

The ability for state health agencies to quickly detect and respond to infectious diseases depends on having a strong infrastructure in place. Infrastructure is the foundation for planning, delivering, and evaluating public health services. State health agencies require effective and efficient systems for preventing infectious disease morbidity and mortality, ensuring control of outbreaks and vigilance against diminishing diseases, and preventing and responding to reemerging and emerging infectious disease threats.

Increased Demands on Infrastructure

The new federal requirements for improved health care coverage are likely to increase the number of individuals that are screened and diagnosed with an infectious disease. State and local health departments will provide crucial resources for these individuals – providing care, guiding them to appropriate care, conducting surveillance, and analyzing new data from providers to detect trends which can then lead to increased educational campaigns and efforts to reach underserved populations. This new paradigm will undoubtedly require increased capacity for surveillance and case follow-up. Building epidemiology, laboratory, and health information system capacity will enable public health response to be timely and complete and will contribute to restraining the rate of growth of health care costs.

The implementation of national infectious disease strategies (e.g. National HIV/AIDS Strategy, HHS Action Plan to Prevent Healthcare-Associated Infections, and HHS Action Plan on Viral Hepatitis) will also require a strong infectious disease infrastructure.

There are currently two fundamental programs, funded by the Centers for Disease Control and Prevention (CDC), which help support states' abilities to respond to infectious disease issues. The Epidemiology and Laboratory Capacity (ELC) Program provides funding to all states to address these issues, while the Emerging Infections Programs (EIP) provides funding to select states for surveillance, prevention, and control of emerging infectious diseases.

Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) Program

The Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) program helps states identify and monitor the occurrence of known infectious diseases, identify newly emerging infectious diseases, and identify and respond to outbreaks. Specifically, this funding supports surveillance efforts, enhances collaboration between public health laboratories and epidemiologists, and supports training at the state and local level. Infrastructure gains from ELC funding include: infectious disease investigation, antimicrobial resistance prevention programs, and epidemiologic information systems. Importantly, the ELC program also enables state health agencies to adapt to evolving health threats, such as foodborne disease investigation in recent years and situational awareness and decision making during the 2009 H1N1 influenza pandemic. ELC funding is provided to all 50 states, six cities, and two U.S. territories.

ELC grants support critical infectious disease work in the states, including:

- Identifying and responding to outbreaks (e.g., 2010 outbreak of *Salmonella* Montevideo)
- Supporting the development and implementation of key public health programs (e.g., national West Nile virus surveillance and response program)
- Maintaining and enhancing core capacity for public health (e.g., standardization of foodborne illness questionnaires, implementation of laboratory techniques)

- Enhancing state health information systems (e.g., National Electronic Disease Surveillance System, National Healthcare Safety Network to report healthcare-associated infections, and the Nationwide Health Information Network)
- Monitoring influenza (e.g., ILINet surveillance program)

With recent Affordable Care Act dollars, the ELC will provide vital enhancements to improve states' effectiveness in reducing the incidence of infectious disease. These include improving information systems that support electronic exchange, developing and implementing prevention and control strategies, and increasing communication between public health agencies and clinical care systems

Emerging Infections Programs (EIP)

The Emerging Infections Programs (EIP) are a population-based network of state health agencies and their collaborators, including but not limited to academic institutions, local health departments, public health and clinical laboratories, infection control professionals, and healthcare providers. The ten EIP sites receive grants from the CDC to conduct surveillance and applied epidemiologic and laboratory research, implement and evaluate prevention and intervention projects, and respond quickly to new infectious disease issues. The unique strength of an EIP lies in the network's ability to quickly translate surveillance and research activities into informed policy and public health practice.

Activities conducted throughout the EIP network include:

- Active Bacterial Core surveillance (ABCs): Active population-based laboratory surveillance for invasive bacterial disease
- FoodNet: Active population-based laboratory surveillance to monitor the incidence of foodborne diseases
- Influenza surveillance: Active population-based surveillance for laboratory-confirmed influenza-related hospitalizations
- Healthcare-Associated Infections-Community Interface (HAIC) projects: Active population-based surveillance for healthcare-associated infections

Surveillance efforts of these core EIP activities generate reliable estimates of the incidence of certain infections and provide the foundation for a variety of epidemiologic studies to explore risk factors, spectrum of disease, and prevention strategies.

State Health Agency Capacity

Sound epidemiology and surveillance capacity is essential for the detection, control, and prevention of infectious diseases. In a 2009 survey, state health agencies reported their workforce capacity in epidemiology programs for infectious disease was generally high.¹ However, state health agencies have and continue to experience budget cuts and job losses. Because of inadequate funding, state health agencies are faced with cutting critical infectious disease programs. For example, an ASTHO survey found that since July 2008, 20 state health agencies have cut HIV, AIDS, and STD programs and 15 have cut laboratory services.² Additional budget cuts will only further job and program losses.

Capacity is also hampered by the inability to expand surveillance efforts. For instance, the national surveillance system for viral hepatitis is largely unfunded and fragmented.³ In addition, there is inadequate capacity in health agencies to collect relevant information from laboratory and clinical records, such as risk factors. This underdeveloped system results in incomplete information about the true burden of viral hepatitis. More generally, lack of technology capacity to conduct surveillance for infectious diseases leads to less timely

and less complete reporting, reduced ability to rapidly detect outbreaks, and reduced ability to monitor burden of disease and population receiving treatment.³

In some cases dedicated funding has been available to enhance capacity that would otherwise be lacking, but this, too, is threatened by budget cuts. For example, the CDC provides direct funding to state tuberculosis (TB) programs in all 50 states, D.C., 9 cities, and 8 territories. Activities include surveillance, case management, provision of medications, contact investigation, and laboratory services. These activities fall outside the scope of the health care system, and are essential roles for state health agencies to conduct. However, programs in 11 states and 2 territories are down to a single staff person, and budget cuts will require additional TB programs to reduce staff. This will reduce capacity to find and treat infected persons and their contacts, and may lead to a resurgence of cases of a disease that has reached a historic low in the U.S.

Additional Funding and Activities

ID infrastructure is multifaceted and interdependent and there are other programs that contribute to the foundation. These include programs for specific diseases and activities including HIV/AIDS, STDs, tuberculosis, viral hepatitis, and foodborne vector-borne diseases. The federal Section 317 Immunization Program provides core funding to protect against vaccine-preventable diseases. There is also funding for broader activities, such as the National Public Health Improvement Initiative, Public Health Emergency Preparedness Cooperative Agreement, and Preventive Health and Health Services Block Grant, which contribute to the overall infectious disease prevention and control capacity at the state and local level. Unfortunately, many of these programs are facing tightening budgets.

States will benefit from new funds that have been provided through the Prevention and Public Health Fund - \$15 billion appropriated over 10 years to expand and sustain the necessary infrastructure to prevent disease, detect it early, and manage conditions before they become severe. Activities will include supporting ELC and EIP, public health training, and research and tracking. Currently funded research and tracking activities from these funds include monitoring the impact of the Affordable Care Act on the health of Americans and identifying and disseminating evidence-based recommendations on important public health challenges.⁴

Summary

It is critical to support and develop the infectious disease infrastructure to ensure success in preventing and controlling infectious diseases. With appropriate federal funding, the ELC and EIP programs will continue to identify and respond to outbreaks, and monitor endemic and emerging infectious diseases. Enhancements to the infrastructure, along with health reform and national strategies, can improve surveillance and programs to reduce morbidity and mortality from infectious diseases.

References

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