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Health Economic Interests at NIMH and NIDA to Improve Delivery of Behavioral Health Services

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Abstract

Background: Effective financing mechanisms are essential to ensuring that people can access and utilize effective treatments and services. Financing mechanisms are needed not only to pay for the delivery of those treatments and services, but also ancillary costs, while also keeping care affordable.

Aims: This article highlights key areas of the interest of the National Institute of Mental Health (NIMH) and the National Institute on Drug Abuse (NIDA) in supporting applied health economics and health care financing research. Specifically, this article discusses the long-range impact of NIH's earlier investments in applied health economics research, and NIH's ongoing efforts to communicate its interests in health economics research. We discuss the 2023 NIMH-NIDA-sponsored health economics conference, and the ideas presented there for developing and assessing innovative behavioral health care financing models; three of the presented papers were recently published in the *Journal of Mental Health Policy and Economics*.

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Methods: We describe the history and impact of NIMH- and NIDA-sponsored economic research and identify current research interests as identified in the NIMH and NIDA Strategic Plans and recent funding announcements. We examine themes presented at the NIMH-NIDA Health Economics conference. The conference included over 300 participants from 20 countries, from six continents.

Results: The topics highlighted at the conference highlight the ways in which NIH-funded research has promoted the development of innovative health care financing methods, both from the supply side (e.g., providers and payers) and demand side (e.g., service users and families). Invited speakers discussed the findings from NIH-supported research in the topic areas of payment and financing, behavioral economics and social determinants of health. Keynote speakers highlighted emerging topics in the field, including the economics of health equity, biases in mental health models in health care, and value-based insurance design.

Discussion: We demonstrate a resurgence of and explicit interest in health economics and policy research at NIMH and NIDA. However, more work is needed in order to design funding mechanisms that fully provide access to and facilitate use of effective evidence-based practices to improve mental health outcomes. For example, it is important that policy and health economic research projects include decision makers who will be the end users of data and study results, to ensure that results can be meaningfully put into practice.

Implications for Health Care: Designing effective and efficient funding mechanisms can help ensure that service users have access to effective treatments and that clinicians and provider organizations are adequately compensated for their work.

Implications for Health Policies: Federal, state, and local policies, as well as policies of payers and health care organizations, can influence the type of care that is supported and incentivized.

Implications for Further Research: As demonstrated by the research interests as outlined in their respective Strategic Plans and funding announcements, NIMH and NIDA continue to fund health economic and policy research that aims to improve health care access, quality and outcomes for people with or at risk of developing behavioral health conditions in the US and around the world.

Introduction

Effective financing mechanisms are essential to ensuring that people can access and utilize effective treatments and services. Financing mechanisms are needed not only to pay for the delivery of those treatments and services, but also infrastructure costs such as training of providers, decision support tools, other strategies that encourage implementation and sustainment, and even adjacent determinants (e.g., transportation, railings to prevent fall risk, etc.), that are essential to the delivery of effective prevention, treatment and services interventions to target populations (not limited to those who find their way into care), all while keeping care affordable.

This article highlights key areas of the interest of the National Institute of Mental Health (NIMH) and the National Institute on Drug Abuse (NIDA) in supporting applied health

economics and health care financing research. NIMH and NIDA are among the 27 Institutes and Centers of the National Institutes of Health (NIH), the primary agency in the United States government responsible for biomedical and public health research.

The description of the health economic research program starts with the long-range impact of NIH's investments in applied health economics research on the passage of the Mental Health Parity and Addiction Equity Act (MHPAEA) of 2008. Then, NIH's ongoing efforts to communicate its interests in health economics research in the 2015 NIH *Notice of Priorities for Health Economics Research* is illustrated. The NIH approach is highly relevant for both NIMH and NIDA's extra-mural, grant-giving programs as delineated in their strategic plans and recent Notices of Funding Opportunity (NOFOs). Finally, we discuss a conference entitled: *Health Economics at NIMH and NIDA – Domestic and International*, which took place on January 25, 2023; we offer comments on the health care financing models that were presented at the meeting and later published in this journal.

Mental Health Parity and Addiction Equity Act and Patient Protection and Affordable Care Act

NIH supported studies that informed the development[1] of the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act (MHPAEA), which was signed into U.S. law in 2008. The parity law has increased access to care for millions of persons with mental illness by preventing private health insurers from providing less favorable benefits for mental health and addiction services than those offered for general medical care.[2] Advocacy groups have long considered insurance parity as one of their priorities, and the rationale for its feasibility reflected the work of decades of research by NIMH-funded investigators. Studies in the 1980s indicated that it was justifiable to impose higher cost sharing from patients because of concerns that long-term service use would lead to increased costs.[1,3–8] That is, increasing cost-sharing would decrease excessive long-term use of services and thereby reduce the cost of care.

However, from the 1990s, new research[9–16] revealed that the fast-growing managed behavioral health plans, which applied utilization review, can effectively control health care costs and there is no need for higher cost-sharing. Between 1993–2000 NIMH's National Advisory Mental Health Council prepared four mandated reports to Congress summarizing this literature and presenting predictions about the financial feasibility of insurance parity under managed care. Further studies on costs by the Congressional Budget Office, negotiations with employer and insurance groups, congressional testimonies by patients and providers and continued advocacy led to the passage of MHPAEA and the development of regulatory tools for nationwide implementation. The passage of the MHPAEA is a demonstration that NIH-supported applied health economics studies can have great public health impact. The passage of the PPACA in 2010, which expanded public subsidies to expand health insurance coverage to millions of vulnerable Americans, further expanded the parity provisions.[17]

NIH Notice: Clarifying Priorities for Health Economics Research

In November 2015, NIH released a Notice to clarify NIH policy related to funding health economics research.[18] This Notice stated that health economics research funded by NIH needs to have health outcomes and health-related behaviors as the primary focus, and the connection between the subject(s) of the study and improved understanding of health must be clear and explicit. The Notice states that NIH is especially interested in health economics investigations designed to understand how innovations in treatment, diagnosis, prevention, and implementation strategies can be most effectively deployed to improve health and well-being. Conversely, studies that are minimally related to specific health outcomes, while they may be valuable research endeavors, would generally fall outside of NIH's mission. Examples provided in the Notice include studies that examine topics such as financial well-being or labor market outcomes without an explicit tie to health-related outcomes, or studies that assess the cost and efficiency of healthcare service delivery, without considering clinical outcomes or quality of care. NIMH and NIDA, as well as other institutes, follow these NIH-wide guidelines.

In 2023, the Office of Behavioral and Social Sciences Research at NIH examined the impact of the Notice by analyzing trends in health economics and non-health economics proposals submitted to NIH before and after publication of the Notice.[19] The study used machine learning to identify health economic-related proposals in NIH databases. The investigation found that, prior to publication of the Notice, both solicited and unsolicited health economic-related applications and funding amounts were decreasing over time. However, after publication of the Notice, award rates and funding amounts increased for health economic-related research. The authors note that the results indicate that the Notice, by delineating NIH's interests, may have helped investigators to develop proposals that better align with NIH's research interests.

Health Economics Research Funding at NIMH

NIMH's Financing and Managed Care Research Program, NIMH's applied health economics research program, was established in 1979. It started with a small conference after the publication of the report of President Carter's Commission on Mental Health which focused on the changing mental health care system, including its financing, and identified areas that required attention. The inclusion of mental health benefits in public and private insurance plans and studies that assessed the costs of providing services in different settings and organizations were supported by the report.[20] NIMH funding opportunity announcements calling for rigorous research on reimbursement of mental health services by Medicare, Medicaid and private insurance followed, and NIMH's research interests in this area have continued to grow.

NIMH has outlined current areas of research interests in its 2023 Strategic Plan for Research, notably in Goal 4 of the Strategic Plan, which describes NIMH interests in advancing mental health services to strengthen public health.[21] The Strategic Plan describes research interests in examining new models of health care financing and delivery of care to promote effective and efficient care for individuals with serious mental illnesses and serious emotional disturbance, including examining financing strategies to ensure equitable access

to care. Examples provided include comparing alternative funding mechanisms to promote high-value care and discourage low-value services, examining the impact of health care system regulations on funding mechanisms, and the impact of insurance reimbursement and incentive programs on the support of a well-functioning workforce.

The research interests as laid out in the Strategic Plan have led to the issuing of funding opportunities on a wide range of economic-related topics. Some NOFOs focus on the supply side of the complex health care industry, such as the role of financing on incentives for providers and payers. Other NOFOs pay attention to the demand side, specifically on the impact of financial factors for patients and families on the ability to access and utilize care. For example, the Innovative Mental Health Services Research announcement[22] includes a request for investigations on alternative funding mechanisms, policies, regulations and health care system rules to promote high-value care. Other NOFOs have centered on specific research topics. A recent NOFO solicited applications to develop outcomes-focused quality measures based in the US health care system[23] and in low- and middle-income countries.[24] Others concentrate on examining the role of work in health disparities,[25] and the role of pandemic-era food and housing policies and programs on health outcomes in health disparity populations.[26] Two other NOFOs targeting low- and middle-income countries invite research on economics interventions aimed at improving youth mental health and understanding the downstream economic effects of mental health interventions in this population[27] and at examining supply-side interventions or policies that can affect the integration of mental health care into primary care.[28] Moreover, R01-level studies conducting intervention testing in global mental health research are strongly encouraged to include a full economic evaluation and an affordability analysis.

In addition to NOFOs, NIH also publishes Notices of Special Interest (NOSIs), which describe research interests in specific areas and can be referenced when responding to broader funding announcements. Some recent NOSIs call for research examining the social, behavioral and economic impact of COVID-19 in underserved and vulnerable populations,[29] studies in crisis response services, including the impact of financing on outcomes,[30] and studies on the impact of policy interventions aimed at addressing social determinants of health to improve functioning and well-being for people with serious mental illnesses.[31] These are just a few examples that have been of interest to NIMH as of this writing. Current information on funding announcements can be located on the NIMH website.[32]

Health Economics Research Funding at NIDA

NIDA has long supported health economics research in pursuit of its mission[33] which is "…to advance science on drug use and addiction and to apply that knowledge to improve individual and public health." Economic evaluations have been a particular focus. According to Dr. Charles R. Schuster, NIDA Director from 1986–1992, as scientific advances were starting to mount that drug use disorders were medical conditions and that treatment was effective "…(c)learly we had to demonstrate that decreasing the health care and criminal justice costs associated with drug abuse/dependence offset the costs of prevention and treatment interventions…".[34] Several studies published since that time suggest that treatment does provide economic benefits, particularly through its effects on

criminal activity.[35] The interest in the field then turned to cost-effectiveness and cost-utility analysis which help inform decisions on the best ways to allocate scarce treatment resources. Studies supported by NIDA have developed methods for rigorous cost-effectiveness analysis of substance use disorder treatment services, including instruments used to collect economic costs (e.g.[36]). NIDA-supported researchers also developed methods to conduct cost-effectiveness analyses alongside clinical effectiveness trials, often in collaboration with NIDA's Clinical Trials Network.[37–39] NIDA funding has also supported projects developing and enhancing cost-effectiveness and decision analytic models to support resource allocation decisions for Human Immunodeficiency Virus (HIV) and Hepatitis C Virus (HCV) prevention and treatment for individuals who use drugs, and for ending the overdose epidemic (e.g.[40]). The development of methods to conduct cost-benefit analyses of substance use prevention programs has also been supported (e.g.[41,42]). A growing area is the study of the costs and cost-effectiveness of interventions designed to assist in the implementation of evidence-based practices, and understanding economic factors related to fidelity and sustainability of these practices. NIDA currently has Centers of Excellence that serve to advance methods in these areas and serve as resources to the field, including the Center for Health Economics of Treatment Interventions for Substance Use Disorder, HCV, and HIV (CHERISH),[43] The Center for Dissemination and Implementation at Stanford (C-DIAS),[44] and has included economic analysis support for several of its research programs funded under NIH's Healing to End Addiction Long Term initiative. More information about these and other NIDA-funded Centers, such as The RAND-USC Shaeffer Opioid Policy Tools and Information Center (OPTIC),[45] which advances rigorous methods to understand and inform state opioid policies, can be found on NIDA's website.[46] Many of these centers offer resources for the broader research community.

NIDA has also long funded financing research, including research on managed behavioral health care, insurance benefit design, and reimbursement mechanisms in the public and private sectors, much of which has been supported through its Brandeis-Harvard Systems Improvement Research and Engagement (SPIRE) Center.[47] SPIRE is the latest incarnation of a Center that was first supported by NIDA in 1989 to examine the effect of drug related illnesses on health care costs and the organization, structure, and funding of drug use disorder treatment services. Studies by these investigators and others have increased our understanding of the predicted and actual effects of health insurance parity and the Affordable Care Act, the effects of out-of-pocket payments on treatment retention, and the effects of some payment and delivery models on access to and the quality and effectiveness of treatment of substance use disorders and systems of care. In general, these studies have found that coverage and financing arrangements to date have had significant changes on insurance design such as the removal of quantitative treatment limits, but effects on utilization appear small (e.g.[48–51]).

Economic studies of the demand for specific drugs and treatments, and the influence of economic factors on the use of drugs, and rigorous analyses using causal inference, have also been a focus of NIDA funded research. These studies have generally found that prices are among the factors that do seem to inform decisions of those who use substances and have substance use disorders (e.g.[52,53]).

Information on NIDA-funded research projects on these and many other economic and financing topics and links to their resulting publications can be found by searching NIH Reporter.[54]

Continuing changes in the drug supply, laws and regulations, the introduction of novel interventions and delivery models, and the low rates of availability of evidence-based practices as well as the low rates of treatment entry and continuation for those with substance use disorders mean that health economics research can continue to have a role in informing policy and practice. NIDA continues to state an interest in health economics research consistent with NOT-OD-16-025. As of this writing, it has announced its interests in its most recent Strategic Plan,[55] NOFOs, NOSIs, and Branch and Division Web pages. Examples include, but are not limited to, the following:

- • Research "… to inform and assess the effects of novel coverage, benefit, and other financing strategies designed to improve care quality, access, and delivery of substance use disorder services."
- • "Rigorous health services and economic research to maximize the availability and delivery of efficient, effective drug, alcohol, and tobacco treatment and recovery support services." (NOT-DA-23-012).[56]
- • "Pilot studies of strategies or approaches to intervention, and/or other service system-based research to address areas such as economics, funding, service quality and engagement." (PAR-24-060).[57]
- • "Pilot and feasibility testing of new and innovative strategies to facilitate uptake, delivery, and/or financing for large-scale implementation of evidence-based prevention interventions, guidelines, or principles." (PAR-24-060).[58]

NIDA publishes all its NOSIs and NOFOs in the NIH Guide to Grants and Contracts.[59] Other places to look for NIDAs interests are it's Division Web pages, especially those of the Division of Epidemiology, Services, and Prevention Research,[60] and the National Advisory Council on Drug Abuse (NACDA) Approved Concepts page.[61]

NIMH-NIDA Health Economics Conference in 2023

In January, 2023, NIMH and NIDA collaborated to organize a conference on current issues in health economics, as they impact mental health and substance use disorder treatment, in the US and around the world. The conference included over 300 participants from 20 countries, from six continents. Invited speakers discussed the findings from NIH-supported research in the topic areas of payment and financing, behavioral economics and social determinants of health. Keynote speakers highlighted emerging topics in the field, including the economics of health equity delivered by Darrell Gaskin, PhD, Johns Hopkins University, biases in mental health models in health care, presented by Varun Gauri, PhD, Princeton University, and value-based insurance design, described by Mark Fendrick, MD, University of Michigan. The meeting's presentations are archived on the NIMH YouTube channel.[62]

Following the NIMH-NIDA conference, *JMHPE* provided the opportunity for conference speakers to develop their presentations into manuscripts for publication in special issues;

articles were published in the September and December 2023 issues. These studies describe innovative models of financing and health care delivery; some (Benson and Fendrick, North *et al.* and Hodgkin *et al.*) focus on the supply side, while Baldwin *et al.* focuses on the demand side. The models presented by the authors are briefly described here.

Benson and Fendrick[63] presented a model of value-based insurance design, a novel model of financing in which consumer cost-sharing is based on the clinical benefit of the service, rather than on the price or cost of the treatment. Value-based insurance design features have been implemented in various settings and have shown evidence of lower out-of-pocket costs to the consumer for certain high-value services. Additional research is needed on applications in behavioral health, especially in the area of identifying patient preferences and measuring short and long-term patient-centered high and low value clinical outcomes. We describe this further in a separate article.[64]

North *et al.*[65] presented research on the feasibility and acceptability of financing mechanisms for evidence-based practices, from the perspectives of youth mental health system administrators. The financing strategies that were indicated as the most relevant to the administrators among the 28 choices offered, were braided funding streams, contracts for evidence-based practices, credentialing/rostering providers, fee-for-service reimbursement and grant funding. Improving financing of services is very important, however, we recommend that in future presentations the authors take into consideration that gap between mental health need and initiation of treatment by customers still can exist despite improved access to services as Zuvekas[66] points out in a paper published in the same issue.

Hodgkin *et al.*[67] describe three alternative payment models that have been used in the delivery of behavioral health, and some of the challenges that each have experienced. The three models studied were the collaborative care model for depression, outpatient based opioid treatment, and the certified community behavioral health clinic. All three models encountered difficulties from a lack of billing codes and the inclusion of services that were not billable to third party payers. The authors concluded that programs should plan for sustainment of such programs beyond the end of time-limited funding. The gap between implementation of new services and lack of billing codes for them is not new – and in our opinion health economist researchers can assist the communication between providers and third party-payers to find ways to reduce this gap and modernize the reimbursement system.

Baldwin *et al.*[68] surveyed people with serious mental illnesses (SMI) to examine the types of workplace accommodations that they request and receive from their employers (e.g., scheduling, workspace modification). The study found that most workers develop and implement their own workspace accommodations, such as moving to a quiet location, rather than requesting them from their employers. The authors note that mental health care providers and vocational services may need to be aware of the range of services that people with SMI utilize in order to perform at their job, and how such accommodations can be implemented without the need for the employee to disclose their mental health condition. Such accommodations can be a vehicle to reduce stigma of mental illness at the workplace by enabling the employee of not disclosing mental health conditions.

While the four papers appear to draw from broad topic areas, they all highlight the ways in which NIH-funded research has promoted the development of innovative health care financing methods, and areas in which NIMH and NIDA see opportunities for innovation to continue to sustain the delivery of high-value evidence-based practices in behavioral health.

Discussion

NIMH and NIDA have a long tradition of supporting innovative research that has helped to promote access and utilization of high-quality, evidence-based practices in behavioral health care. Recent NOFOs and NOSIs, together with the first-ever NIMH-NIDA Health Economics research conference, demonstrate a resurgence of and explicit interest in health economics and policy research. We are proud to point to high-profile examples like research to inform the development and effects of MHPAEA, which we now take for granted, and more recently, policy and health economic research to understand the impacts of the COVID-19 pandemic and develop policy solutions to improve access to telehealth, access to vaccines and care for people with mental illness.[69–72]

More research is needed, however, in order to design funding mechanisms that fully provide access to and facilitate use of effective evidence-based practices to improve mental health outcomes. For example, to meaningfully affect change, it is important that policy and health economic research projects include decision makers who will be the end users of data and study results (e.g., policymakers, clinic administrators, advocates). If these and other representative constituents are included in all phases of the research process, including through project design, data analysis and interpretation of results, as an investigator on the project, consultant, Advisory Board member or other appropriate role, they can help ensure results that can move research findings into the practice setting.

As demonstrated by the research interests as outlined in their respective Strategic Plans and funding announcements, NIMH and NIDA continue to fund health economic and policy research that aims to improve health care access, quality and outcomes for people with or at risk of developing behavioral health conditions in the US and around the world.

Source of Funding:

US Government Work.

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