

NIH Launches \$50M Autism Data Science Initiative to Unlock Causes and Improve Outcomes

Researchers will employ exposomics, the comprehensive study of environmental, medical and lifestyle factors in combination with genetics and biology.

October 1, 2025 By National Institutes of Health

The National Institutes of Health has launched the [Autism Data Science Initiative \(ADSI\)](#) a landmark research effort that will harness large-scale data resources to explore contributors to the causes and rising prevalence of autism spectrum disorder.

More than \$50 million in [awards](#) will support 13 pioneering projects that draw on genomic, epigenomic, metabolomic, proteomic, clinical, behavioral and autism services data. These projects will integrate, aggregate and analyze existing data resources, generate targeted new data and validate findings through independent replication hubs.

“Our Autism Data Science Initiative will unite powerful datasets in ways never before possible,” said NIH Director Jay Bhattacharya, MD, PhD, “By bringing together genetics, biology, and environmental exposures, we are opening the door to breakthroughs that will deepen our understanding of autism and improve lives.”

A key feature of ADSI is the use of exposomics—the comprehensive study of environmental, medical, and lifestyle factors in combination with genetics and biology. Projects will investigate a wide range of influences, including environmental contaminants such as pesticides and air pollutants, maternal nutrition and diet, perinatal complications, psychosocial stress, and immune responses during pregnancy and early development.

Examples of funded efforts include examining how prenatal exposures interact with genetic risk in large autism cohorts, how causal inference methods can clarify contributors to rising prevalence, and how adult outcomes such as community participation and mental health can be improved through service innovations.

Independent replication and validation centers will test models across diverse populations, ensuring that findings are transparent, reproducible, and useful for real-world application.

“This initiative represents a turning point,” said Nicole C. Kleinstreuer, PhD, acting NIH Deputy Director for Program Coordination, Planning, and Strategic Initiatives. “Through NIH’s research we are building a foundation for discoveries that will change how autism is understood and addressed.”

Each ADSI research team will work in partnership with the autism community to help shape the direction of the research and ensure that the perspectives of autistic individuals, caregivers, and service providers inform the initiative.

According to Centers for Disease Control and Prevention data, autism prevalence in the United States has risen from fewer than 1 in 2,000 children in the 1970s to approximately 1 in 31 today. Autism is a highly variable condition characterized by challenges in social communication and interaction, alongside restricted or repetitive patterns of behavior and interests.

While these trends underscore the urgency of this research, the underlying causes remain complex and multifaceted. Research supported by NIH and others has shown a strong genetic component to autism risk. However, nongenetic factors—such as environmental exposures and maternal health conditions—are less well understood.

ADSI will apply advanced analytic methods, including machine learning, exposome-wide analyses, and organoid models, to study how gene-environment interactions contribute to autism, how these and other factors influence prevalence over time, and how current treatments and services may be improved.

ADSI is a collaborative effort managed by NIH’s Division of Program Coordination, Planning, and Strategic Initiatives within the Office of the Director, along with the National Institute of Environmental Health Sciences; the Eunice Kennedy Shriver National Institute of Child Health and Human Development; the National Institute of Neurological Disorders and Stroke; the National Institute of Mental Health; and the National Institute on Deafness and Other Communication Disorders.

A list of awardee institutions and project descriptions is available on the [ADSI funded research page](#).

This [news release](#) was published by the National Institutes of Health on September 22, 2025.