

Advanced Molecular Detection

National investment to advance genomic sequencing capacity

Community of Practice Domain Lead and part of the Mountain Region



Wisconsin

Total Investment¹: \$20,674,319

State and Local Investment: \$11,119,908

Research Awards: \$9,554,411

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—now a \$40 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 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 in FY2021-2023. Awards to university and research partners were funded through appropriations supporting the COVID-19 response.



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AMD Platform Community of Practice (CoP)

The Office of AMD has established five communities of practice to build processes and tools for relevant interests, concerns, and priorities regarding the AMD Platform. The AMD Platform will serve CDC programs and STLT partners by providing a common infrastructure to perform genomic epidemiology and contribute high-quality data to publicly available data repositories. **Wisconsin's Domain Leader** facilitates collaboration between OAMD and the public health community for the AMD Data Modernization CoP.

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

Impact of local differences in vaccine uptake on SARS-CoV-2 evolution and spread across three Upper Midwestern states (2022—\$6,349,744)

Researchers will conduct SARS-CoV-2 genomic surveillance in Wisconsin, Minnesota, and Michigan and link these data with other factors to investigate the impacts of factors such as vaccination, population density, and socioeconomic indices on viral diversity and transmission patterns. In addition, they will build and deploy systems to improve local health department integration with statewide public health data.

Impact of immune failure on SARS-CoV-2 evolutionary potential (2021—\$1,913,800)

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.

Defining the role of college students in SARS-CoV-2's spread in the Upper Midwest (2020—\$1,290,867)

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.

