

**The consequences of the sins of thy parents: multi-generational neurogenetic and epigenetic impacts on reward dysregulation and cognitive impairments require cost-effective standard Brain Health Check (BHC)**

Eric R. Braverman<sup>1,2</sup>, Catherine Dennen<sup>1</sup>, Igor Elman,<sup>3</sup> David Baron<sup>4</sup>, Rajendra D Badgaiyan<sup>5,6</sup>,  
Kenneth Blum<sup>1,2,4</sup>

<sup>1</sup> The Kenneth Blum Institute of Behavioral & Neurogenetics, Austin TC., USA; PATH Foundation NY., New York, USA; <sup>3</sup>Department of Psychiatry, Harvard School of Medicine, Cambridge, MA., USA; <sup>4</sup> Division of Addiction Research & Education, Center for Psychiatry, Medicine, and Primary Care (office of the Provost), Western University Health Sciences, Pomona, CA., USA; <sup>5</sup>Department of Psychiatry, Mt. Sinai School of Medicine, New York, NY., USA; <sup>6</sup>Department of Psychiatry, South Texas Veteran Health Care System, Audie L. Murphy Memorial VA Hospital, Long School of Medicine, University of Texas Medical Center, San Antonio, TX., USA.

In 2021 north of 100,000 people died prematurely from an opioid overdose. Neuropsychiatric and cognitive impairments are underreported comorbidities of reward dysregulation due to genetic antecedents and epigenetic insults. Recent GWAS studies involving millions of subjects revealed frequent comorbidity with Substance Use Disorder (SUD) in a sizeable meta analysis of depression. It found significant associations with the expression of NEGR1 in the hypothalamus and DRD2 in the nucleus accumbens, among others. The rationale to encourage a standard Brain Health Check (BHC) is to have extensive data available to treat clinical syndromes in psychiatric patients. All four scales are associated with dopamine polymorphisms. They include a computer memory (M) test that identifies 15 subtypes of cognitive/ memory impairment; a TOVA test that identifies 14 subtypes of cognitive impairment that accurately; DSM- 27 psychiatric ( P) screening instrument, and a Million Clinical Multiaxial Inventory for useful clinical information regarding personality disorders. For example, one perplexing issue is that psychoactive drugs are confirmed to reduce brain speed by at least 20msc in SUD with depression. An exhaustive literature study related to P300 supports that alteration of speed impacts decision-making and promotes the potential for suicidal ideation and subsequent substance and behavioral addictions. We suggest continuing research into incorporating a new standard BHC coupled with P300 /Evoked Potentials(p3 /EVp) and genetically guided precision induction of "dopamine homeostasis" to diagnose and treat reward dysregulation to prevent the consequences of dopamine dysregulation from ***being epigenetically passed on to generations of our children. WC 246***

**Keywords:** Brain Health Check (BHC); Memory; Attention; Neuropsychiatry; qEEG; P300; Substance Use and reward dysregulation neurogenetics and epigenetics.