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**SARDA**

Shattering Stigma – Realizing Recovery  
Schizophrenia and Related Disorders Alliance of America

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***Improving lives affected by schizophrenia-related Brain disorders***

May 21, 2018

Dr. Elinore McCance-Katz

Assistant Secretary for Mental Health and Substance Use

Interdepartmental Serious Mental Illness Coordinating Committee

Substance Abuse and Mental Health Services Administration

5600 Fishers Lane

Rockville, MD 20857

Dear Dr. McCance-Katz,

On behalf of the Schizophrenia and Related Disorders Alliance of America (SARDA), we are writing to applaud the Interdepartmental Serious Mental Illness Coordinating Committee (ISMICC) on your work advancing the understanding and delivery of services to those with serious mental illness (SMI) and serious emotional disturbance (SED). In light of the scope of work outlined in your charter, we would like to submit our recommendations for the reclassification of Schizophrenia as a neurological disorder. One place to start is including schizophrenia in the implementation of the National Neurological Conditions Surveillance System with the 21<sup>st</sup> Century Cures Act (P.L. 114-255).

Founded a decade ago, the Schizophrenia and Related Disorders Alliance of America promotes improvement in lives affected by schizophrenia-related brain illnesses (mental illnesses involving psychosis). SARDA promotes hope and recovery through support programs, education, collaboration, and advocacy. Our vision is that every person living with schizophrenia-related brain illness receives respect, appropriate treatment and an opportunity to live a meaningful and satisfying life in a compassionate community free of discrimination.

### **What is Schizophrenia?**

According to current DSM-5 criteria, the diagnosis of Schizophrenia requires two of the following symptoms, with at least one from the first three:

- Delusions
- Hallucinations
- Disorganized speech
- Disorganized or catatonic behavior
- Negative symptoms (e.g. diminished emotional expression or motivation)

Although the precise causes and mechanisms underlying schizophrenia continue to be actively researched, there is scientific consensus that the illness is a brain-based, highly heritable illness. There is also overwhelming evidence that schizophrenia is a neurodevelopmental disorder.<sup>1,2</sup> with disease processes commencing early in neurodevelopment and manifesting as subtle neurologic and behavioral abnormalities long before overt DSM-defined illness onset.

A landmark research study identified 108 genes associated with risk for schizophrenia, including those relating to dopamine receptors, glutamate transmission, synaptic plasticity and the immune system.<sup>3</sup> The prevailing hypotheses concerning the pathophysiology of schizophrenia include the dysregulation of the dopamine, glutamate and GABA neurotransmitter systems. Synaptic pruning – a critical process that refines neural circuits during neurodevelopment – is perturbed, in particular during adolescence, consistent with the typical onset of illness during this period and into young adulthood.<sup>4,5</sup>

Importantly, such disturbances in pruning have recently been linked to the Major Histocompatibility Complex (MHC), by far the strongest of the 108 risk gene associations in the aforementioned study. Specifically, certain variants of complement component 4 (C4) of the MHC have been found to lead to excessive pruning,<sup>6</sup> thereby providing a mechanistic link between genetic basis for schizophrenia and the observed neurobiological findings in the illness (for commentary, see <https://www.youtube.com/watch?v=s0y4equOTLg>).

Pruning anomalies are significant enough to show up as decreased grey matter volume in structural MRI studies of schizophrenia.<sup>7</sup> A myriad of functional MRI and electrophysiologic studies have shown disturbances in brain and cognitive functioning.<sup>8,9</sup> Thus, while much work remains in fully elucidating the origins and mechanisms of schizophrenia, there is consensus and overwhelming evidence of the genetic and brain basis for the illness.

### **What is the Personal and Public Health Impact of Schizophrenia?**

Schizophrenia can be found in approximately 1.1% of the world's population, regardless of racial, ethnic or economic background. Approximately 3.5 million people in the United States are diagnosed with schizophrenia and it is one of the leading causes of disability. Three-quarters of persons with schizophrenia develop the illness between 16 and 25 years of age, thus derailing affected individuals during this critical period in successfully reaching important educational, vocational and social milestones.

Unfortunately, the delays from the illness onset to receiving treatment is typically very long, ranging from 22 to 150 weeks,<sup>10</sup> with longer durations of untreated psychosis associated with poorer clinical and functional outcomes.<sup>11, 12</sup> After the first episode, psychosis relapse rates are very high, up to 82% in the first 5 years.<sup>13</sup> At five years following the first episode of psychosis, only 13.7% achieve both symptom remission and adequate social functioning.<sup>14</sup>

The long-term consequences of this chronic illness can be devastating. Eleven percent of the homeless population have a diagnosis of schizophrenia, with higher rates in younger persons (13% for 18–30 years old; 21% for 31–40 years old), women (twice the rate of men) and the chronically homeless (18%), with slightly less than half not receiving treatment.<sup>15</sup> Individuals with schizophrenia are prone to premature death, with life expectancy 14.5 years shorter than the general population.<sup>16</sup> Sadly, 40% of this is due to suicide,<sup>17</sup> with 5% lifetime completed suicide rates in schizophrenia,<sup>18</sup> most being shortly following illness onset, with suicide attempts at 25–50%.<sup>19, 20</sup> Whether patients receive timely, appropriate treatment has great consequences. After the first episode of schizophrenia, not taking any regular antipsychotic medication is associated with a 12-fold increase in the relative risk of all-cause death and a 37-fold increase in death by suicide.<sup>21</sup> Unfortunately, up to 40% of individuals with schizophrenia are untreated (Treatment Advocacy Center).<sup>22</sup>

Given such devastating impacts on individuals with schizophrenia and their families, it is not surprising that the overall public health costs are tremendous. Treatment and other economic costs due to schizophrenia are enormous, estimated at \$156 billion annually, with the largest excess costs associated with unemployment (38%), productivity loss due to caregiving (34%), and direct health care costs (24%).<sup>23</sup>

### **What is the Stigma Associated with Schizophrenia?**

Patients with psychosis are frequently exposed to negative stereotypes, stigma and social exclusion associated with their diagnosis. Unfortunately, patients and their families often engage in self-stigmatization, blaming themselves for the disorder and wondering what they could have done differently to prevent the illness. Understanding schizophrenia and other psychotic illnesses as neurological disorders would help the community at large in viewing these illnesses as they do other medical illnesses such as cancer or diabetes.

To reduce stigma and increase understanding, SARDAA initiated the Hearing Voices of Support initiative. During Schizophrenia Awareness week in 2017, SARDAA spearheaded an interactive public art installation in New York City, entitled Psychosis: Changing Perceptions Through Art & Science. This exhibit, in coordination with creative agencies The Bloc Communication Partners, Cavort and Glowing Bulbs, Inc., allowed participants to step into “cones of light” where they experienced the associated symptoms of schizophrenia (lights, auditory effects, fog, etc.) while experiencing a personal story including suggestions of what is helpful.

Congressman John Culberson (R-TX) and Congresswoman Eddie Bernice Johnson (D-TX) are co-sponsoring a similar, smaller-scale installation in the first-floor foyer of the Rayburn House Building Offices June 27-29, 2018. The Capitol Hill installation aims to promote better

understanding of schizophrenia among Members of Congress and congressional staffers; unfortunately, the larger obstacle of stigma for those with schizophrenia still remains. On June 28, 2018 in Rayburn 2103, SARDAA will present a Scientific Legislative Briefing presenting neurological evidence of schizophrenia and anosognosia.

### **Hiding in Plain Sight: Is Schizophrenia Not *Already* a Neurological Illness/Disease?**

Some may ask – why is this even a question? Depending on the audience, it may not actually be a question. The defining feature of schizophrenia is psychosis, manifested primarily by delusions and hallucinations. Psychosis is not only associated with schizophrenia but also dementia, Parkinson’s disease, stroke, brain tumors, and the use of drugs or alcohol. With such clear associations with brain-based processes, it would seem clear that schizophrenia-related psychosis is also rooted in the brain. In the mental health treatment context, it is a no-brainer, so to speak – of course it is a brain disease! It is no more a question that it arises from disturbances in brain function than one questions whether Parkinson’s disease or epilepsy arises from the brain.

In the clinic, or even more poignantly, in a psychiatric inpatient unit or emergency room, a patient with severe auditory hallucinations or delusions is excused from any immediate responsibility or culpability for their symptoms. The symptoms are not simply a ‘behavioral problem’ – rather, any clinician with experience treating schizophrenia will recognize how a patient’s thoughts, emotions and behavior have been hijacked by a process that is beyond their control. Historically, the ‘hijacker’ may have been assumed to be the result of a demon or spirit (c.f. epilepsy which, historically, was attributed to demonic possession), or poor parenting; in the modern day, there is no question that it is a neurological process.

Stepping from the clinic and into the lab, one will find assumptions regarding the biological basis of schizophrenia even more firmly ensconced. We are well beyond what are now considered quaint notions of the ‘schizophrenogenic mother’ or psychosis as a social construction, and questions regarding the biological basis of schizophrenia have long since moved from ‘if’ to ‘how’. A plethora of genetic, post-mortem and neuroimaging studies have demonstrated clear evidence of the biological underpinnings. Perhaps one of the more simple, compelling facts that undergirds the biology argument is heritability and twin concordance: if one of an identical twin pair has schizophrenia, the other will have a 50% chance of also having schizophrenia, even if raised in a different environment. This number is comparable to that for Alzheimer’s disease and greater than that for Parkinson’s disease.<sup>24, 25, 26</sup>

If schizophrenia having a neurological basis is such an obvious given for clinicians and scientists – people that are ‘in the know’ – why does this question remain in the general public? The answer is likely to be a complex mix of factors that includes a lack of proper education of the public and historical inertia in the systems of care that cater to the schizophrenia population (e.g.

psychiatry vs. neurology), as well as how this care is paid for (e.g. structure of reimbursement codes by Centers for Medicare and Medicaid Services).

Whatever the reasons for the disconnect between established clinical/scientific knowledge regarding schizophrenia and the inadequacies in the systems of care for the illness, there is utmost urgency in bridging this gap. As outlined above, for many individuals with schizophrenia it is literally a matter of life and death. We believe that re-classifying schizophrenia formally as a neurological disease will be an important first step for this urgent priority.

### **Why Should Schizophrenia Be Included in the National Neurological Conditions Surveillance System (NNCSS)?**

We have general prevalence estimates indicating that 1.2% of all Americans – roughly 3.2 million people – have schizophrenia from the National Institute of Mental Health (NIMH). Beyond that broad approximation, we just do not know much more about this patient population. In particular, if we turn to public mental health agencies, who provide the vast majority of publicly financed inpatient hospital and community-based services for people living with schizophrenia, the lack of basic data is striking. For example, baseline demographic data on gender, average age of onset, race, religious affiliation, ethnic background and income are often completely absent. That lack of information often extends to the realm of service delivery. State mental health agencies often struggle to identify the specific type of care provided, the penetration rate for mental health and related support services in a given geographic area, the intensity of service delivery for each patient with schizophrenia and, most importantly, verifiable clinical outcomes. An amendment to the National Neurological Diseases Surveillance System could begin to help answer these baseline questions.

A comparison of schizophrenia to Alzheimer's disease and Parkinson's disease – two disorders that unambiguously have a neurological basis – quickly makes a compelling case for schizophrenia finding its proper diagnostic home in the neurological disorders (see Table below). All three disorders share multiple features including significant brain and cognitive deterioration, diagnostic approach, types of treatment, having a strong genetic basis, clearly speaking to the consideration of schizophrenia as a neurological disorder (interestingly, schizophrenia appears more heritable than Parkinson's disease).

Where these disorders depart company, unfortunately, is the personal and social impact for diagnosed individuals. With a diagnosis of Alzheimer's or Parkinson's disease, the clinical paradigm of providing timely and appropriate care is robustly in place. With schizophrenia, a similar paradigm is far from guaranteed, especially in the longer term, with striking rates of patients being untreated, homeless and incarcerated. Thus, while schizophrenia appears to legitimately deserve consideration as a neurological disorder based on clinical and scientific grounds, the lack of recognition of this reality has sadly been associated with much suffering, debilitation and public health cost.

We believe that the inclusion of schizophrenia in the NNCSS could be an important first step towards understanding schizophrenia better, reducing stigma in the illness, and re-invigorating our orientation towards timely and appropriate treatment as well as making incarceration and homelessness unacceptable outcomes for schizophrenia. We appreciate the chance to provide our recommendations to you on this matter. We are happy to provide any additional information or comments that you may require.

Regards,

A handwritten signature in cursive script that reads "Linda Stalters".

Linda Stalters, MSN, APRN (ret)  
Chief Executive Officer & Founder  
Schizophrenia And Related Disorders Alliance of America

A handwritten signature in cursive script that reads "Ray Cho".

Raymond Cho, M.D., M.Sc.  
Chair of the Board of Directors  
Schizophrenia And Related Disorders Alliance of America

**Table. Comparison of Schizophrenia, Alzheimer’s Disease and Parkinson’s Disease**

	<b>Schizophrenia</b>	<b>Alzheimer’s Disease</b>	<b>Parkinson’s Disease</b>
<b>Brain and Cognitive System Disturbances</b>			
<b>Cognitive</b>	✓	✓	✓
<b>Affective/Motivation</b>	✓	✓	✓
<b>Social</b>	✓	✓	✓
<b>Sensory and Motor</b>	✓	✓	✓
<b>Brain Structural Changes</b>	✓	✓	✓
<b>Brain Functional Changes</b>	✓	✓	✓
<b>Genetics</b>			
<b>Heritability</b>	~80%	~80%	~35%
<b>Monozygotic twin Concordance</b>	~50%	~50%	~10%
<b>Diagnosis is Clinical (no definitive lab test)</b>	✓	✓	✓
<b>Psychotropic Medications Mainstay of Treatment</b>	✓	✓	✓
<b>Research Approaches Include Cognitive, Neuroimaging, Electrophysiology, Genetic, Molecular, Cellular</b>	✓	✓	✓

<b>Poor Access to Care</b>	40% Untreated <sup>27</sup>	Negligible	Negligible
<b>Homelessness</b>	6% Patients Homeless <sup>28</sup>  11% Homeless have Schizophrenia <sup>15</sup>	Negligible	Negligible
<b>Incarceration</b>	15% State Prisoners  and  24% Jail Inmates  Have Psychosis <sup>29</sup>	Negligible	Negligible

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