



National Special Pathogen System of Care (NSPS) Strategy Summary

June 18, 2021

Background

The Challenge

The COVID-19 pandemic caused an unprecedented global crisis, taking millions of lives worldwide, overrunning the world's health care systems, and upending the economy. In the United States (U.S.), every community and industry felt the impact of COVID-19. Health care has been at the epicenter as frontline providers operated in crisis mode, managing an overwhelming surge in cases, and witnessing this national tragedy firsthand. Although COVID-19 impacted everyone, it became clear that COVID-19 hit communities of color harder than others. The pandemic exposed gaps and injustices in our health care and public health arenas that cannot be ignored.

We must act now to build a National Special Pathogen System of Care (NSPS) and enable a more effective, equitable, and sustainable response to the next special pathogen. We must break from temporary, unsustainable solutions and build a stronger national response capability for special pathogens to protect the health and security of all Americans. The NSPS Strategy and Implementation Plan were developed to accomplish this.

Summary of Gaps in Today's Special Pathogen Care

The NSPS Strategy and Implementation Plan are focused on closing gaps in today's health care delivery system as it applies to special pathogen care. The gaps have been identified through desk research, subject matter expert interviews, a patient claims analysis, and working sessions with health care stakeholders. Gaps include, but are not limited to, the below.

Figure 1. Gaps in Today's Special Pathogen Care

Below are gaps in today's special pathogen care spanning eight topics.

CARE DELIVERY

- Limited access to specialized special pathogen care
 - Insufficient and unequal surge capacity at facilities across the U.S.
 - Uncoordinated, inconsistent, and unscalable clinical guidance for various special pathogen scenarios
 - Disjointed development and distribution of therapeutics
 - Inequitable care to minority groups
- "We need our people involved in the decision-making process – clinicians know what's happening because we're boots on the ground."*

COMMUNICATION AND COORDINATION

- Inconsistent partnership between health care and public health
 - Unclear roles of various stakeholders in the special pathogen ecosystem across readiness, response, and recovery
 - No trusted coordinating entity to support an effective special pathogen response
 - Limited coordination between health care leaders and policymakers in policy development and implementation (e.g., licensure, emergency funding)
- "We need to do better than having nice people agree to work well together."*

WORKFORCE

- Limited quantity of health care workers trained in special pathogen diagnosis and care
 - Limited special pathogen education, training, and regular drills
 - Limited health workforce capacity
- "We need to retain the generational knowledge and expertise from this pandemic."*

RESEARCH AND KNOWLEDGE GENERATION

- Operational networks and research networks are not appropriately connected
 - Early-clinical findings are disseminated informally and non-systematically
 - Limited timely, easily accessible, and transparent clinical and health systems research
- "We need to create communications channels for clinicians and researchers to share early findings with coordinating bodies and government professionals."*

DATA AND TECHNOLOGY

- Unstandardized clinical research and health systems data collection and reporting
 - Inadequate and heterogeneous surveillance infrastructure
 - Inconsistent and duplicative requests for data and reporting at the local, state, and federal levels
 - Non-timely and inconsistent sharing of data between institutions and public health agencies
 - Limited visibility of health care readiness at the local level
- "We need consistency across what data are important to collect and SOPs around timely data reporting to be able to use data to accurately make decisions."*

MONITORING AND EVALUATION

- Inconsistent standards and expectations for quality of care between the federal government; state, tribal, local, and territorial (STLT) public health departments, and health care delivery systems
 - Varied special pathogen readiness assessments
- "No two hospitals operated the same, and success rates varied widely."*

FINANCIAL SUSTAINABILITY

- Limited financial preparedness of care delivery facilities
 - Lack of incentives for special pathogen health care beyond grants or cooperative agreements, which are not a reliable source of funds to maintain readiness
- "This is the same problem throughout emergency preparedness more broadly – funding. Our planning horizon is non-existent without external pressures."*

SUPPLY CHAIN

- Unclear and inconsistent recommendations for PPE, ventilators, vaccines, and other equipment recommendations
 - Limited quantity and inconsistent quality control of PPE, ventilators, vaccines, and other equipment
 - Inequitable distribution of PPE and other supplies, equipment, and resources
- "Rapid surges of need strain the supply chain and lead to poor quality products and PPE."*

The Case for Change

Special pathogen outbreaks are likely to emerge regularly. The timing of outbreaks will continue to be unpredictable, but their occurrence is a certainty.¹ More people are living in higher density areas, which increases the likelihood of special pathogen outbreaks when transmission is person-to-person. Intercontinental travel is faster and more frequent than ever before, allowing for rapid global spread of transmissible infectious diseases. As humans continue to stress natural ecosystems, human-animal interactions will increase, furthering the spread of emerging infections from animal reservoirs. Climate change and globalization have exacerbated this threat in the 21st century, with experts expecting special pathogen outbreaks to increase in frequency. Emerging infectious diseases, irrespective of site of origin, will continue to require attention and capacity to protect life and longevity in the U.S.

Through funding from the HHS Office of the Assistant Secretary for Preparedness and Response (ASPR), the National Emerging Special Pathogens Training and Education Center (NETEC) spearheaded the development of a NSPS Strategy and Implementation Plan to address the gaps in special pathogen preparedness and response in the U.S. NETEC gathered input from over 70 people, including federal and state governmental representatives, healthcare system leaders, and national specialty organization representatives. Three domain-based sub-teams and advisors created the NSPS strategy that follows.

The National Special Pathogen System of Care (NSPS) Strategy

Mission

To provide a coordinated and standardized health care network of high-quality, patient- and community-centered care for patients suspected of or infected by a special pathogen in the United States, while protecting the health workforce

Vision

To save lives through a sustained, standardized special pathogen system of care that enables health care personnel and administrators to provide agile and high-quality care across the care delivery continuum

The vision can be illustrated through aspirational success measures, which include:

- Zero preventable deaths after special pathogen infection
- A mobilized network within two hours of a suspected special pathogen
- Access to high-quality special pathogen care for 100% of the U.S. population

NSPS Guiding Principles
<ul style="list-style-type: none"> • Patient- and community-centered – Focus on improving patient care and outcomes, and consider the impact on and the needs of communities • Accountable – Follow through on the expectations of the NSPS in service of patients and communities • Coordinated & collaborative – Coordinate across public and private sectors in the NSPS design and implementation • High-quality & equitable – Prioritize safety, timely escalation, effective triage, surge capacity, continuity of operations, and equity across the care delivery continuum for all special pathogens • Responsive – Adapt quickly to internal and external forces and the evolution of the pathogen • Scalable & sustainable – Develop, scale, and financially and cost-effectively sustain the system of care

Components of the Target Operating Model Design

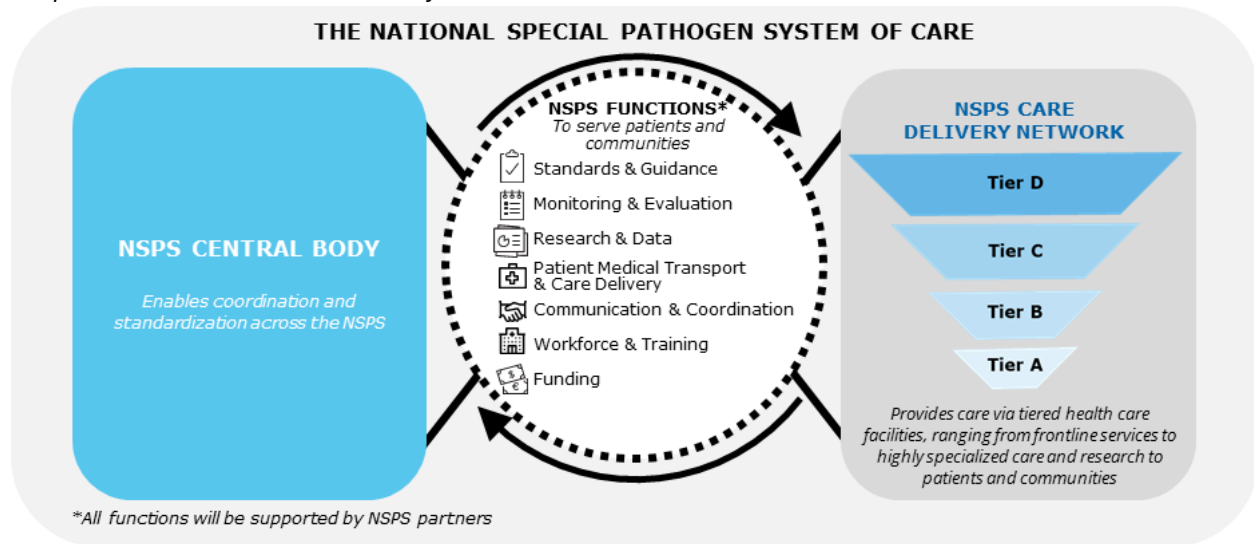
The National Special Pathogen System of Care (NSPS) is the future system of care composed of a Care Delivery Network (built on the existing delivery system), a Central Body, and other relevant stakeholders

¹ Dodds W. (2019). Disease Now and Potential Future Pandemics. *The World's Worst Problems*, 31–44.
https://doi.org/10.1007/978-3-030-30410-2_4

with capabilities and roles in readiness, response, and recovery for special pathogen events to support the care continuum administrators and health care personnel. To operate a well-functioning and coordinated system of a care, the NSPS must implement an operating model.

Figure 2. The NSPS – Target Operating Model Design

The Central Body will enable coordination and standardization across the NSPS, while the Care Delivery Network will provide care via tiered health care facilities.

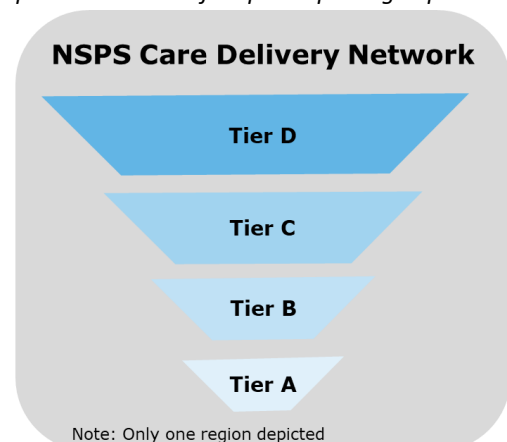


The Central Body is the coordinating entity that supports and operationalizes the Care Delivery Network and maintains connectivity with the broader NSPS in a decision making and advisory capacity. The Central Body will enable coordination and standardization across the NSPS Care Delivery Network and the broader NSPS. There is a need for a central body to coordinate and unify public and private entities in protecting national health security and leading with a commitment to equity. The Central Body will support four tiers of facilities in providing high-quality, patient- and community-centered care by coordinating across the Care Delivery Network and with stakeholders with roles in response, readiness, and recovery.

The Care Delivery Network is the tiered structure organizing care facilities to ensure access to and equity in special pathogen care delivery. The purpose of the Care Delivery Network is aligned directly to the mission of the NSPS – it supports an ongoing focus on patient- and community-centered special pathogen care while it protects the health workforce and provides the coordination needed to save lives. The Care Delivery Network is designed to provide coordinated, standardized, and equitable care to patients infected by (or suspected to have been infected by) a special pathogen, such as COVID-19, in the U.S. The challenge is to prepare the Care Delivery Network for a wide range of special pathogen scenarios, including localized outbreaks of highly unusual pathogens, regional epidemics with local surges in case volumes, and a pandemic. Care Delivery Network facilities (e.g., hospitals, urgent care centers, skilled

Figure 3. Care Delivery Network

The Care Delivery Network is composed of four tiers with varying levels of capacity and capabilities to care for special pathogen patients.



nursing facilities and long-term care centers) are stratified by tiers to organize the NSPS by capability level. Facilities in the Care Delivery Network make operational decisions about resourcing and load balancing and receive support from the Central Body with coordination and capacity building across the care continuum.

Table 1. Care Delivery Network Tiers

The table lists the Care Delivery Network tiers including their value propositions and descriptions.

Tier	Value Proposition
Tier D (<i>Most health care facilities in the U.S., including outpatient care facilities</i>)	Tier D facilities will identify, isolate, initiate, and provide basic special pathogen care, protect staff, have access to necessary PPE, arrange any needed patient transport in a timely manner, and absorb patient surge when needed. This tier will include all care facilities that do not meet criteria for Tiers A, B, or C.
Tier C (<i>Approx. 200-300 facilities across the U.S.</i>)	Tier C facilities will be widely accessible care delivery facilities that can conduct rapid laboratory testing to identify patients with special pathogens and manage most special pathogen care.
Tier B (<i>Approx. 100 facilities across the U.S.</i>)	Tier B facilities will have the capacity to deliver specialized care to large numbers of patients and support patients through the course of their illness.
Tier A (<i>Approx. 10-20 facilities across the U.S.</i>)	Tier A facilities will be the preferred site for high-level isolation, offer specialized services for pediatric patients, and serve as the primary resource hub for the region-specific and neighboring Tier B, C, and D facilities.

Goals, Objectives, and Sub-objectives

The NSPS Strategy is designed to accomplish the following goals and objectives in the next one to three years to fill the gaps in today’s special pathogen system of care.

Table 2. Goals, Objectives, and Sub-objectives

The table lists the goals, objectives, and sub-objectives of the NSPS.

Goal	Objective	Sub-objective
Goal 1: Establish and operationalize the Central Body and the Care Delivery Network	Objective 1.1- Operating Model: Design and operationalize the operating model of the Central Body and Care Delivery Network	Sub-objective 1.1.1- Determine the organization (e.g., existing organization, new organization) accountable for the activities of the Central Body Sub-objective 1.1.2- Design the operating model of the Central Body and Care Delivery Network Sub-objective 1.1.3- Implement the operating model of the Central Body and Care Delivery Network
	Objective 1.2- Financial Foundation: Initiate financial mechanisms and revenue streams to support activities of the Central Body and the Care Delivery Network	Sub-objective 1.2.1- Identify financial mechanisms and revenue streams to support the Central Body and supplement Care Delivery Network funding Sub-objective 1.2.2- Establish processes to obtain funding for the NSPS
	Objective 1.3- Communications Foundation: Establish communications channels and educate relevant stakeholders to gain buy-in and commitment for the NSPS	Sub-objective 1.3.1- Educate special pathogen stakeholders, including policymakers, on the need for the formalization of the NSPS Subobjective 1.3.2- Gain buy-in and commitment from stakeholders to participate in the NSPS, particularly via the Care Delivery Network and the Central Body

Goal	Objective	Sub-objective
<p>Goal 2: Unify and strengthen patient- and community-centered special pathogen care across the care delivery continuum and the incident lifecycle</p>	<p>Objective 2.1- Care Delivery: Enable access to high-quality, equitable care for patients infected by a special pathogen via a tiered, national Care Delivery Network with defined capabilities to provide special pathogen care</p>	<p>Sub-objective 2.1.1- Coordinate a tiered, national Care Delivery Network with defined capabilities relating to special pathogen care Sub-objective 2.1.2- Provide ongoing and up-to-date standards, guidance, and support services across the incident lifecycle for all types of special pathogen outbreak scenarios to the Care Delivery Network facilities and providers Sub-objective 2.1.3- Maintain pre-determined capabilities (e.g., surge plans, waste management, load balancing) that align to readiness expectations for the tiers Sub-objective 2.1.4- Develop and maintain national, state, and local partnerships (e.g., government health agencies, professional associations) to support care delivery</p>
	<p>Objective 2.2- Communication & Coordination: Strengthen communication and coordination within the Care Delivery Network, the broader NSPS, and the public</p>	<p>Sub-objective 2.2.1- Gather inputs from and promote collaboration with relevant stakeholder organizations (e.g., government, national expert organizations) to inform operations and development of national standards and resources Sub-objective 2.2.2- Share educational, science-based special pathogen information with the public and policymakers Sub-objective 2.2.3- Stand up and leverage communication channels to disseminate guidance and standards within the Network, the broader NSPS stakeholders, and the public</p>
	<p>Objective 2.3- Workforce: Maintain a trained, diverse, and specialized workforce to equip the Care Delivery Network and prepare for a surge</p>	<p>Sub-objective 2.3.1- Support and train clinicians and health care workers across the Care Delivery Network on special pathogen care delivery Sub-objective 2.3.2- Explore models to enable flexible workforce solutions to respond in special pathogen events</p>
	<p>Objective 2.4- Research & Knowledge Generation: Accelerate sharing of special pathogen treatment and research efforts in partnership with industry and government</p>	<p>Sub-objective 2.4.1- Serve as a central research hub to facilitate effective clinical and health systems research, data collection and analysis, delivering timely information to improve clinical care, workforce and health system management, and quality control within the NSPS Sub-objective 2.4.2- Promote the collection of data and exchange of best practices across the Care Delivery Network and NSPS stakeholders; these system-wide data will inform the efforts of designated NSPS researchers</p>
<p>Goal 3: Sustain infrastructure for a coordinated and standardized special pathogen health care system</p>	<p>Objective 3.1- Data & Technology: Facilitate the collection, integration, analysis, and dissemination of data, and maintain connectivity to existing surveillance to support</p>	<p>Sub-objective 3.1.1- Design solutions, agreements, and protocols to support the sharing of and access to data to empower special pathogen preparedness and response Sub-objective 3.1.2- Identify and provide reliable data and clinical and operational guidance to Care Delivery</p>

Goal	Objective	Sub-objective
	evidence-based decision making	Network facilities and stakeholders based on data analysis and connectivity to existing surveillance
	Objective 3.2- Monitoring & Evaluation: Designate Care Delivery Network facilities by tier based on capability and continuously monitor performance	Sub-objective 3.2.1- Designate and set standards for Care Delivery Network facilities across tiers Sub-objective 3.2.2- Evaluate and monitor financial and operational readiness during readiness, response, and recovery
	Objective 3.3- Financial Sustainability: Sustain the Care Delivery Network and the Central Body through continuous diverse funding sources	Sub-objective 3.3.1- Coordinate additional funding for Care Delivery Network facilities through partnerships with relevant organizations and stakeholders, including private donors Sub-objective 3.3.2- Coordinate incentives for Care Delivery Network facilities to maintain capabilities and partners in planning and response Sub-objective 3.3.3- Support resource requests for emergency funding during extraordinary events
	Objective 3.4- Supply Chain: Improve equitable distribution and allocation of resources, and provide support for utilization and management of resources	Sub-objective 3.4.1- Provide standards and guidance for special pathogen care delivery resource utilization and management to the Care Delivery Network facilities, clinicians, and health care workers Sub-objective 3.4.2- Support development, procurement, and distribution of resources to Care Delivery Network facilities Sub-objective 3.4.3- Support equity in addressing supply chain shortfalls through equitable distribution and management of resources

How to Adopt this System

The Implementation Plan illustrates how the strategy design can be implemented, advanced, and sustained by “owners” of key components of the strategy. The Implementation Plan will be agile and continuously updated based on further NSPS design and new priorities.

In year one, NETEC has convened experts across the health care ecosystem to develop the NSPS Strategy and Implementation Plan. Furthermore, the current NSPS Strategy leadership will implement prioritized sub-objectives of the NSPS Strategy to design, establish, and operationalize the Central Body and Care Delivery Network operating models. These operating models will be developed with robust involvement from public and private sector leaders, and with consideration for feasibility and impact. The current NSPS Strategy leadership will identify an organization and partners to operate the NSPS, including the Central Body. The Central Body will establish governance for the system and funding for the Central Body. Funding may be obtained using mechanisms for seed funds and once seed funding is obtained, the Central Body must establish operational funding mechanisms to be used for sustaining the system. The Central Body will lay the foundation for a valuable research network that will help standardize IRB materials, data gathering tools and definitions, and identify pathways for fast outreach and response. In addition, the Central Body will pilot the Care Delivery Network with a select group of participants from each tier.

Acknowledgments

This strategy was developed with over 70 individuals and organizations who have lent their expertise and time to develop the NSPS Strategy. We, the NETEC Steering Committee, oversaw and managed the development of the strategy. We express our gratitude to the individuals who provided their time and ideas in the early stages of the strategy development.

The following individuals are Core Advisory Group participants, Tiger Team participants, Greenhouse Lab participants, and NETEC staff, who provided significant time and commitment to shaping the strategy. The Core Advisory Group consisted of members that advised and provided thoughtful direction to the strategy. The Tiger Teams leads and members designed the NSPS target operating model and brought special pathogen and health care experience and expertise to the table. Greenhouse Lab participants provided insights in focused working sessions to advise the strategy. NETEC staff provided expertise, program management support, and communications support.

These participants are presented in alphabetical order below. Please note that the viewpoints expressed in this strategy do not necessarily reflect the viewpoints of the acknowledged individuals or their organizations.

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On behalf of the NETEC Steering Committee, thank you.

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