



**Testimony before the
Committee on Health, Education, Labor, and
Pensions
United States Senate**

**Mental Health and Substance Use
Disorders in America: Priorities,
Challenges, and Opportunities**

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Mr. Chairman and Members of the Committee:

I am Thomas R. Insel, M.D., Director of the National Institute of Mental Health (NIMH) at the National Institutes of Health, an agency in the Department of Health and Human Services (HHS). Thank you for this opportunity to provide an update on the state of mental health research at NIMH, with a particular focus on our efforts to address serious mental illness, and our efforts to discover, develop, and disseminate new treatments for these brain disorders. I will review the scope of mental disorders in the United States and their impact on public health, and I will outline examples of NIMH's research efforts designed to address this challenge.

PUBLIC HEALTH BURDEN OF MENTAL ILLNESS

NIMH is the lead Federal agency for research on mental health, with a mission to transform the understanding and treatment of mental illnesses through basic and clinical research. The burden of mental illness is enormous. In the United States, an estimated 10 million American adults (approximately 4.1 percent of all adults) suffer from a serious mental illness (SMI) each year,¹ including conditions such as schizophrenia, bipolar disorder, and major depression. According to a recent Global Burden of Disease study, neuropsychiatric disorders are the leading cause of disability in the United States in 2010, accounting for 18.7 percent of all years of life lost to illness, disability, or premature death (Disability-adjusted Life Years, or DALYs).² The personal, social, and economic costs associated with these disorders are tremendous. Suicide is the second leading cause of death among American youth and young adults aged 15-34, and accounts for the loss of more than 41,000 American lives across all age groups each year, more than triple the number of lives lost to homicide and more

¹ Substance Abuse and Mental Health Services Administration. *Results from the 2014 National Survey on Drug Use and Health: Mental Health Detailed Tables*: <http://www.samhsa.gov/data/sites/default/files/NSDUH-MHDetTabs2014/NSDUH-MHDetTabs2014.htm> (accessed October 2015).

² US Burden of Disease Collaborators. The state of US health, 1990-2010: burden of diseases, injuries, and risk factors. *JAMA*, 310(6): 591-608, 2013.

than the deaths from breast cancer.^{3,4} A cautious estimate places the direct and indirect financial costs associated with mental illness in the United States at well over \$300 billion annually, and it ranks as the third most costly medical condition in terms of overall health care expenditure, behind only heart conditions and traumatic injury.^{5,6} Even more concerning, the burden of illness for mental illnesses is projected to sharply increase, not decrease, over the next 20 years.⁷

NIMH-supported research has found that Americans with SMI die up to ten years earlier than the general population.⁸ The low rates of prevention, detection, and intervention for chronic medical conditions and their risk factors among people with SMI contribute to significant illness and earlier death. Two-thirds or more of adults with SMI smoke;⁹ over 40 percent are obese (60 percent for women);^{10,11} and metabolic syndrome is highly prevalent, especially in women.¹² In addition, people with SMI frequently have co-occurring substance use disorders, and practitioners are often called upon to address mental illness and substance use problems simultaneously. Approximately five percent of individuals with schizophrenia will die by suicide during their lifetime, a rate 50-fold greater than the general population.¹³

³ Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS): www.cdc.gov/ncipc/wisqars accessed October 2015.

⁴ CDC, National Violent Death Reporting System, 2012. WISQARS: www.cdc.gov/ncipc/wisqars accessed October 2015.

⁵ Insel TR. Assessing the economic cost of serious mental illness. *Am J Psychiatry*. 2008 Jun;165(6):663-5.

⁶ Soni A. *The Five Most Costly Conditions, 1996 and 2006: Estimates for the U.S. Civilian Noninstitutionalized Population*. Statistical Brief #248. July 2009. Agency for Healthcare Research and Quality, Rockville, MD.

⁷ Bloom DE, Cafiero ET, Jané-Llopis E, Abrahams-Gessel S, Bloom LR, Fathima S, Feigl AB, Gaziano T, Mowafi M, Pandya A, Prettner K, Rosenberg L, Seligman B, Stein A, Weinstein C. *The Global Economic Burden of Non-communicable Diseases*. Geneva, Switzerland: World Economic Forum, 2011.

⁸ Walker E. R., McGee R. E., & Druss B. G. (2015). Mortality in mental disorders and global disease burden implications: a systematic review and meta-analysis. *JAMA Psychiatry*, 72(4), 334-341.

⁹ Goff DC, Sullivan LM, McEvoy JP, et al. A comparison of ten-year cardiac risk estimates in schizophrenia patients from the CATIE study and matched controls. *Schizophrenia Res*. 2005;80(1):45-53.

¹⁰ Allison DB, Fontaine KR, Heo M, et al. The distribution of body mass index among individuals with and without schizophrenia. *J Clin Psych*. 1999;60(4):215-220.

¹¹ McElroy SL. Correlates of overweight and obesity in 644 patients with bipolar disorder. *J Clin Psych*. 2002;63:207-213.

¹² McEvoy JP, Meyer JM, Goff DC, et al. Prevalence of the metabolic syndrome in patients with schizophrenia: Baseline results from the (CATIE) schizophrenia trial and comparison with national estimates from NHANES III. *Schizophrenia Res*. 2005;80(1):19-32.

¹³ Hor K. & Taylor M. Suicide and schizophrenia: a systematic review of rates and risk factors. *J Psychopharmacol*. 2010;24(4S): 81-90.

DELAYS IN RECEIVING TREATMENT—AND THE CONSEQUENCES

While most people with SMI eventually make contact with a health care professional, delays in seeking care can be extensive.¹⁴ In a recent NIMH-funded study of first episode psychosis (FEP) in 22 states, the average duration of untreated psychosis was approximately 74 weeks – six times the World Health Organization’s (WHO’s) standard for initiating early psychosis services (*i.e.*, 12 weeks). The period immediately after the onset of psychosis when young people lose touch with reality and experience hallucinations and delusions is a critical time frame for intervention.

HOW NIMH IS ADDRESSING THIS PUBLIC HEALTH CHALLENGE

In the past, we viewed mental illnesses as behavioral conditions defined by their symptoms. Increasingly, research reveals that mental illnesses are brain disorders, with specific symptoms rooted in abnormal patterns of brain activity. In brain disorders, as a general rule, symptoms represent a late stage of a process that began years earlier. To achieve the greatest impact, our interventions should be focused on earlier, pre-symptomatic phases of illness, with a goal of preempting the disability of a chronic behavioral syndrome. Moving forward, NIMH aims to support research on earlier detection and earlier treatment. NIMH has a three-pronged research approach to achieve this aim: (1) optimize treatment to improve the trajectory of illness in people who are already experiencing the symptoms of SMI; (2) preempt the transition from the pre-syndromal (prodromal) phase to the acute phase of illness; and (3) define the risk architecture of SMI in order to move from preemption to prevention. As examples of the approach, here are four NIMH efforts on these fronts in psychosis:

¹⁴ Wang PS, Berglund PA, Olfson M, Kessler RC. Delays in initial treatment contact after first onset of a mental disorder. *Health Serv Res.* 2004 Apr;39(2):393-415.

(1) NIMH is continuing to support the Recovery After an Initial Schizophrenia Episode (RAISE) initiative, a large-scale research project to explore whether using early and aggressive treatment will reduce the symptoms and prevent the gradual deterioration of functioning that is characteristic of chronic schizophrenia. RAISE began with two studies examining different aspects of coordinated specialty care (CSC) treatments for people who are experiencing FEP in a range of clinics, so that the results are relevant to community treatment settings throughout the country. RAISE investigators have recently shown that CSC for FEP improves psychopathology, work and school functioning, and quality of life compared to usual community care. Importantly, improvements are greatest among individuals with a shorter duration of untreated psychosis, suggesting that both the timing and content of treatment are critical.¹⁵ Moreover, in 2014, the Congress allocated a five-percent set-aside to the Substance Abuse and Mental Health Services Administration (SAMHSA) for the Mental Health Block Grant program to develop early psychosis treatment programs, and further directed SAMHSA to collaborate with NIMH in developing input for states regarding evidence-based FEP treatment models such as CSC. An initial evaluation of the set-aside program has shown increased access to services. An upcoming, more comprehensive evaluation will measure key symptomatic and functional outcomes from the set-aside evaluation. Building on the lessons learned from studying CSC, NIMH plans to link a series of clinics to launch the Early Psychosis Intervention Network (EPINET), an effort that will create a learning health care system within early psychosis treatment settings, in order to improve the effectiveness of early psychosis treatment.

¹⁵ Addington J et al., Duration of untreated psychosis in community treatment settings in the United States. *Psych Serv.* 2015 October (in press).

- (2) NIMH is continuing to fund research directed at the prodromal phase of schizophrenia, the stage just prior to full psychosis. A consortium of eight clinical research centers (North American Prodrome Longitudinal Study, or NAPLS) are using neuroimaging, electrophysiology, neurocognitive testing, hormonal assays, and genomics, to improve our ability to predict who will convert to psychosis, and to develop new approaches to pre-emptive intervention. NAPLS investigators recently reported that clinical factors such as disorganized communication, suspiciousness, compromised verbal memory, and declining social function indicate an increased risk for conversion to psychosis among adolescents.¹⁶
- (3) NIMH's initiative, *Research to Improve the Care of Persons at Clinical High Risk for Psychotic Disorders*,¹⁷ has funded seven clinical trials to expand knowledge regarding effective interventions during the prodromal phase, to build an evidence base to support high-quality community care focused on preempting psychosis and improving long-term outcomes.
- (4) The NIMH-funded Psychiatric Genomics Consortium (PGC), the largest ever genomic dragnet of any psychiatric disorder – involving over 200,000 samples from 80 institutions across 25 countries – has identified overlapping genetic risk among schizophrenia, bipolar disorder, and depression for pathways affecting the immune system and brain cell communication.¹⁸ These findings may help lead the way towards the development of treatments for such SMIs.

In addition to these and other similar efforts, NIMH collaborates with other HHS agencies and other public and private partners to evaluate and promote SMI programs and to improve access

¹⁶ Cornblatt BA, Carrión RE, Auther A, McLaughlin D, Olsen RH, John M, Corell CU. Psychosis prevention: a modified clinical high risk perspective from the recognition and prevention (RAP) program. *Am J Psychiatry*. 2015 Oct;172(10):986-94.

¹⁷ <http://grants.nih.gov/grants/guide/rfa-files/RFA-MH-14-211.html>

¹⁸ The Network and Pathway Analysis Subgroup of the PGC. Psychiatric genome-wide association study analyses implicate neuronal, immune and histone pathways. *Nat Neurosci*. 2015 Feb;18(2):199-209.

to early intervention treatment for psychosis. For example, together with SAMHSA, NIMH co-chairs the HHS Behavioral Health Coordinating Council's Subcommittee on SMI. The subcommittee is charged with coordinating research, treatment, and supports for Americans with SMI, through collaborative, action-oriented approaches across HHS, and by contributing to the development of the Secretary's action plan to address the needs of Americans living with SMI. Another important example of trans-HHS – and, in fact, trans-Departmental – collaboration is the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative.¹⁹ NIMH and the National Institute of Neurological Disorders and Stroke (NINDS) are co-leading the BRAIN Initiative, with participation from ten NIH Institutes and Centers, the Defense Advanced Research Projects Agency (DARPA), the National Science Foundation (NSF), the U.S. Food and Drug Administration (FDA), and the Intelligence Advanced Research Projects Activity (IARPA). The BRAIN Initiative is accelerating the development and application of innovative technologies to the creation of new tools for decoding the language of the brain. In addition to our work on psychosis, NIMH also supports a range of mental health research on autism spectrum disorder, attention deficit-hyperactivity disorder, eating disorders, mood disorders, and post-traumatic stress disorder (PTSD). NIMH is partnering with other NIH Institutes and other Federal agencies as part of the National Research Action Plan to develop biomarkers, define the pathophysiology, and create new treatments for PTSD. NIMH-funded researchers recently reported that a computerized attention-control training program significantly reduced combat veterans' preoccupation with – or avoidance of – threat and attendant PTSD symptoms.²⁰

¹⁹ <http://www.nih.gov/science/brain/index.htm>

²⁰ Badura-Brack AS, Naim R, Ryan TJ, Levy O, Abend R, Khanna MM, McDermott TJ, Pine WSD, Bar-Haim Y. Effect of attention training on attention bias variability and PTSD symptoms: randomized controlled trials in Israeli and US combat veterans. *Am J Psychiatry*, 2015 July.

Moreover, NIMH has played a key role in developing a prioritized research agenda for suicide prevention.²¹ The Institute funded a series of ongoing grants that address the six key questions that organize the research agenda, and developed a \$12 million initiative to solicit research to improve screening and risk stratification for suicidal youth who present for care in emergency departments. NIMH has also recently announced a partnership with the NIH Office of Behavioral and Social Sciences Research and the National Institute of Justice to support the Suicide Prevention for at-Risk Individuals in Transition (SPIRIT) study.²² This study will evaluate the effectiveness of an evidence-based Safety Planning Intervention for reducing suicide events in the year following incarceration among persons recently released from jail. NIMH is working with SAMHSA and other Federal partners, including the Departments of Veterans Affairs and Defense, to address the issue of suicide among middle-aged adults, a demographic at high risk for suicide.

PREEMPTION: THE FUTURE OF MENTAL HEALTH RESEARCH

Research has taught us to detect diseases early and to intervene quickly to preempt later stages of illness. This year we will avert 1.1 million deaths from heart disease because we have not waited for a heart attack to diagnose and treat coronary artery disease.²³ The 100,000 young Americans who will experience FEP this year will join over two million with schizophrenia.²⁴ Our best hope of reducing mortality from schizophrenia, other SMIs, and other brain disorders will come from realizing that just like other medical disorders, we need to diagnose and intervene before the symptoms become manifest. This is our call to action.

²¹ <http://actionallianceforsuicideprevention.org/sites/actionallianceforsuicideprevention.org/files/Agenda.pdf>

²² See: <http://www.nimh.nih.gov/news/science-news/2015/embracing-the-spirit-of-reducing-suicide.shtml>

²³ Vital Statistics of the United States, CDC/National Center for Health Statistics. (2011, August). Age-adjusted Death Rates for Coronary Heart Disease (CHD). Retrieved January 23, 2013, from <http://www.nhlbi.nih.gov/news/spotlight/success/conquering-cardiovascular-disease.html>

²⁴ Calculated from McGrath J., Saha S., Chant D., & Welham J. Schizophrenia: a concise overview of incidence, prevalence, and mortality. *Epidem Rev*, 2008; 30, 67-76.

Mr. Chairman, as you know, this is my final hearing in front of your committee as the Director of NIMH. After 13 years of public service at NIMH, I have lost count of the number of times I have testified in front of this committee. It has been an honor to serve at NIMH and to work with members of this Committee. I leave with great pride in what we have accomplished and with great anticipation for the potential of research to improve the lives of people with mental illnesses. My tenure at NIMH has convinced me of two abiding truths about the state of mental health care in our nation. First, we can do much better delivering the treatments we have today. And second, today's treatments are not good enough. Too many people are untreated, and too many who are treated get better, but do not get well. Going forward, I hope the Committee understands that families challenged by mental illness need both the immediate benefit of high-quality services, as well as a future of better services from high-quality science.