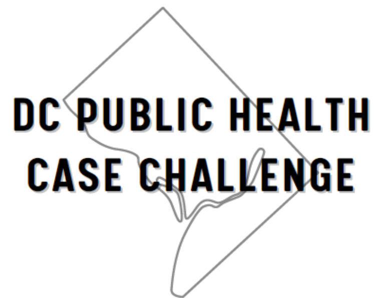

2024 DC Public Health Case Challenge

A Public Health Approach to Address Substance Use and Mental Health Concerns among Emerging Adults in the DMV Area

NATIONAL ACADEMY OF MEDICINE

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Table of Contents

Acknowledgments ... 3
Disclaimer ... 3
Instructions ... 3
Funding Announcement and Specific Case Challenge ... 5
The Challenge ... 5
Problem Statement ... 5
Illustrative Case Scenarios ... 6
Emerging Adulthood as a Critical Stage in the Life Course ... 7
Emerging Adults and Mental Health and Mental Illness ... 8
The Mental Health Dual-Continuum Model ... 9
The Role of Stress ... 9
Prevalence of Mental Illness ... 10
Suicide ... 10
988 Suicide & Crisis Lifeline ... 10
Mental Health & Well-Being: An SEM ... 10
Emerging Adults and Alcohol Use ... 12
Substance Use/Misuse Continuum ... 13
College Students & Mental Health ... 14
College Students & Substance Use ... 14
Unique Identities Among College Students ... 15
Institutions of Higher Education: Unique Settings ... 15
The Connection Between Mental Health and Substance Use ... 16
Access to Health Care, Especially Mental Health Services and/or Substance Use Treatment ... 17
Colleges in the DMV Area ... 18
Key Frameworks ... 19
SEM ... 19
The Social Determinants of Health (SDOH) ... 21
The Public Health Approach ... 21
The Okanagan Charter: An International Charter for Health-Promoting Universities & Colleges ... 22
Resources ... 23
Local and National Organizations Working to Address College Student Health and Well-Being ... 23
Appendix A: Acronyms and Initials ... 25
Appendix B: References ... 26

Appendix C: Judging Rubric 30
Appendix D: Case-Writing Team Biographies 31
Appendix E: Guide for Student Teams and Advisors...33
Appendix F: Presentation Day Agenda...39

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Disclaimer

All characters and organizations described in the case are fictional and do not reflect the views of actual organizations or specific individuals. The case scenario is complex and does not necessarily have a single correct or perfect solution, thus encouraging teams to devise a variety of creative, interdisciplinary, and evidence-based approaches. The authors of this case study have provided essential data and information in the text and appendixes with additional resources and references to help teams create their solutions. The data provided are drawn from independent sources and clearly cited so teams can verify and use the information as appropriate and pertinent to their approach. Teams are responsible for justifying the accuracy and validity of all data and calculations in their presentations and supporting their assertions in front of a panel of subject matter experts serving as judges representing different stakeholders.

Instructions

Task: Develop a feasible and innovative proposal of an approach to improve the mental health and well-being and prevent and/or address substance use disorders (SUDs) among emerging adults in the DMV region. Present your proposed solution(s) to address the challenge at the Case Challenge competition to be held on October 18, 2024.

Scope: The proposal is limited to a budget of $1.5 million USD to be used over a 3-year period. Your proposal and presentation should specify which sector(s), priority population(s) (e.g., race, ethnicity, gender, sexual orientation, ability status, socioeconomic status, housing status, age range), and/or organizations your intervention(s) will engage and provide a justification for these selections. Staff salaries for the intervention should be covered in the allowed budget.

Outside resources: Teams should also consider outside resources for a deeper understanding of the problem and to develop a stronger proposal. However, team members must generate the

case solution independently. Faculty advisors and other individuals who serve as a resource should not generate ideas for the case solutions but may provide relevant supportive information, guide students to resources, and offer feedback on students' ideas and proposals for case solutions and recommendations and on draft slides/practice presentations.

Judging: Refer to the judging rubric (see Appendix C) for the criteria on which you will be assessed. Judges are drawn from organizations working with Washington, DC residents, academic and clinical medicine, and other nonprofit organizations.

If you have questions about the case, please email Maggie Anderson (maanderson@nas.edu) before 9:00 am on Thursday, October 17, 2024. She will forward your question and the answer to all participating teams.

On the day of the presentation, October 18, please remember the following:

- Arrive at the Keck Center of the National Academies (500 5th Street, NW, Washington, DC) between 8:00 am and 8:30 am.
    - Please note this is a different location than the past.
- The security guard will ask to see your ID and direct you Room 100 to check in.
- Bring a copy of your presentation in PowerPoint format on a flash drive, and give it to the Case Challenge organizers by 8:30 am.
- Your presentation should be no longer than 15 minutes and will be followed by 10 minutes of Q&A from the judges.
- Dress professionally, as you are representing your school in front of an audience. However, please do not wear anything that would identify your school. Team members may identify their field of study if desired.

For more information on the Case Challenge guidelines and logistics, refer to the guide in Appendix E for student teams and faculty advisors.

We are looking forward to hearing your ideas for contributing to a thriving Washington, DC community. Thanks for participating, and have fun!

Case

A public health approach to address substance use and mental health concerns among emerging adults (18–29 years old) in the DMV area.

Funding Announcement and Specific Case Challenge

The Foundation for Behavioral Health and Well-Being is thrilled to announce a Request for Proposals for organizations working to improve the health and well-being of emerging adults. Recognizing the variability in the age ranges that are often included when thinking about young or emerging adults, the foundation is looking to fund innovative proposals designed to support people 18–29 years old. The foundation is seeking evidence-based and innovative solutions to improve the mental health and prevent and/or address substance use disorders (SUDs) of those 18–29 years old living in the DMV area. The grant is $1.5 million U.S. dollars, and the grant period is 3 years.

The foundation recognizes that this is a diverse group of people, with some individuals engaged in higher education or vocational training programs and others part of or hoping to enter the workforce. Therefore, proposals that clearly use data-driven strategies to identify the setting for their interventions and particular subgroup(s) within this diverse population will be prioritized.

Additionally, the foundation is interested in funding solutions that work to address both mental health and substance use of the priority population and do not rely solely on peer support. Proposals that include strategies geared to address more than two levels of the Social Ecological Model (SEM) will be prioritized (e.g., improving individual stress management and coping skills while also advocating for policy changes to increase access to mental health services). Proposals that include cross-sector collaborations will be viewed favorably.

The Challenge

You are a team at an organization or coalition in Washington, DC focused on addressing behavioral health issues. Your team is going to submit an innovative proposal for a mental health promotion and substance use prevention sustainable solution to improve the health and well-being of emerging adults in the DMV area. In consultation with your organization's leadership, and with their support, your team comes together to compete for the grant; the application is to be submitted in approximately 2 weeks.

Problem Statement

According to the U.S. Surgeon General, Dr. Vivek Murthy, the United States has a new public health crisis of loneliness, isolation, and lack of connection, particularly among young people and emerging adults (Link: Murthy, 2023). Emerging adulthood is a critical developmental period characterized by significant life transitions, increased independence and autonomy, experimentation, and risk-taking behaviors (Link: Davis et al., 2012). It is also a time of major life decisions, including educational and/or career choices and interpersonal relationships, any of which can induce stress and distress (Link: Davis et al., 2012).

Despite its potential for personal growth, this stage of development is also associated with heightened vulnerability to mental health challenges and substance misuse. Emerging adult experimentation with alcohol and other substances, while normative, can cause significant problems, and comorbidity of problematic substance use with serious mental health conditions is high (Link: Davis et al., 2012). According to a 2024 Healthy Minds Monthly Poll from the American Psychiatric Association, one third of adults say they have experienced feelings of loneliness at least once a week over the past year (Link: APA, 2024).

Research indicates that emerging adults often lack sufficient access to mental health and substance use resources, services, and support systems, which can exacerbate their risk of poor health outcomes. For example, emerging adults were even more likely to report having experienced feelings of loneliness, including 30 percent of U.S. individuals aged 18–34 who reported feeling lonely every day or several times a week (Link: APA, 2024). Younger adults were more likely than older adults to report using alcohol or other drugs when feeling lonely (Link: APA, 2024). Additionally, adverse childhood experiences (ACEs), such as violence, abuse, and family instability, are linked to increased risk of mental, behavioral, and physical health issues that can persist into adulthood (Link: CDC, 2024; NASEM, 2019). Fostering resilience and strong social connections while also addressing the mental health and well-being needs of emerging adults is essential for creating supportive environments for them to successfully transition into adulthood.

Illustrative Case Scenarios

Scenario 1: Community College Student in Recovery Seeking Social Connections That Don't Involve Substance Use

Sarah is a 20-year-old woman who is in recovery from a stimulant use disorder. She is attending a community college in DC and trying to make connections with other people her age while also maintaining her sobriety and a part-time job. While she was actively using, most of her friends were also substance users. She knows she needs to surround herself with a supportive environment and develop relationships with people where she can easily maintain her sobriety. However, since parties and social gatherings often include alcohol and illicit substances, she's not sure how to make friends and feeling pretty lonely, especially late at night on the weekends.

Scenario 2: Undergraduate College Student Struggling to Find Community

Ren is a 1st-year undergraduate college student in Washington, DC. They were excited to start college, but their first few weeks have been very challenging. Ren is nonbinary, and their assigned roommate is not accepting of their identity and refuses to use the correct pronouns. Additionally, many professors have been using Ren's legal name rather than their chosen name. They haven't made many friends yet and feel increasingly lonely and isolated at school, away from home and the support system they carefully cultivated there. Given their experience with faculty and their roommate, they are not sure if the student counseling center will provide inclusive care.

Scenario 3: Student concerned about friend who may be developing an SUD

Jake is a 20-year-old college student in Washington, DC. He's become concerned about one of his fraternity brothers, Nick. They usually go out to the bars and drink on the weekends, but in the past few weeks, Jake's noticed that Nick seems to be drinking nearly every day, often alone, and not just on the weekends. Nick used to be a top student, but lately he's been getting into fights while under the influence and missing classes because he's hungover. Additionally, Jake suspects Nick has been using another fraternity brother's prescription Adderall to try to cram for finals. Jake's concerned and not sure what to say or do to help his friend.

Scenario 4: Graduate student who is struggling and likely developing a cannabis use disorder

Kevin is a 27-year-old doctoral student at a university in the DMV area. He's finished his coursework and is working on his dissertation. He spends long hours in the lab, alone, conducting experiments and analyzing data. Early in graduate school, he began to use cannabis

recreationally after lab mates shared that they did so once in a while to socialize with friends, relax, and "turn off the brain." Kevin found that he really liked disassociating from his responsibilities, and he began using cannabis more often, including by himself instead of with friends. Over the past year, he's increased his use to nearly daily. He's anxious that he isn't farther along on his dissertation and feels behind compared to his peers, but when he tries to cut back on cannabis (so far unsuccessfully), he experiences cravings and anxiety. He is starting to realize it is affecting his productivity in the lab and relationships with his lab mates and advisor.

Scenario 5: International college student experiencing culture shock, homesickness, and lack of social connection and sense of belonging
Max is a transfer student studying at a university in Washington, DC. He transferred from a university in Singapore after completing his country's mandatory military service. He doesn't have family in the United States and is experiencing culture shock and homesickness. He also recognizes that he is older and has different life experiences than many of the people he is taking classes with. He has been spending a lot of time in his dorm room and tries to stay up late to video chat with family and friends back home. He's trying to get a part-time job because he'd like to save up money to be able to return home to Singapore during winter break, but he's not sure that's going to be possible. He feels pretty lonely and doesn't know what he'll do during winter break when the university closes.

Scenario 6: College student with existing mental health condition goes to college away from home.
Sam was diagnosed with an anxiety disorder in high school and was able to successfully manage it with support from their pediatrician and a therapist. Now that Sam is attending college away from home, there's a lot to manage as they encounter their new environment: new academic pressures, a new schedule, different sleep patterns, especially with a roommate who has a different schedule, and new medical and mental health providers to get established with. Substances seem to be widely available, and Sam's heard other students talk about how they have been self-medicating their anxiety that way.

Emerging Adulthood as a Critical Stage in the Life Course

Over the last several decades, a cultural shift has been observed in industrial societies—the transition to adulthood has become longer and more complex (Link: Arnett et al., 2014; Wood et al., 2017). Traditional markers of adulthood, such as gainful employment, marriage, and parenthood, are happening later in life on average (Link: Arnett et al., 2014; Wood et al., 2017). Emerging adulthood is the newest notable period within the life course (Link: Arnett et al., 2014; Wood et al., 2017). Emerging adults typically defined as individuals aged 18–29 (Link: Arnett et al., 2014). Despite some overlap with other developmental periods, such as late adolescence and young adulthood, emerging adulthood is increasingly recognized as its own period, marked by a heightened sense of instability and uncertainty (Link: Arnett et al., 2014; NASEM, 2019). The Life Course Health Development framework explains how health trajectories develop over a person's lifetime and are the result of cumulative risk and protective factors during critical periods of development (Halfon & Hochstein, 2002). Therefore, it's important to consider how emerging adults have been shaped by their earlier years, which will have implications for the rest of their lives (Halfon & Hochstein, 2002).

Behavioral hallmarks in the emerging adulthood stage of development include invincibility, risk taking, experimentation, transition from dependence to independence, and the development of

mature or committed relationships (Link: Arnett, 2000). Notably, it is during this period (typically mid- to late 20s) that individuals reach the point of near complete brain development, including the maturation of the prefrontal cortex, which is involved in good judgment (Link: Arain et al., 2013; NASEM, 2019). Additionally, emerging adults typically continue identity exploration, delay traditional adult roles (e.g., marriage, buying a home, having children), and often do not yet feel like full adults (Link: Davis et al., 2018).

Opportunities to experience positive development are critical for the successful transition from late adolescence to emerging adulthood and ultimately to adulthood; the latter can vary within context and culture. Recognizing the multiple paths that lead to successful adulthood and that not everyone pursues higher education, it is often during the emerging adulthood period that individuals obtain vocational training and/or pursue higher education, which influences career and job attainment in their adult years (Link: Arnett, 2004). Traditionally, key markers of successful transition to adulthood include employment, education, housing stability, healthy relationships and connections with responsible adults, civic and community engagement, and effective parenting (Link: Urban Institute, 2020). Unfortunately, emerging adults are particularly at risk for poor mental, emotional, and behavioral health, which can affect all aspects of this transition.

Emerging Adults and Mental Health and Mental Illness

Nationally, there has been a rise in the level of stress, loneliness, and isolation among emerging adults (Link: Murthy, 2023). ACEs, such as violence, abuse, or growing up in a family with mental health challenges or substance use problems, can lead to changes in brain development during key periods of development, which can affect how the body responds to stress later in life (Link: CDC, 2021). ACEs have been linked to chronic health conditions, mental illness, and substance misuse in adulthood (Link: CDC, 2021).

Additionally, the average age of onset of mental illnesses tends to be during the 1st and 2nd decades of life, unlike most other noncommunicable diseases, which typically appear in late adulthood (McGrath et al., 2023). Approximately half of all lifetime mental disorders start during emerging adulthood (Link: Kessler et al., 2007). Furthermore, 75 percent of lifetime cases of mental, emotional, and behavioral disorders begin by age 24 (Link: Wood et al., 2017). Suicide also remains a significant cause of mortality in this population (Link: NIMH, 2023).

Receiving a mental illness diagnosis and navigating treatment options can greatly change the trajectory of an emerging adult's life. They can refuse treatment, since they are no longer minors (Link: Arnett et al., 2014). In the United States, people in the emerging-adult age range tend to disengage from mental health treatment at higher rates than other age groups (Link: Arnett et al., 2014). Additionally, the fields of human development and social and behavioral science have an increased understanding regarding the importance of emerging adulthood, yet that is not reflected in society. The abrupt transition to legal adulthood at 18 years old does not consider the sociobiological development that is still occurring for an individual to successfully transition into an adult (Link: Urban Institute, 2020). This sudden transition can lead emerging adults to not engage in medical or mental health services needed for their success, especially if policies and practices do not recognize their unique needs or they perceive social stigma for seeking mental health and/or substance use services.

The Mental Health Dual-Continuum Model

The World Health Organization (WHO) defines mental health as "a state of well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community" (Link: WHO, 2022). Mental illness can be defined as "a health condition that changes a person's thinking, feelings, or behavior (or all three) and that causes the person distress and difficulty in functioning" (Link: National Institutes of Health, 2007).

Corey Keyes (2002) developed a dual-continuum model of mental health that posits that it is not just the absence of mental illness but rather a spectrum that includes a range of experiences and symptoms (Link: Westerhoff & Keyes, 2010). The model recognizes that we all have mental health, which can be optimal or poor at any given time, and the ability to thrive and flourish is possible for everyone, whether a person has a mental illness or not (Link: Westerhoff & Keyes, 2010).

The Role of Stress

Stress is a normal reaction to pressures of daily life, but too much can lead to dysfunction. Transition, a hallmark of emerging adulthood, can be particularly stressful as emerging adults move into new roles, relationships, and environments. Attending a college or university typically involves a new environment filled with new roles, responsibilities, and relationships, which can create new stressors, particularly for certain populations. For example, international students may face unique challenges—language barriers, immigration challenges, culture shock, and homesickness (Link: Sümer et al., 2008). Black, Latino/a, and American Indian and Alaska Native students experience unique stressors, including health inequities as a result of historical and systemic racism and bias, and a higher percentage of them are low-income and/or first-generation college students compared to their White classmates; educational debt and its related stressors can have a significant impact on a student's mental, physical, and emotional health (Link: Deckard et al., 2022; Williams et al., 2023).

Chronic stressors are associated with negative outcomes during the high school to college transition, and women, sexual and gender minorities (SGMs), first-generation students, and those with higher baseline levels of depression and anxiety were more likely to experience chronic stress (Link: Kroshus et al., 2021). It has been reported that SGM students transitioning into college experience more distress and have more internalizing symptoms (depression, anxiety, and distress) than their heterosexual counterparts (Link: Riley et al., 2016). Additionally, the American College Health Association—National College Health Assessment, a survey of undergraduate students across 108 institutions, found a high rate of multiple stress exposures that were associated with a greater likelihood of suicide attempts and mental health diagnoses, especially among racial/ethnic, sexual, and gender minorities (Link: Liu et al., 2019).

While the transition to college can be a stressful period, the first few years after college, when people enter the workforce, are also a time of potential distress, social isolation, anxiety, and uncertainty. There is an association between hazardous drinking and distress during this transition (Link: Lindgren et al., 2024) and between posttraumatic stress and problem drinking as emerging adults transition from college to more independent adulthood (Link: Read et al., 2017). Suicide and suicidal ideation remain a considerable source of morbidity and mortality among emerging adults.

Prevalence of Mental Illness

The National Institute of Mental Health estimates that more than one in five U.S. adults live with a mental illness, which include many different conditions ranging from mild to severe (Link: NIMH, 2023). In 2021, emerging adults age 18–25 years old had the highest prevalence of any mental illness among U.S. adults (33.7 percent) (Link: NIMH, 2023).However, they received the smallest proportion of mental health services—lower than adults 26–49 and 50+ (Link: NIMH, 2023).Furthermore, emerging adults had the highest prevalence of severe mental illness (SMI) compared to all other adult age groups; emerging adults with SMI received the smallest proportion of mental health services (Link: NIMH, 2023).

Suicide

Suicide is the third leading cause of death among people 15–24 years old, after homicide and unintentional injury (Link: NIMH, 2024). Among adults across all age groups, the prevalence of serious suicidal thoughts and suicide attempts in the past year were highest among people 18–25 years old (Link: NIMH, 2024). Nonsuicidal self-injury is also most common among emerging adults (Link: Cipriano, 2017; Singhal, 2021). The most significant risk factors for suicide include a previous suicide attempt and SUDs (Link: Berardelli et al., 2018).

988 Suicide & Crisis Lifeline

In July 2022, the National Suicide Prevention Lifeline became a 3-digit dialing code—988 (Link: Suran, 2023). Since then, it has answered roughly 5 million calls, texts, and online chats, which is 2 million more than the previous year (Link: Suran, 2023). It is a resource for all individuals in need of mental health services and emotional support. With a combination of trained volunteers and mental health professionals, it provides free and confidential support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week, across the United States and its territories.

Mental Health & Well-Being: An SEM

Individual Factors

At the individual level, personal characteristics, coping skills, self-efficacy, resilience and adaptability, biological or genetic factors and other lifestyle factors, such as adequate sleep, exercise, and relaxation, influence mental health and risk of developing a mental illness or substance use disorder (Link: NASEM, 2019). Additionally, a sense of hope in adolescence is protective as a form of personal social capital for emerging adults and associated with better outcomes (Link: Wood et al., 2018). Emerging adulthood is a time of experimentation (including with substances, such as nicotine, alcohol, and other drugs) and identity formation (Link: Wood et al., 2018). Many individual factors can lead to excessive use (e.g., genetics, biology, peers, familial substance use, and personality) (Link: Wood et al., 2018).

Interpersonal Factors

Social connection and/or well-being has been shown to be a protective factor in relation to emerging-adult mental health. Among emerging adults, higher perceived social support was associated with fewer mental health problems—symptoms of depression, anxiety, and lower risk for suicide-related outcomes (suicidal ideation and suicide attempts)—1 year later (Link:

Scardera et al., 2020). In a New Zealand large longitudinal national probability sample, social connectedness was a stronger and more consistent predictor of mental health than mental health was of social connectedness (Link: Saeri et al., 2017). Other important influences at the interpersonal level of the SEM include mentoring relationships (e.g., parents, teachers, friends), socioeconomic support, and employment opportunities (Link: Wood et al., 2018). Conversely, having poor peer connections is a risk factor for antisocial behavior (Link: NASEM, 2019).

ACEs are associated with poor outcomes that have implications into adulthood. ACEs include experiencing physical and/or sexual violence, abuse, or neglect; witnessing violence at home or the community; having a family member attempt or die by suicide; and a household member being in jail or prison (Link: CDC, 2024). ACEs increase the risk of mental, behavioral, and physical health conditions (Link: NASEM, 2019).

Family dynamics also influence emerging adults' mental health and well-being. For example, parenting and family stability has a role in shaping mental health and coping skills, and disruption in family structure can lead to emotional and behavioral problems (Behere et al., 2017). Also, within the family, positive and negative factors can be shared from one generation to the next. This also speaks to the potential trauma of family separation, particularly when children are placed in foster care (Link: Trivedi, 2019). Youth in foster care have disproportionate rates of psychosocial challenges and face unique barriers when accessing treatment (Link: Deutsch et al., 2015; Zlotnick et al., 2012). Emerging adults who have recently "aged out" of the foster care system are another population at risk of poor mental health, mental illness, or SUDs, and they often have little support in that transition (Zlotnick et al., 2012); they have relatively high rates of homelessness (20–50 percent), unemployment (20 percent), and food insecurity (Link: Barnett, 2020).

Community and Societal Factors

Community and societal factors also play a role in influencing mental health and well-being. Emerging adults interact with a variety of institutions and communities (e.g., colleges or universities, vocational schools, employers, and the criminal legal system) and are often transitioning within systems and communities as they assume more adult roles. Community and socioeconomic factors can affect their ability to transition successfully.

Community and Neighborhood. The conditions of the community in which people live serve as another factor in their mental health and access to substances. Communities in which people have access to affordable housing, quality education, food security, protective built environments, and personal safety increases the ability to thrive (Link: NASEM, 2019).

Poverty. Poverty can negatively affect emerging adults' self-actualization and overall well-being. Poverty in childhood is associated with a multitude of poor health outcomes, including high rates of mental and behavioral health disorders and cortical thinning associated with cognitive defects (Link: NASEM, 2019). Deleterious impacts of poverty are also mediated by adverse environmental exposures and social environments, particularly from family and meaningful others (Link: NASEM, 2019).

Systemic and Structural Racism. Systemic and structural racism (also referred to as "institutionalized racism") are forms of racism that are embedded in systems, laws, policies and practices that produce and perpetuate widespread oppression of people of color, which leads to adverse health outcomes (Link: Braverman et al., 2022; Jones, 2000). Policies at the local, state, and federal levels have led to issues of multigenerational poverty, particularly for people of color (e.g., structural segregation) (Link: NASEM, 2019; White, 2020). Examples include Jim

Crow laws that enforced racial segregation; discriminatory practices, such as redlining; and the reliance on property taxes for public school revenue (Link: Braveman et al., 2022). These policies and practices have led to gentrification and persistent racial disparities, particularly within Washington, DC. For example, 70 percent of its population was Black in the 1970s, and that has decreased to 44 percent in 2022. Additionally, Black people in DC live 7–12 years less than their White counterparts; this disparity is one of the largest in the United States (Link: King et al., 2022). The closing of Provident Hospital in 2019 disproportionately reduced access to physical and mental health care for Black Washingtonians (Link: King et al., 2022). Racial discrimination on an individual and/or interpersonal level is also a pervasive public health issue that has been associated with psychological disorders and mood disorders (Jones, 2000; Link: NASEM, 2019).

Criminal Legal System. The criminal legal system is a considerable determinant of mental health. Juvenile incarceration is associated with an increased risk of incarceration in adulthood (NASEM, 2019). An astounding 65–70 percent of youth involved in the juvenile legal systems have a mental health challenge, and 25 percent have severe conditions that inhibit their daily functioning (NASEM, 2019). Additionally, approximately 30 percent of youth with a history of maltreatment and child welfare system involvement have also been involved in the juvenile legal system (Link: Franz et al., 2019).

Emerging Adults and Alcohol Use

While alcohol is legal to consume in the United States at the age of 21, it is a factor in the deaths of many young and emerging adults every year. The most recent National Institute on Alcohol Abuse and Alcoholism (NIAAA) statistics estimate that among those aged 18–24, approximately 1,500 college students and 2,500 not in college die from alcohol-related unintentional injuries, including motor vehicle crashes (Link: Hingson et al., 2017; NIAAA, 2024a).

Not all emerging adults drink alcohol, and among those who do, many do not engage in high-risk drinking behaviors. However, WHO (2023) published a statement in the *Lancet Public Health* that no safe amount of alcohol consumption exists that does not affect one's health. According to the 2022 National Survey on Drug Use and Health (NSDUH), 17.5 million young adults ages 18–25 (50 percent) reported they drank alcohol in the past month (Link: NIAAA, 2024a), as did 4.8 million full-time college students ages 18–25 (51.5 percent) and 12.3 million other people of the same age (50 percent).

The NIAAA defines binge drinking as "a pattern of drinking alcohol that brings blood alcohol concentration to 0.08 percent—or 0.08 grams of alcohol per deciliter—or more. This typically happens if a woman has four or more drinks, or a man has five or more drinks, within about two hours" (Link: NIAAA, 2024b). However, the Substance Abuse and Mental Health Services Administration (SAMHSA), which conducts the annual NSDUH, defines it as "consuming five or more beverages containing alcohol for males or four or more beverages containing alcohol for females on the same occasion)" (Link: NIAAA, 2024b). According to the 2022 NSDUH, 29.5 percent (or 10.3 million young adults ages 18–25) reported binge drinking in the past month (Link: NIAAA, 2024a). Additionally, according to the 2019 Monitoring the Future survey, the 12 percent of college students and the same percentage of young adults not in college engaged in high-intensity drinking (Link: NIAAA, 2024a). The 2022 NSDUH found that 16.4 percent of adults ages 18–25 met the criteria for an alcohol use disorder in the past year, as did 14.1

percent of full-time college students ages 18–25 and 16.7 percent of other persons of the same age (Link: NIAAA, 2024a).

Substance Use/Misuse Continuum

SUD is a mental health condition that affects the brain and behavior and leads to an inability to control the use of substances, often despite consequences. SUD exists on a spectrum and can be mild, moderate, or severe (Link: Jahan & Burgess, 2023).

Substance use is often thought of as an individual problem, and rarely do people consider how alcohol and drug use affects people other than those who are using. However, studies have demonstrated a negative community impact as a result of someone else's drinking and drug use. A recent study estimates that more than third of all U.S. adults (approximately 113 million people) are harmed as a result of someone else's drinking alcohol, and 46 million people experience harms from someone else's drug use (Link: Public Health Institute, 2024; Rosen et al., 2024). Such indirect effects can include traffic accidents, physical harm, financial issues, or relationship problems (Link: Public Health Institute, 2024; Rosen et al., 2024). Researchers also found noteworthy demographic differences, such as how women, White individuals, and people with a history of alcohol problems themselves were more likely to be harmed by someone else's substance use. Researchers also found that Black individuals were more likely to face legal repercussions from cannabis use and random drug tests, which often results in financial harms and difficulties for family members. Additionally, the study found significant overlap in the harms caused by different substances, identifying the need for cross-substance population-level interventions and policies to work to address and reduce these community secondary harms (Link: Public Health Institute, 2024; Rosen et al., 2024).

U.S. college campuses have seen a national increase in cannabis, stimulant, and illicit drug use among students over the past decade (Link: Welsh et al., 2019). Various negative outcomes, including lower academic performance, depression, and unemployment after graduation, have been observed as a result. One of the most significant challenges is that college students are at a higher risk of substance misuse due to their higher access to these substances. Survey data indicate that more than 60 percent of full-time students have consumed alcohol, and 39 percent report binge drinking (Link: Welsh et al., 2019). Psychedelic drugs have also been gaining popularity, including MDMA, LSD, and psilocybin. MDMA use among college students has doubled from 2004 to 2016 (Link: Welsh et al., 2019). Some recommended screening tests and interventions for specific substances used amongst college students are CRAFFT, CAGE, AUDIT, CUDIT, TAPS, NM ASSIST, and DAST (Link: Welsh et al., 2019).

Unique Subpopulation of Emerging Adults: College Students

A large subset of emerging adults pursue higher education during this developmental period. In 2023, the national college enrollment (undergraduate and graduate students) in the United States was nearly 19 million (Link: Hanson, 2024). Washington, DC has a large number of students attending approximately 20 different colleges or universities, with estimates of over 100,000 college students in DC alone, not including nearby universities in northern Virginia and Maryland (Link: National Student Clearinghouse Research Center, 2024).

College students are a diverse group of emerging adults that includes undergraduate and graduate or professional students. They tend to hold multiple intersecting identities, including gender identity, sexual orientation, race/ethnicity, international student status, disability status, active duty and veteran military, and those families and/or caregiving responsibilities.

Additionally, there is a growing number of nontraditional-aged students, or those who delayed entry to college (Link: Hittepole, n.d.).

In the "2024 Lumina-Gallup State of Higher Education" study, emotional stress, personal mental health and high cost (which is likely interconnected with stress and mental health) were the top three reasons students reported for considering leaving their degree program (Link: Gallup, Inc. & Lumina Foundation, 2024). Additionally, Hispanic (42 percent) and Black (40 percent) students were more likely than White students (31 percent) to say they had thought about withdrawing from their academic program in the past 6 months (Link: Marken, 2024).

College Students & Mental Health

Students' ability to succeed academically and beyond is directly impacted by their physical and mental health and well-being (NASEM, 2021). Those who pursue higher education often face a unique set of challenges as they leave home and work to create new social and professional networks and relationships in a new community (NASEM, 2021). Increasingly, college students are arriving with existing mental health struggles that are often exacerbated by the stressors of college. Most college students have at least one mental health problem, partly due to increased awareness and diagnosis at earlier ages (Link: Marken, 2024). According to the 2022–2023 Healthy Minds Study Data Report (link), which provides a detailed picture of mental health and related issues in U.S. college student populations (*n* = 76,406), approximately 46 percent reported a lifetime diagnosis of a mental disorder, 41 percent may be experiencing depression (based on a positive PHQ-9 screen), 36 percent may be experiencing an anxiety disorder (based on a positive GAD-7 screen), 14 percent may be experiencing an eating disorder (based on a positive SCOFF screen), and 14 percent reported experiencing suicidal ideation in the past year (Link: Eisenberg et al., 2024). Additionally, the Healthy Minds Study found that overall, treatment use for mental health symptoms is lower among students of color relative to White students and that Asian and Asian American students have the lowest prevalence of treatment (at only 20 percent among those with apparent mental health conditions) (Link: Lipson et al., 2018).

College Students & Substance Use

As noted, greater access to alcohol and other drugs while at college may lead to experimentation (Link: Gallup, Inc. & Lumina Foundation, 2024). Some students are entering college in recovery from alcohol or another substance, and others are at risk of developing an SUD while in college. According to the National College Health Assessment (link), which is administered by the American College Health Association, in fall 2023, 1.8 percent of college students surveyed reported they were in recovery from alcohol or other drug use (2.0 percent among cisgender men, 1.5 percent among cisgender women, and 4.0 percent among individuals who identified as transgender or gender nonconforming) (Link: ACHA, 2023). Less than five percent of colleges and universities offer recovery programs (Link: Safe Project, 2021).

Additionally, in fall 2023, 12 percent of college students reported driving after having any alcohol in the last 30 days, and 30 percent reported driving within 6 hours of using cannabis in the last 30 days (Link: ACHA, 2023). Use of alcohol and/or other drugs may in part be a maladaptive coping strategy for underlying mental health challenges.

Unique Identities Among College Students

Undergraduate Versus Graduate and Professional Students

Study findings suggest that the prevalence of depression among student populations is higher compared to that among the general population (Link: Sheldon et al., 2021). Among graduate students, academic and professional doctoral students reported very high stress and moderate anxiety compared to master's and undergraduate students. Master's students were more likely than doctoral students to use substances, such as cannabis. Students in the behavioral and social sciences, social work, and arts and humanities disciplines reported higher rates of substance use and mental health problems than their engineering and business counterparts (Link: Allen et al., 2020). Additionally, graduate students had similar rates of mental health issues as undergraduate students. For example, 50 percent of graduate students reported mental health issues, such as depression and anxiety, and attributed their decision to leave academia to poor mental well-being (SenthilKumar et al., 2023).

International Students

International students who are studying in the United States face unique challenges, including culture shock, homesickness, navigating the health care system, cultural considerations and potential stigma around seeking mental health care, different laws, and relationships with alcohol and other substances. One study found that although these students were less likely than domestic students to report a mental health diagnosis, such as anxiety, depression, or some other psychiatric illness, they were more likely to report suicide attempts and feeling depressed (Link: Yeung et al., 2022).

Varsity Athletes

Athletes in the 18–22-year-old category had better mental health compared to nonathletes—44.6 percent vs. 54.4 percent depression rate—and were less likely to attempt suicide or have suicidal ideation (Link: Anchuri et al., 2019; Zhou et al., 2022). When they did have mental health issues, they were more likely than nonathletes to cite relationship issues as a cause; for instance, if two athletes stop dating, they may have to see each other in the same social circles, or if someone is injured and not able to participate, it can affect their identity and how they view themselves and decrease their support network. As with the other subgroups, female individuals had a higher rate of depression than male individuals.

Institutions of Higher Education: Unique Settings

Colleges and universities are unique institutional settings where individuals come to live, learn, work, and play. They have a responsibility to not only provide a strong education and training for students and their futures but also support the health and well-being of all community members. Institutions of higher education have a growing movement recognizing the opportunity to serve as health-promoting campuses by implementing public health strategies that promote a culture of health and well-being, with particular attention to mental health and a sense of belonging, reduced harms associated with use of alcohol or other drugs, and SUD prevention.

Individuals come to college with their own unique health experiences; some may be in recovery, and others may fall somewhere along the continuum of use for alcohol, cannabis, and other drugs. Some students may have already been diagnosed with a mental health condition or mental illness. For traditional-aged students, college is often the first time they are living on their own, with other people similar in age, in an environment with greater access to alcohol. For nontraditional-aged students, college is often in addition to other responsibilities, such as a job

or taking care of a family member. And, of course, a certain level of stress comes with the cost and responsibility of pursuing a college degree. As a result, it's not hard to understand why alcohol is the most-used drug on college campuses.

Colleges and universities can use a comprehensive public health, community-based approach to protect the health and well-being of their community. This can include offering medical and mental health clinical services to support individual health and well-being; working to increase help-seeking behaviors and train campus community members to better identify people in need of care; destigmatizing help-seeking behaviors; examining the housing environment and designing supportive environments that foster connections and reduce access to environments that increase the risk of substance misuse; working with the local neighborhoods to examine the density of liquor stores, bars and restaurants, and cannabis dispensaries; implementing health-promoting policies; and creating a healthy academic environment.

The Connection Between Mental Health and Substance Use

A lot of life changes can occur for emerging adults aged 18–29, including moving into a new environment, beginning secondary school, or starting a new job. Between 18 and 26 years of age, the onset of mental illness can occur (Link: NIDA, 2022). People with comorbid mental health disorders need coordinated support to help them navigate potentially stressful changes in education, work, and relationships.

Early drug use is a strong risk factor for SUDs and other mental illnesses (Link: NIDA, 2021). However, this association is not necessarily casual but may reflect shared risk factors, including genetic vulnerability, psychosocial experiences, and/or general environmental influences. There is evidence that frequent marijuana use during adolescence can increase the risk of psychosis in adulthood. This is particularly true for individuals who carry a specific gene variant. Other research supports that mental illness may precede an SUD, and better diagnosis of mental illness earlier in life may help reduce comorbidity.

An estimated over 60 percent of adolescents in community-based SUD treatment programs also meet diagnostic criteria for another mental illness (Link: NIDA, 2022). Anxiety disorders, including generalized anxiety disorder, panic disorder, and posttraumatic stress disorder (PTSD), commonly co-occur with SUD, as do other mental disorders, including depression and bipolar disorder, attention-deficit hyperactivity disorder, psychotic illness, borderline personality disorder, and antisocial personality disorder. According to the National Institute of Drug Abuse, a "serious mental illness (SMI) among people ages 18 and older is defined at the federal level (link) as having, at any time during the past year, a diagnosable mental, behavior, or emotional disorder that causes serious functional impairment that substantially interferes with or limits one or more major life activities," and around 1 in 4 individuals with an SMI also have an SUD.

Understanding how to manage mental health conditions and prevent maladaptive coping strategies, such as self-medicating with alcohol or illicit drugs, is paramount for emerging adults. Feelings of uneasiness and the fear of missing out (FoMO; chronic apprehension about missing rewarding or fun experiences from peers) are often prevalent among those aged 18–34 (Link: McKee et al., 2022). FoMO has gained considerable research and media attention. It is associated with disruptive or harmful social media use, lower life satisfaction, lower self-esteem, and maladaptive behaviors, including substance abuse, academic and criminal misconduct, and

risky sexual behaviors. One study found that undergraduate students who reported high levels of FoMO consumed a greater quantity in a single drinking episode and experienced more negative consequences (Riordan et al., 2015). Other studies found that self-report of higher FoMO and being male both predicted higher weekly alcohol consumption. Higher FoMO also predicted higher cannabis use and was significantly associated with higher rates of cheating (before college), plagiarism (before and during college), and giving away illegal drugs (in college).

Other behavioral and personality traits, including perfectionism, can mediate substance use and mental health. According to the stress-coping model, substances such as alcohol, tobacco, and opiates may be used as a coping mechanism to reduce stress and negative emotions or to enhance positive affect (Link: Nelsen et al., 2021). However, this can result in increased unresolved stress and decreased mental well-being. Understanding how personality and behavior influence how students cope with stress may help health professionals provide health seminars regarding appropriate coping strategies and ways to engage in healthier lifestyle habits.

Other comorbidities can impact the relationship between mental health and substance use. Sleep problems are a common complaint among people with SUDs (Link: SAMHSA, 2014). They can occur during withdrawal but can also last months and years into recovery and be associated with relapse. Nonpharmacological treatments are preferred because many pharmacological treatments have the potential for abuse and can interfere with SUD recovery. Evidence indicates that a range of sleep/circadian characteristics during adolescence and young adulthood can influence the risk of developing alcohol use (Link: Hasler et al., 2024). The bidirectional association between sleep and substance use also includes how using additional substances, including cannabis, may mitigate alcohol's effects on sleep. In the DC area, the rate of substance use among high schoolers has decreased from 2019, with a reported 9 percent drop in marijuana use, the largest decline compared to cigarettes, vaping products, and alcohol use (Link: Gelman, 2023). Despite this promising trend, the rate of suicidality is concerningly high, in particular among middle-school girls, according to the DC survey. Additional research in the DMV found associations between the amount of sleep and greater odds of feeling hopeless, seriously considering suicide, suicide attempts, and substance use (Link: Winsler et al., 2014).

Access to Health Care, Especially Mental Health Services and/or Substance Use Treatment

Access to mental health services are insufficient despite 76 percent of U.S. individuals now seeing mental health as just as important as physical health, according to the Cohen Veterans Network inaugural America's Mental Health 2018 study (link). Almost one in five reported having to choose between treating a physical or a mental health condition as a result of their insurance policy, and 25 percent reported having to choose between receiving mental health treatment and paying for daily necessities (Link: National Council for Mental Wellbeing, 2024).

The lack of awareness and limited health literacy impacts younger adults in particular, who are less sure about available mental health services compared to older generations (Link: National Council for Mental Wellbeing, 2024). Additionally, they are more likely to find it difficult to access legitimate resources online and instead turn to unreliable resources, including social media. Social stigma also influences access to the mental health services, with 49 percent of Gen Z reporting they are more likely to have worried about others judging them when they disclose

seeking mental health services. Research reviewing health literacy and health behaviors also found lower health literacy scores to be associated with poorer health behaviors and outcomes, including obesity, smoking, and nutrition behaviors (Link: Sansom-Daly et al., 2016). In contrast, one study found that adolescent and young adult men who were defined as at risk substance users were more likely to be well informed and knowledgeable about the risk of substance use compared to those who abstained (Link: Dermota et al., 2013).

Access to these services is also impeded by cost. Young adults have the lowest rate of access to employer-based insurance (Link: CMS, 2023), with 30 percent uninsured. This is higher than in any other age group and three times higher than among children (Link: CMS, 2023). In DC, beginning in 2019, the law requires residents to have qualifying health coverage, get an exemption, or pay a penalty on their DC taxes (Link: DC Health Link, n.d.). In addition, DC colleges require health care coverage, as do many other universities and educational institutions in the area (Link: Faris S.,2021). Under the Patient Protection and Affordable Care Act, students can stay on their family plan until 26 years old or access health services through their university. Otherwise, health insurance is often through employers or state health exchanges. Yet, many young and emerging adults may think they are relatively healthy and therefore opt to be uninsured or underinsured.

Additional barriers to healthcare use include the limited number of psychiatrists, substance use treatment specialists, and mental health professionals covered by health insurance and primary care providers' lack of confidence about screening for and/or treating depression, anxiety, or unhealthy use of alcohol or other drugs (Link: Kaiser Family Foundation, 2023). DC has 39.3 percent of need met, defined as the ratio of available psychiatrists to the number needed to eliminate the Health Professional Shortage Area designation, and 49.3 percent of adults in DC reported experiencing symptoms of anxiety and/or depressive disorder but not receiving help in the past 4 weeks compared to the U.S. average of 28.2 percent (Link: Kaiser Family Foundation, 2023). The health care shortage impacts not only access to care but also cost and quality of care if individuals choose to seek services out of the area or unreliable sources online. Healthcare shortages may also cause gaps in care. In DC, 45 percent of children and 41 percent of adults in Mental Health Rehabilitation Services programs have gaps in care that exceed 6 months during a 12-month period (Link: Gresenz et al., 2012). High-level priorities that may improve these issues include tracking and coordinating care, improving the availability and accessibility of substance use treatment services, and upgrading the data infrastructure (Link: Gruber et al., 2023).

Despite these gaps in mental health services, innovative programs exist to reach more people. The "Let's Talk" offsite walk-in model, developed at Cornell University, is a program that increases student access to mental health care and has been adopted by nearly 100 universities and colleges nationwide (Link: Cornell University, n.d.). The Mental Health Coalition (link) is a group of passionate influential organizations, brands, and individuals that have come together to end the stigma surrounding mental health and transform the way we talk about mental illness (Link: College Mental Health Toolkit, 2023). Programs and collaborative partnerships focused on providing accessible, quality, and low-cost mental health resources are essential for emerging adults to holistic improve mental, physical, and behavioral health.

Colleges in the DMV Area

The DMV area has 19 colleges and five research universities, four master's universities, and 10 special-focus institutions. Sixteen of the 19 are private, and three of those are for profit. DC has

six Catholic postsecondary institutions. The University of the District of Columbia is the largest public university and DC's oldest of its historically Black colleges and universities (HBCUs). Howard University is another HBCU. In addition, it has three medical schools (George Washington University School of Medicine and Health Sciences, Georgetown University School of Medicine, and Howard University College of Medicine) and six law schools (University of the District of Columbia David A. Clarke School of Law, Columbus School of Law (Catholic University of America), Howard University School of Law, George Washington University Law School, Georgetown University Law Center, and Washington College of Law (American University)).

DC has almost 400 opioid-related deaths per year, the third highest rate in the country, with 34.7 deaths per 100,000 persons compared to the national average of 14.6 (Link: Howard University Hospital, 2024). Institutions such as Howard University have taken the lead in raising awareness for this epidemic through community-level interventions. Howard has also adopted and implemented policies that prohibit unlawful use of drugs and alcohol by its students. It conducts random drug testing of students without notice, especially athletes. It also uses a multidisciplinary approach to facilitate its policies, which has helped with opioid awareness (Biennial Review Alcohol and Drug Prevention Network, 2022). Data in DC show an increasing percentage of opioid overdoses containing fentanyl or its derivatives, which has led to deaths in schools such as American University. Moreover, each school has its own mental health services focusing on substance use through either group or individual therapy. Bystander intervention trainings are also offered at many campuses; information is provided to students to be prepared for when someone is experiencing an overdose.

Each of the universities in Washington, DC, including private, public, HCBU, and religious universities and community colleges, provides medical and mental health services and health promotion and wellness programs. For example, American University has the Empower AU program where students are trained to teach 1st-year students information about what to do or what services to seek when a student is under the influence or in need of well-being programs. Howard University provides a grief support group program and a safe space where men can openly and freely express their feelings. Other postsecondary institutions in DC, such as Montgomery College, have a "peer 2 peer" program where students can not only help fellow students navigate their way around campus but also assist them with further resources (Link: Montgomery College, 2024). Additionally, the DC Infrastructure Academy l'Academie de Cuisine Prince George's Community College has a violence prevention center to enhance the safety and justice for victims of violence (Link: Prince George's Community College, 2024). The Virginia Tech shooting that occurred in 2007 left 32 people dead (History, 2011). This tragic event set an example for future years of the importance for violence prevention in universities.

Key Frameworks

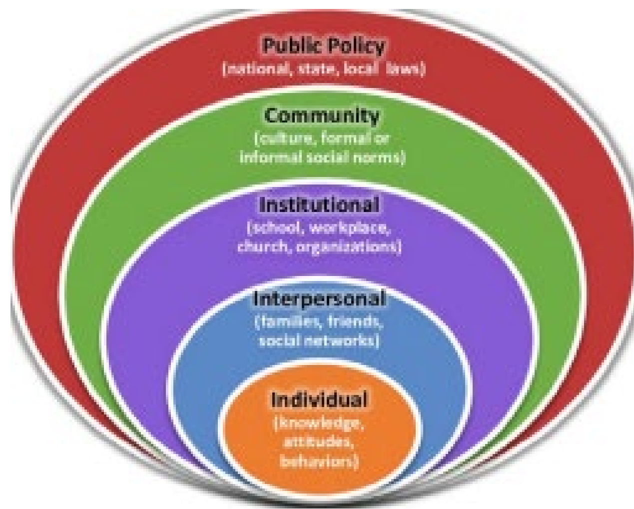
SEM

SEM is a conceptual model that identifies a variety of influences that impact a person's health and well-being. This model consists of five spheres of influence: individual, interpersonal, institutional, community, and public policy. Successful public health interventions consider multiple levels of influence when designing programs and strategies to improve the health and well-being of their target population. See Table 1 for more information.

Table 1.
Social Ecological Model

Level	**Description**	**Interventions**
Individual	Individual demographics, personal experiences, knowledge, attitudes, beliefs, and behaviors	Individual interventions often emphasize educational strategies to improve knowledge, change attitudes, and increase self-efficacy.
Interpersonal	Relationships with others, including family members, peer relationships, and social networks	Interpersonal interventions often aim to influence and facilitate behavior change by shifting social and cultural norms, with a particular focus on a person's closest social network (e.g., mentoring or peer-to-peer support program).
Institutional	Local health departments, community organizations, health care systems, law enforcement, faith-based organizations, etc.	Institutional interventions often aim to influence people who are impacted by a particular institution (e.g., patients of healthcare systems). Efforts often focus on expanded access to resources or programs, improved service quality, and advocacy.
Community	The role of community organizations, relationships between community organizations and/or the settings in which social relationships occur (e.g., schools, workplaces, neighborhoods)	Community interventions often focus on improving the physical and social environment (e.g., creating safe places where people can live, learn, work, play, and pray) and addressing other conditions that give rise to poor health outcomes (e.g., neighborhood poverty, housing inequality, high density of alcohol outlets). Efforts often focus on motivating a community and its relevant stakeholders to work together and address an issue and/or raising awareness and changing community norms.
Public Policy	The influence and role of local, state, and federal governments to support and enact policies and laws to improve public health	Policy interventions often involve advocacy and focus on creating supportive conditions (legislative and otherwise) that allow laws to pass. Impactful changes often address the root causes of and factors that systematically lead to issues (decrease homelessness, increase social support, decrease criminalization, etc.).

Figure 1. *Social Ecological Model*
SOURCE: Aronica et al. (2019)



The Social Determinants of Health (SDOH)

The SDOH are the nonmedical factors and conditions that influence health outcomes (Link: HHS, n.d.). SDOH are the conditions in the environment where people are born, live, learn, work, play, worship, and age that affect a wide range of health and well-being outcomes and quality of life (Link: HHS, n.d.). The SDOH are categorized into five broad domains:

1. Economic Stability
2. Education Access and Quality
3. Health Care Access and Quality
4. Neighborhood and Built Environment
5. Social and Community Context

Examples of SDOH include access to transportation, safe housing, safe neighborhoods, educational attainment and income level, job opportunities, language and literacy skills, access to affordable nutrient-dense foods, access to affordable and quality physical and mental health care, and racism, discrimination, and violence (Economic Stability, n.d.). Uneven access to SDOH contributes to a wide range of health disparities and inequities, which makes this critical to address. Recognition has also been growing of the commercial (conditions, actions, and omissions by private companies that affect health) and political (the systematic process of distributing resources and administering power) determinants of health.

The Public Health Approach

The public health approach utilizes a science-based, multidisciplinary model to maximize benefits for the largest number of people. This model draws on knowledge from several disciplines, including epidemiology, psychology, sociology, medicine, criminology, education, and economics, to guide several public health interventions, including those that address substance use (National Center for Injury Prevention and Control, 2022). The following four steps make up the public health approach, accompanied with guiding questions (see Table 2).

Table 2.
Guiding Questions for Using the Public Health Approach

The Public Health Approach	
Steps	**Guiding Questions**
1. Define and monitor the problem	● What problem do I want to prevent? ● What data are available to describe the scope and burden of the problem? ● How many people are affected by the identified problem? ● Who is experiencing the problem? ● When and where is the problem occurring? ● Why is the problem occurring? What are the root causes?
2. Identify risk and protective factors	● What are risk factors for the problem? ● What are protective factors for the problem?
3. Develop and test prevention strategies	● Are there existing, effective strategies based on the best available evidence? ● If none exist, what resources are needed to develop a new strategy based on what was learned in the previous steps? ● What potential research partners can help evaluate the selected strategy? ● Is the strategy effective? Is it feasible? Did it do what it was intended to do?
4. Assure widespread adoption	● Who would benefit from this strategy (e.g., parents, educators, policy makers)? ● What strategies can be used to assure it reaches the people who need it? Can it be scaled up to reach more people? ● What resources exist to support the implementation and evaluation of this strategy?

SOURCE: Adapted from
https://www.cdc.gov/violenceprevention/pdf/PH_App_Violence-a.pdf

The Okanagan Charter: An International Charter for Health-Promoting Universities & Colleges

The Okanagan Charter is a guiding and aspirational document that was developed as an outcome of the 2015 International Conference on Health Promoting Universities and Colleges. It was codeveloped by health promotion scholars, researchers, practitioners, and higher education administrators from 45 different counties to guide colleges and universities to be leaders for the world in developing and modeling health-promoting strategies in their unique

campus settings. It has two calls to action: 1) embed health into all aspects of campus culture, across the administration, operations, and academic mandates; and 2) lead health promotion action and collaboration locally and globally.

Resources

Local and National Organizations Working to Address College Student Health and Well-Being

To effectively develop a proposal for solutions to address the health and well-being of emerging adults in Washington, DC, it is important to examine current examples of successful strategies from organizations, initiatives, and programs working to address this issue in the area. Next are some examples of organizations that are addressing youth mental health and substance use.

Local DMV Organizations

The Maryland Collaborative To Reduce College Drinking and Related Problems (Link)
This network of Maryland colleges and universities was established in 2012 to work with community partners to reduce excessive alcohol use in their campus communities using data-driven approaches. It creates supportive environments, policies, and practices that help students make healthy decisions, succeed in college, and become productive members of their respective communities.

Center on Young Adult Health and Development (CYAHD) at the University of Maryland School of Public Health (Link)
CYAHD conducts research on health-risk behaviors among young adults and seeks to understand best practices to address their behavioral health, particularly for those in higher education settings.

National Organizations

National Alliance on Mental Illness (NAMI) Washington DC (Link)
This is a local chapter of NAMI, the largest grassroots mental health organization in the United States that provides advocacy, education, support, and public awareness on mental illness.

NIAAA (Link)
NIAAA, in collaboration with leading college alcohol researchers and staff, developed the *College AIM: Alcohol Intervention Matrix (link)* tool that provides a summary of evidence-based individual and environmental level alcohol interventions and strategies.

National Center for Adolescent and Young Adult Health and Well-Being (Link)
The National Center for Adolescent and Young Adult Health and Well-Being supports adolescents and their families through advocating for an integrated model of care.

Students Against Destructive Decisions (SADD) (Link)
SADD is a national nonprofit that promotes the safety and well-being of students through educational and engaging programming. It empowers students to enact positive change through school-based, student-run chapters across the country.

Higher Education Center for Alcohol and Drug Misuse Prevention and Recovery (Link)
The center is a resource for colleges and universities that provides tools for college campuses to implement alcohol and drug misuse prevention and recovery programs.

American College Health Association (link)
The American College Health Association uses advocacy, research, and education to advance the health and well-being of college students.

Active Minds (Link)
Active Minds is a nonprofit that promotes mental health awareness and education with a focus on young adults ages 14–25. It has several chapters across the country that are student-led, school-based groups that advocate for community-level change and awareness. The national office is in Washington, DC.

Jed Foundation (Link)
The Jed Foundation is a nonprofit that equips teens and young adults with skills and knowledge to protect emotional health and prevent suicide.

Access to Upstream Well-Being Resources
Various centers and programs that offer mental health support, education, and advocacy in Washington, DC. Understanding the local context and existing resources can strengthen new proposals to address these issues.

- Local Mental Health Resources
    - The ***Depression and Bipolar Support Alliance National Capital Area Chapter (Link)*** provides in-person and virtual support, education, and advocacy for people in the Metro area with mood disorders, including special groups for women, teens, and LGBTQIA+ individuals.
    - The ***Comprehensive Psychiatric Emergency Program (Link)*** operates 24/7 and provides emergency psychiatric services and observation beds for individuals 18+. Services are available via phone or in person.
    - The ***Fairfax Mobile Crisis Unit (Link)*** provides emergency mental health services to the community, including evaluation, treatment, and crisis intervention.
    - The ***DC Department of Employment Services Office of Youth Programs (Link)*** promotes employment development programs for local youth aged 14–24, including occupational and life skills development and work or academic experience. Programs range from youth employment, leadership, and pathways to grant opportunities, early scholars programs, and out-of-school programs.
- Local Substance Misuse/Abuse Resources
    - The ***DC Stabilization Center (Link)*** offers a safe space and free services to individuals 18 and older experiencing a SUD crisis. It provides medication on the spot with no insurance or residency requirements necessary.
    - The ***Office of Prevention Services (Link)*** within the Department of Behavioral Health addresses substance abuse prevention through education on the ***Drug Free Youth DC website (Link)***, grants, and training and technical assistance for youth, families, and schools.
        - ***DC Prevention Centers (Link)*** throughout the city (one each in Wards 1&2, Wards 3&4, Wards 5&6, and Wards 7&8) work to strengthen community capacity to prevent substance use and abuse.
- Integrated Resources

    - ***Dreamers and Achievers Center (Link)*** is a nonprofit peer-run drop-in center that provides support and resources for people 18+ who are affected by mental health and substance use conditions.
    - ***Mary's Center Behavioral Health (Link)*** provides behavioral health services, including diagnostic assessments and treatment planning, individual and family therapy, substance abuse and PTSD treatment, and community support.
    - The Department of Behavioral Health ***Community Response Team (Link)*** provides direct services 24/7 for adults experiencing emotional, psychiatric, or substance use vulnerabilities. Support includes assessment, referral, short-term care management, and follow-up.
    - The ***Sri Chinmoy Centre (Link)*** offers free meditation classes open to the public in Maryland and Washington, DC.
    - ***SafeLink Wireless (Link)*** is a federally sponsored program that provides free and discounted communication services to qualifying individuals and families.
- Local Mental Health Education, Training, and Certification
    - The Department of Behavioral Health offers a ***peer specialist certification training program (Link)***. Peer specialists are self-identified individuals who have had mental and/or substance use disorders and assist other individuals experiencing these; they act as mentors, advocates, and recovery leaders.
    - QPR stands for Question, Persuade, and Refer—three steps to help prevent a suicide or reduce suicidal behavior. ***QPR training (Link)*** is available in person at various sites in the DMV or online. QPR-trained gatekeepers are people in positions to recognize the warning signs of suicidal behavior who know how to offer hope and get help.
    - ***Mental Health First Aid (Link)*** (MHFA) is a 12-hour educational program that trains individuals to identify, understand, and respond to mental illness and substance use disorders using a 5-step action plan. Adult MHFA courses are designed for adults to assist fellow adults, and Youth MHFA courses are designed for adults to assist adolescents aged 12–18. MHFA courses are available in person, partially in person, or virtually.

Appendix A: Acronyms and Initials

ACE	adverse childhood experiences
FoMO	fear of missing out
HBCU	Historically Black colleges and universities
MHFA	mental health first aid
NAMI	National Alliance on Mental Illness
NIAAA	National Institute on Alcohol Abuse and Alcoholism
NSDUH	National Survey on Drug Use and Health
PTSD	posttraumatic stress disorder
SDOH	social determinants of health
SEM	Social Ecological Model
SGMs	sexual and gender minorities
SMI	severe mental illness
SAMHSA	Substance Abuse and Mental Health Services Administration
SUD	substance use disorder
WHO	World Health Organization

Appendix B: References

Allen, H. K., Lilly, F., Green, K. M., Zanjani, F., Vincent, K. B., & Arria, A. M. (2020). Substance use and mental health problems among graduate students: Individual and program-level correlates. *Journal of American College Health*, 1–9. https://doi.org/10.1080/07448481.2020.1725020

Anchuri, K., Davoren, A. K., Shanahan, A., Torres, M., & Wilcox, H. C. (2019). Nonsuicidal self-injury, suicidal ideation, and suicide attempt among collegiate athletes: Findings from the National College Health Assessment. *Journal of American College Health*, *68*(8), 1–9. https://doi.org/10.1080/07448481.2019.1616743

Arain, M., Haque, M., Johal, L., Mathur, P., Nel, W., Rais, A., Sandhu, R., & Sharma, S. (2013). Maturation of the adolescent brain. *Neuropsychiatric Disease and Treatment*, *9*, 449–461. https://doi.org/10.2147/NDT.S39776

Arnett, J. J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties*. Oxford University Press.

Arnett, J. J., Zukauskiene, R., & Suigimura, P. K. (2014). The new life stage of emerging adulthood at ages 18–29 years: Implications for mental health. *The Lancet Psychiatry, 1*(7), 569–576.

Aronica, K, Crawford, E., Licherdell E., & Onoh, J. (2019). Models and mechanisms of public health. Social ecological model. Retrieved August 31, 2023, from https://courses.lumenlearning.com/suny-buffalo-environmentalhealth/part/chapter-3/

Barnett, S. (2020). Foster care youth and the development of autonomy. *International Review of Psychiatry*, *32*(3), 265–271. https://doi.org/10.1080/09540261.2020.1720622

Behere, A. P., Basnet, P., & Campbell, P. (2017). Effects of family structure on mental health of children: A preliminary study. *Indian Journal of Psychological Medicine*, *39*(4), 457–463. https://doi.org/10.4103/0253-7176.211767

Biennial Review Alcohol and Drug Prevention Network. (2022). Department of Public Safety. https://publicsafety.howard.edu/sites/publicsafety.howard.edu/files/2022–09/Biennial percent20Review percent20Alcohol percent20and percent20Drug percent20Prevention percent20Network percent20Revised percent202022 percent20 percent28FINAL percent20jcs percent20 percent2B percent20kt percent20 percent2B percent20rnc percent20edits percent29_CS.pdf

Braverman, P. A., Arkin, E., Proctor, D., Kauh, T., & Holm, N. (2022). Systemic and structural racism: Definitions, examples, health damages, and approaches to dismantling. *Health Affairs, 41*(2). https://doi.org/10.1377/hlthaff.2021.01394

CDC (Centers for Disease Control and Prevention). (2021, August 23). *Adverse Childhood Experiences* (*ACES*)*.* Vital Signs. https://www.cdc.gov/vitalsigns/aces/index.html

College Mental Health Toolkit: Facts, Tips & Resources for Students. (2023, August 21). The Mental Health Coalition. https://www.thementalhealthcoalition.org/college-mental-health-toolkit/

Cornell University. (n.d.). *Let's talk drop-in consultation*. Cornell Health. https://health.cornell.edu/services/mental-health-care/lets-talk

Davis, J. P., Dumas, T. M., & Roberts, B. W. (2018). Adverse childhood experiences and development in emerging adulthood. *Emerging Adulthood*, 6(4), 223–234. https://doi.org/10.1177/2167696817725608

DC Health Link. (n.d.). *Get covered. Stay covered. DC's individual responsibility requirement*. https://www.dchealthlink.com/individual-responsibility-requirement

Deckard, F. M., Goosby, B. J., & Cheadle, J. E. (2022). Debt stress, college stress: Implications for Black and Latinx students' mental health. *Race and Social Problems*, *14*(3), 238–253. https://doi.org/10.1007/s12552-021-09346-z

Dermota, P., Wang, J., Dey, M., Gmel, G., Studer, J., & Mohler-Kuo, M. (2013). Health literacy and substance use in young Swiss men. *International Journal of Public Health*, *58*(6), 939–948. https://doi.org/10.1007/s00038-013-0487-9

Deutsch, S. A., Lynch, A., Zlotnik, S., Matone, M., Kreider, A., & Noonan, K. (2015). Mental health, behavioral and developmental issues for youth in foster care. *Current Problems in Pediatric and Adolescent Health Care*, *45*(10), 292–297. https://doi.org/10.1016/j.cppeds.2015.08.003

Faris, S. (2021, July 1). *Washington, DC. Student health insurance plans: Health care coverage and plans*. HealthCareInsider.com. https://healthcareinsider.com/district-of-columbia-student-health-insurance19066#:~:text=What percent20You percent20Need percent20To percent20Know,in percent20a percent20health percent20care percent20plan

Franz, D. J., Griffin, A. M., Saldana, L., & Leve, L. D. (2019). A longitudinal examination of service utilization and trauma symptoms among young women with prior foster care and juvenile justice system involvement. *Child Welfare*, *97*(5–6), 199–215.

Gallup, Inc., & Lumina Foundation. (2024). *Gallup-Lumina state of higher Education*. Gallup.com. https://www.gallup.com/analytics/644939/state-of-higher-education.aspx

Gelman, S. (2023, November 9). *Fewer DC students using drugs or alcohol, but survey paints grim picture of mental health*. Wtop News. https://wtop.com/dc/2023/11/fewer-dc-students-using-drugs-or-alcohol-but-survey-paints-grim-picture-of-mental-health/

Gresenz, C. R., Blanchard, J. C., Timbie, J. W., Acosta, J., Pollack, C. E., Ruder, T., Saloner, B., Benjamin-Johnson, R., Weinick, R. M., Adamson, D. M., & Hair, B. (2012). Behavioral health in the District of Columbia: Assessing need and evaluating the public system of care. *Rand Health Quarterly*, *2*(1), 14.

Hasler, B. P., Schulz, C. T., & Pedersen, S. L. (2024). Sleep-related predictors of risk for alcohol use and related problems in adolescents and young adults. *Alcohol Research Current Reviews, 44*(1).

History. (2011, April 13). *Virginia Tech shooting leaves 32 dead*. History. https://www.history.com/this-day-in-history/massacre-at-virginia-tech-leaves-32-dead

Halfon, N., & Hochstein, M. (2002). Life course health development: an integrated framework for developing health, policy, and research. *The Milbank Quarterly*, *80*(3), 433–iii. https://doi.org/10.1111/1468-0009.00019

Jahan, A. R., & Burgess, D. M. (2023). *Substance use disorder*. StatPearls Publishing.

Jones, C. P. (2000). Levels of racism: A theoretic framework and a gardener's tale. *American Journal of Public Health*, *90*(8), 1212–1215. https://doi.org/10.2105/ajph.90.8.1212

Kaiser Family Foundation. (2023, March 20). *Mental health and substance use state fact sheets*. KFF. https://www.kff.org/statedata/mental-health-and-substance-use-state-fact-sheets/district-of-columbia/

Kessler, R. C., Amminger, G. P., Aguilar-Gaxiola, S., Alonso, J., Lee, S., & Ustün, T. B. (2007). Age of onset of mental disorders: A review of recent literature. *Current Opinion in Psychiatry*, *20*(4), 359–364. https://doi.org/10.1097/YC0.0b013e32816ebc8c

King, C. J., Buckley, B. O., Maheshwari, R., & Griffith, D. M. (2022). Race, place, and structural racism: A review of health and history in Washington, D.C. *Health Affairs, 41*(*2*)*.*

Kroshus, E., Hawrilenko, M., & Browning, A. (2021). Stress, self-compassion, and well-being during the transition to college. *Social Science & Medicine, 269.* https://doi.org/10.1016/j.socscimed.2020.113514

Lindgren, K. P., Neighbors, C., Teachman, B. A., & Wiers, R. W. (2024). Evaluating distress as a moderator of the relationship between drinking identity and hazardous drinking during

the post-college transition. *Addictive Behaviors*, *152*, 107955. https://doi.org/10.1016/j.addbeh.2024.107955

Lipson, S. K., Kern, A., Eisenberg, D., & Breland-Noble, A. M. (2018). Mental health disparities among college students of color. *Journal of Adolescent Health*, *63*(3), 348–356. https://doi.org/10.1016/j.jadohealth.2018.04.014

Liu, C. H., Stevens, C., Wong, S. H. M., Yasui, M., & Chen, J. A. (2019). The prevalence and predictors of mental health diagnoses and suicide among U.S. college students: Implications for addressing disparities in service use. *Depression and Anxiety*, *36*(1), 8–17. https://doi.org/10.1002/da.22830

Marken, S. (2024, February 28). *Black, Hispanic students at greatest risk of leaving program*. Gallup. https://news.gallup.com/poll/611093/black-hispanic-students-greatest-risk-leaving-program.aspx

McGrath, J. J., Al-Hamzawi, A., Alonso, J., Altwaijri, Y., Andrade, L. H., Bromet, E. J., Bruffaerts, R., de Almeida, J. M., Chardoul, S., Chiu, W. T., Degenhardt, L., Demler, O. V., Ferry, F., Gureje, O., Haro, J. M., Karam, E. G., Karam, G., Khaled, S. M., Kovess-Masfety, V., … & Zaslavsky, A. M. (2023). Age of onset and cumulative risk of mental disorders: A cross-national analysis of population surveys from 29 countries. *The Lancet Psychiatry*, *10*(9), 668–681. https://doi.org/10.1016/s2215-0366(23)00193-1

McKee, P. C., Budnick, C. J., Walters, K. S., & Antonios, I. (2022). College student fear of missing out (FoMO) and maladaptive behavior: Traditional statistical modeling and predictive analysis using machine learning. *PLoS ONE*, *17*(10): e0274698. https://doi.org/10.1371/journal.pone.0274698

Murthy, V. (2023). *Our epidemic of loneliness and isolation*. *The U.S. surgeon general's advisory on the healing effects of social connection and community.* https://www.hhs.gov/sites/default/files/surgeon-general-social-connection-advisory.pdf

NASEM (National Academies of Sciences, Engineering, and Medicine). (2019). *The promise of adolescence: Realizing opportunity for all youth*. The National Academies Press. https://doi.org/10.17226/25388

NASEM. (2021). Mental health, substance use, and wellbeing in higher education: Supporting the whole student. The National Academies Press. https://doi.org/10.17226/26015.

National Council for Mental Wellbeing. (2024, May 14). *Study reveals lack of access as root cause for mental health crisis in America*. https://www.thenationalcouncil.org/news/lack-of-access-root-cause-mental-health-crisis-in-america/

National Student Clearinghouse Research Center. (2024, January 24). *Current term enrollment estimates*. National Student Clearinghouse Research Center. https://nscresearchcenter.org/current-term-enrollment-estimates/

Nelsen, S. K., Kayaalp, A., & Page, K. J. (2021). Perfectionism, substance use, and mental health in college students: A longitudinal analysis. *Journal of American College Health*, *71*(1), 257–265. https://doi.org/10.1080/07448481.2021.1891076

NIDA (National Institute on Drug Abuse). (2021, April 13). *Why is there comorbidity between substance use disorders and mental illnesses*? https://nida.nih.gov/publications/research-reports/common-comorbidities-substance-use-disorders/why-there-comorbidity-between-substance-use-disorders-mental-illnesses

NIDA. (2022, September 27). *Part 1: The connection between substance use disorders and mental illness*. https://nida.nih.gov/publications/research-reports/common-comorbidities-substance-use-disorders/part-1-connection-between-substance-use-disorders-mental-illness

NIH (National Institutes of Health). (2007). *Biological sciences curriculum study*. *NIH Curriculum Supplement Series*. National Institutes of Health. Information about Mental Illness and the Brain. https://www.ncbi.nlm.nih.gov/books/NBK20369/

NIMH (National Institute of Mental Health). (2023, March). *Mental illness.* Mental Health Information. https://www.nimh.nih.gov/health/statistics/mental-illness

NIMH. (2024, February). *Suicide.* Mental Health Information. https://www.nimh.nih.gov/health/statistics/suicide

Read, J. P., Radomski, S., & Wardell, J. D. (2017). Posttraumatic stress and problem drinking at the transition out of college. *Prevention Science*, *18*(4), 440–449. https://doi.org/10.1007/s11121-017-0778-0

Riley, T. J., Kirsch, A. C., Shapiro, J. B., & Conley, C. S. (2016). Examining stress and coping as a mediator for internalizing symptomatology: A comparison between sexual minority and majority first-year college students. *Journal of Adolescence, 49*, 124–133. https://doi.org/10.1016/j.adolescence.2016.03.005

Riordan, B. C., Flett, J. A. M., Hunter, J. A., Scarf, D., & Conner, T. S. (2015). Fear of missing out (FoMO): The relationship between FoMO, alcohol use, and alcohol-related consequences in college students. *Annals of Neuroscience and Psychology*, (2), 7.

Saeri, A. K., Cruwys, T., Barlow, F. K., Stronge, S., & Sibley, C. G. (2018). Social connectedness improves public mental health: Investigating bidirectional relationships in the New Zealand attitudes and values survey. *Australian & New Zealand Journal of Psychiatry, 52*(4), 365–374. https://doi.org/10.1177/0004867417723990

SAMHSA (Substance Abuse and Mental Health Services Administration). (2014). Treating sleep problems of people in recovery from substance use disorders. *In Brief*, *8*(2). https://store.samhsa.gov/sites/default/files/sma14-4859.pdf

Sansom-Daly, U. M., Lin, M., Robertson, E. G., Wakefield, C. E., McGill, B. C., Girgis, A., & Cohn, R. J. (2016). Health literacy in adolescents and young adults: An updated review. *Journal of Adolescent and Young Adult Oncology*, *5*(2), 106–118. https://doi.org/10.1089/jaya0.2015.0059

Scardera, S., Perret, L. C., Ouellet-Morin, I., Gariépy, G., Juster, R. P., Boivin, M., Turecki, G., Tremblay, R. E., Côté, S., & Geoffroy, M. C. (2020). Association of social support during adolescence with depression, anxiety, and suicidal ideation in young adults. *JAMA Network Open*, *3*(12), e2027491. https://doi.org/10.1001/jamanetworkopen.2020.27491

SenthilKumar, G., Mathieu, N. M., Freed, J. K., Sigmund, C. D., & Gutterman, D. D. (2023). Addressing the decline in graduate students' mental well-being. *American Journal of Physiology—Heart and Circulatory Physiology*, *325*(4), H882–H887. https://doi.org/10.1152/ajpheart.00466.2023

Singhal, N., Bhola, P., Reddi, V. S. K., Bhaskarapillai, B., & Joseph, S. (2021). Non-suicidal self-injury (NSSI) among emerging adults: Sub-group profiles and their clinical relevance. *Psychiatry Research*, *300*, 113877. https://doi.org/10.1016/j.psychres.2021.113877

Sumer, S., Poyrazil, S., & Grahame, K. (2011). Predictors of depression and anxiety among international students. *Journal of Counseling & Development, 86*(4), 429–437. https://doi.org/10.1002/j.1556-6678.2008.tb00531.x

Suran, M. (2023). How the new 988 lifeline is helping millions in mental health crisis. *JAMA*, *330*(11), 1025–1028. https://doi.org/10.1001/jama.2023.14440

Trivedi, S. (2019). *The harm of child removal.* https://scholarworks.law.ubalt.edu/all_fac/1085

Urban Institute. (2020, March). *A guide to community strategies for improving emerging adults' safety and well-being.* https://www.urban.org/sites/default/files/publication/101838/a20guide20t020community20strategies20for20improving20emerging20adults2720safety20an_0.pdf

Welsh, J. W., Shentu, Y., & Sarvey, D. B. (2019). Substance use among college students. *Focus*, *17*(2), 117–127. https://doi.org/10.1176/appi.focus.20180037

Westerhof, G. J., & Keyes, C. L. (2010). Mental illness and mental health: The two continua model across the lifespan. *Journal of Adult Development*, *17*(2), 110–119. https://doi.org/10.1007/s10804-009-9082-y

White, M. (2020, October 8). *Baltimore: The Black Butterfly*. National Community Reinvestment Coalition. https://ncrc.org/the-black-butterfly/
Williams, K. D. A., Dougherty, S. E., Utsey, S. O., LaRose, J. G., & Carlyle, K. E. (2023). "Could be even worse in college": Social factors, anxiety, and depressive symptoms among Black men on a college campus. *Journal of Racial and Ethnic Health Disparities*, *10*(3), 1165–1177. https://doi.org/10.1007/s40615-022-01302-w
Winsler, A., Deutsch, A., Vorona, R. D., Payne, P. A., & Szklo-Coxe, M. (2014). Sleepless in Fairfax: The difference one more hour of sleep can make for teen hopelessness, suicidal ideation, and substance use. *Journal of Youth and Adolescence, 44*, 362–378. https://doi.org/10.1007/s10964-014-0170-3
Wood, D., Crapnell, T., Lau, L., Bennett, A., Lotstein, D., Ferris, M., & Kuo, A. (2017). Emerging adulthood as a critical stage in the life course. In N. Halfon, C. B. Forrest, R. M. Lerner, & E. M. Faustman (Eds.), *Handbook of Life Course Health Development* (pp. 123–143). Springer.
WHO (World Health Organization). (2022, June 17). *Mental health.* https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response
Zhou, H., Zhang, Y., Han, X., Dai, X., Lou, L., Hou, X., Zhou, C., Liu, Z., & Zhang, W. (2022). Athlete students lead a healthier life than their non-athlete peers: A cross-sectional study of health behaviors, depression, and perceived health status among university students. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.923667
Zlotnick, C., Tam, T. W., & Soman, L. A. (2012). Life course outcomes on mental and physical health: The impact of foster care on adulthood. *American Journal of Public Health*, *102*(3), 534–540. https://doi.org/10.2105/AJPH.2011.300285

Appendix C: Judging Rubric

These criteria will be considered collectively through a facilitated judging discussion to determine the overall grand prize winner and category prizes. The table presents the criteria contributing to the three category prizes listed.

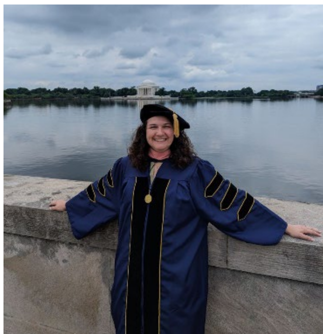
Category Prizes: *Practicality Prize; #Interprofessional Prize; Wildcard Prize

	Poor	Accept-able	Very Good	Out-standing	Comments
Analysis of Problem/Challenge					
● Astute synthesis of problem ● Identification of key issues	☐	☐	☐	☐	
Appropriateness/Justification of Solution					
● Justification of chosen priorities ● Justification of chosen intervention(s) ● Evidence to support likely effectiveness ● Fit to Washington, DC context ● Cultural/political/social factors ● Resourcefulness in gathering information	☐	☐	☐	☐	
Acceptability/Uptake of Solution*					
● Acceptability to relevant DC-area stakeholders ● Cultural acceptability ● Social/behavioral considerations	☐	☐	☐	☐	
Implementation Considerations*					
● Implementation plan ● Timeline and budget	☐	☐	☐	☐	

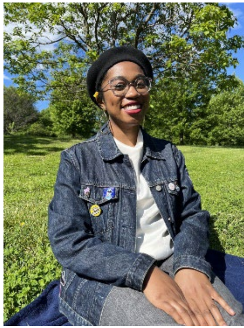
● Feasibility (budget and other resources, time frame, leverages local partners/resources, logistical/infrastructure constraints) ● Monitoring and evaluation plan					
Potential for Sustainability*					
● Addresses/considers root causes & structural factors that lead to disparities in health outcomes (institutional racism, social/economic/physical conditions, etc.) ● Long-term maintenance and growth (feasibility, funding)	☐	☐	☐	☐	
Interdisciplinary/Multisectoral#					
● Use of collaborations/interactions among disciplines and/or sectors	☐	☐	☐	☐	
Teamwork#					
● Engagement of whole team in preparation and/or presentation ● Clear team understanding and use of each other's roles and expertise	☐	☐	☐	☐	
Presentation Delivery					
● Clarity of content and logic of flow ● Time management ● Audience engagement ● Visual aesthetic ● Professionalism, poise, and polish	☐	☐	☐	☐	
Questions and Answers					
● Clarity and thoughtfulness of responses ● Ability to draw from evidence	☐	☐	☐	☐	

Appendix D: Case-Writing Team Biographies

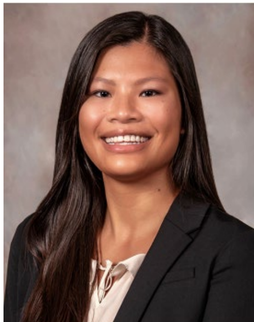
Each year, students from local universities work together to write this background document for the competing teams, including identifying the specific topic to be addressed.



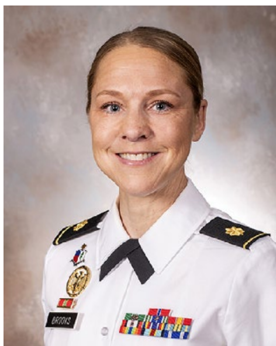
Laura Santacrose, Dr.P.H., M.P.H. (Case Lead): Laura is a graduate of George Washington University's Milken Institute School of Public Health Dr.P.H. program (May 2024). Her dissertation was an evaluation of means restriction interventions as a population-level strategy to prevent jumping suicides at Cornell University. She works full time as the associate director for the Skorton Center for Health Initiatives at Cornell. She is also a professorial lecturer teaching doctoral students at George Washington in the Dr.P.H. program. She graduated with a B.S. in human development from Cornell and an M.P.H. with a concentration in social behavior and community health from the University at Albany School of Public Health as a David A. Axelrod Fellowship recipient. She served as the team lead for the case-writing team for 2023 and 2024 and student team leader for George Washington's team in the DC Public Health Case Challenge, which won the 2022 Grand Prize. "Thank you to the NASEM for the opportunity to serve as the leader for the case-writing team for 2024!"



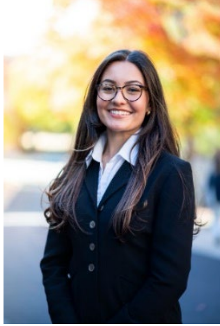
Anika Hamilton B.S. (Case Writer): Anika is in her final year of a dual-degree M.D./M.P.H. program at University of Maryland School of Medicine. Her M.P.H. concentration is in community and population health. She conducted her M.P.H. field work with B'More for Healthy Babies Upton/Druid Heights; she developed quantitative, qualitative, and ethnographic methods for determining community perspectives on cannabis use in pregnancy and early parenthood. She graduated with a B.S. in biology from Howard University. She served on the University of Maryland, Baltimore team in the Tenth Annual DC Public Health Case Challenge; her team won the 2023 Wildcard Innovation Prize.



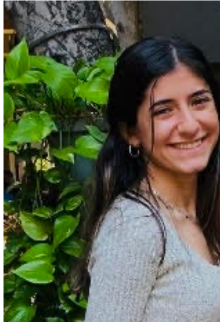
Remle Scott, M.P.H. (Case Writer): Remle is a 4th-year public health doctoral candidate at Uniformed Services University. Her dissertation is focused on understanding the intersection of infectious and noncommunicable diseases and studying multimorbidity among people living with HIV in sub-Saharan Africa. After receiving her M.P.H. from George Washington University with a concentration in epidemiology, she continued to conduct epidemiological research with the National Center for Complementary and Integrative Health. She was a member of the USU grand prize–winning team in the 2021 DC Public Health Case Challenge and has continued to participate in other case challenges, including the Emory Morningside Global Health Case competitions.



Marjorie Brooks (Uniformed Services University) (Case Writer): Marjorie is a doctor of nursing practice student at Uniformed Services University in the Graduate Family Nurse Practitioner/Women's Health Nurse Practitioner Program. She graduated with a B.S.N. from Eastern Michigan University and entered the U.S. Army as a staff nurse on the telemetry unit, then attended the Army Critical Care Nursing Course. Additionally, she has worked in the Burn ICU and the Combat Medic Specialist Training Program and deployed to Afghanistan. Her expertise and interests lie in chronic health issue management and patient education, skin care, and infectious disease. This led her to pursue a D.N.P. Her research interests are in preventative medicine and infectious disease. She hopes to make an impact in the area of preventative healthcare and health maintenance for female warfighters in austere environments. She was born and raised in Westland, Michigan, a suburb of Detroit. Outside of school, she enjoys spending time with her family, running, ruck marching, cycling, and rowing. She volunteers at nursing homes playing the piano, visiting hospitals and nursing homes with her therapy dog, and helping with the children's ministries at her church.



Nicole Vernot-Jonas (Georgetown University) (Case Writer): Nicole is a 2nd-year accelerated master's in global health student at Georgetown University, where she is also pursuing a certificate in Refugees, Migration, and Humanitarian Emergencies. Her undergraduate honors thesis focused on maternal health interventions for refugees, and she has internship and volunteer experience with various global health nonprofits in the DC area. In 2023, she was a member of Georgetown's DC Public Health Case Challenge team that won the Harrison C. Spencer Interprofessional Prize.



Shadan Rahmani (American University) (Case Writer): Shadan Rahmani is a recent graduate from American University with a B.S. in public health and a minor in biology. She is hoping to start her journey in medical school, as her passion is to become a physician. She has done research in neuroscience with a focus on psilocybin and its impact on cognition. In her gap year between undergrad and medical school, she has been volunteering as a mental health counsellor, working alongside physicians to experience what her future could look like, and tutoring students in math and science. She competed in the Public Health Case Challenge in 2023, representing American University.

Appendix E: Guide for Student Teams and Advisors

DC Public Health Case Challenge 2024
Guide for Student Teams and Faculty Advisors

The National Academies of Sciences, Engineering, and Medicine (NASEM) will host the 11th annual DC Public Health Case Challenge on Friday, October 18, 2024, to promote interdisciplinary, problem-based learning for the betterment of our DC-area community. Teams will be asked to approach a realistic public health issue facing the community and develop a multifaceted plan to address it. A panel of expert judges will watch student presentations and pick the winning solutions.

Organizers

NASEM Health and Medicine Division (*HMD*) *Staff*
Point of Contact: Maggie Anderson (maanderson@nas.edu)
Amy Geller (ageller@nas.edu)
Alina Baciu (abaciu@nas.edu)

Case-Writing Team
Laura Santacrose (George Washington University, case lead)
Marjorie Brooks (Uniformed Services University)
Anika Hamiton (University of Maryland)
Shadan Rahmani (American University)
Remle Scott (Uniformed Services University)
Nicole Vernot-Jonas (Georgetown University)

Theme

This year's case will focus on "Mental health and substance use disorders in Washington, DC," with a more specific topic to be announced when the case is released September 30.

Overview

- **Universities form a team** of 3–6 graduate and/or undergraduate students representing **at least three disciplines, schools, or majors**. The case will require a comprehensive solution, and teams should be composed of students representing a variety of disciplines or subjects (health, nursing, public health, law, business, communications, engineering, IT, gender studies, anthropology, economics, sociology, etc.). Teams are encouraged to include both undergraduate and graduate students.
- An orientation **webinar** will be offered to all students who will be competing (advisors are also welcome to tune in) to provide a primer on **upstream, evidence-based policy solutions for public health issues**, an overview of the Case Challenge process, and Q&A. The webinar will take place 12:00–1:00 pm ET on Monday, September 30.
- **Student teams** will be provided with a case that is based on a real-life public health challenge faced by communities and organizations in the DC area. Teams will be given approximately two weeks to **develop comprehensive recommendations** to **present to a panel of expert judges**. The presented recommendations will be judged on criteria such as content, creativity, feasibility, interdisciplinary nature, and strength of the evidence base. The case will include more detailed information on the judging criteria.
    - Information from the 2013–2023 DC Case Challenge events is available at http://nam.edu/initiatives/dc-public-health-case-challenge/

Prizes/Incentives for Student Teams

- Experience working with people from multiple disciplines to tackle a multifaceted public health challenge.
- Practice for Emory University's International Global Health Case Competition.
- Press release announcing the winning solution through the National Academy of Medicine (NAM) and the HMD of the National Academies.
- Publication by NAM summarizing each team's solution written by team members (team members listed as authors). Past publications are available at https://nam.edu/initiatives/dc-public-health-case-challenge/.
- Breakfast, lunch, and a small reception will be provided.
- FREE registration to attend in person or virtually the NAM annual meeting on Monday, **October 21** for ALL interested team members and advisors.
    - Attending the NAM annual meeting is an exciting opportunity to meet and connect with leaders in the fields of health, medicine, policy, and beyond. See https://nam.edu/events/ for more information.
    - ***We strongly encourage that at least one team member be available on October 21 to present at a poster session at the meeting (times forthcoming)—contact National Academies staff with any questions.***
    - *Advance registration for the NAM meeting is absolutely required for those interested in attending* (*to register, use team form at the end of this document*).
- **Prize money**
    - Grand Prize: $3,000
    - 3 "Best in Category" Prizes: $1,800
        - Interprofessional Prize
        - Practicality Prize
        - Wildcard Prize

- **Payment**
  - To receive the payment for the cash prize, students must have one of the following: SSN, SSN Type 2, or ITIN (tax ID), or the university must be able to accept the prize on a student's behalf.

Timeline

Please note that the timelines are firm

- **Monday, September 9**: Deadline for universities to confirm participation (please email Maggie Anderson at maanderson@nas.edu).
- **Monday, September 23 (COB)**: Deadline to submit the team roster **(*use the form on the last page of this guide*)**:
  - Team member names with areas of study and email addresses for final team registration.
    - IMPORTANT NOTE: Once team rosters are submitted, membership cannot be changed (except extreme circumstances; contact the organizers if an issue arises).
- **Monday, September 30, 12:00–1:00 pm:** A 1-hour informational webinar for competing students (and advisors) will take place before the case is released. The webinar will be recorded and posted online, so any students who are not available at this time can view the recording after. Students (and advisors) are welcome to email questions in advance. The purpose of the webinar is to provide a primer on upstream, evidence-based policy solutions for public health issues, an overview of the Case Challenge process, and Q&A.
- **Monday, September 30 at 1:00 pm:** Case is released.
- **September 30–October 17**: Teams develop their solution to the case.
- **Wednesday, October 16**: Teams submit a poster for NAM annual meeting by EOD.
- **Friday, October 18**: Teams present their solutions to a panel of judges. Presentations will be followed by an awards ceremony. The event will take place from approximately 8:30 am to 5:00 pm; we will let you know the exact times once we know the number of participating teams. Breakfast, lunch, and a reception will be provided.
- **Monday, October 21**: NAM annual meeting, where all teams will have the opportunity to attend (if they registered in advance) and present their solutions at a poster session.

Getting to the Keck Center of the National Academies

The Keck Center of the National Academies building is located at **500 5th St NW, Washington, DC 20001** and is accessible by car or metro. **IF YOU HAVE PARTICIPATED IN THE PAST, NOTE THE CHANGE OF VENUE**.

Driving to Keck building: Free visitor parking is available at the Keck Center garage, entrance on 6th Street between E and F Streets, NW (says "private parking"). Let the guard in the garage know you are here for a meeting and show identification (driver's license), and they will give you a visitor pass.

Taking the Metro: The closest metro stations to the Keck Center are Judiciary Square, located on the Red line (exit toward the National Building Museum), and the Gallery Place-Chinatown metro stop on the Red, Yellow, and Green lines (exit Capital One Arena).

Upon entering the building, you will need to present a photo ID to the guard at the front desk. Proceed to the registration tables set up outside of room 100 to check in and receive further instructions.

Case Challenge Guidelines and Rules

Suggested Team Preparation:

Teams are encouraged to meet several times before they receive the case in order to get to know each other, look at examples from previous case competitions (available at https://nam.edu/initiatives/dc-public-health-case-challenge/), and loosely plan an approach. It may be helpful for team members to agree on communication strategies and time commitments for the two weeks during which they will be developing the case solution.

Developing the Case Solution:

- Designated members of the case-writing team will be available to respond via email to questions and requests for clarification during the two weeks while teams prepare their solutions (contact details will be provided with the case). To ensure that all teams have access to all information about the case, all teams will receive a copy of the question and the response within 24 hours of receipt. Questions will NOT be accepted after 9:00 am on Thursday, October 17.
- Teams should not discuss their case presentations or case content with other teams during the case challenge period (September 30–October 18) until the judges have completed final scoring.
- Teams can access and use any available resources for information and input, including both written resources (publications, internet, course notes/text, etc.) and individuals within and outside of the team's university. Students are encouraged to ground their solutions in public health theory, particularly the SEM of health.
- This is a student competition and should reflect the students' ideas and work. The case solution must be generated by the registered team members. Faculty advisors and other individuals who serve as a resource should not generate ideas for case solutions but are permitted to guide students to relevant resources, provide feedback on ideas and proposals for case solutions and recommendations generated by the students, and provide feedback on draft/practice presentations.
- Participants may not speak individually with the judges about their case solution until judging has concluded on October 18. Please help the organizers by adhering to this rule during breaks.

Faculty Advisors:

Each team must have at least one faculty advisor. They will serve as a point of contact with the Case Challenge organizers. They will also ensure that the team is made up of only undergraduate and graduate students in their university and has representatives from at least three disciplines. Faculty advisors can also help student teams prepare for the competition within the following parameters:

- Faculty advisors **CAN**
  - Ensure that the case is grounded in public health theory, in particular the SEM of health;
  - Assist teams with practice sessions or practice review of sample cases in the weeks preceding the release of the case;
  - Suggest resources relevant to the case;
  - Provide feedback on ideas for case solutions and recommendations generated by the students;
  - Provide feedback on draft/practice presentations; and
  - Communicate with the Case Challenge organizers about Case Challenge guidelines and logistics.
- Faculty advisors **CANNOT**

    - Generate ideas for case solutions and recommendations, or
    - Communicate about the case with faculty advisors and students from other competing teams.

* Faculty advisors should contact the Case Challenge organizers if they have any questions or concerns about accessibility issues (for example, people with physical disabilities); we will do everything we can to accommodate. The Keck Center has many accessibility and inclusion features (such as ramps/elevators, assistive hearing devices, lactation room, gender neutral bathrooms).

Presentations:

- Presentation time: Each team will have a total of 25 minutes (note: there will be 5 minutes of transition time between presentations).
    - 15 minutes are allotted to present analysis and recommendations.
    - 10 minutes are allotted for Q&A with judges.
    - Timing will be strictly enforced.
    - Any leftover time will be utilized at the discretion of the judging panel.
    - Teams may not view other teams' presentations until they have delivered their own presentation.
    - Handheld wireless microphones and a podium with a microphone will be available.
    - Team members will advance their own slides with a wireless clicker.
    - Hard copies of each team's PPT will be provided to judges by staff. If desired, teams may bring a hard copy of any additional materials to distribute to the judges.
- Format:
    - Analysis and recommendations should be presented in Microsoft PowerPoint.
    - Presentations will be loaded onto the computer and projection screen for you by a Case Challenge organizer. Teams will have an opportunity to check the compatibility of their file in advance of the presentation.
    - Judges will receive a black-and-white printout of each team's slides.
    - Teams are encouraged to build appendix slides to help answer questions that they anticipate from the judges.
    - Judges will not know the university affiliation of teams until after judging is completed. The names of team members can be included in the presentation, but **DO NOT** include the university name or any identifying information in your presentation (e.g., school mascot).

- Presenters:
    - As many team members can participate in the presentation as the team sees fit. All team members should stand at the front of the room during the Q&A session at the end of the presentation.
    - It is allowable for the team to share their areas of study (but not the specific program/university).
- Dress code:
    - Competing teams are encouraged to present their case solution in business attire. The teams will not be identified by university to the judges, so students should not wear or carry any identifying logos, insignias, etc.
- Deadline to turn in completed case:
    - To ensure that each team has an equal amount of preparation time, each team's final presentation should be loaded onto the presentation computer **by 8:30 am**

on Friday, October 18. Failure to submit the presentation on time will result in disqualification from the competition. No changes can be made to presentations after that time, and teams should not continue to work on their case solution and presentation while they are awaiting their presentation time.

Judging:

- The judges have agreed to participate in this event as volunteers. The judges will be announced approximately 1 week before the event, and biographical sketches of the judges will be available to student teams at that time.
- In evaluating the proposed case solutions, judges will consider the following:
    - Rationale/justification for strategies proposed,
    - Specificity and feasibility
    - Interdisciplinary nature of the solution
    - Creativity and innovation
    - Clarity and organization
    - Presentation delivery
    - Teamwork, and
    - Ability to respond to questions.
- Detailed judging criteria will be provided with the case when it is released on September 30.

Resources

Information on the DC Public Health Case Challenge is available here:
https://nam.edu/initiatives/dc-public-health-case-challenge/
The following links provide information and examples from public health case competitions at other universities. Note that most of these cases focus on an international issue; the DC Case Challenge will address a local public health issue. These are just examples—please use your own knowledge, creativity, and community resources to come up with a unique and compelling presentation!

Emory Global Health Case Competition:
http://globalhealth.emory.edu/what/student_programs/case_competitions/index.html

University of Toronto's presentation from Emory's 2013 competition:
https://www.slideshare.net/TheresaLee5/university-of-toronto-emory-global-health-case-competition

Winning presentation from 2015 Vanderbilt Global Health Case Competition:
http://www.vanderbilt.edu/vigh-sac/case/2015ghcc.pdf

Triangle Global Health Case Competition: http://triangleghcc2013.wordpress.com/

Yale Global Health Case Competition presentations:
http://www.slideshare.net/yaleglobalhealthcc

Appendix F: Presentation Day Agenda

October 18, 2024

Keck Center of the National Academies of Sciences | 500 5th Street, NW, Washington, DC

8:00–8:30 am	**Arrival, Registration, and Breakfast** (*outside of Room 100*)
8:30 am	**Deadline to Turn in Presentation** (*Room 100*) *Please take your flash drive to the Case Challenge staff member at the computer. This is when teams draw a number for presentation order.* **Judges Check In** (*Front of Room 100; judge photo at 8:35, Lobby*)
8:45 am	**Welcoming Remarks** (*Room 100*) *Victor J. Dzau* *President, National Academy of Medicine*
8:55 am	**Logistics** (*Room 100*)
9:00 am–1:00 pm	**Presentations** (*Room 100*) *All but the first team should leave and go to the atrium/cafeteria (3rd floor) or rooms 101 or 103. Return to Room 100 when it is your team's turn to present. After your team has presented, you may remain in Room 100 to watch the remaining presentations, Rooms 101 or 103, or the cafeteria on the third floor. During the morning, an organizer will gather each team to take a photo in the front lobby—see schedule in the section below.*

9:00–9:30	Team 1
9:30–10:00	Team 2
10:00–10:30	Team 3
10:30—10:45	**Break**
10:45–11:15	Team 4
11:15–11:45	Team 5
11:45–12:00	**Break**
12:00–12:30	Team 6
12:30–1:00	Team 7

9:00–10:30 am	**Team Photo Times (meet at registration table; bring your numbered folder with you):** Teams 3–5: **9:05 am** Teams 6–7: **9:40 am** Teams 1–2: **10:05 am**
1:00–1:45 pm (*students*)	**Lunch** (*Food available outside room 100; eat in the atrium/cafeteria (3rd floor) or rooms 101 or 103*
1:00–3:20 pm (*judges*)	**Judges' Deliberations** (*pick up lunch from outside Room 100 and reconvene in Room 201 at 1:00*)
1:45 pm	**Group Photo with Students and Advisors** (*Lobby*)
2:00–2:45 pm	**Team Solutions Recap** (*Room 100*) *Each team will provide an overview of their solutions* (*5 min each*) *so everyone can hear how other teams approached the challenge. There will be time for discussion after.*
2:45–3:00 pm	**Expert Presentation** (*Room 100*) *Deon Auzenne* *Graduate student in Clinical Psychology* *Howard University*
3:00–3:15 pm	**Expert Presentation** (*Room 100*) *Alexandra Andrada* *Program Officer, National Academies*
3:15–3:40 pm	**Discussion**
3:40–4:00 pm	**Awards Ceremony** *(Atrium)*
4:00–5:00 pm	**Reception** *(Atrium)*