White House Report on Mental Health Research Priorities

THE WHITE HOUSE
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Foreword

Everyone has someone in their life who is impacted by a mental health disorder or is facing such a challenge themselves. It is the high school student whose anxiety is so debilitating they can't focus in class. Or the new parent who is struggling to rebalance their post-partum life with a baby and returning to work. Or the children whose father has been on and off treatment for schizophrenia and who struggles to maintain housing and a job. Each problem exacerbates another. Our nation is facing a mental health crisis among people of all ages, and the COVID-19 pandemic has only made these problems worse.

The Biden-Harris Administration has taken unprecedented action to address our nation's mental health crisis. In March 2022, President Biden announced a three-part strategy to transform how we understand, access, and treat mental health in America as part of his Unity Agenda. Additionally, we provided nearly $500 million to help states transition to the 988 Suicide and Crisis Lifeline, helping countless individuals get more timely access to confidential counseling and crisis care. Through the Bipartisan Safer Communities Act, we are awarding hundreds of millions in grants to strengthen youth and community mental health services. And, we are in the midst of building a more robust pipeline of mental health providers, expanding school-based mental health services, and training first responders how to support individuals with mental health challenges. The actions we have taken to date are making a difference in communities across the country, but there is much more to do – and we need to know how to drive progress faster, better, and more effectively.

Research and innovation are key to this challenge. We know that some tools work in some settings, but we need to figure out how to make them work everywhere and for all Americans. There are also some problems we don't have the answers to. We need to improve how we prevent, diagnose, treat, and destigmatize mental health conditions – and research is key to doing so.

This White House Report on Mental Health Research Priorities is the first of its kind to outline an Administration-wide set of critical and timely needs and opportunities in mental health research. In releasing this report, we call upon our colleagues in government and beyond to build on these priorities and generate a new foundation of evidence to enable us all to move closer to a future where every American has access to the best available care – when and where they need it.

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Executive Summary

The United States is in the midst of an unprecedented mental health crisis among people of all ages. Anxiety and depression symptoms among adults increased during the COVID-19 pandemic and remain elevated compared to pre-pandemic levels. Over forty percent of U.S. high school students state they struggle with persistent feelings of sadness or hopelessness. To address this crisis, President Biden put forward in his first State of the Union a comprehensive national strategy to tackle our mental health crisis, and called for a major transformation in how mental health is understood, accessed, treated, and integrated—in and out of health care settings.

As part of the overall mental health strategy, the White House Office of Science & Technology Policy (OSTP) partnered with the White House Domestic Policy Council (DPC) to establish cross-agency scientific research priorities to improve how we prevent, diagnose, treat, and destigmatize mental health conditions. This set of mental health research priorities was developed to identify key areas where additional scientific research is needed to address our national mental health crisis in a comprehensive and equitable way.

The enclosed report expands on the following priority areas and outlines critical research gaps and opportunities in each priority area.

Cross-cutting research priorities

1. Advancing equity in promoting mental health and in understanding, preventing, identifying, and treating mental health conditions
2. Understanding and leveraging digital mental health interventions
3. Supporting and expanding the mental health workforce

Topical research priorities

4. Increasing the availability, quality, and impact of interventions for mental disorders in health care systems, communities, and justice settings
5. Integrating substance use and mental health research and treatment
6. Developing and improving treatments for serious mental illnesses
7. Preventing fatal and non-fatal suicide outcomes
8. Supporting youth mental health

These research priorities are built on a foundation of mental health research that has long been supported by the Federal Government. It is our hope that this report will increase coordination across the Federal agencies that support or perform mental health research, inform Federal resource allocation, and identify and maximize opportunities for agency collaboration while minimizing duplication.

Introduction

Statement of Purpose

Addressing the nation's mental health crisis is a critical priority of the Biden-Harris Administration and one pillar of the President's bipartisan Unity Agenda. The President has put forward a national mental health strategy that supports this agenda and is focused on three key goals: strengthening system capacity, connecting more Americans to care, and creating healthy environments to promote mental health and well-being. Furthermore, recent bipartisan support has yielded historic investments to expand and transform mental health services. The research priorities in this report will enable evidence-based, best-practice approaches for addressing mental health challenges and advance implementation of the President's national mental health strategy.

In May 2022, as part of the overall Biden-Harris Administration mental health strategy, the White House Office of Science & Technology Policy (OSTP) committed to establishing cross-agency scientific research priorities to improve how we prevent, diagnose, treat, and destigmatize mental health conditions. This set of mental health research priorities was developed to identify key areas where additional scientific research is needed to address the mental health crisis in a comprehensive and equitable way. Particular attention was paid to research on mental health conditions that have been exacerbated by the COVID-19 pandemic, are associated with social stigma, and/or disparately affect or persist in certain populations due to inequities caused by historical and structural racism and discrimination.

The intent of the report is to ensure coordination across the Federal agencies that support or perform mental health research, to inform Federal resource allocation, and to identify and maximize opportunities for agency collaboration while minimizing duplication. This report can also be used by groups beyond the Federal Government, including academia, health care providers, philanthropic research funders, and advocacy organizations, to guide the broader scientific community.

Process

Led by OSTP and in collaboration with DPC, these priorities were developed by a team of mental health research experts and mental health service providers from across the U.S. Government. Initial input was sought to understand: what research was currently being performed or supported, what mental health conditions would benefit most from additional support, which research approaches would be most impactful for these conditions, and other topic areas or themes that may not fit specifically into either of those categories. A list of the Federal Departments and Agencies that contributed to this report is provided in Appendix 1.

This document is a synthesis of both the priorities that research experts and services partners mentioned frequently, and those that aligned best with the aim of identifying key areas where additional scientific research is needed to address our national mental health crisis in a comprehensive and equitable way. The final report was approved through senior leaders from

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relevant Departments across the Federal Government who have been working together to advance the President's mental health strategy.

These research priorities included in this report are not intended to be exhaustive but rather illustrative of scientific research areas that would most benefit from additional focus and cross-agency collaboration. Of note, for the purposes of this report, the term "mental health conditions" is used in a general way to refer to a diagnosable mental, behavioral, or emotional disorder (other than developmental or substance use disorders [SUDs]) and to encompass symptoms or functional impairments that may not meet full diagnostic criteria for a particular disorder or where a diagnosis may not be known. More specific terms to refer to particular mental illnesses or disorders are used where appropriate. While SUDs are mental disorders, there are complementary efforts that are focusing solely on research on SUDs—some of which are outlined in Appendix 2. The priorities herein reflect SUDs when they co-occur with other mental health conditions, but research priorities that solely focus on substance use were considered out of scope of this report.

This collaborative, whole-of-government effort to identify research priorities builds on and complements other priority setting activities for Federal mental health research such as the National Institute of Mental Health (NIMH) Strategic Plan for Research; the U.S. Centers for Disease Control and Prevention's (CDC) National Center for Injury Prevention and Control's (NCIPC's) Suicide Prevention Research Priorities; the National Research Action Plan on Improving Access to Mental Health Services for Veterans, Service Members, and Military Families; and the Prioritized Research Agenda for Suicide Prevention as developed by the National Action Alliance for Suicide Prevention. A further list of complementary efforts is provided in Appendix 2.

Background

The United States is facing an unprecedented mental health crisis amongst children, adults, families, and communities. Even before the COVID-19 pandemic, one in five adults age 18 or older met criteria for having a mental illness, and in the case of more than 13.1 million American adults, to the point where it substantially interfered with or limited one or more major life activities. As pointed out recently by the U.S. Surgeon General, this problem has been particularly severe amongst youth. More than half of parents express concern over their children's mental well-being. And the CDC has reported that in the decade preceding the pandemic, from 2009 to 2019, the proportion of high school students reporting persistent feelings of sadness or hopelessness increased by 40%; the share seriously considering attempting suicide increased by 36%; and the share creating a suicide plan increased by 44%. Additionally, communities of color are disproportionately undertreated—even as their burden of mental illness has continued to rise.

While data are still emerging, the pandemic has seemingly further exacerbated this crisis across all groups. About half of women and a third of men have reported pandemic-related worry or stress that has affected their mental health. And on top of the already sobering declines in mental health amongst youth, the proportion of mental health-related emergency department visits for teenagers in 2020 increased approximately 31% over 2019. The problem is magnified among those disproportionately affected by the pandemic. Women with children, Hispanic or Latino individuals, Black or African American people, persons experiencing unemployment, and

essential workers, have been more likely to report mental health issues during the pandemic than the wider population.

While the pandemic amplified the effects of an already growing mental health crisis, it is not the only contributing factor. Other complex circumstances preceding and aggravated by the pandemic have likewise led to this crisis. Documenting them all is beyond the scope of this report, but it is important to recognize other factors that have contributed to increasing rates of mental health conditions. These include the effects of historical and structural inequality and racism; the long-standing stigmatization of mental health issues that may reduce help-seeking; the growth of technology and social media use; the shortage of affordable housing that has led to housing instability for some individuals and families; an increase in gun violence and witnessing or experiencing violence in the home, at school, or in the community; mortality increases due to the overdose crisis and increasingly lethal illicit substances circulating in communities; the effects of increasingly frequent disaster events; and the broader impacts and concerns about climate change.

Overall, the mental health crisis is taking an enormous human toll on Americans at every stage of life and across many different circumstances. The crisis also significantly exacerbates a myriad of other societal challenges. As outlined by the President's Council of Economic Advisors, effects range from worse educational outcomes to unemployment and homelessness to crime and violence.

Fortunately, there is a strong foundation of existing research to help address this crisis. Individuals, parents, schools, health care providers, and others across this country are working to implement programs that will prevent and/or treat mental health conditions across settings and populations. However, more work is needed to help accelerate the use of evidence-based approaches and ensure all individuals have access to the services they need. Through the President's mental health strategy, the Federal Government is supporting communities to expand the supply, diversity and cultural competency of the mental health work force, to build and promote easy pathways to mental health services, and to create community cultures that promote mental health wellness and recovery. This report articulates a set of research priorities that, if implemented, would lead to additional evidence-based approaches for preventing and addressing mental health conditions. Where appropriate, this report highlights current research on what works and narrows in on the opportunities to advance this work and make an impact on the current crisis.

Priority research areas

The following section is divided into two types of research priority areas: cross-cutting and topical. The cross-cutting priorities are topics that came up repeatedly across different mental health conditions and research approaches. These are intended to be articulated as priority areas in their own right, but also interwoven across the topical research areas.

Cross-cutting research priorities

1. Advancing equity in promoting mental health and in understanding, preventing, identifying, and treating mental health conditions

Social determinants of health (SDOH)—the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health risks and outcomes—also have a major impact on mental health outcomes. For example, racially motivated residential segregation can lead to concentrated poverty and social disadvantage in certain neighborhoods, thereby increasing the exposure to stressors and reducing access to positive resources such as schooling, employment, and health services. At the same time, health research, including mental health research, has historically been characterized by disparities and inequities in study populations, investigators, and outcomes—meaning we know less about what might be most effective in certain populations. This is particularly true for racial and ethnic minority groups, and further extends to a wide variety of groups underrepresented in mental health research and underserved by the mental health care system. Additionally, mental health conditions have historically been associated with bias and discrimination, adding a layer of challenge in ensuring that mental health research is inclusive. While addressing SDOH in their entirety is beyond the scope of this report, future mental health research should aim to understand and incorporate these factors and a priority should be put on studies that are designed to meet people where they are—in their own cultures, faith traditions, communities, and languages—thereby making research more accessible and likely to benefit all. While there are many references throughout the topical priorities related to reducing disparities and advancing equity, concerted efforts may be required in two areas, described below.

Advancing mental health equity through research. Given the contribution of SDOH to mental health outcomes, more research is needed on multilevel interventions aimed at addressing inequities such as structural racism, poverty, violence, criminal justice, stigma and discrimination, housing instability, food insecurity, and inadequate access to health services. Specifically, this should include research to both better understand the broad spectrum of stressors and also positive experiences that promote mental health and well-being and prevent mental health conditions across the diversity and lifespan of the U.S. population, but particularly in communities with poorer mental health outcomes. To help inform how to better understand and treat mental health conditions once they develop, clinical and health systems researchers should prioritize the systematic collection of SDOH data in research studies and more broadly in health care systems. Additionally, methods that include community-based participatory research, in which researchers involve community members throughout the entire research process, can

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ensure that interventions are responsive to and appropriate for the communities they aim to serve.

Representation in clinical and implementation research studies. Mental health research studies must include patients, researchers, health care, faith-based, and other institutional and community service settings, and geographic contexts that reflect the diversity of the U.S. population and the complexity of the health care ecosystem. Measures, metrics, and outcomes should be tested and validated across populations—especially in conditions that disproportionately affect certain populations. These studies should be adequately powered and use sampling, recruitment, data tabulation, and analysis methods robust enough to support meaningful sub-group comparisons and include features designed to increase the generalizability of findings to comparable settings.

2. Understanding and leveraging digital mental health interventions

There has been explosive growth in digital health platforms for a variety of mental health challenges and disorders in the past five years, with varying degrees of evidence supporting their efficacy. Digital mental health interventions are treatments provided via digital platforms, such as smartphones, websites, and virtual reality systems, that aim to improve mental health and deliver treatment on their own or in combination with other types of interventions. While the potential to provide mental health treatment at a population level via digital approaches is enormous, there is a need for more research across a variety of mental health conditions and topics to understand more about the safety, effectiveness, and scalability of these interventions.[1]

Developing and assessing digital mental health interventions There is a need for both the development of new interventions—innovative digital health technologies intended to promote mental health, improve early identification and diagnosis, treat and manage mental health conditions, or promote recovery—as well as research that evaluates and improves the safety, effectiveness, usability, accessibility, and scalability of existing digital mental health interventions. Researchers should pay particular attention to the regulatory requirements for digital health medical devices and should reference tools provided by the Food and Drug Administration's (FDA) Digital Health Center of Excellence. It is also critical to conduct research that assesses whether use of these interventions leads to increased health equity and availability of affordable and effective mental health treatment for racially and ethnically diverse groups, individuals limited by language or cultural barriers, sexual and gender minorities, low-income persons, individuals living in rural areas or in other areas where broadband access may be limited, and individuals of all ages, though particularly youth. Additionally, digital mental health interventions should be developed and provided in a culturally and linguistically appropriate manner in alignment with the National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health and Health Care.

Developing digital data standards. Overlaying the need for additional research on digital mental health tools is the need to create data standards. Currently, data is not integrated across platforms and the effectiveness of different digital mental health interventions cannot be compared. For

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[1] The topic of social media may overlap with these interventions, but is more specifically addressed in the topical research priority area focused on youth mental health, though with the acknowledgement that this topic spans all age demographics. (Please see "Spotlight on Social Media" box for further discussion.)

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example, data from two different smartphone-based activity trackers will often use different units of measurement and each tracker will interpret acquired data differently. Without standards for measuring and interpreting digital data, neither researchers, clinicians nor patients can determine if the data are credible or meaningful. Given that smartphones can generate millions of data points per person per day, the development, implementation, and adoption of clearly defined digital mental health standards are critical. These standards should also include a focus on safeguarding privacy and security for the user along with clear messaging and transparency to allow appropriate consent from users.

3. Supporting and expanding the mental health workforce

Amid the current mental health crisis, there are too few mental health care providers to meet the needs of the population. This is particularly true for providers specializing in child and adolescent mental health. Rural and Tribal communities are also especially affected by this shortage as existing providers are also poorly distributed—leaving too many without access to mental health services. In order to expand the mental health workforce, the President's national strategy includes piloting new approaches to train a diverse group of paraprofessionals and increasing investments in health care professional workforce development programs. However, additional research is needed to identify the best mechanisms to further support and expand the supply and capacity of the mental health workforce without reducing quality, to prevent mental health worker burnout, to increase cultural competency and representations, and to train providers in addressing co-occurring conditions.

Supporting and expanding the supply, capacity and diversity of the workforce trained to address mental health As the President's mental health strategy laid out, we need a diverse group of clinicians and paraprofessionals to do this work and an array of evidence-based treatments or approaches they can draw from. Research is necessary to further understand how best to train and employ primary care doctors, other physician specialists, pharmacists, nurse practitioners, physician assistants, case managers, persons with lived experience, social workers, paraprofessionals, community health workers, and others in evidence-based mental health practices. Further, cultivating a mental health workforce that better mirrors the increasing diversity of the U.S. population can improve services and help address disparities. Specifically, relevant research could include advancing our understanding of how to operationalize appropriate roles for health professionals and others who are not primarily trained in mental health; the role of prevention professionals in mitigating stressors that impact mental well-being; developing and testing strategies to train, support, and supervise these providers, including technology-assisted approaches; evaluating the safety and effectiveness of these models of service delivery; and examining the potential impact of these alternative models for promoting equity in service access, engagement, quality, and outcomes among diverse service users. Lastly, research to understand how providers can best incorporate the principles of trauma-informed approaches in mental health care is critical in scaling these approaches to meet the needs of all.

Addressing health worker burnout. The Administration has already dedicated funding to address burnout and strengthen resiliency among health care workers, including efforts to train health care providers on suicide prevention to promote help-seeking and self-care among this workforce. Additional research in this area should include identifying what changes systems need to make to address health care worker burnout to mitigate provider attrition, a growing issue in the wake of the COVID-19 pandemic. An estimated 50 percent of behavioral health

providers report feeling burnt out, with psychiatrists in particular reporting especially high burnout rates.[2] The research needs articulated in the Surgeon General's Advisory on Addressing Health Worker Burnout are also applicable to mental health care workers and providers and should be made a priority to support the mental health of all Americans.

Training mental health care providers in evidence-based therapies that address co-occurring physical health and substance use conditions. Individuals with mental health conditions may have co-occurring SUDs and/or other chronic physical health conditions or disabilities. In particular, adults with disabilities experience higher levels of mental health conditions and substance use than do adults without disabilities, and this was exacerbated by the pandemic. The mental health needs of individuals with co-occurring conditions may be more complex, and some providers may not feel equipped to treat these individuals. Research that will establish the optimal training for treating mental health conditions in individuals with co-occurring physical health and SUDs should be prioritized. This is delineated in more detail as it relates to SUDs in section V.

Topical research priorities

4. Increasing the availability, quality, and impact of interventions for mental disorders in health care systems, communities, and justice settings

Treatment is not effective if patients do not receive or accept it. In order to connect more Americans to care, we must improve how treatments can be delivered in community-based, non-health care-based settings, correctional and other justice settings, as well as improve quality health care implementation in traditional health care settings and systems. This is a primary goal of implementation research, where researchers and providers partner in real-world settings. In carrying out implementation research, researchers and providers should incorporate integration with and feedback from communities throughout treatment development and implementation to ensure interventions are culturally acceptable to patients.

Implementation research involves the creation and application of knowledge to improve adoption and use of evidence-based practices and programs across varied service settings. This type of multidisciplinary research encourages strong partnerships among scientists, those who directly benefit from evidence-based care (e.g., people who use services, caregivers), those who deliver care, health care administrators, faith and community members, and health policy makers. Implementation studies explore factors related to scalability, sustainability, acceptability, and continuous improvement of mental health care in real-world treatment settings. Research methods include clinical trials that combine elements of effectiveness and implementation research (i.e., "hybrid designs"), natural experiments that occur in data-driven health settings, and advanced program evaluation strategies in real-world settings.

Areas of opportunity can range from broad implementation of evidence-based prevention and treatment strategies for common mental disorders in primary care, educational, housing, and community health settings to coordinated multi-element care for individuals with complex needs

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[2] More on behavioral health worker burnout is addressed in the Substance Abuse and Mental Health Services Administration (SAMHSA) Resource Guide on "Addressing Burnout in the Behavioral Health Workforce through Organizational Strategies."

(e.g., youth with emerging serious mental illness; adults with physical, mental illness, and/or substance use comorbidities). The corresponding research priorities emphasize optimizing and testing scalable versions of research-supported interventions that are matched to the needs of people who use services and capacity within the treatment setting. As noted above, this research includes developing and testing strategies for provider training and supervision to ensure sustained implementation of high-quality interventions, including strategies that incorporate technology-assisted services and sustainable approaches to expert consultation.

Spotlight on: Learning Health Care

Within the scope of implementation science, **learning health care** is a methodology for sustaining and improving services and outcomes over time. It should be a top priority for researchers and health systems to adopt this methodology in an effort to improve the science-to-service and service-to-science cycles that promote best practices for patients over time.

Learning health care occurs when organizations offer the most promising evidence-based interventions, measure treatment effectiveness systematically, and in a data-informed manner, refine best practices. The approach brings together standard measures of mental health interventions and outcomes; information technology to ensure reliable, efficient, and secure management and sharing of clinical data; and timely delivery of individualized quality and clinical effectiveness reports to clinicians and program administrators. If evidence-based interventions underperform, health care data may generate scientific questions or hypotheses that stimulate additional basic research, treatment development studies, or practice-oriented services research.

There is a timely opportunity for health care systems, including those supported by the Federal Government, to leverage their data into action and implement this learning health care methodology to improve prevention and care for their patients.

Critical research gaps and opportunities include:

Testing and evaluating care delivery approaches that increase system capacity and improve mental health care access across different settings without reducing quality and outcomes. Such approaches could include understanding how best to expand the workforce trained to address mental health needs; how to implement mental health and integrated primary prevention services in early childhood, school, community, housing, employment, and justice settings; as well as how to further integrate these services in primary care and specialty medical practices. An additional layer for researchers to consider is how mental health services and treatment for substance use conditions can be integrated. Through models such as Project ECHO, there are initial promising findings on how to increase community providers' access to expert knowledge through remote, real-time mental health mentoring and consultation. This work should continue to be prioritized with respect to mental health to ensure that Americans can be connected to high quality mental health care. Further study on telehealth strategies suitable for behavioral health, including virtual care and mobile applications and how they best integrate with in-person services, would also be valuable.

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Development, validation, and implementation of mental health-specific quality measures to evaluate access to care, service delivery, and treatment outcomes. Such efforts could focus on adapting standardized instruments of patient-reported measures to develop and validate outcome-focused measures that can be used to quantify the quality of mental health care, assess inequities in mental health care, with studies that include participants from diverse racial and ethnic backgrounds and across gender identities, geographical context, socioeconomic status, neurotype, and age. To facilitate translation of findings and quality measures into practice, research studies should focus on developing and validating measures and collecting data that will be useful to relevant regulatory, accrediting, and governing bodies that endorse quality measures for use across practice settings and diverse populations.

Broadening implementation of measurement-based care in care settings. Measurement-based care is the practice of basing clinical care on patient outcomes collected throughout treatment or provision of services. Near-term research could include specifying measurement-based care's core components for mental health, developing psychometrically strong measures to monitor treatment fidelity and individuals' response to evidence-based interventions, and testing algorithms for guiding services delivery, pharmacotherapy, and psychosocial care over time. Identifying what infrastructure is needed in health care systems to support measurement-based care is also important. Implementation research could also explore methods for streamlining measurement feedback systems, enhancing electronic record interoperability, and gathering data needed by researchers, payers, and other interested parties to evaluate the clinical and economic benefits of continuous monitoring of patient reported outcomes.

Illustrative examples supported by the Federal Government:
There are already a number of federal programs that employ implementation research methods or fully integrate service delivery and science. A few of these are highlighted below.

One example is the National Institute of Mental Health (NIMH) Early Psychosis Intervention Network (EPINET). EPINET currently links 101 Coordinated Specialty Care (CSC) programs, which are funded by the Substance Abuse and Mental Health Services Administration (SAMHSA), for individuals with early psychosis in a nationwide learning health system. Though new, this program is undertaking research projects in community clinic settings to understand how to: reduce the duration of untreated psychosis, decrease substance and alcohol misuse, prevent suicide, improve cognition and motivation, test telehealth delivery, and improve long-term outcomes for diverse populations.

Another example is the Justice Community Opioid Innovation Network (JCOIN), that is led by the National Institute on Drug Abuse (NIDA) and supported by the Helping to End Addiction Long-term® Initiative at the National Institutes of Health. The goal of JCOIN is to generate real-world evidence to address the unique needs of individuals with Opioid Use Disorder (OUD) who are involved in the criminal-legal system. It consists of a network of scientists who collaborate with justice and behavioral health partners to advance scientific knowledge on effective policies, practices, and interventions, and to expand their use in daily practice within health and justice settings. Current studies are examining implementation of statewide policies to improve OUD treatment; the effectiveness of patient navigators and similar linkage services for individuals at re-entry; and comparative effectiveness of new formulations of medications for OUD. An example of one particularly interesting finding is a study that showed that offering

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buprenorphine treatment to people with OUD prior to release from carceral settings reduced rearrest and reconviction.

Lastly, the Department of Defense (DoD) and the Department of Veterans Affairs (VA) jointly established the Practice-Based Implementation (PBI) Network to advance the adoption of evidence-based psychological health practices and improve clinical care delivery in the Military Health System (MHS) and in the Veteran Health Administration (VHA). Each year, the PBI network develops implementation pilots of evidence-based and evidence-informed practices with the potential to improve readiness and patient outcomes. For example, one pilot in DoD assessed the feasibility and benefit of using a technique called Screening, Brief Intervention, and Referral to Treatment (SBIRT) and indicated that SBIRT is a feasible evidence-based approach to address alcohol misuse screening and management in certain settings within the MHS. The VA has also been a leader in developing and implementing measurement-based care practices in mental health care. Nearly 75% of VA facilities use specialized Behavioral Health Laboratory software to track Veterans' mental health with a focus on Veterans' self-reported outcomes.

5. Integrating substance use disorder and mental health research and treatment

Substance use disorders (SUDs) occur when the recurrent use of alcohol and/or drugs cause clinically significant impairment and failure to meet major life responsibilities. Though SUDs are considered mental disorders, SUDs and other co-occurring mental health conditions are too often studied and treated in isolation, in part because of siloed funding sources. Through the President's mental health strategy, the Federal Government is working to breakdown these siloes by integrating both mental health and substance use treatment into primary care settings **as well as** embedding and co-locating mental health and substance use providers into community-based settings**.** But additional research is needed to further address the intersection of SUDs and mental health conditions. First, while some behavioral therapies have shown promise for treating individuals with co-occurring substance use and mental disorders, there is a need to understand how these are most effective and how to expand them to more settings in order be most impactful to people who need them. A second challenge is that active substance use (and withdrawal) can produce symptoms of mental health problems, and yet some individuals are denied treatment for their mental health condition due to lack of training or, in some cases, provider beliefs. Finally, many mental health conditions, but particularly SUDs, are associated with stigma—or negative attitudes toward people that are based on certain distinguishing characteristics. More than a decade of research has shown that stigma contributes significantly to negative health outcomes and can pose a barrier to seeking treatment for mental illness or SUDs. It is critical to acknowledge this stigma, along with historical inequities and siloed care, and address this stigma in mental health and SUD research.

Critical research gaps and opportunities include:
Promoting research in comprehensive, coordinated, and collaborative care. Increasingly, wraparound service programs are recommended to meet those with serious mental health needs, particularly when these co-occur with substance misuse or SUDs. Implementation science methods could be employed to establish, strengthen, and refine coordinated multi-disciplinary care or team-based collaborative care for mental disorders and SUD across treatment settings to include specialty and primary care. Such efforts could include studies to evaluate strategies for integrating evidence-based pharmacotherapy, psychosocial therapies, case management

approaches, harm reduction, recovery support, and general medical care. There is an opportunity to build on the foundation of research supported within Certified Community Behavioral Health Clinics (CCBHCs), supported by SAMHSA, which provide a comprehensive range of medical, mental health, and substance use services for children, youth, and adults. These comprehensive clinics are a promising platform for applied research that explores care coordination and measurement-based treatment for persons with complex behavioral health, general medical, and social needs.

Training providers in evidence-based therapies that address co-occurring mental health and SUD conditions. While care coordination *between* providers is critical as delineated above, training individual providers is also important. Few mental health care providers in real world clinical settings have been trained in how to treat co-occurring mental health conditions and SUDs. Research is needed on effective approaches to treat individuals with co-occurring conditions and to identify core competencies, training and support requirements for clinicians who provide care in the primary care, specialty care, and community settings. It is critical that provider training also takes into account evidence-based strategies to reduce stigma-related bias. In some cases, where training providers is not feasible or provider shortages exist, exploring the best use of alternative modes of mental health treatment delivery such as skills training via digital therapy may be warranted.

Optimizing treatment for mental disorders co-occurring with SUDs. While SUDs and other mental disorders commonly co-occur, it is not necessarily a causal relationship. There are initial indications that intervening at early stages of mental health conditions could allay more serious negative long-term outcomes that result from SUD or serious mental illness. Furthermore, remission of SUDs increases the likelihood of remission of other mental disorders and decreases the likelihood of onset of new ones. Conversely, remission of mental disorders increases the likelihood of remission of SUDs and decreases the chances of new mental disorder onset. There should be a priority placed on research that further explores the effectiveness of treating common mental disorders (e.g., anxiety disorder or attention-deficit/hyperactivity disorder [ADHD]) as preventive intervention for outcomes related to serious mental illnesses, such as suicide, and that improve outcomes related to SUDs. At the same time, the current evidence-based treatment for some of these common mental disorders is treatment with controlled substances—such as stimulant medications used to treat ADHD—which may confer risk of misuse and/or development of an SUD. It is critical for researchers to acknowledge this risk in study design and optimize how to effectively treat individuals for mental disorders without leading to the development of SUD.

Supporting primary prevention and health promotion research. Further research should target known upstream risk factors, such as adverse childhood experiences (ACEs) and social disconnectedness, and protective factors, such as relevant social supports, resiliency, and positive childhood experiences (PCEs), for promotion of overall mental health and prevention of both SUD and mental health conditions. These interventions could be studied at the individual, familial, or community level. While outcome measurements should include effects from SUDs and other mental disorders, it would also be beneficial to measure the effects on common co-occurring physical conditions such as alcohol-associated liver disease and overall quality of life and disability.

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Illustrative examples supported by the Federal Government:
There are already a number of federal programs that break down the research silos between substance misuse or SUDs and mental health. One of these is the NIH HEAL Initiative® program in Optimizing Care for People with Opioid Use Disorder (OUD) and Mental Health Conditions. This program supports research to develop, optimize, and test collaborative care models using medication for OUD and evidence-based treatments for mental health conditions that can be delivered within primary care settings. While results are still emerging, this program supports clinical trials to understand whether collaborative care models improve clinical outcomes and access or continuity of care, as well as analyses to understand the sustainability of these approaches.

The VA supports several studies that address co-occurring substance use and mental health conditions. One example is a clinical trial that is testing whether a certain psychosocial intervention can improve treatment adherence in Veterans who have comorbid bipolar disorder and SUD following a psychiatric hospitalization. There is also a related example with chronic pain in the VA's support for the Pain/Opioid Consortium of Research (CORE) which strives to enhance collaboration and accelerate health services research related to pain (especially nondrug interventions for chronic pain), opioid prescribing, and opioid use disorder. Targeted areas of focus include supporting research on nondrug management of chronic pain along with psychological and behavioral therapies for chronic pain.

Similarly, the DoD funds the Alcohol and Substance Use Disorders Research Program (ASUDRP) that supports a network of research teams with the explicit goal of exploring integrated approaches to address alcohol and SUD, especially when comorbid with post-traumatic stress disorder (PTSD) and other psychological disorders, and reducing deaths related to these SUDs. To date, this program has resulted in 17 clinical trials on active-duty or Veteran populations, 7 active FDA-approved Investigational New Drug applications, and 2 medications that have been transitioned to the pharmaceutical industry for further development.

The Department of Justice's (DOJ) National Institute of Justice recently launched two research projects focused on co-occurring substance use and other mental health disorders among youth residing in juvenile justice residential facilities. These studies will increase knowledge about the prevalence of co-occurring disorders and the impact of treatment quality, matching, and dosage on youth outcomes. Funding support for these studies is provided by the DOJ's Office of Juvenile Justice and Delinquency Prevention

6. Developing and improving treatments for serious mental illnesses

Serious mental illness (SMI) is defined as a mental, behavioral, or emotional disorder resulting in serious functional impairment, which substantially interferes with or limits one or more major life activities. Examples include, but are not limited to: schizophrenia and related psychotic disorders, bipolar disorder, and severe depression. The burden of serious mental illness (SMI) is significant on an individual and population level. SMIs typically impair daily functioning, are associated with significant personal and societal financial impact, and are among the leading causes of poor health and early mortality worldwide. While there are some effective treatments for SMIs, there is a need to improve these treatments and develop new ones.

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Critical research gaps and opportunities include:

Fostering long-term engagement in care and recovery. Research is required on which strategies best support long-term, positive engagement with treatment for SMI to the point of recovery.[3] This could include prioritizing studies aimed at: (1) testing and refining shared decision-making practices to increase informed, meaningful, and collaborative discussions between patients and clinicians about medication options and psychosocial treatments; (2) evaluating care navigation approaches that engage and retain patients and family members from diverse racial and ethnic backgrounds and geographical contexts; (3) increasing the availability and effectiveness of supported education and housing interventions, and broadening supported employment programs to include career development, planning, and progression activities; and (4) testing strategies for employing Psychiatric Advanced Directives or implementing and improving Assisted Outpatient Treatment programs.

Spotlight on: Developing Novel Transformative Treatments

Tremendous progress has been made in the last decade towards the identification of genes that contribute to the risk for mental illness. Further technological advances supported by the Brain Research Through Advancing Innovative Neurotechnologies® (BRAIN) Initiative, in machine learning and other data science approaches have converged to give researchers a robust toolkit to understand the biological mechanisms and novel targets for clinical diagnosis and treatment for SMI.

Two important gaps remain if these advances are to be transformed into novel treatments. First, we need to increase the ancestral diversity of the genetic samples available to researchers to ensure that the advances made through genetics are equitably applicable to all communities. Second, we need to establish resources and networks to enable systematic, high-throughput studies examining the biological pathways affected by these genetic risk factors and identify novel treatment targets.

This type of research would have a longer-term timeline than the other research priorities articulated herein, but is critical to pursue to lay a comprehensive and equitable framework for next-generation treatments for SMI.

Advancing precision mental health. Advances in basic neuroscience, medical informatics, genetics and genomics, and computational modeling offer new possibilities for studying psychopathology, informing clinical decision making, and identifying new opportunities for treatment development. Research that combines data from varied sources, including electronic health records, lifestyle and environmental measures, brain structure and activity, behavioral assessments, and genetic studies, shows promise for predicting the course of SMI at an individual or subgroup level. In order to translate these advances into mental health care, additional studies are required to determine the feasibility and effectiveness of shifting to interventions based on the specific constellation of factors that may contribute to an individual's illness and functioning rather than traditional diagnostic category. Additionally, there is a need for further application of machine learning, artificial intelligence, and pattern classification

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[3] Read more in SAMHSA's brochure on the Working Definition of Recovery.

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techniques to diverse data sources to identify new intervention targets or opportunities for optimizing access, delivery, and quality of services. Using these approaches in a manner that minimizes the potential exacerbation of existing inequities is also a critical consideration for research in this domain.

Optimizing available treatments. Prior research has established the effectiveness of a range of treatments for SMI, including medications, cognitive and behavioral therapies, and psychosocial rehabilitation services. Recent studies illustrate the value of combining cognitive remediation, illness management training, physical activity, and rehabilitation services to improve real-world functioning. To build on this progress, new research is needed to increase adoption of and reduce barriers to under-used medical interventions and to test scalable strategies for delivering adjunctive rehabilitation interventions. Prime examples include reducing the side effects of clozapine to enhance uptake, developing long-acting injectable medications to facilitate adherence, and improving clinical neuromodulation therapies. Additional studies could test interventions that target social cognition to promote social integration, such as adding cognitive remediation therapy to supported education, housing, or employment programs. Finally, new research could refine existing therapies to evaluate acceptability and clinical benefits in studies tailored to the needs of persons with SMI. To increase broad and sustained uptake of effective services, this research is required in community settings with diverse and representative participants.

Illustrative examples supported by the Federal Government:
There are already a number of federal programs that focus on developing and improving treatments for SMI.

One example that leverages advances in precision medicine and genetics is the VA's Million Veteran Program (MVP). The MVP is a national research program to learn how genes, lifestyle, and military exposures affect health and illness. Since its launch in 2011, over 900,000 Veteran partners have participated in the MVP program. Among other findings in mental health, MVP researchers have been able to identify more than 50 new indicators of susceptibility for schizophrenia and bipolar disorder in Veterans as well as ways of personalizing treatment for Veterans with SMI.

Another example is the Advanced Laboratories for Accelerating the Reach and Impact of Treatments for Youth and Adults with Mental Illness (ALACRITY) Research Centers program, an NIMH initiative that promotes novel transdisciplinary collaborations to transform the care of children, adolescents, and adults with SMI. ALACRITY Centers combine new discoveries in clinical research, transformative health care technologies, advances in information science, and new federal and state mechanisms for organizing mental health care to accelerate translation of effective practices in diverse, real-world health care settings. Since its inception in 2017, the ALACRITY program has supported 14 research centers that focus on underserved populations urgently in need of better mental health care, including persons with psychotic disorders, depression, and PTSD.

Another example is the Accelerating Medicines Partnership® Program - Schizophrenia (AMP® SCZ), which is a public-private partnership between the NIH, the FDA, the European Medicines Agency, and multiple public and private organizations. The overall aim of the AMP® SCZ initiative is to generate tools that will considerably improve success in developing new medications for individuals who are at clinical high risk of developing schizophrenia or

psychotic disorders. Though the program is new, it has established two large research networks focused on identifying measures that predict disease trajectory and outcomes for individuals at high risk for psychosis. These findings will allow the development of algorithms that can aid in predicting the course of illness, and allow for early intervention and testing of new pharmacologic treatments that may prevent the development of schizophrenia.

7. Preventing fatal and non-fatal suicide outcomes

Suicide is the cause of death for over 48,000 individuals a year, making it a leading cause of death in the United States and the second leading cause for young people. Significant morbidity and economic costs result from the many millions more who experience thoughts of suicide and non-fatal suicide attempts. While there were two years of declining suicide rates in 2019 and 2020, provisional data from 2021 indicate that the numbers and rates of suicide have increased again though they remain below the 2018 level. Over the past two decades, there have been increasing efforts to build the science to prevent suicide attempts and deaths along with a number of agency-wide and cross-agency research initiatives to the same end (see Appendix 2). Importantly, there are also variations in suicide burden among certain sub-populations and there is still a need to better understand risk patterns for various groups and ways of optimizing interventions. This section outlines the critical research needed to prevent suicide deaths, attempts, and thoughts.

Critical research gaps and opportunities include:
Identifying individuals and populations at increased risk. Suicide prevention research must continue evolving from a focus on single risk factors to approaches that combine multiple risk factors. Technology has advanced new tools that researchers can draw on to identify co-occurring risk factors. For example, advanced analytics can take into account electronic medical record and non-health information and the combinatorial effects of various risk and protective factors. Additionally, advances in artificial intelligence and machine learning (AI/ML) present opportunities to continue to develop and refine these predictive analytics in clinical and non-clinical settings. In clinical settings, these tools can be extended to build and test decision support tools for providers to better match risk to interventions and referrals, particularly in settings where individuals at risk are seen acutely (e.g., emergency departments and inpatient care), during high-risk transition periods (e.g., reentry from incarceration), or routinely (e.g., primary care). Research outside or in combination with the clinical setting is also needed, particularly in how to appropriately use AI/ML to analyze social media data to identify and prevent suicide at the individual, community, or population level. It is critical for researchers and developers to ensure that these tools are designed ethically, transparently, and with user consent to reduce the risk of algorithmic biases.[4] A strong foundation of research that establishes which populations are most at risk for suicide will allow communities and health care providers to develop targeted prevention and intervention approaches. Additional work is needed on contextual contributors to better understand the possible unique risk and protective factors of sub-populations with high or increasing rates of suicide. This includes, but is not limited to Black or African American youth, American Indians or Alaska Natives, rural populations, transgender individuals, older men, and young children, along with attention to the intersection of identities

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[4] The principle of protection from algorithmic discrimination is further discussed in the Blueprint for an AI Bill of Rights developed by OSTP.

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in these high-risk groups. Research investments are also needed to study long term outcomes for larger populations as well as subgroups to better understand potential benefits of upstream prevention efforts from various programs, policies, and practices.

Optimizing intervention delivery in medical care settings and the community. Ensuring early and evidence-based intervention for individuals at risk for suicide can be life-saving. Recent research has contributed to an understanding of the systems and/or settings that suicide decedents access in the year prior to death. Research is especially needed on the most effective ongoing training for those who can intervene, such as crisis care responders, health care providers, education leaders, faith and community leaders, workplace managers, peers, caregivers, and family members. In the health care setting, measurement-based care and efforts to improve data collection on suicide risk and outcomes is critical to inform interventions. The development of community-based interventions that are informed by community norms and that are effective in reducing suicide in localities with chronically high suicide rates should also be a top research priority. These interventions could be tested in settings such as housing, workplaces, financial institutions, religious or spiritual institutions, senior or community centers, and should also extend to settings such as the justice system. Lastly, it is important to determine the kinds of suicide-prevention messaging strategies that are most effective for certain populations and settings.

Increasing lethal means safety. Lethal means are objects (e.g., medications, firearms, sharp instruments) or actions (e.g., jumping, asphyxiation) that can be used to inflict self-directed violence that is potentially fatal. Lethal means safety is an intentional, voluntary practice to reduce one's suicide risk by limiting access to those lethal means. Individuals who have reduced access to lethal means during times of heightened risk have reduced risk of dying by suicide. This is particularly important for populations that may have more ready access to the most lethal means and use those means for suicide (e.g., firearm suicides among veterans and active service members). More research is needed to identify the best strategies to promote broad acceptance of improved environmental safety interventions (e.g., bridge barriers) and secure storage practices (e.g., for medications or firearms). Models to potentially follow for secure storage are the efforts that led to societal acceptance of seat belt use and preventing intoxicated individuals from driving. Research can improve approaches for facilitating high-risk individuals to voluntarily reduce access to highly lethal means. Further, it is necessary to understand what other practices (e.g., clinical decision aids for health care providers to support counseling and provide safety steps for individuals and household members) and policies (e.g., court orders that temporarily remove firearms from high-risk individuals) can contribute to reduced suicide outcomes. Collectively, this research can help keep lethal means from those at risk of suicide.

Strengthening crisis response services. As states, Tribal organizations, and localities build and/or improve their existing crisis response service systems, it will be critical to understand which approaches are most effective in creating a continuum of crisis care and how this should be tailored to communities. Research is required to evaluate innovations across the crisis response spectrum, including crisis center capabilities to follow up after a crisis and promote care transitions; the effectiveness of alternative responder and other mobile crisis outreach and support teams in averting emergency department episodes or justice involvement; and the effectiveness of crisis respite services in providing short-term stabilization as an alternative to involuntary hospitalization. Measurement-based care approaches are needed across the

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continuum of care to determine the quality, impact, and cost effectiveness of crisis services and to identify areas for further improvement.

Illustrative examples supported by the Federal Government:
There are already a number of federal programs that focus on providing the evidence base or leveraging research findings to prevent suicidal behavior.

One example of identifying individuals at increased risk is the VA Recovery Engagement and Coordination for Health–Veterans Enhanced Treatment (REACH VET) program. Veteran suicide rates have long exceeded those of other U.S. adults. In response, the VA has leveraged clinical and administrative data for each Veteran who utilizes VA's healthcare services to develop a validated algorithm to help identify suicide risk. Recently, researchers have shown that the program helps enhance treatment engagement and care processes and reduces the risk of nonfatal suicide attempts.

Another example that exemplifies optimizing interventions in the community is work supported by the CDC's Injury Control Research Centers (ICRCs). In particular, researchers supported through one of CDC's ICRCs identified areas in Colorado that experience high rates of suicide and how they changed over time. This research has guided the work of six Colorado counties that had high rates of suicide and are in the process of developing comprehensive suicide prevention plans tailored to their communities.

8. Supporting youth mental health

National surveys of youth have shown major increases in certain mental health symptoms, including anxiety, depressive symptoms and suicidal ideation. These trends existed prior to, but in many cases were exacerbated by, the COVID-19 pandemic. This prompted the first ever Surgeon General's Advisory on Youth Mental Health in 2021. There are various hypotheses to explain the current crisis, but one potential contribution is the well-documented increasing use and intertwining of technology, particularly social media, in the lives of young people. Another concern is availability of and access to care for the growing number of youth in need. The President's mental health strategy is addressing the youth mental health crisis by expanding early childhood and school-based intervention services and supports and instituting stronger online protections for young people.

However, to fully address this youth mental health crisis, it is critical to ensure more specific research on youth mental health. "Youth" is used here as a blanket term to cover children, adolescents, and young adults—primarily focused on ages 10 to 24—with an acknowledgement that research strategies may need to be tailored depending on the age range. Specifically, research is needed on the challenges that face youth and the unique characteristics of youth. Examples of this include the social contexts in which youth engage, such as with school peers, the rapidly developing brain, biological changes from puberty, the development of new capacities in cognition, emotion, and regulation.

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Spotlight on: Social Media

This report focuses mostly on the social aspects of interactive digital technologies and uses the blanket term "social media" to mean internet-based communication platforms and applications that enable interactions between users by sharing or consuming information. This encompasses such technologies as video games and virtual reality when they are undertaken with others. Though not addressed here, "non-social" interactive digital technologies, such as single-player video games, may also have an important impact on youth mental health.

Importantly, though the focus of this section is on youth, it should not undermine the importance of research on the impacts of social media on adults. However, because today's youth are the biggest users of social media and this use is occurring during formative years of development—a period where individuals are at heightened risk for the onset of mental disorders—this emphasis was delineated in an effort to focus on a period with the potential for biggest impact.

Critical research gaps and opportunities include:

Understanding and addressing the impacts of social media use on mental health. It is necessary to better understand the impacts—both potential harms and benefits—that social media has on youth populations. Further, it is critical to identify modifiable targets that can lead to the development of effective interventions to mitigate negative effects of social media use. Researchers should take into account factors such as exposure levels (e.g., screen time), platform and the varying effects of a platform's respective algorithms, mode of use (e.g., active vs. passive), content type, and secondary effects (e.g., sleep). Moreover, studies should not ignore, but include, an understanding of the interactions of social media with individual development and overall health and in the context of family and community. Particular attention should be paid to effects that may have an undue impact on certain sub-populations of youth such as the effects of body image among adolescent and teenage girls.

Understanding how social media can be leveraged to promote mental health. It is critical to understand the entire spectrum of social media impacts, particularly when considering a modality that is integral in the lives of youth and as such could have the potential for robust, long-term benefits. Opportunities to leverage the power of social media to promote mental health should be explored, particularly for the opportunity to increase positive peer engagement, self-esteem, social support, and connectedness. Potential avenues for researchers include: testing and evaluating social media's role in educating youth on coping mechanisms or on how to access care, how best to use it as a tool to identify those at risk and link them to care (as noted above), and understanding how and in what circumstances it might be used safely and effectively to promote social connectedness or combat ostracism

Assessing and optimizing school-based interventions. Researchers should prioritize studies that test and evaluate implementation of mental health interventions in schools, colleges, and universities, including evidence-supported health promotion, universal and selective prevention, and developmentally appropriate treatment interventions. Researchers should also conduct studies on interventions that promote emotional well-being in school settings, such as social and emotional learning and school connectedness, which serve as important protective factors. Importantly, any research undertaken in schools and educational settings should be designed with transparency to participants and according to the best ethical practices for involving youth

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in research. Additionally, as school settings may not have the appropriate infrastructure or resources to support effective, simultaneous implementation of multiple, diverse intervention programs, research should focus on identifying how to strengthen these systems to facilitate more effective implementation of mental health interventions. Moreover, to advance equity, there should be an emphasis on researching these interventions in a variety of settings, including: rural, urban, Tribal, frontier, and highly-segregated, low-income community schools; Minority-Serving Institutions; and schools that have a large proportion of students that are English Learners. This work can build on the well-accepted body of evidence that supports integrating mental and behavioral health care into primary care settings. This complements the implementation research strategies articulated above, and is a particularly timely opportunity given the investments in these services made through the Bipartisan Safer Communities Act.

Illustrative examples supported by the Federal Government:
There are some federal programs that focus on research supporting youth mental health.

One program that is focused specifically on youth is the Adolescent Brain Cognitive Development (ABCD) Study® that is funded by NIH with partnerships from other federal agencies. It is the largest long-term study of brain development and child health in the United States with nearly 12,000 American children enrolled. Researchers are tracking biological and behavioral development through adolescence into young adulthood—including tracking childhood experiences such as the use of social media, smoking, or substance use—to effects on brain development and other health outcomes such as the development of mental disorders. Additionally, since 2018, the DOJ National Institute of Justice and CDC have supported the Social Development Sub-study to more fully assess risk and protective factors for delinquent behavior, involvement in the juvenile justice system, and victimization experiences among the youth enrolled at five of the 21 ABCD research sites. In 2021, NIH built on the ABCD Study model by launching the HEALthy Brain and Child Development (HBCD) Study which will follow approximately 7,500 children from the prenatal period through ages 9-10, providing critical data on how environmental influences affect the brain and cognitive, behavioral, social, and emotional functioning through early childhood.

The HHS Office of Minority Health (OMH) has also established a grant program to help identify health and wellness policies that are successful in improving Black or African American youth mental health in particular, including suicide prevention. The findings from these awards can be combined with additional scientific research to help strengthen evidence-based interventions.

CDC is funding six national nongovernmental organizations to improve the health and well-being of children, adolescents, and school staff in underserved and disproportionately affected communities through the National Initiative to Advance Health Equity in K-12 Education by Preventing Chronic Disease and Promoting Healthy Behaviors. One of the priority areas includes strategies and activities to support the emotional well-being of students and staff. The work conducted through this initiative can be used to support research and the development of best practices for school mental health

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Conclusion and Next Steps

Due to the urgency of the current mental health crisis and a desire to quickly inform Federal resource allocation, this set of research priorities was developed and reviewed by representatives from within the Federal government. As a next step, these priorities will be revisited and refined with input and contributions by external nongovernmental experts, organizations, and supporters.

The research priorities in this document are described at a high level. Additional planning is needed within each priority area before the Federal government can pursue specific projects. OSTP and DPC are exploring further cross-agency opportunities for additional planning and implementation of these priorities. Possibilities include leveraging existing settings for cross-agency information sharing and collaboration.

One opportunity to advance these priorities would be pursuing streamlined mechanisms to collect and share mental health study data and findings across Federal agencies to more rapidly advance knowledge and implement findings in health care services. This could take a number of forms, but one example is implementing a more seamless and efficient data access permission system across government agencies so that government scientists can more easily collaborate and most efficiently make use of research resources, building on recent efforts to increase access to the findings of federal research..

There are also emerging opportunities for research linked to new programs and investments. For instance, the initiation of 988 as a national suicide and crisis lifeline in July 2022 marks the beginning of a natural experiment amongst states and territories in building and improving crisis services. The Bipartisan Safer Communities Act also established significant investment in children and family mental health services. It includes funding for training pediatric primary care providers in mental health and enhancement of state-based comprehensive community mental health services, among other provisions. These transformational opportunities open the door for researchers to assess and evaluate the outcomes of these new investments.

Lastly, these research priorities represent an opportunity for collaboration with supporters outside of the government. All sectors should be mobilized to address the national mental health crisis, and the research community is no different. For some of these research priorities, there are well-established collaborations and public-private collaborations dedicated to advancing each topic; on others, there is more work to be done to leverage efforts both inside and outside of the government. As these research priorities are developed and implemented, we invite non-governmental entities to seek opportunities to contribute.

Appendix 1: Departments and Agencies who provided expert input

The initiation and drafting of this report were led by OSTP in concert and collaboration with DPC. The agencies in bold support or perform mental health research directly ("research experts") and were most involved in the providing expert opinion and initial drafting of this report. Representatives from the other agencies were consulted as leaders and subject matter experts in mental health services delivery or relevant areas of public health at intermediate stages of drafting.

- Department of Health and Human Services
    - Agency for Healthcare Research and Quality
    - Centers for Disease Control and Prevention, National Center for Injury Prevention and Control
    - National Institutes of Health
        - **National Institute of Mental Health (research expert)**
        - **National Institute on Drug Abuse (research expert)**
        - **National Institute on Alcohol Abuse and Alcoholism (research expert)**
        - Office of the Director, Helping to End Addiction Long-term® (HEAL) Initiative
    - Office of the Assistant Secretary for Health
    - Office of the Assistant Secretary for Planning and Evaluation
    - Substance Abuse and Mental Health Services Administration

- Department of Veterans Affairs
    - Office of Mental Health and Suicide Prevention
    - **Office of Research and Development (research expert)**

- Department of Defense
    - Defense Suicide Prevention Office
    - **Office of the Deputy Assistant Secretary of Defense for Health Readiness Policy & Oversight; Office of the Assistant Secretary of Defense for Health Affairs (research expert)**
    - Office of Force Resiliency
    - Psychological Health Center of Excellence

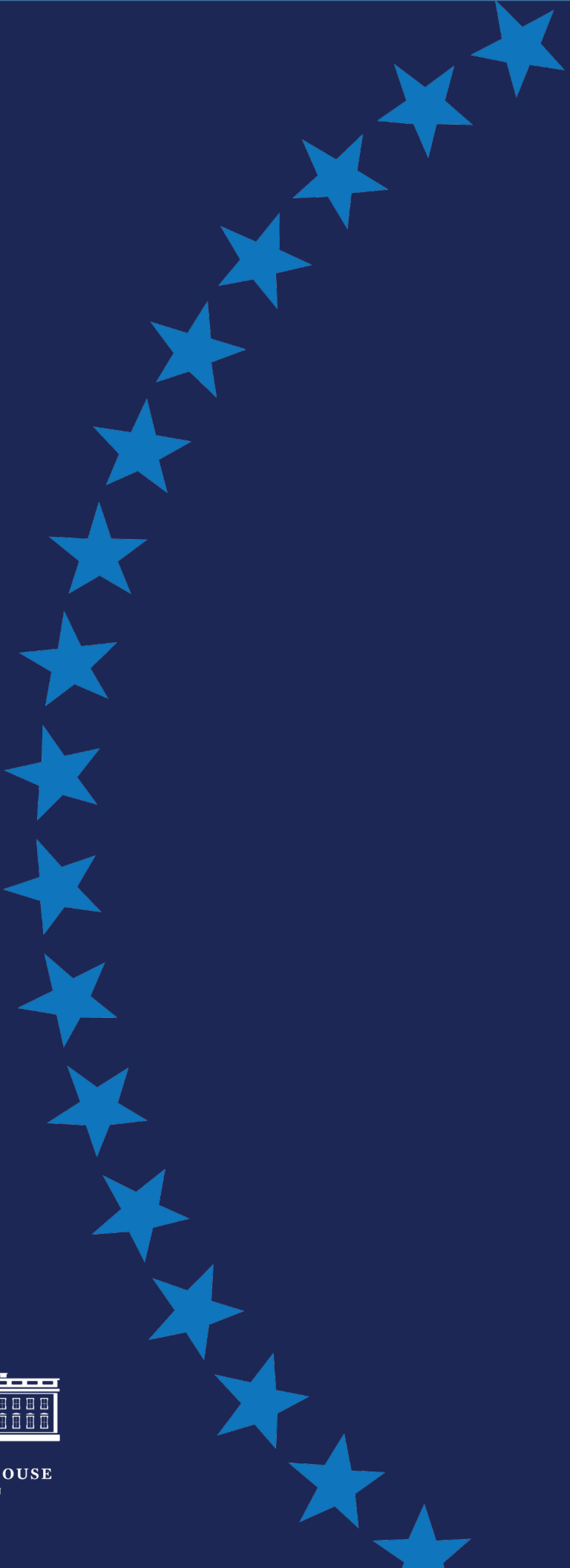- White House Office of National Drug Control Policy

Appendix 2: Alignment with existing or forthcoming Federal research plans

The following Federal research plans on mental health were considered in the planning for the current set of research priorities. Though broader services or prevention strategies are critical and complementary tools, the following list specifically focuses on documents or reports that primarily set agendas, priorities, or plans focused on mental health or substance use research.

- Cross-*agency research plan:* The National Research Action Plan (NRAP) responding to the Executive Order "Improving Access to Mental Health Services for Veterans, Service Members, and Military Families"

  o Published in August 2013, this action plan was a response to an Executive Order issued by President Obama directing certain agencies to develop a National Research Action Plan (NRAP) on PTSD, other mental health conditions, and Traumatic Brain Injury (TBI) "to improve the coordination of agency research into these conditions and reduce the number of affected men and women through better prevention, diagnosis, and treatment."

- *Cross-agency research plan:* The Prioritized Research Agenda for Suicide Prevention: An Action Plan to Save Lives as developed by the National Action Alliance for Suicide Prevention ("Action Alliance").

  o Published in 2014, this Action Plan was developed by the Research Prioritization Task Force of the Action Alliance, a public-private partnership established to explore opportunities for and barriers to progress in decreasing the rates of suicide attempts and deaths. This document was developed as "a prioritized approach for allocating funds and monitoring future suicide research to ensure that available resources target research with the greatest likelihood of reducing suicide morbidity and mortality."

- *Cross-agency research plan:* Healthy People 2030

  o Though not specifically focused on mental health or substance use research, the Health People Initiative is managed by HHS and sets 10-year science-based and data-driven objectives to improve the health and well-being of people nationwide. Healthy People 2030 contains measurable national objectives on mental health and mental disorders, including adolescent and adult suicide rates, suicide ideation among LGBT youth, and substance use. Over the course of the decade, the initiative will continue to track and report on the progress of these objectives and monitor disparities across population subgroups.

- *Single agency research plan—National Institute of Mental Health (NIMH):* the NIMH Strategic Plan for Research

  o Published in 2020 and updated annually, this Strategic Plan is designed to advance the NIMH's mission and guide research over a five-year period.

- *Single* agency *research plan—Department of Defense (DoD):* DoD Suicide Prevention Research Strategy, 2020-2030

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- o Released in 2020, this document provides the DoD suicide research priorities for 10 years. The Strategy presents short- and long-term goals for DoD-supported research aligned to the Action Alliance Prioritized Research Agenda for Suicide Prevention.

- *Single agency research plan—DoD:* DoD Fiscal Year 2023 Integrated Prevention Research Agenda

  - o Published in 2022, this document provides the annual DoD integrated prevention research priorities as required by the 2022 National Defense Authorization Act. This agenda defines key research priorities to synchronize research on integrated primary prevention and accelerate key prevention initiatives, such as implementation of the approved recommendations of the Independent Review Commission on Sexual Assault in the Military.

- Single *agency research plan—U.S. Centers for Disease Control and Prevention's (CDC)*: National Center for Injury Prevention and Control's ("Injury Center") Suicide Prevention Research Priorities

  - o Released in 2021, this document articulates the research gaps and priorities and what is needed within CDC to expand the evidence base for suicide prevention strategies in disproportionately affected populations and identify strategies that can result in population level reductions in suicide. It aligns with CDC's overall Suicide Prevention Strategic Plan.

- Single *agency research plan—U.S. Department of Veterans Affairs:* National Strategy for Preventing Veteran Suicide 2018-2028

  - o Released in 2018, this Strategy is a framework for identifying priorities, organizing efforts, and contributing to a national focus on Veteran suicide prevention through 2028. It is not solely a research-focused document but includes specific goals and objectives focused on "Surveillance, Research, and Evaluation" (Strategic Direction 4).

- Cross-agency or single agency research plans focused on substance use:

  - o National Institutes of Health (NIH) Helping to End Addiction Long-term® (HEAL) Initiative Research Plan
  - o National Institute on Drug Abuse (NIDA) Strategic Plan for 2022-2026
  - o National Institute on Alcohol Abuse and Alcoholism (NIAAA) Strategic Plan for 2017-2021 and draft outline for Forthcoming Strategic Plan for 2022-2026
  - o [Forthcoming] Federal Recovery Research Agenda as referenced in the 2022 National Drug Control Strategy from the Office of National Drug Control Policy (ONDCP)