



NBSB

National Biodefense Science Board

NBSB Recommendations for the 2023-2026 National Health Security Strategy

This report will be reviewed and finalized during the NBSB public meeting on December 16, 2021.

Those interested in attending the meeting may pre-register. Please see the agenda and registration link on the [NBSB meeting page](#).

Ahead of the meeting, written comments may be submitted to NBSB@hhs.gov.

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Introduction and Method of Work

On October 8, 2021, the U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Preparedness and Response (ASPR) designated federal official (DFO) for the National Biodefense Science Board (NBSB or the Board) sent a request for board members to review the 2018-2022 National Health Security Strategy (NHSS) and provide recommendations for development of the next edition of the NHSS. The full text of that request is in Appendix 1. Dr. Prabhavathi Fernandes, the NBSB Chairperson, and the DFO agreed to utilize the standing Readiness & Resilience Working Group (WG) for this topic, which is co-chaired by Dr. H. Dele Davies and Dr. David Witt.

During an Administrative Meeting of the full board on October 28, 2021, Mr. Darrin Donato, the Branch Chief for Domestic Policy, and Mr. Michael Fucci from the Policy Division in the ASPR Office of Strategy, Policy, Planning & Requirements (SPPR) provided an overview of the legal requirements for the quadrennial NHSS and summarized the past four editions (2009-2022). Additionally, they presented a preliminary analysis of current health security threats and challenges conducted by ASPR staff during the prior months. A brief outline of those is below.

Based on the availability of at least one of the co-chairs, the WG met on November 3, November 8, and November 10, 2021 to gather additional information and perspectives from a variety of federal and non-federal subject matter experts and discuss a variety of issues. Drs. Davies and Witt initiated the initial draft of the recommendations, with content and editing provided by the board members by email and in several additional meetings. Dr. Fernandes approved the draft for public preview. The members of the WG are listed in Appendix 2.

Preliminary Analysis of Current Health Security Threats and Challenges for the NHSS¹

The following list is a summary of the issues presented to the NBSB, which were explained in greater detail during Administrative and WG meetings.

Medical Countermeasure Development

- Limitations around access to accurate rapid diagnostic testing and other needed MCM such as PPE.
- Risks to supply chain disruptions due to pandemics like COVID-19, climate change/increasing extreme weather events, and global issues such as trade restrictions.
- Antimicrobial resistant organisms continue to rise, causing resource and financial burdens to the U.S. healthcare system.

Health System Resilience

¹ The analysis of current health security threats and challenges for the NHSS is intended as an overview and update of issues affecting the United States based on recent events but is not a comprehensive threat assessment nor the only source of information for the NHSS.

DRAFT – PRE-DECISIONAL; FOR DISCUSSION PURPOSES

- Issues with equitable patient access to care, including barriers with healthcare costs and insufficient technology to access telehealth services.
- Challenges with interoperability between among siloed public health data surveillance systems.
- Cyberattacks (e.g., healthcare data breaches and ransomware) on healthcare systems can reduce capacity and worsen health outcomes.

One Health

- Climate change increases the prevalence of communicable diseases and directly impacts food, agricultural, and water systems.
- Risk of spread of novel pathogens increases with environmental changes including urbanization, intensified agricultural practices, and deforestation.
- Globally, insufficient data sharing agreements among countries caused delays in pandemic response and can limit opportunities to prevent pathogen spillover.

Community Resilience

- Health threats such as climate change, COVID-19, and other infectious diseases exacerbate existing health disparities and have inordinate impacts on vulnerable populations
- Public health emergencies can cause negative impacts on mental health and exacerbate current public health trends such as substance abuse disorders and noncommunicable diseases.
- Misinformation during public health emergencies can result in non-compliance with public health response measures.

Overview of WG Sessions

Several national organizations and federal agencies were invited to provide perspectives on the NHSS. They were asked to consider past editions of the NHSS and provide considerations for issues, threats, challenges, and opportunities that the WG could consider when formulating recommendations.

- American Public Health Association, Dr. Georges C. Benjamin, Executive Director
- Association for State and Territorial Health Officials (ASTHO), Mr. David Gruber, Associate Commissioner for Regional and Local Health Operations, Texas Department of State Health, ASTHO Selected Representative
- Centers for Disease Control and Prevention (CDC), Center for Preparedness and Response, Dr. Ian Williams, Deputy Director
- Department of Homeland Security (DHS), Office of Combating Weapons of Mass Destruction, Dr. Herbert Wolfe, Deputy Assistant Secretary for Health Security

- National Association of County and City Health Officials, Adriane (NACCHO) Casolotti, Chief of Government and Public Affairs; Lisa Macon Harrison, MPH, NACCHO President & Public Health Director for Granville Vance Public Health, NC
- The White House, Executive Office of the President, CAPT Michael Schmoyer, PhD, Office of Administration

NBSB Findings and Recommendations for the 2023-2026 NHSS

Considering only the specific health security threats and challenges described by the ASPR Policy team in their preliminary analysis—responding specifically to the first item in the ASPR request—the NBSB concurs with the following priority issues:

- Need for greater interoperability between siloed public health and health care data systems.
- Ongoing risk of emergence and spread of novel pathogens.
- Disproportionate impacts of public health emergencies on those already suffering from health disparities, mental health conditions and substance addiction, and other social and economic vulnerabilities.
- Extreme vulnerability of diagnostics and medical supply chains due to pandemics like COVID-19.
- Negative effects of misinformation and conflicting information on national public health emergency response.

Expanding on, and in addition to those priorities—responding to the second and third items in the ASPR request—the NBSB recommends that the following seven issues and priority steps² be considered when developing the 2023-2026 NHSS and implementation plan. These recommendations are not intended to suggest a limit for the content of the NHSS, but provided as a guide to its development, as requested.

1. National plans for health emergency response, developed and led by HHS, should clearly outline a national unified command structure and federal coordination mechanisms.

A pre-established plan for federal leadership during national health emergencies would result in the announcement of highly coordinated, evidence-based decisions that apply across the entire federal effort, including when there are One Health implications for the veterinary, wildlife, and agricultural sectors. Leadership at the national level should result in rapid coordination among all relevant departments and support federal leaders to speak with a single voice during an emergency, avoiding conflicting guidance, delays, and confusion about appropriate actions. As

² The original request from ASPR included a request for “milestones,” which board members recognize as critical for effective program management. Rather than attempting to estimate when and how specific actions should be completed, the NBSB instead chose to highlight overarching, potentially aspirational, goals, as well as provide some specific action items that could be accomplished during the timeframe of the next NHSS.

highlighted in the May 2021 report of the NBSB, an overarching critical lesson for the nation’s response to the COVID-19 pandemic is the need to ensure that the United States is always prepared to implement an immediate, effective, and coordinated public health response that is *guided by scientific knowledge and protected from undue political influence*. Similar to the Congressional Budget Office or the Federal Reserve Bank, HHS could consider developing a centralized, core public health emergency communication and coordination function that is inherently insulated from political considerations, with the ability to independently develop, directly distribute, and frequently update public health messages with scientific principles in mind, guided by analysis of available data, with inputs from the nation’s leading experts. A joint, federal committee could define and publish the fundamental public health and medical emergency response command structure and the roles of federal entities, including but not limited to the CDC, ASPR, DHS, U.S. Department of Agriculture, Occupational Health and Safety Administration, Federal Emergency Management Agency (FEMA), and The White House. A well-established unified command structure for the federal government for public health emergencies should also include state representation to ensure regional, state, and local considerations during policy and process development and the ability to effectively enact national needs.

2. Significantly increase efforts to prepare the public health and health care systems for multiple disasters, including the impacts of climate change.

In the aftermath of COVID-19, we must consider a new standard for modern disaster preparedness that requires being capable of managing more than one major emergency simultaneously. The effects of changing weather patterns caused by an overall rise in global temperatures, resulting in strengthening and increased frequency of weather events, combined with increased risk for the natural emergence of novel pathogens, means that a new paradigm and strategy are needed for preparedness in the health sector. In part, this means specific plans, additional funding, evaluation criteria, and incentives to better integrate health and public health along with local community preparedness, including focal alignment with global systems (i.e. international border health security). Effective responses to and recovery from inevitable, concurrent disasters and health emergencies requires expansion of and effective redundancy in the capacities of public health departments and health systems, with expansion and strengthening of the existing coalition strategy, while evaluating HHS funding to achieve greater efficiency and appropriate funding for capacity building activities.

3. Conduct a comprehensive assessment of the public health and medical emergency response workforces and establish an investment plan that modernizes and stabilizes the national human resource capacity for health emergency response.

Establishing a national investment strategy for the public health and medical emergency response workforces requires a comprehensive assessment to determine how best to allocate resources that support workforce modernization, meet initial and long-term education and

training needs, and ensure the fundamental capacities and capabilities to respond to public health events. HHS should collaborate with Department of Homeland Security, among others, to assess the national health emergency workforce requirements and establish a comprehensive, multi-year investment strategy. Funding for public health has diminished significantly over the last decades, with new resources often dependent on special appropriations that do not result in stable improvements. Future, enhanced funding to build and sustain federal, regional, state and local public health organizations should aim to develop a national public health workforce that is consistently capable to conducting essential public health functions while adapting to adversities and emergencies. This workforce must be capable of horizontal and vertical integration and coordination with partner organizations, which necessarily requires complementary training and sustainment of skills in the wider health emergency response workforce, including health care providers.

4. Conduct a national risk assessment for the essential medical and public health supply chains and publish a national emergency health supply allocation strategy for the United States.

COVID-19 and other recent national emergencies demonstrated that the current strategy for acquisition and distribution of emergency medical and public health supplies, including maintaining static stockpiles, is insufficient for major events. Just-in-time acquisition strategies and lack of a transparent allocation plan resulted in unexpected supply shortages across the spectrum of health needs during COVID-19. Absent acceptable policies and foundational principles, distribution of limited resources is susceptible to political, social, and emotional pressures resulting in unequal and inappropriate resource competition. As a part of ensuring national public health supply chain resilience, in addition to other ongoing activities, HHS should (1) conduct a comprehensive, national risk assessment to identify critical manufacturing and components of the medical and public health supply chain that remain most vulnerable and critical for national emergency response; and (2) develop a national emergency allocation strategy for distribution of limited public health and medical resources based on publicly acceptable tenets and decision-making mechanisms.

5. Integrate data from relevant information systems across the United States, with the ability to include animal and agricultural data, to provide rapid situational awareness.

An integrated data platform for health and social determinant data in the United States, coordinated by HHS, would effectively combine data from public health and health care systems with appropriate non-health data. Such a system could also include the capability to monitor real-time social media trends related to the health impacts and public perception of nation-wide emergencies. The information system (or system of systems) should allow for timely data sharing as appropriate and the flexibility to establish new health surveillance activities for unexpected events. While many analytic capabilities would be possible and useful in such a system, monitoring the stress on and resilience of the health care systems is a key feature. Initial efforts should focus on improving existing capacity to rapidly evaluate and characterize novel

threats, with the ability to forecast and monitor impacts and overloads on health care and public health systems during mass casualty incidents. It should also provide insights into the impacts on populations that are more vulnerable to a particular threat. Ultimately, such a platform could also support emergency public health and clinical research, modeling for the purposes of exercises and planning, and other forms of disaster science.

6. Strengthen existing systems and develop new approaches to identifying, communicating with, and reducing vulnerabilities among at-risk populations, with real-time functions to help target public health interventions during a disaster.

Social determinants of health, lack of access to care, poorly controlled chronic conditions, and adverse experiences in childhood affect wellness across the lifespan, encompassing a wide variety of demographic, socioeconomic, and geographic factors, and environmental exposures. Additional effort is required to address the unique, complex needs of population subgroups that are especially vulnerable to the impacts of disasters and climate change, which includes methods to identify and communicate with them during emergency response and recovery. Information and communication systems should provide federal leaders and response partners with sufficient understanding of the impacts of a health threat on at-risk populations that allow rapid development and implementation of focused response activities.

7. Build a public communications system that allows HHS to understand how the public perceives and receives information about public health emergencies and develop protocols that diminish the occurrence and impacts of health-related mis-, dis-, and mal-information.

COVID-19 revealed the presence of significant gaps and lack of trust in public health communications, especially related to the evolving understanding of novel threats and acceptance of interim public health measures. Conflicting information throughout the pandemic resulted in confusion and distrust, delaying or preventing the adoption of sound public health measures, adaptation to new evidence, and uptake of safe medical countermeasures. The general public has been and continues to be inundated with misinformation, disinformation, and mal-information³ (MDM) via social and public media, which resulted in pervasive counterproductive action and inaction. HHS should develop and maintain a strategy to coordinate a unified, whole-of-government public health communication response and provide support for local public health departments to effectively communicate within their jurisdictions about health risks during a disaster. The HHS communication efforts should help the public to recognize information that is coming from a valid source, which requires methods and resources to actively counteract the sources of MDM. These actions could involve better preparation for public engagement by adding more expertise in public relations, marketing, and relevant sociobehavioral sciences to communications and external affairs staffs.

³ Mal-information is used to mean information that is intended to cause harm.

Appendix 1: ASPR Request to the National Biodefense Science Board (transmitted October 8, 2021)

Evaluation of Current and Future Health Security Threats, Gaps, Challenges, and Opportunities and Recommended Objectives for the 2023-2026 National Health Security Strategy

Since 2006, Congress has required the Secretary of the U.S. Department of Health and Human Services (HHS) to develop and submit a 4-year National Health Security Strategy (NHSS) and implementation plan that describe “potential emergency health security threats and identify the process... to be prepared to identify and respond to such threats...” Developed and led by the HHS Office of the Assistant Secretary for Preparedness and Response (ASPR), the quadrennial NHSS establishes a Department-wide strategic approach to the Nation’s primary health security challenges and a vision to strengthen the United States’ ability to prevent, detect, assess, prepare for, mitigate, respond to, and recover from disasters and emergencies. Every four years, the Policy Division in the ASPR Office of Strategy, Policy, Planning and Requirements (SPPR) lead the strategy writing process, first by conducting a broad evaluation of health security risks, challenges, and opportunities. In collaboration with a variety of stakeholders, the Policy team determines the goals and objectives for the upcoming NHSS, which are ultimately approved by ASPR and the rest of HHS. The year following the conclusion of each NHSS, the team produces an evaluation of progress report. All such documents are ultimately published online.

The 2019-2022 NHSS cited extreme weather and natural disasters, pandemic and infectious diseases, technology and cyber threats, and ongoing threats from state and non-state actors that would attack the U.S. with chemical, biological, radiological, or nuclear weapons. The prior strategy focused on three overarching objectives: 1) prepare, mobilize, and coordinate a whole-of-government approach; 2) protect the nation from the health effects of emerging and pandemic infectious diseases and chemical, biological, radiological, and nuclear (CBRN) threats; and 3) leverage the capabilities of the private sector. In its whole-of-government approach to implementation, the 2019-2022 NHSS includes four categories of actions to accomplish those objectives: services, guidance, direct support, and capacity-building.

After examining the 2019-2022 NHSS, the 2019-2022 NHSS Implementation Plan, and the 2015-2018 NHSS Evaluation of Progress, considering information from other sources, stakeholders, and subject matter experts, ASPR requests that the National Biodefense Science Board:

- 1) Recommend the three or four most critical issues (threats, gaps, or challenges) from among those identified by the Policy Division (this will be presented during the meeting on October 28);
- 2) Recommend any other issues or opportunities that are also critical to consider addressing in the next National Health Security Strategy; and

- 3) For each issue and opportunity (from activity 1 and 2 above), provide a detailed recommendation for a milestone (or milestones) or specific actions (i.e. anticipated accomplishments and achievable objective for 2023 to 2026) that would demonstrate progress.

References

National Health Security Strategy (NHSS) [summary webpage](#)
2019-2022 [NHSS full text](#)
2019-2022 [NHSS Implementation Plan full text](#)
2015-2018 [NHSS Evaluation of Progress full text](#)

Appendix 2: NBSB Readiness & Resilience Working Group

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