Advanced Molecular Detection

National investment to advance genomic sequencing capacity

Bioinformatic Regional Resource Lead for the Midwest Region

Wisconsin

Total Investment[1]: $7,815,540

State and Local Investment: $4,610,873

Research Awards: $3,204,677

CDC's Advanced Molecular Detection (AMD) program builds and integrates laboratory, bioinformatics, and epidemiology technologies across CDC and nationwide. Since 2014, AMD has received support from Congress through a $30 million per year appropriation to implement these technologies in public health programs. Through investments in AMD technologies, CDC is improving both public health outcomes and preparedness in dozens of areas including foodborne disease, influenza, antibiotic resistance, hepatitis, pneumonia, and meningitis.

With funding from the American Rescue Plan Act of 2021, the AMD program has developed a multi-year plan to expand its support to state, local, and territorial public health laboratories with more staff and resources to collect specimens for COVID-19 testing, sequence them to identify and track SARS-CoV-2 variants, and share data, now and future years.

Workforce Development

Wisconsin is part of the Midwest region. In 2018, the AMD program established workforce development regions across the country. Each region has an AMD training lead and a bioinformatics lead. This provides a network of customized AMD support which helps develop skills and provides training assistance to public health labs across the country.

Wisconsin's **Bioinformatic Regional Resource Lead** acts as a regional consultant. They provide support to labs within the region on data analysis and how to interface with IT departments. From the region's training resources, Wisconsin receives support for pathogen-specific training and cross-cutting AMD training to help staff develop the critical skills necessary to extract, analyze, and interpret sequencing data.

[1] Funding to public health departments includes support from the American Rescue Plan of 2021 and AMD annual appropriations. Awards to university and research partners in 2020 and early 2021 were funded through appropriations supporting the COVID-19 response.

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University and Research Partners in Wisconsin

These awards are intended to fill knowledge gaps and promote innovation in the U.S. response to the COVID-19 pandemic. Funding awards are determined through a competitive selection process based on scientific needs and available funds.

University of Wisconsin-Madison and City of Milwaukee Health Department ($1,290,867)

Defining the role of college students in SARS-CoV-2's spread in the Upper Midwest

This study will use viral genomics to understand university students' role in driving the transmission of SARS-CoV-2 within their communities over two years, beginning in fall 2020. It will be positioned to detect the emergence and potential spread of genetic variants over the longer term, such as viruses that could pass from person to person faster or be less recognizable to the body's immune system

University of Wisconsin-Madison ($1,913,800)

Impact of immune failure on SARS-CoV-2 evolutionary potential

The project will analyze data of variants emerging in two Wisconsin regions (Dane County and Milwaukee County) with different demographics and various levels of socioeconomic vulnerability. Also, the study will focus on subpopulations who are at increased risk for immune failure and/or in whom cases of immune failure may be most likely to be contracted: healthcare workers, those who are infected despite vaccination, and people living in high-density settings (prisons, homeless shelters). The project will provide data on the impact of vaccines in community transmission.