increasingly crucial. Expansive, multifaceted, and data-driven research methodologies powered by AI and big data analytics can provide unique insights into the public health sector. These technologies allow investigators to capture and analyze vast and diverse health data sets, ranging from electronic health records to genomic databases, to social determinants of health. They can be instrumental in identifying health trends, predicting disease outbreaks, and monitoring the effectiveness of public health interventions across different population groups.

Through advanced computational methods, researchers can model complex health behaviors and their determinants, resulting in the design of more effective and personalized health interventions. Moreover, AI and machine learning algorithms can help identify hidden patterns and correlations that might be
overlooked in traditional analyses, enhancing our understanding of health disparities and their underlying causes.

Big data and AI can also revolutionize the field of translational research by enabling real-time monitoring and evaluation of public health interventions. This allows for rapid adjustments to these interventions, enhancing their efficiency and effectiveness. Furthermore, predictive modeling can help identify future challenges in the implementation process, helping to preemptively address these issues.

However, harnessing the potential of these advanced technologies requires a significant expansion of the NIH's resources and capabilities. There is a need for increased investment in building a robust digital infrastructure, advancing data-sharing collaborations, fostering interdisciplinary research teams, and training a workforce skilled in data science and AI. Such investments will ensure the ethical and responsible use of these technologies, respecting data privacy and addressing the risk of algorithmic bias.

Finally, population-based translational research can offer insights into systems thinking, helping to identify the most effective ways to change health systems to improve health outcomes. This is particularly important considering the multifaceted nature of health systems, where a change in one component can have unexpected effects on others. This should include greater investments in primary prevention research, cohort studies, and implementation science.

Despite the clear value of this research, current funding and resources for population-based research still need to be increased. Increased investment by the NIH in this area would foster a stronger evidence base for effective intervention strategies, the development of robust implementation methodologies, and the cultivation of a skilled workforce in this emerging field.

Investing in population-based applied research is an investment in our nation's health. With its multidisciplinary, cross-sector collaborations and robust research infrastructure, the NIH is uniquely positioned to lead this charge. By bolstering this critical area of translational research, we can ensure that the hard-earned advances of biomedical research translate into meaningful health improvements for all populations.

The NIH, with its breadth of collaborations and research infrastructure, is uniquely poised to lead this transformative journey, necessitating a sustained commitment and investment in this vital area of public health translational research.
Advanced Research Projects Agency for Health
Strengthening Public Health Infrastructure through Advanced Data Systems and AI Integration

The U.S. public health system, as tested by the COVID-19 pandemic, needs an overhaul. This includes the adoption of cutting-edge data systems that can facilitate real-time decision-making and proactive health interventions. The current public health data system is fraught with limitations, including inconsistent data collection, lack of real-time data, and outdated technology. These deficiencies hinder our capacity to make timely, informed decisions during public health emergencies and fail to harness the significant advancements in data science and technology made over the last two decades. With its unique mandate and positioning, ARPA-H can spearhead a public health data system transformation.

Small and midsize health departments do not have the capacity or expertise to integrate these critical efforts, but schools and programs of public health (SPPHs) do. As part of the Academic Public Health Research Partnerships, ARPA-H can help reshape our nation’s public health infrastructure by promoting data system improvement and advancement and, in doing so, we can ensure that our public health infrastructure is equipped to effectively handle future health crises and improve overall public health outcomes. We applaud ARPA-H for the recent announcement of the Health care Rewards to Achieve Improved Outcomes (HEROES) program, and PARADIGM program to improve rural health outcomes, both of which align well with capabilities of academic public health.

SPPHs have been pioneering research in health data science, including using big data analytics, AI, and machine learning to unravel complex public health issues. Big data allows for the identification of patterns, trends, and associations on a population scale that are otherwise invisible in smaller datasets. Meanwhile, AI and machine learning offers the ability to analyze complex relationships between variables and predict outcomes, enabling a proactive and preemptive approach to public health interventions.

We propose that ARPA-H invests $20 million in Academic Public Health Research Partnerships to design an innovative, modern data system that effectively leverages big data and AI. By integrating knowledge from academia, government, and industry, this data system will enable accurate, real-time data collection, sophisticated analysis, and rapid dissemination to public health professionals. AI and big data will also be used to identify potential health threats early, predict disease spread, and suggest the most effective interventions. Integrating big data and AI will fundamentally change how we approach public health. It will enable us to preemptively identify and address health risks, tailor interventions to specific populations, and efficiently respond to public health crises. This innovative approach to population health will facilitate ongoing prevention efforts and lead to improved health outcomes on a broad scale.
The Role of AHRQ to Strengthen Integration of Public Health and Healthcare Provider Organizations

The Agency for Healthcare Research and Quality (AHRQ) supports health services research initiatives that seek to improve the delivery of healthcare in America. AHRQ’s mission is to produce evidence to make healthcare safer, higher quality, more accessible, equitable, and affordable and to work within HHS and with other partners to make sure that the evidence is understood and used.

AHRQ works to fulfill its mission by conducting and supporting health services research, both within AHRQ as well as in leading academic institutions, hospitals, physicians’ offices, healthcare systems, and many other settings across the country. AHRQ has a broad research portfolio that touches on nearly every aspect of healthcare. AHRQ’s core competencies are 1) health systems research, 2) patient safety and practice improvement, and 3) data and analytics.

Throughout the healthcare field, there is a well-documented and acknowledged need to ensure that evidence-based findings and tools that agencies such as AHRQ help create are appropriately and rapidly put into practice. For instance, children are a strategic priority population for AHRQ research, and health threats such as COVID-19 highlighted the need to build evidence that accounts for special considerations required for this and other vulnerable groups.

As our healthcare system navigates the complex landscape of public health emergencies, overcrowding, and resource shortages, a crucial element of our strategy should involve empowering our state and local public health departments. These agencies are the frontline in managing public health crises and serve a pivotal role in effective resource allocation, which is essential to delivering safe and high-quality healthcare services during emergencies.

State and local public health departments offer an intimate understanding of their communities, which is invaluable in managing health crises. This understanding can inform the allocation of federal, state, and local emergency response resources, ensuring they are directed to the areas of greatest need. Public health departments are instrumental in developing and disseminating localized response strategies that address the unique demographic, socioeconomic, and health profiles of their regions or localities.

Moreover, public health departments play a significant role in managing and utilizing strategic stockpiles of medical supplies. Their expertise regarding epidemiological or disease trends and population health can guide decisions about what resources and supplies are most needed in an emergency and ensure
they are distributed efficiently. By enhancing their capacity through increased funding and other resources, we can optimize the use of these stockpiles and improve our overall emergency response.

The role of AHRQ in applied research and implementation science cannot be overstated in optimizing these efforts. By evaluating the effectiveness of various strategies and studying their successful execution in real-world settings and populations, we can develop targeted and evidence-based practices to empower our public health departments. This research can help identify the most optimal approaches for resource allocation, community engagement, staff recruitment and retention, and more. AHRQ can foster the development of models for community partnerships between public health agencies, healthcare organizations, allied partners, and stakeholders that can be rolled out and scaled nationally.

In our quest for a robust and resilient healthcare system, optimizing collaboration between healthcare delivery organizations and state and local public health departments is essential. By investing in strengthening the capacity of health departments to collaborate with healthcare delivery organizations effectively, we combine the deep understanding of community needs and evidence-based practices both of which are integral to building a healthcare system that is not only better equipped to handle current challenges but also more resilient to those we will face in the future. Within AHRQ, ASPPH proposes a $20 million increase under Research on Health Costs, Quality, and Outcomes program (potentially using the PHS evaluation tap) to expand evaluation and applied research on the integration of public health and health care organizations across the full range of public health challenges, from preparedness, to chronic disease prevention and infectious disease control, environmental health and other threats.

Thus, our collective efforts and investment in bolstering capabilities of state and local public health departments and their collaboration with healthcare delivery organizations will be vital in ensuring a stronger emphasis on applied research and implementation science that can result in a more responsive, efficient, and high-quality healthcare system.

“We have lots of work ahead of us as we rebuild our healthcare delivery systems to be more resilient to all types of hazards, such as the biological hazard we faced with COVID-19. But, in many parts of our Nation this spring, we also face natural disasters such as flooding, mudslides, and tornadoes. To respond effectively to these emergencies, we must help our Federal State, and local partners build robust public health systems. But we must also focus on building resilient local healthcare delivery systems and hospitals that provide the high-quality personal healthcare that the people of this Nation want and expect.” -- Robert Otto Valdez, Ph.D., M.H.S.A., Director of Agency for Healthcare Research and Quality.³

Health Resources and Services Administration
Strengthening the Regional Public Health Training Centers Network

Located at top universities throughout the U.S., the HRSA-supported Regional Public Health Training Centers Network (RPHTC) serves as the country’s most comprehensive resource for public health workforce development. The ten RPHTCs bring decades of experience in building the leadership, managerial, scientific, and technical skills of the public health workforce. Lessons from the pandemic have revealed the critical need for a consistently robust and well-trained public health workforce capable of responding to future public health emergencies, as well as addressing ongoing community health disparities. The RPHTCs are well suited to address these needs and while the centers have strong evaluation teams, they currently lack funding to research the impact of training on the community level or organizational level. To sustain this important program and cultivate evidence to inform proper public health training and practice efforts, the RPHTCs will require increased funding. The proposed increase can support a new coordinating center and allow for geographic expansion through a hub and spoke model in which the regional centers (hubs) could support through subgrants new partnerships with schools and programs in neighboring states (spokes).

Each RPHTC helps build, strengthen, and sustain a skilled public health workforce with training and tools tailored to meet the unique needs of each region. RPHTCs provide:

- **Professional Development:** RPHTCs offer a comprehensive set of resources to help public health professionals build core skills and strategic competencies required to address current and emerging public health challenges.
- **Experiential Learning:** RPHTCs help students gain valuable practical experience through funded field placements at agencies in underserved communities.
- **Consulting and Technical Assistance:** RPHTCs provide access to expertise and other resources that help community partners understand and plan for local workforce development needs.
- The RPHTCs also work together to promote best practices, coordinate efforts, share data, monitor training quality, disseminate resources and collaborate around the development of public health workforce innovation.

However, as public health demands increase the need for better coordination rises. The network must include a separate coordination center, led by an existing center(s) based on the knowledge gleaned from their on-the-ground experiences. Strong national coordination that maximizes the collective impact
of what the RPHTCs each do in their regions, reduces duplication to maximize taxpayer investment and supports their leadership in national workforce activities.

Through the RPHTCs, the Academic Public Health Research Partnership presents an opportunity to enhance evidence-based public health training, create an opportunity to address the dearth of research in public health training needs and directions, and better coordinate efforts across the entire public health spectrum.

**Public Health Workforce Loan Repayment Program**

Congress recently reauthorized this critical program in the PREVENT Pandemics Act, to help governmental public health departments address their multiple workforce challenges, including recruiting qualified applicants for openings and retaining these workers long-term. Student loan debt is a major obstacle to students seeking careers in governmental public health due to low-paying, entry-level jobs available in health departments. Loan repayment will allow our nation to strengthen the capacity of the public health workforce with the next generation of professionals who have educational training in public health and related disciplines. This is a vital program to help public health graduates make significant contributions to advance the field of public health practice, particularly in preparation for the next public health crisis. We urge HRSA to develop this program in partnership with ASPPH institutions to ensure it has the most significant possible impact on graduates hoping to work in government public health.

**Conclusion**

As the United States and the world face global public health threats, we must reinvigorate the academic public health approach. New investments in partnerships between academia and local public health agencies will ensure the best science reaches the whole nation and enable governmental public health to enhance its capacity though collaboration with the leaders in the field of academic public health. An HHS agency-wide approach will bring better cohesion and coordination to the public health arena. We have witnessed a significant exodus of public health workforce staff. With new investments in academic-public health partnerships, more public health students at all levels will have a chance to work in governmental positions, leading to a strong, well-educated workforce. These partnerships will also bring needed innovation to public health at all levels of government. Through innovation, investments, and partnership, the United States will be prepared to tackle the many public health risks our nation is bound to face the rest of this century.

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