Neurodiversity Foundation Science Initiatives

Underlying Problems to Address

The inadequate understanding of “autism” is not the only condition impacted by how the medical industry categorizes and treats patients. Autism, dementia and metabolic conditions are prime examples of how the current system fails patients and limits the treatment available. Autism, for example, is a series of underlying genetic, physiological, biochemical traits that fall under a limited number of diagnostic codes. These diagnostic codes were designed to fulfill the mechanism so that physicians and therapists could be paid for the care of the individual patient. These diagnostic codes are not specific to the physiological anomalies, biomarkers and unique parameters that make up each person who is diagnosed with “ASD”. This medical coding system created by the AMA in conjunction with insurance companies; the Department of Health and Human Services; and the physicians; are at the core of why more specific diagnostic maps and treatment plans are not available. There is simply not a way for the medical community to be paid adequately under this paradigm. In fact, it concentrates most of the dollars spent on pharmaceuticals and behavioral therapy (ABA) when those dollars would be better spent on the precision diagnostic and medical treatment plan of individuals.

Our Solution to the Problem

Our research and data initiative boasts an innovative and dynamic approach to mapping the subcategories that are described as “autism” and recognize that each individual has a series of traits that are turned “off” and “on” by their genetics and other environmental factors. Through detailed mapping, we can identify which individuals are better served by homeopathic treatment versus allopathic treatment. Parents often try this path unguided by information that we can now provide through our testing modalities.

We have spent the last 5 years developing a cohesive, multidisciplinary team comprising leading experts in the fields of genetics, neuroscience, medicine and psychology along with vetting the proper laboratory and imaging tests that provide actionable data. With a collective commitment to unraveling the intricate tapestry of autism, our team is uniquely poised to address this complex condition from multiple dimensions. The geneticists contribute their expertise to deciphering the genetic to its emergence. The neuroscientists offer their insights into the complex operations of

the brain, aiming to reveal the neural signatures and connectivity patterns that differentiate individuals with autism. In tandem with these fields, our psychologists immerse themselves in the realms of behavioral and cognitive dimensions, conducting meticulous examinations of the behavioral traits and cognitive attributes that characterize autism. By harnessing the synergy of these diverse perspectives, we are poised to illuminate a comprehensive understanding of autism, fostering breakthroughs that transcend disciplinary boundaries and chart a new course toward effective interventions and support.

At the Neurodiversity Foundation, we are more aware than most that the intricate complexities entwined with an autism spectrum disorder diagnosis are profound. Nevertheless, we hold the firm belief that the prevailing one-size-fits-all approach does not adequately serve the diverse needs of neurodiverse individuals striving for their optimal lives. To address this, we are orchestrating an amalgamation of genetic, neurological, and behavioral data, with the aim of constructing a nuanced framework for categorizing individuals on the autism spectrum into narrower and more precise archetypes, each characterized by distinct requirements. Through careful quantification of the distinct archetype for each patient, we are positioned to engage in collaborations with precision medicine initiatives to create treatments painstakingly customized for each individual. This endeavor has the potential to revolutionize the healthcare journey for all neurodiverse individuals nationwide.

1. The Genetics of Autism:

To date, hundreds of genes associated with autism have been identified. However, there is no system to differentiate between mutations that cause syndromes, of which autistic behaviors is one of many phenotypes, and stand-alone autism spectrum disorder. The Neurodiversity Foundation is partnering with labs that not only have the capability to perform whole genome sequencing, which will allow us to look at additional mutations in non-coding regions and mitochondrial DNA, but will also allow us to look at variations in copy number. In addition, through the use of state-of-the-art biomimetic artificial intelligence, we will be able to dynamically analyze all this data and use it to drive medical interventions that are uniquely catered to improving the life of the individual, as opposed to blanket interventions that are seen as a one-size-fits-all solution. Because, while there are treatments available to address some of the external symptoms of autism, there is nothing that helps people struggling with autism's core features.

2. Autism and COVID:

Individuals with Autism Spectrum Disorder (ASD) emerged as one of the most adversely affected groups during the COVID-19 pandemic. Apart from grappling with the disruption of routines stemming from necessary lockdown measures, those on the autism spectrum faced an escalated vulnerability to hospitalization and mortality when contracting the coronavirus. This susceptibility was, in part, attributed to concurrent morbidities such as gastrointestinal issues, metabolic disorders, immune deficiencies, hypothalamic-pituitary-adrenal dysfunction, sensory and motor dysfunctions, psychiatric ailments, and intellectual disabilities. Some of these disparities may find their root in variations in gene and protein expression, demanding meticulous scrutiny, as they hold potential implications for responses to future infections and vaccination regimens.