

# **Missions Impossible:**

## **The Ongoing Failure of NIMH To Support Sufficient Research on Severe Mental Disorders**

**September 2000**

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## **Summary**

A total of 1,342 new research grants being funded by the National Institute of Mental Health (NIMH) in 1999 were analyzed. These were compared to our previous study that focused on NIMH grants being funded in 1997. The findings:

- Although NIMH acknowledges that severe mental disorders\* accounted for *70 percent of all direct care costs* for all mental disorders and *32,700 premature deaths*, including *72 percent of all suicides* (1995 figures), only 22.1 percent of NIMH research grants in 1999 were directed toward severe mental disorders, including a mere *8.3 percent that related to clinical or treatment aspects* of these disorders.
- For schizophrenia, which affects 2.2 million<sup>†</sup> adult Americans, NIMH approved 110 new research grants, including 35 related to clinical and treatment aspects. At the same time, NIMH funded more than 110 other grants on subjects that should have been assigned to other NIH institutes, such as the National Cancer Institute.
- For major depression, which affects 9.9 million adult Americans, NIMH approved 120 new research grants, including 57 related to clinical or treatment aspects. At the same time, NIMH funded more than 120 other

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\* NIMH has defined "severe mental disorders" to include schizophrenia; manic-depressive illness (bipolar disorder); the severe forms of depression, obsessive-compulsive disorder, and panic disorder; and autism.

<sup>†</sup> The numbers used in this report are based on best-estimate, one-year prevalence rates for adults ages 18 and over as cited in *Mental Health: A Report of the Surgeon General* (Department of Health and Human Services, December 1999) combined with the official U.S. Census projections for 2000 (medium range estimates). The numbers do not include individuals under age 18 except for autism.

grants that should have been assigned to other government agencies outside of NIH, such as the Department of Education.

- For manic-depressive illness, which affects 1.6 million adult Americans, NIMH approved 32 new research grants, including 7 related to clinical or treatment aspects. At the same time, NIMH funded 7 research grants to study pigeons.
- For obsessive-compulsive disorder, which affects 4.4 million adult Americans, NIMH approved 11 new research grants, including 4 related to clinical or treatment aspects. At the same time, NIMH funded 4 research grants to study fish.
- For panic disorder, which affects 2.6 million adult Americans, NIMH approved 14 new research grants, including 8 related to clinical or treatment aspects. At the same time, NIMH funded 8 research grants to study songbirds.
- For autism, which affects 550,000 Americans, NIMH approved 9 new research grants, including one related to clinical or treatment aspects. At the same time, NIMH funded one research grant to study crickets.
- When the 1999 research grants are compared to the 1997 research grants, no improvement is seen in the percentage of those related to severe mental disorders.
- Rather than focusing on its primary mission of research on severe mental disorders, NIMH has instead taken on the mission of many other NIH institutes and government agencies. Breast cancer, cognitive process of birds, alertness of railway engineers, reading problems, students' transition to middle school, adolescent romantic relationships, daytime sleepiness, how emotion is perceived in music—there are virtually no boundaries to what NIMH is currently funding.
- It is emphasized that much of the behavioral and basic neuroscience research being funded by NIMH is worthwhile but should logically be done by the National Science Foundation and other government agencies. By allocating significant resources to such research, NIMH is neglecting severe mental disorders.
- The underfunding of research on severe mental disorders is ill-considered on both humanitarian and economic grounds. In 1995, according to an

NIMH study, these disorders cost \$57.4 billion in federal dollars alone. Federal spending under OASDI (SSDI) and SSI for the treatment and support of individuals with severe mental disorders is one of the fastest growing items in the federal budget.

- It is concluded that NIMH is failing in its primary mission to support research on severe mental disorders.
- Five recommendations for improving the NIMH portfolio are made. These are:
  1. A rapid and marked increase in NIMH research spending on severe mental disorders.
  2. Congressional hearings to clarify the primary mission and priorities of NIMH.
  3. The merging of NIMH with the National Institute of Neurological Disorders and Stroke (NINDS) to create a National Brain Research Institute.
  4. As an interim measure, changing the name of NIMH to the National Institute of Mental *Illnesses*.
  5. The shifting of large amounts of basic behavioral research from NIMH to the National Science Foundation.

### **Introduction**

In December 1999, we published *A Mission Forgotten: The Failure of the National Institute of Mental Health To Do Sufficient Research on Severe Mental Illnesses*.<sup>1</sup> Based on a review of NIMH funded research grants in 1997, it reported that *only 33.2 percent* of NIMH research grants supported research on severe mental disorders, and *only 7.9 percent* were directed to clinical and treatment-related research on those disorders. *A Mission Forgotten* did *not* say that NIMH should not carry out basic research, or that it should not focus on psychosocial aspects of disease. The report *did* say that NIMH had lost sight of its priorities by its relative neglect of severe mental disorders. And by losing sight of its priorities, NIMH had lost its way in the woods.

NIMH publicly responded that it was “proud of its portfolio of research on mental illnesses” and claimed that it “supports substantial and indeed increasing research efforts on the treatment of these disorders, which are central to our mission.”<sup>2</sup> However, the

Director of NIMH acknowledged in *Science* that some of the research criticized in *A Mission Forgotten* were studies that he was “not pleased to be funding,” and he promised “to continue phasing out questionable or irrelevant research.”<sup>3</sup>

The following study of newly funded NIMH research grants is a follow-up to the review of NIMH’s 1997 research portfolio. To ascertain how much change had taken place, all research grants categorized by NIMH as “new grants” as of August 2000 were reviewed. Most of these were initially funded in 1999 or 1998, and a few were funded prior to 1998. As described in the Appendix, all 1,342 “new” NIMH grants given to outside institutions were assessed using criteria identical to the previous study. The study did not include NIMH contracts, including three recently awarded contracts that focus on treatment aspects of severe mental disorders.

*The Appendix also includes detailed instructions on how to use the Internet to access the abstracts for NIMH-funded research grants; therefore, anyone can review these grants and come to their own conclusions regarding the grants’ relevance to severe mental disorders.*

The main questions asked by the present study are:

- How is NIMH doing in increasing its focus on the disorders it calls “central to our mission”?
- How is NIMH doing in “phasing out questionable or irrelevant research”?

## **Results**

The results of the review of NIMH’s 1999 new research grants can be summarized in general terms and under each of the specific disorders categorized by NIMH as severe mental disorders.

### **1. General**

Only 22.1 percent of all 1999 NIMH research grants related to one or more severe mental disorders (Table 1). In the review of the 1997 NIMH research grants, the similar figure was 33.2 percent. Since research within NIMH (intramural) was included in the 1997 but not in the 1999 review (see the Appendix, Methodology), this would account for some portion of the difference. What can be said is that less than one-quarter of the most recent NIMH research grants are targeted to severe mental disorders and there clearly has

been no improvement in the percentage of grants targeted to severe mental disorders since 1997.

When the research grants related to severe mental disorders are broken down by whether or not they target clinical or treatment aspects of these disorders (Table 2), only 8.3 percent of all 1999 NIMH research grants are clinical or treatment-related. For the 1997 research grants, the similar figure was 7.8 percent. This increase came exclusively from clinical research on schizophrenia, which improved from 1.3 percent to 2.6 percent; for the other disorders, there was no improvement.

This paucity of research on clinical and treatment aspects of severe mental disorders is striking. Similarly, there appears to be little effort to translate basic biological or psychosocial research into improved treatments. If the National Cancer Institute, for example, were spending just 8.3 percent of its total budget on the most important forms of cancer, there would be a public outcry. It is a question of balancing public needs with the research agenda of the research institute, and that balance is currently not being achieved by NIMH.

## **2. Schizophrenia**

It is estimated that *approximately 2.2 million adult Americans* are affected by schizophrenia in a one-year period. The National Advisory Mental Health Council estimated in 1990 that the annual cost of schizophrenia was \$33 billion in the United States.<sup>4</sup>

In 1999, NIMH was funding 110 new research grants to study schizophrenia, or 8.2 percent of the total new grants. Of these, 35 were related to clinical or treatment aspects of schizophrenia.

In 1999, NIMH was also funding more than 110 research grants that should logically have been assigned to other NIH Institutes. NIMH funded 107 research grants related to AIDS alone, almost as many as the total number of funded research grants related to schizophrenia. A few of the AIDS-related grants were relevant to the primary mission of NIMH (e.g., “Assessing HIV Risk in Severely Mentally Ill People,” 1R01MH60073-01, Dartmouth College), but the majority were not (e.g., “Sexually Transmitted Disease Recognition and Care Seeking among Women in Vietnam,” 1R03MH58482-01, Johns Hopkins University).

*The following are additional examples of 1999 research grants funded by NIMH that should logically have been assigned to the other NIH Institutes noted.* NIH has clearly stated that all NIH Institutes should support behavioral research on the

diseases they study, and that just because there is a behavioral component to the research does not make it the responsibility of NIMH.

Should have been assigned to the National Cancer Institute

- “Ruminative Styles Effects on Delay in Breast Cancer” \$36,162  
1R03MH59085-01, University of California, Riverside
- “Adjustment to Breast Cancer: The Role of Interpretation” \$15,710  
1F31MH11886-01A1, City University of New York
- “Impact of Maternal Breast Cancer on Children” \$122,677  
1R01MH59119-01A1, Children’s Medical Center, Cincinnati

These research projects should have been funded by the National Cancer Institute, which currently is funding over 1,000 research grants on breast cancer, including behavioral aspects.

Should have been assigned to the National Heart, Lung, and Blood Institute

- “Individual Patterns of Cardiovascular Stress Responses” \$32,865  
1R03MH56910-01, Pennsylvania State University
- “Hopelessness and Pessimism: Hypertensive Heart Disease” \$15,814  
1F31MH12094-01, University of North Carolina, Chapel Hill
- “Mental Health and Lung Transplantation” \$326,272  
1R01MH59229-01A1, University of Pittsburgh

Should have been assigned to the National Institute of Allergy and Infectious Disease

- “Self Regulation and Susceptibility to Colds and Flu” \$220,668  
1R01MH59106-01A1, University of Wisconsin, Madison

Should have been assigned to the National Institute on Aging

- “Aging and Fitness Effects on Psychomotor Performance” \$22,688  
1F31MH12487-01, University of Maryland, College Park
- “Promoting Exercise, Sleep and Well Being in Older Adults” \$499,550  
1R01MH58853-01A1, Stanford University

- “Search for Novel Alzheimer’s Disease Genes” \$379,916  
1R01MH60009-01, Massachusetts General Hospital
- “Genetics of Alzheimer’s Disease” \$368,103  
1R01MH60008-01, Johns Hopkins University
- “Glial Neurotoxicity in Alzheimer’s Disease” \$213,686  
1R01MH57833-01A2, Stanford University
- “Modelling Tau Polymerization in Alzheimer’s Disease” \$24,801  
1F31MH12437-01, Northwestern University

Should have been assigned to the National Institute of Child Health and Human Development

- “At-Risk Irritable Infants” \$498,825  
1R01MH58907-01A1, University of Maryland, College Park
- “Parent/Child Conflict: Lessons in Emotion and Morality” \$21,075  
1F31MH12131-01A1, University of Nebraska, Lincoln
- “Adjustment of Internationally Adopted Children” \$297,844  
1R01MH59848-01, University of Minnesota, Twin Cities
- “Peer Acceptance and Self-Perceptions in Children” \$17,269  
1R03MH60501-01, University of Cincinnati
- “Friendship, Transition to Middle School, and Adjustment” \$393,274  
1R01MH58116-01A1, University of Maryland, College Park

Should have been assigned to the National Institute of Neurological Disorders and Stroke

- “Hair Cell Transduction in a Mammalian Vestibular Organ” \$19,743  
1F31MH12011-01A1, Baylor College of Medicine  
[on causes of dizziness]

Should have been assigned to the National Center for Complementary and Alternative Medicine

- “Wilderness Therapy and Navajo Youth” \$26,989

1R03MH57565-01A1, Case Western Reserve University

It should be clearly stated that many of the research projects listed above are relevant to health issues and should be supported. The question, however, is by whom. Insofar as NIMH allocates its resources to problems such as breast cancer, lung transplantation, and Alzheimer's disease, it has fewer resources to allocate to problems such as schizophrenia.

### 3. Major depression

It is estimated that *approximately 9.9 million adult Americans* are affected by major depression in a one-year period.

In 1999 NIMH was funding 120 new research grants to study major depression, or 8.9 percent of the total new grants. Of these, 57 were related to clinical or treatment aspects of major depression.

In 1999, NIMH was also funding more than 120 new research grants that should have logically been assigned to other government agencies outside of NIH. The majority of these should have been assigned to the National Science Foundation (NSF), especially its Directorate of Social, Behavioral and Economic Sciences. In addition to NSF, NIMH appears to have taken on as its mission the responsibilities of many other government agencies. *The following are examples from NIMH's 1999 funded grants that logically should have been assigned to the other government agencies noted:*

#### Should have been assigned to the Department of Education

- “Understanding Reading Problems in At Risk Children” \$29, 604  
1F31MH12500-01, Georgia State University  
Proposes to study cognitive skills “found to be associated with, and predictive of reading disability.”
- “Word Learning in Categorization and Individuation” \$29,772  
1R03MH60757-01, Rutgers University  
Proposes “to investigate the link between language learning, on the one hand, and the ability to categorize and individuate objects on the other.”

#### Should have been assigned to the Department of Justice

- “Models of Face Recognition” \$35,315  
1R03MH60619-01, Indiana University, Bloomington

Proposes to study “the processes underlying face recognition.... The conclusions are readily applied to legal situations in which an eyewitness is asked to choose among several similar alternatives and express a feeling of confidence.”

Should have been assigned to the Department of State

- “Mental Health in Ethnopolitical Warfare: A Curriculum” \$161,920  
1R25MH59201-01, University of Pennsylvania  
Proposes to create a course on ethnopolitical warfare. “The long term goal is the creation of a new specialization in psychology, a profession of scholar-practitioners focused on problems of ethnopolitical warfare.”
- “A Population-Based Survey of Torture and Violence” \$429,761  
1R01MH59579-01, University of Minnesota, Twin Cities  
Proposes to study immigrants from Bosnia, Cambodia, Ethiopia, and Somalia who have been subjected to torture.

Should have been assigned to the National Transportation Safety Board

- “Software System for Prediction of Shiftwork Alertness” \$77,102  
1R43MH57186-01A2, Circadian Technologies, Cambridge, Mass.  
Proposes to develop a software system “to accommodate irregular sleep-wake-work pattern using a large training data set of 50 railroad engineers with irregular work pattern.”

Again, it should be clearly stated that many of these research projects are worthwhile and should be supported. The question, however, is by whom. Insofar as NIMH allocates its resources to problems such as reading disability, ethnopolitical warfare, Bosnian refugees, and railroad engineers, it has fewer resources to allocate to problems such as major depression.

#### **4. Manic-Depressive Illness (Bipolar Disorder)**

It is estimated that *approximately 1.6 million adult Americans* have manic-depressive illness (bipolar disorder I; does not include bipolar disorder II) in a one-year period. A 1991 analysis of costs estimated that manic-depressive illness cost the United States approximately *\$45 billion* that year (\$7 billion in direct costs; \$38 billion in indirect costs).<sup>5</sup>

In 1999, NIMH was funding 32 new research grants to study manic-depressive illness, or 2.4 percent of the total new grants. Of these, 7 were related to clinical or treatment aspects of manic-depressive illness.

In 1999, NIMH was also funding 7 research grants to study pigeons. These are:

- “Nonoptimal and Counterintuitive Choice” \$118,223  
 1R01MH57127-01A1, University of California, San Diego  
 This project proposes “experiments that should further clarify the variable that determines whether or not humans and pigeons incorporate base-rate information in their decisions.”
- “Imitative Learning” \$19,542  
 1F31MH12046-01, University of Kentucky, Lexington  
 Using pigeons and quails, “the proposed research is expected to show further evidence that non-primates are capable of imitative learning and will broaden our current knowledge of true imitative learning in animals.”
- “Concept Learning and List Memory” \$31,720  
 1F32MH12511-01, University of Texas, Houston  
 Using pigeons and monkeys, the “objective of this research is to understand how higher-order concepts are learned.”
- “Exploring the Dynamics of Behavior: Choice and Timing” \$65,376  
 1R29MH56012-01A1, Indiana University, Bloomington  
 This project uses pigeons to explore “how animals ... learn about temporal cues in their environment.”
- “Avian Same/Different Concept Learning and Perception” \$30,256  
 1F32MH12531-01, Tufts University  
 Using pigeons, “the general aim of this proposal is to shed light on higher-order avian cognition, e.g., conceptual behavior and relational learning.”
- “Modulatory Mechanisms in Pavlovian Conditioning” not available  
 1R03MH54490-01, Ohio Wesleyan University  
 Using pigeons “in a Pavlovian autoshaping preparation.... The broad objective of the present application is to examine the Pavlovian modulatory mechanism from a different perspective from that traditionally taken by researchers in the area.”

- “Single Code/Default Strategy Use by Animals” \$97,389  
1R01MH59194-01, University of Kentucky, Lexington  
Using pigeons, “the long-term objects of this project are to determine the mechanisms responsible for these coding processes,” specifically “the formation of stimulus classes that are necessary for the acquisition of concepts.”

## 5. Severe obsessive-compulsive disorder

It is estimated that *approximately 4.4 million adult Americans* are affected by obsessive-compulsive disorder in a one-year period.

In 1999, NIMH was funding 11 new research grants to study obsessive-compulsive disorder, or 0.8 percent of the total new grants. Of these, 4 were related to clinical or treatment aspects of obsessive-compulsive disorder.

In 1999, NIMH was also funding 4 research grants to study fish. These are:

- “Condition Dependent Integration of Multisensory Cues” \$51,190  
1R03MH57826-01, University of Kentucky  
“This project will investigate the effects of condition, or health, on a fish’s ability to both send and receive signals used during courtship and mating.”
- “Interneuron Function in the Zebrafish Spinal Cord” \$24,292  
1F32MH11861-01, State University of New York Stony Brook  
“The objective of this project is to examine the structure and function of interneurons in the reticulospinal system controlling escape behavior in fishes.”
- “Social Influences on Central Arginine Vasotocin Actions” \$99,468  
1R29MH58271-01A1, North Carolina State University Raleigh  
This project studies “the function of the arginine vasotocin/vasopressin system in the brain” of the bluehead wrasse fish, which “undergoes complete behavioral and gonadal female-to-male sex change as an adult animal.”

- “Temporal Processing of Communication Sounds” \$30,399  
1F31MH12510-01, University of Pennsylvania  
This project studies sound frequency in the bonyfish Osteichthyes, but the abstract is not available on the NIH CRISP database.

## 6. Severe panic disorder

It is estimated that *approximately 7.6 million adult Americans* are affected by panic disorder in a one-year period.

In 1999, NIMH was funding 14 new research grants to study panic disorder, or 1.0 percent of the total new grants. Of these, 8 were related to clinical or treatment aspects of panic disorder.

In 1999, NIMH was also funding 8 research grants to study songbirds. These are:

- “Auditory/Motor Neural Activity During Bird Song Learning” \$20,243  
1F31MH11615-01A1, University of Chicago  
Using zebra finches, will study the “development of the temporal hierarchical organization of the adult motor pathway” of singing birds.
- “Perceptual and Neural Aspects of Visual Displays” \$32,256  
1F32MH12326-01, University of California, Santa Barbara  
Using great bowerbirds, “the work proposed will investigate whether perception of colored objects by male great bowerbirds is categorical or continuous.”
- “Activity and LMAN during Song Development” \$17,708  
1F31MH11872-01A1, Duke University  
Using zebra finches, “this experiment will address the question whether LMAN [nucleus] ... produce vocalizations or disrupt ongoing song during sensory motor learning.”
- “Cellular Mechanisms of Vocal Learning” \$170,858  
1R01MH56646-01A2, University of Pennsylvania, Philadelphia  
Using songbirds, proposes to study the anatomy of songbird brains; “these studies will be the first to examine a role for changes in synaptic strength in learning of a complex vocal behavior.”

- “Mechanisms of Vocal Learning—Instinct and Experience” \$16,496  
 1F31MH11795-01, University of California, Davis  
 Using the white-crowned sparrow, the proposed research will “investigate whether innately recognized acoustic cues guide vocal learning...The long-term goal is to understand how innate predispositions and experiences interact in the acquisition of a complex, learned behavior: bird song.”
- “Auditory Memories and Vocal Learning” \$118,595  
 1R01MH59189-01, University of California, Berkeley  
 Uses songbirds, but the abstract is not available on the NIH CRISP database.
- “Brain Space and Avian Vocal Learning” \$27,519  
 1F31MH12182-01, University of Rochester  
 Using zebra finches, will test “the hypothesis that brain space constrains learning potential” by studying the anatomy of neurons used by finches to learn songs.
- “Social Influences on Neural Plasticity” \$31,720  
 1F32MH12343-01, University of Washington, Seattle  
 Using white-crowned sparrows, “the goal of this proposal is to examine the role of social cues in the seasonal growth of the brain nuclei that control singing behavior in adult songbirds.”

## 7. Autism

In its 1993 report to Congress, the National Advisory Mental Health Council listed autism as one of the “severe mental disorders.” According to the Department of Health and Human Services, the prevalence of autism is estimated to be approximately 1 in 500. Using census population projections for 2000, this means that *approximately 550,000 American have autism*. Research on autism is also funded by other NIH institutes, in addition to NIMH.

In 1999, NIMH was funding 9 new research grants to study autism, or 0.6 percent of the total new grants. Of these, one was related to clinical or treatment aspects of autism.

In FY 1999, NIMH was also funding one research grant to study crickets. That is:

- “Information Theoretic Analysis of Neural Codes” \$25,000

1F32MH12159-01, Montana State University, Bozeman  
Using crickets, “the general goal of the proposed research is to determine how information about sensory stimulus features is encoded by ensemble neural activity patterns.”

It should be reiterated that many of these animal research projects are worthwhile and should be supported. Research on the fruit fly and earthworm, for example, has been essential for advancing knowledge in genetics and in development of the nervous system. The question, however, is how much such research NIMH should be supporting. Insofar as NIMH allocates more resources to pigeons, fish, songbirds, and crickets, it has fewer resources to allocate to the study of manic-depressive illness, obsessive-compulsive disorder, panic disorder, and autism.

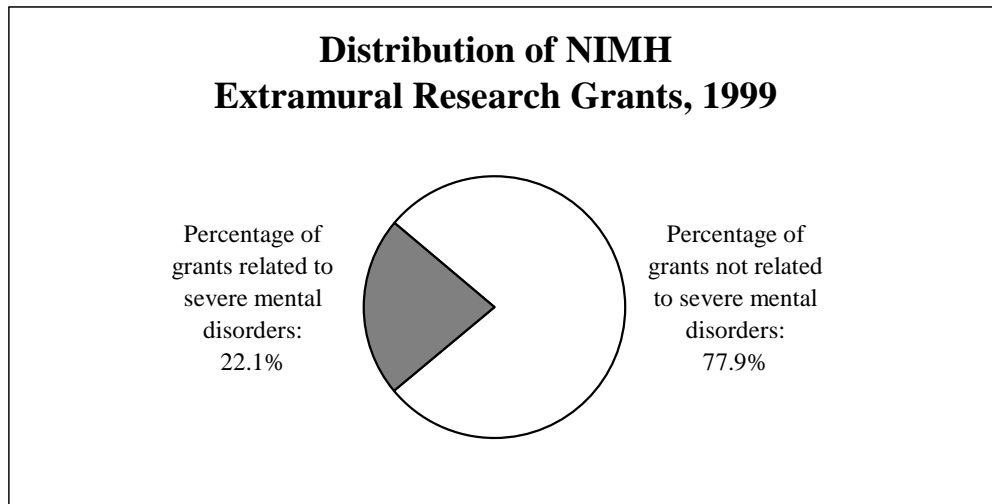
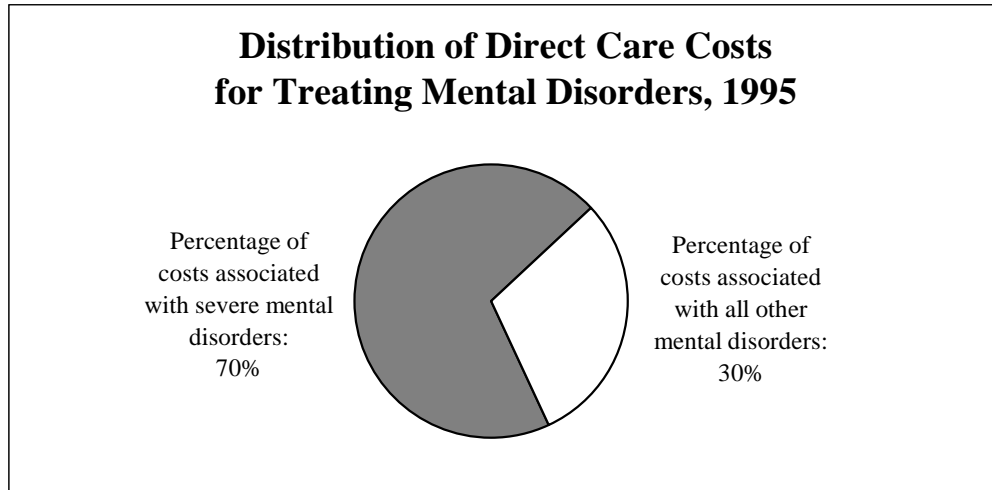
### **Discussion**

NIMH is funding some important basic biological and psychosocial research and has contributed in important ways to research progress in the Decade of the Brain. Its support of training programs to produce the next generation of researchers has also been essential. NIMH is also funding some very useful and important research on severe mental disorders. Examples of such research grants funded in 1999 include “Relapse of Bipolar Disorder during Pregnancy (1K23MH01609-01A1, Massachusetts General Hospital); “Neurological Targets of Antidepressants” (1R01MH58916-01, University of Washington); “Basal Ganglia Function in Obsessive-Compulsive Disorder” (1R01MH60219-01, Massachusetts General Hospital); “Modeling the Atypical Antipsychotic Profile” (1R15MH55854-01A1, University of Wisconsin at Milwaukee); and “Serious Mental Illness and Outcome of Mandated Services” (1R24MH57815-01, University of Pennsylvania). NIMH is also to be commended for recently funding on contract three large trials to study the treatment of schizophrenia, depression, and manic-depressive illness; the cost of these three contracts totals approximately \$17.6 million per year.

The main question posed by this review is why NIMH is not supporting more such research. Why are only 22.1 percent of new research grants targeted at severe mental disorders, and only 8.3 percent targeted at clinical and treatment aspects of these disorders?

Given NIMH’s own studies, possible answers to these questions are difficult to imagine. In July 2000, NIMH released a report entitled *The Economic Cost of Mental Illness, 1992*,<sup>6</sup> which also included 1995 data. The report estimated that in 1995, the total direct and indirect costs of all mental disorders, not including substance abuse, were \$184.7 billion. Of this amount, 58 percent, or \$107.1 billion, were costs related to severe mental disorders. Moreover, 70 percent of all direct care costs (treatment, medical

expenditures, health support) related to all mental disorders were costs related to *severe* mental disorders.



The NIMH report also estimated the cost of severe mental disorders in other than purely economic terms. Severe mental disorders were said to be responsible for *87 percent of all premature deaths* due to mental illness; in 1995, this would have been *32,700 deaths* associated with severe mental disorders, including *72 percent of all suicides that year*. The report also said that severe mental disorders are responsible for almost all homeless persons who are mentally ill, as well as for 10 percent of all arrests and jail costs associated with public disorder.

It is therefore clear that severe mental disorders are often fatal diseases if they are not treated adequately. Yet NIMH has allocated remarkably few resources to treatment research. This is unacceptable on humanitarian grounds alone, but it is also unacceptable

on economic grounds, since adequate treatment saves money. For example, a recent analysis of the economic effect of using lithium to treat manic-depressive illness calculated that its use saved over \$8 billion per year between 1970 and 1991.<sup>7</sup> Given NIMH's current research portfolio, the research being funded is unlikely to lead to important new treatments.

If the funding priorities of NIMH are looked at from the point of view of the federal government, they appear even more perplexing. According to the recent NIMH report, in 1995 severe mental disorders cost the federal government alone \$57.4 billion.<sup>6</sup> Another recent report estimated that federal expenditures for all mental disorders (not including substance abuse) increased 141 percent between 1987 and 1997.<sup>8</sup> Federal OASDI (SSDI) and SSI for the support of individuals with "mental disorders other than mental retardation" has been increasing especially rapidly. Federal SSI payments for mentally ill individuals, for example, increased from \$0.5 billion in 1976 to \$7.4 billion in 1998, an increase of almost one-half billion dollars each year.<sup>9</sup> Very few federal expenses have been increasing this rapidly, which logically leads to the question of why a greater share of federal research dollars is not being spent on these disorders.

It should also be kept in mind that NIMH is the *only government source for research on severe mental disorders*. Basic neuroscience research has many other options, as noted in our previous reports, including other NIH institutes, the National Science Foundation, and heavy investment from the Howard Hughes Foundation. Basic behavioral research also has many other options, including other NIH institutes and the National Science Foundation. But for research on severe mental disorders, there are no other government options; if NIMH does not do it, it will not be done.

One reason for this underfunding of research on severe mental disorders by NIMH is that, as a research institute, NIMH is removed from the reality and consequences of severe mental disorders. For example, two major crises—epidemics, really—in the United States are the number of individuals with severe mental disorders who are in jail and the number who are homeless. Despite widespread public acknowledgment of the severity of these problems, among the new research grants funded by NIMH, just two grants addressed the problems of the mentally ill in jails ("African American Mental Health Research Program," 1P01MH58565-01, University of Michigan, and "Mental Health Services for Arrestees with Mental Illness," 1R03MH59709-01, Yale University), and only one grant addressed the problem of severely mentally ill homeless persons ("Preventing Recurrent Homelessness in the Mentally Ill," 1F31MH12018-01, Adelphi University).

The fundamental problem with NIMH's research priorities, then, is not that NIMH has no mission but rather that it has 100 missions. It believes that its missions include breast cancer, lung transplantation, cognitive processes of birds, alertness in railway

engineers, reading problems, and students' transition to middle school, to name only a few.

This fundamental problem goes back to the very inception of NIMH in 1946, when the decision was made to name it the National Institute of Mental *Health* rather than the National Neuropsychiatric Institute, the name proposed in the original legislation creating the Institute. Mental *health* encompasses everything and provides a rationalization for NIMH to study whatever it pleases. This breadth appears to increase each year, so that among the 1999 NIMH funded research grants were the following:

- “Adolescent Romantic Relationships” \$26,998  
 1R03MH58973-01, University of Denver  
 “The goal of the proposed research is to investigate the associations between parents’ marital functioning and romantic relationship functioning of their adolescent children.”
- “Fairness in Family Work over Transition to Parenthood” \$39,125  
 1R03MH57914-01, Carnegie-Mellon University  
 “The aim is to investigate how married couples make judgments about fairness in the division of housework at approximately 3 months before and 6 and 12 months after the birth of a first child.”
- “Daytime Sleepiness: Prevalence, Consequences, and Risks” \$338,818  
 1R01MH59338-01, Case Western Reserve University  
 “The goals of the study are to estimate the prevalence of excess daytime sleepiness in the general population” by a telephone survey and then laboratory testing for those identified.
- “Children, Child Care and Psychological Well-Being” \$209,059  
 1R01MH56543-01A1, Ohio State University  
 “We hypothesize that the impact of children on adult well-being depends on household circumstances. Children decrease well-being by increasing demands and burdens and precipitating conflict between partners over those demands and burdens.”
- “Too Few Hours: Time Pressures and Well Being” \$60,959  
 1R03MH56927-01A2, Kent State University  
 Proposes to do a random telephone survey to study “an increase in the subjective experience of feeling rushed and a decline in the subjective sense of available time for family and leisure.”

- “Physical Appearance and Leadership Selection” \$70,250  
 1R03MH58152-01A1, Northern Illinois University  
 “One objective of this study is to examine the contribution of assessments of healthiness, maturity, dominance and attractiveness to ratings of candidate electoral viability, as well as the facial morphology and physical features underlying ratings.”
- “Revealing Secrets Leads to Health Benefits” \$32,957  
 1R03MH57647-01, University of Notre Dame  
 “The purpose of the proposed research is to ascertain experimentally what it is about revealing one’s secrets or private negative experiences that leads to health benefits.”
- “Human Neural Systems for Perceiving Emotion in Music” \$21,124  
 5F31MH12121-02, University of Iowa  
 “The primary aim of the proposed study is to investigate the neuroanatomical systems involved in perceiving emotion in music.”
- “How Mental Models of Fun and Importance Influence Performance” \$18,440  
 1F31MH11771-01A2, Columbia University  
 “The proposed research is designed to explore the effects of attributions of fun, importance, and combinations thereof as reasons for engagement activities.... The proposed experiments are designed to test this hypothesis for activities pre-determined to be: ‘just fun’; ‘just important’; ‘primarily fun but also important’; ‘primarily important but also fun’; and ‘equally fun and important.’”

In summary, it appears that too much of what NIMH does with its research funds is “just fun” and too little is “just important.” Returning to the original questions posed by this review:

- How is NIMH doing in increasing its focus on the disorders it calls “central to our mission”?

Answer: Very poorly.

- How is NIMH doing in “phasing out questionable or irrelevant research?”

Answer: Also very poorly, because under mental *health*, nothing is irrelevant.

*A Mission Forgotten* concluded that NIMH had lost its research way in the woods. The present review suggests that NIMH may have even lost the woods.

### **Recommendations**

1. NIMH should rapidly and markedly increase research spending for severe mental disorders in general, and for the clinical and treatment aspects of severe mental disorders in particular. For example, to be spending less than one percent of NIMH research resources on manic-depressive illness, which affects 1.6 million adult Americans, obsessive-compulsive disorder, which affects 4.4 million adult Americans, panic disorder, which affects 2.6 million adult Americans, or autism, which affects 550,000 Americans, is simply unacceptable.
2. Congressional hearings should be held to clarify the primary mission and priorities of NIMH. A standard should be established for what percentage of NIMH research resources should go to severe mental disorders. Congressional hearings are also necessary because some members of Congress do not understand the primary mission of NIMH and mandate it to study various social problems.
3. Consideration should be given to merging NIMH with the National Institute of Neurological Disorders and Stroke (NINDS) to create a National Brain Research Institute.
4. As an interim measure, the name of the National Institute of Mental Health (NIMH) should be changed to the National Institute of Mental Illnesses (NIMI).
5. Consideration should be given to shifting large amounts of basic behavioral research from NIMH to the National Science Foundation. The behavioral research that remains at NIMH should have some relevance to the study of psychiatric disorders. This is consistent with the recommendations of the Report of the National Advisory Mental Health Council Behavioral Science Workgroup issued in May 2000.

## Appendix

### Methodology of Study

The abstracts of all research grants listed by NIMH as new grants were reviewed through the CRISP (Computer Retrieval of Information on Scientific Projects) database. CRISP can be used by anyone with access to the Internet.

#### How to Access Information on NIMH-Funded Research Grants

To access abstracts: In the address box on the Internet, enter *www.nih.gov*, click on “Funding,” and then under the heading “Grants Page,” click on “CRISP database.” For currently funded grants, click on “Current Award Information.” Current research grants can then be searched by search term (e.g., schizophrenia), name of PI (Principal Investigator), or grant number. Under “Award Type,” indicate whether you want new, competing, non-competing, or all types of awards. Then indicate which NIH institute you wish to review (e.g., NIMH). Clicking on “Submit Query” yields a “Hit List” that includes grant number, PI, and title. Clicking on the title yields the abstract, which provides details on the project and includes the name of the state in which the principal investigator’s research institution is located. You will need to know the state to obtain information on the amount of money a specific grant has been funded.

To obtain information on funding: From *www.nih.gov*, click on “Funding,” then on “Grants Page,” and then on “Awards Data.” For current grants, go to the heading “Geographic Area” and click on “Awards by State and Foreign Site.” For earlier recent fiscal years, go to the heading “Reference Shelf” and click on “Historical Data.” For both current and earlier grants, click on the appropriate fiscal year and then on the state. After the page is completely downloaded, use your browser’s ‘find’ function to search for grant number, PI name, or grant title. The ‘find’ function is usually found under “Edit” on the main toolbar and can also often be accessed by pressing the control key and the ‘f’ key at the same time.

The abstracts were all rated by the senior author as disease-related or treatment-related, using criteria identical to that used on our survey of 1997 NIMH research grants:

*Disease-related:* The research grant was judged to be disease-related if the abstract revealed research aimed in an explicit way at understanding the causes or improving the treatment, care, or rehabilitation of the disease. Thus, a rat experiment targeting a specific serotonin receptor that has been linked to major depression was judged to be depression-related. Conversely, a rat experiment targeting a frontal lobe protein that has not been linked to any severe mental disorder was not judged to be disease-related even though the abstract mentioned in its last sentence that schizophrenia has been linked to frontal lobe dysfunction.

*Treatment-related:* Each grant judged to be disease-related was also assessed as to whether it was related to clinical, treatment, or rehabilitative aspects of the disease. This category was interpreted liberally and included, in essence, any research that might help someone who presently has the disease. The vast majority of disease-related but not treatment-related research grants involved research on possible causes of the disease.

The CRISP database for NIMH included 1,477 new research grants when this evaluation was carried out in August 2000. Of these, 1,342 were extramural grants (research grants given to researchers outside of NIMH) and 135 were intramural grants (research approval of projects being carried out within the intramural program of NIMH, i.e., on the NIH campus). The intramural research abstracts can be identified by having a “Z” in their grant number. The intramural grants are not really grants, and most of them are not “new”; rather, they are re-approvals for intramural projects, most of which have been ongoing for many years. Since the purpose of this review was to evaluate new research grants given by NIMH, the intramural grants were not included. Therefore, only the 1,342 extramural grants were reviewed. *Note: The inclusion of intramural projects in our review of 1997 grants and exclusion of them in our review of 1999 grants is one reason why the percentage of NIMH grants related to severe mental disorders has decreased.*

The other major difference in our review of grants for 1999 compared to 1997 is that we made an attempt to ascertain the purpose of NIMH research grants that were not related to one of the severe mental disorders. This is reflected in our categorization of those that should have been assigned to a different NIH Institute and those that should have been assigned to another government agency outside of NIH.

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9. OASDI and SSI federal expenditures were calculated from the *Social Security Bulletin: Annual Statistical Supplement, 1977–1999*.

**Table 1. NIMH Research Grants Related to Severe Mental Disorders**

	<i>1997 Research Grants</i>		<i>1999 Research Grants*</i>	
	number	percent	number	percent
	(total = 2,029)	of total	(total = 1,342)	of total
Schizophrenia	235	11.6%	110	8.2%
Major depression	279	13.8%	120	8.9%
Manic-depressive illness (bipolar disorder)	71	3.5%	32	2.4%
Obsessive-compulsive disorder	30	1.5%	11	0.8%
Panic disorder	58	2.9%	14	1.0%
Autism	did not evaluate	did not evaluate	9	0.6%
Total	673	33.2%	296	22.1%

\* The research grants included in the present study (1999 research grants) included only those that were extramural grants (given to other institutions) and listed as “new” grants by NIMH as of August 2000. The earlier study (1997 research grants) included all existing grants as of 1997, including some intramural grants (done within NIMH). Thus, the total number for the study of 1997 grants is greater than the total number for the study of 1999 grants.

**Table 2. NIMH Research Grants on Severe Mental Disorders That Target Clinical, Treatment, or Rehabilitative Aspects of the Disorder**

	<i>1997 Research Grants</i>		<i>1999 Research Grants*</i>	
	number (total = 2,029)	percent of total	number (total = 1,342)	percent of total
Schizophrenia	27	1.3%	35	2.6%
Major depression	94	4.6%	57	4.2%
Manic-depressive illness (bipolar disorder)	17	0.8%	7	0.5%
Obsessive-compulsive disorder	11	0.5%	4	0.3%
Panic disorder	12	0.6%	8	0.6%
Autism	did not evaluate	did not evaluate	1	0.07%
Total	161	7.8%	112	8.3%

\* See note for Table 1.



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