

Support Advanced Molecular Detection at the
Centers for Disease Control and Prevention:

Invest in Precision Public Health



AMERICAN
SOCIETY FOR
MICROBIOLOGY

The Advanced Molecular Detection (AMD) program brings cutting edge technology to the front lines of public health by harnessing the power of next-generation sequencing and high performance computing with bioinformatics and epidemiology expertise to study pathogens.

To build and sustain the program in the coming years, the AMD program at the Centers for Disease Control and Prevention (CDC) needs \$50 million in annual base funding. The program's ability to support the demand for its expertise and technology and to maximize existing partnerships is in jeopardy without a greater investment in the coming years.

The CDC's AMD program has transformed many areas of public health by enabling the agency to rapidly incorporate a novel and versatile technology into CDC operations—next-generation sequencing (NGS). Established in FY 2014, the program helped close a widening technological gap in pathogen genomics through which the public health system was falling behind. Its success has demonstrated the critical importance to the nation's health security of staying abreast of technologies that are both new and relevant.

The American Rescue Plan Act recognized the importance of genomic sequencing and invested \$1.75 billion for

AMD. Subsequently, the Tracking Pathogens Act (S.3534), enacted in 2022, authorized \$175 million for AMD annually.

The program is rapidly growing as a result of its own success. NGS-related technologies continue to advance at an astounding pace, giving us new and expanded tools to detect disease faster, identify outbreaks sooner and protect people from emerging and evolving disease threats. Current funding has become insufficient to meet the demand for equipment, training and expertise required to support state and local health departments with precision public health.

With additional funds, the AMD program can:



Promote greater innovation

through improved metagenomics, data integration, and cross-cutting genomics infrastructure. Doing so will directly benefit states and localities.



Expand workforce development

to meet the demands from state and local health departments and streamline laboratory operations.



Sustain public-private partnerships

including the Pathogen Genomics Centers of Excellence.

How do we use AMD?

The AMD program gives the nation new tools to detect disease more quickly and accurately, identify outbreaks sooner and protect people from emerging and evolving disease threats—seasonal, such as **influenza** or **RSV**; endemic, such as **Lyme disease**; or epidemic in nature. When Washington state confirmed cases of **Valley fever**, CDC scientists used AMD methods to sequence the fungal strains found in the state. They found that the strains represent a distinct genetic group, different from the fungal strains seen in the Southwest U.S. AMD technologies also improved public health officials' understanding of the species and subspecies of **Cryptosporidium**, a waterborne parasite that causes diarrheal disease. This information improves understanding of how people get sick, how *Cryptosporidium* is spreading and emerging subtypes.

In 2022, the AMD program established 5 Pathogen Genomics Centers of Excellence in Virginia, Georgia, Minnesota, Washington state and Massachusetts. These networks bring together academia and public health departments to apply advances in genomic technologies.

Next-generation sequencing and investments in AMD have allowed CDC to:



Improve Vaccines

Applying AMD to vaccine preventable diseases, such as the flu, helps CDC monitor genetic changes, understand why vaccine effectiveness may decrease and select strain targets for annual seasonal influenza vaccines.

- Next-generation sequencing data helps forecast relative importance of emerging strains and assess risk, characterize viruses used in vaccine effectiveness studies and inform treatment for patients infected with viruses that have high pandemic risk, such as COVID-19 and influenza.



Improve Food Safety

State-of-the-art AMD methods help solve bacterial foodborne outbreaks faster by linking food sources to clusters of illness and removing contaminated food products from store shelves more quickly. This has led to the transformation of a national network, PulseNet, which includes more than 80 public health laboratories.

- Advances in genomic technology allow public health laboratories to sequence pathogens directly from specimens without a need for culture, which is acutely needed when addressing bacterial foodborne illness.
- As of January 2025, 66 laboratories in 48 states are PulseNet lab and analysis certified for whole genome sequencing of *Salmonella*, *Listeria*, Shiga toxin-producing *E. coli*, *Shigella*, *Campylobacter* and *Vibrio*.



Monitor Antimicrobial Resistance

AMD technologies help CDC scientists study existing and emerging antibiotic-resistant organisms, including some of the biggest threats like *Clostridioides difficile* (*C. diff*), carbapenem-resistant *Enterobacteriaceae* (CRE), the fungus *Candida auris* (*C. auris*), *Koch's bacillus*, and *Gonorrhea*.

- *C. auris* is one of the biggest resistance threats in the U.S. today and is a potentially deadly pathogen. Deploying AMD technology allowed us to understand which *C. auris* strains were closely related to each other and understand how the fungus was spreading in health care settings. This in turn allows CDC to determine which antifungal medications are most effective against it.

ASM Calls on Congress to:

Provide incremental investment toward the fully authorized amount of \$175 million to support its continued growth and scope as disease threats continue to multiply and technology continues to advance.

This will facilitate the existing work in public health and keep pace with needs in all state and local public health laboratories, provide critical coordination with academic institutions to strengthen the public health workforce pipeline and ensure the U.S. stays ahead of the next potential deadly disease.