

2023 DC Public Health Case Challenge

A Public Health Approach to
Improve the Health of Women
Experiencing Homelessness in DC



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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 who will serve as judges representing different stakeholders.

Instructions

Task: Develop a feasible and creative proposal of an approach to address the unique health issues impacting women experiencing homelessness in Washington, DC. Present your

proposed solution(s) to address the challenge at the Case Challenge competition to be held on October 6, 2023.

Scope: The proposal is limited to a budget of \$1 million USD to be used during a 2-year span. Your proposal and presentation should specify which sector(s), groups of people, 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. See Appendix B for a list of relevant resources.

Judging: Refer to the judging rubric (see Appendix D) 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 e-mail Maggie Anderson (maanderson@nas.edu) before 9:00 am on Thursday, October 5, 2023. She will forward your question and the answer to all participating teams.

On the day of the presentation, October 6, please remember the following:

- Arrive at the National Academy of Sciences building (2101 Constitution Avenue, NW, Washington, DC; entrance on C Street) between 8:00 am and 8:30 am.
- The security guard will ask to see your ID and direct you Room 125 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 F 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 improve the health women experiencing homelessness in Washington, DC.

Funding Announcement and Specific Case Challenge

The Foundation for Sustainable Change for Women (FSCW) is thrilled to announce a Request for Proposals (RFP) for organizations working to improve the health and well-being of adult women who are or are at risk of experiencing homelessness in Washington, DC. FSCW is seeking evidence-based solutions to improve the physical and mental health and well-being of adult women (18 years or older) living in Washington, DC who are or are at risk of experiencing homelessness. The grant amount is \$1 million dollars, and the grant period is 2 years.

FSCW is particularly interested in innovative solutions geared to improve the health and well-being of adult women (including transgender women) and prevent the worsening of health conditions of the target population. Proposals with solutions designed for this population will be prioritized. Additionally, FSCW is particularly interested in funding solutions that work to improve both the physical and mental health and well-being of the target population.

Furthermore, proposals that include strategies geared to address more than two levels of the social ecological model (SEM) will be prioritized (e.g., improving access to affordable health care for these women while also advocating for policy changes to address homelessness). Proposals that include cross-sector collaboration will be viewed favorably.

The following are outside of the scope of this RFP and so will not receive funding:

- Solutions addressing male individuals experiencing homelessness.
- Solutions addressing families and/or children experiencing homelessness.
- Solutions focused on addressing domestic violence.
- Solutions only focused on addressing employment or poverty.

The Challenge

You are a team at an organization or coalition in Washington, DC focused on addressing the health issues of women experiencing homelessness. While your organization or coalition has a mission focused on improving the health and well-being of women, you might also have a broader mission. Your team is going to submit a proposal for a woman-focused sustainable solution to improve the health and well-being of adult women at risk of being homeless and/or experiencing homelessness in Washington, DC (see Footnote 1 for definitions). 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 2 weeks.

Housing: A Fundamental Human Right and Driver of Health

Everyone deserves to have stable housing. In 1948, adequate housing was recognized as part of the right to an adequate standard of living in Article 25 of the Universal Declaration of Human Rights (Office of the High Commissioner for Human Rights, n.d.). Adequate housing was once again recognized as a right in Article 11.1 of the 1966 International Covenant on Economic, Social, and Cultural Rights (Office of the High Commissioner for Human Rights, n.d.). The United Nations recognizes the right to adequate housing through four entitlements: security of occupancy; housing, land, and property restitution; equal and nondiscriminatory access to adequate housing; and participation in housing-related decision making at the national and community levels (Office of the High Commissioner for Human Rights, n.d.). Additional key elements to this right include the availability of services, materials, facilities, and infrastructure; affordability; habitability; and cultural adequacy (Office of the High Commissioner for Human Rights, n.d.).

Definitions of Homelessness

“Homeless” is defined “resid[ing] in emergency shelter, transitional housing, domestic violence shelters, runaway youth shelters, safe havens, or places not meant for human habitation such as streets, parks, alleys, abandoned buildings, and stairways” (Metropolitan Washington Council of Governments, 2023). **“Literally homeless”** refers to someone “experiencing homelessness... including the status of people in households without children, households without adults and children, and households with only children who may be sheltered or unsheltered” (Metropolitan Washington Council of Governments, 2023). Additional definitions of “homelessness”¹ are used

¹ “At risk of homelessness” involves an individual or family who 1) “Has an annual income below 40% of the median family income for the DC Metropolitan Area as determined by the U.S. Department of Housing and Urban Development” (Council of the District of Columbia, n.d.); 2) “Does not have sufficient resources or support networks immediately available to prevent them from moving to a shelter or another place” (Council of the District of Columbia, n.d.); 3) “Meets one of the following conditions: (1) Has moved housing accommodations because of economic reasons two or more times during the 60 days immediately preceding the application for crisis intervention assistance; (2) Is living in the home of another individual or family because of economic hardship; (3) Has been notified or can document that their right to occupy their current housing or living situation will be terminated; (4) Lives in a hotel or motel and the cost of stay is not paid by charitable organizations or by federal state, or local government programs for low-income individuals; (5) Lives in (i) A single-room occupancy or efficiency apartment unit in which there reside more than 2 persons; or (ii) A housing unit, as defined by the U.S. Census Bureau, in which there reside more than 1.5 people per room; (6) Is exiting a publicly funded institution or a publicly funded system of care; (7) Otherwise lives in housing that has characteristics associated with instability and an increased risk of homelessness, as identified in the District’s approved consolidated plan” (Council of the District of Columbia, n.d.). “Homeless under other federal statutes” encompasses individuals under 25 or families with Category 3 children and youth “who do not otherwise qualify as homeless under this definition but who: 1) “Are defined as homeless under other listed federal statutes” (U.S. Department of Housing and Urban Development [HUD], 2023); 2) “Have not had a lease, ownership interest in permanent housing during the 60 days prior to the homeless assistance” (HUD, 2023); 3) “Have experienced persistent instability as measured by two moves or more during the preceding 60 days” (HUD, 2023); 4) Can be expected to continue in such status for an extended period of time due to barriers or special needs” (HUD, 2023). Individuals “fleeing/attempting to flee domestic violence” includes “any individual or family who is fleeing or is attempting to flee domestic violence as well as has no other residence and lacks the resources or support networks to obtain other permanent housing (HUD, 2023). “Formerly experiencing homelessness” refers to individuals “having moved into permanent supportive housing, rapid rehousing, or other permanent housing immediately after an experience of homelessness” (Metropolitan Washington Council of Governments, 2023). This does not include individuals who secure permanent housing outside of the homelessness system, such as nonsubsidized apartments or rooms, a friend’s home, or a mainstream rental subsidy (Metropolitan Washington Council of Governments, 2023).

when conducting Annual Point-In-Time (PIT) Counts of Persons Experiencing Homelessness. These counts supply information on the number of unsheltered people in regions and how many people use winter shelters, year-round emergency shelters, safe havens, transition housing, and other permanent housing solutions (Metropolitan Washington Council of Governments, 2023).

Scope of Homelessness in the United States and Washington, DC

Homelessness is a national, state, and local public health issue affecting hundreds of thousands of U.S. people each year. HUD defines literal homelessness as people who are “experiencing homelessness, who may be sheltered or unsheltered” (Metropolitan Washington Council of Governments, 2023). In January 2022, HUD estimated 582,462 people, or roughly 18 out of every 10,000, were experiencing homelessness nationwide (National Alliance to End Homelessness, 2023); an estimated 22 percent are chronically homeless, 6 percent are veterans, and 5 percent are unaccompanied youth under 25 (National Alliance to End Homelessness, 2023).

While the amount of people experiencing homelessness has shrunk by 17 percent from 2007 to 2016, the impacts of COVID-19 led to a trend of annual increases. The DC homelessness count in 2023 is reported to be 8,944 individuals (Metropolitan Washington Council of Governments, 2023), which is an increase from 2022 (7,605).

Who Experiences Homelessness?

People who experience homelessness come from many different demographic and socioeconomic backgrounds. It is important to recognize their multiple, intersecting identities and consider the impact that identities such as race/ethnicity, veteran status, mobility, and age have on life experiences and health.

Although homelessness can affect anybody, in Washington, DC, it overwhelmingly affects Black people. According to the Community Partnership for the Prevention of Homelessness (2023), 87 percent of people experiencing homelessness in DC are Black or African American, although they represent only 47 percent of the overall population. The historical impact of U.S. racial segregation and discrimination continues to affect Black individuals and people of color, contributing to the racial disproportionality in homelessness (Metropolitan Washington Council of Governments, 2023). People of color often face disparities in areas such as economic mobility, housing, criminal justice, behavioral health, and family stabilization, all of which contribute to higher rates of homelessness (Metropolitan Washington Council of Governments, 2023). Across the United States, Black individuals account for 13 percent of the general population but 26 percent of those living in poverty and 40 percent of those experiencing homelessness (Metropolitan Washington Council of Governments, 2023).

Veterans are another relevant population, with an estimated count of 33,129 veterans experiencing homelessness in 2022 (National Alliance to End Homelessness, 2023). In 2022, veterans represented 6 and 4 percent of people experiencing homelessness nationally and in Washington, DC, respectively (Metropolitan Washington Council of Governments, 2023). In 2023, 327 veterans self-reported experiencing homelessness (Metropolitan Washington Council of

Governments, 2023). Notably, DC recorded the greatest reduction in veterans counted between 2019 and 2023 (79 fewer), followed by Prince George’s County in Maryland (20 fewer) and Fairfax County in Virginia (eight fewer) (Metropolitan Washington Council of Governments, 2023).

Additionally, **people 50 and older** make up more than 30 percent of the population experiencing homelessness (Nagourney, 2016) and are predicted to increase rapidly in the next decade (Culhane et al., n.d.). This growth can be attributed to the increasing number of those who either are chronically experiencing homelessness or do so for the first time later in life (Simmons University, n.d.). Health concerns, such as Alzheimer’s disease, cancer, and mobility issues, can have a great impact on morbidity and mortality, with the average life expectancy of a person experiencing homelessness being 42–52 years (Metropolitan Council of Governments, 2023).

Older adults in the Washington, DC region experiencing homelessness are prevalent. According to a 2023 HUD report, 219 adults aged 70 or older were experiencing homelessness, 32 of whom were over 80 (National Alliance to End Homelessness, 2023). At least another three reported being over 90, one of whom was unsheltered (Metropolitan Washington Council of Governments, 2023). This HUD data highlights the concern in the Washington Metropolitan Area of the “growing number of senior citizens facing a housing crisis and who are seeking emergency shelter” (Metropolitan Washington Council of Governments, 2023).

Family households comprise 33 percent of all people experiencing homelessness in the Washington, DC metropolitan area (Metropolitan Council of Governments, 2023), with 951 family households reported in 2023 compared to 761 in 2022 (Metropolitan Council of Governments, 2023). The age of adults in these families is estimated to be 25–34, compared to single adults, who are 45–54 (Metropolitan Council of Governments, 2023).

Children are a particularly vulnerable population; in Washington, DC, a reported 1,841 children make up 21 percent of the total population of persons experiencing homelessness (8,944) (Metropolitan Council of Governments, 2023). They can face adverse childhood experiences, including dislocation from familiar surroundings, relatives, friends, and neighborhood schools, when their family loses housing. Experiencing homelessness is associated with higher rates of poor nutrition, incidence of health impairments, exposure to violence, and severe emotional distress compared to children who are housed (Metropolitan Council of Governments, 2023). Additionally, schooling is often interrupted and/or delayed, which can double the likelihood of having a learning disability, repeating a grade, or being suspended (Metropolitan Council of Governments, 2023).

Single adults are much more likely to experience chronic homelessness, defined by the National Alliance to End Homelessness as “a person who has experienced homelessness for at least a year—or repeatedly—while struggling with a disabling condition such as a serious mental illness, substance use disorder, or physical disability” (Metropolitan Council of Governments, 2023). In Washington, DC, 19 percent of people experiencing homelessness were single adults; their incidence of chronic homelessness is nearly 10 percent higher than among all persons experiencing homelessness (Metropolitan Council of Governments, 2023). Six of nine jurisdictions in the DC, Maryland, and Virginia metropolitan area experienced a decrease in their chronic homelessness count since 2022, and four of nine noted reductions between 2019 and 2023 (Metropolitan Council of Governments, 2023); DC had the highest number of single adults by jurisdiction in 2023 (1,314) (Metropolitan Council of Governments, 2023).

Lesbian, gay, bisexual, transgender, and questioning (LGBTQ) youth and adults are also at particularly high risk for homelessness (National Academies of Sciences, Engineering, and

Medicine [NASEM], 2018). National data found that young people who identified as lesbian, gay, bisexual, or transgender (LGBT) were at greater than twice the risk compared to those who did not (Morton et al., 2018). As adults, individuals who identify as part of the LGBTQ population are twice as likely as the general population to experience homelessness during their life, and most of them first do so as an adult (Williams Institute, 2020). The Williams Institute (2020) conducted a study on homelessness among U.S. LGBTQ individuals and found that transgender individuals have a higher proportion of reports of recent homelessness compared to others, including cisgender individuals, and in the 12 months before being interviewed, about 8 percent of transgender individuals reported recent experiences of homelessness (Williams Institute, 2020).

Individuals with disabilities are disproportionately more likely to experience homelessness compared to individuals without disabilities (National Association of County and City Health Officials [NACCHO], 2019). An estimated 25 percent of U.S. individuals experiencing homelessness have a disability (NACCHO, 2019). This includes physical, intellectual, developmental, and mental disabilities and substance abuse disorders (SUDs) (NACCHO, 2019). Multiple factors contribute to people with disabilities experiencing homelessness. Societal factors include federal policies, such as wage regulation and the absence or lack of supplemental security income (NACCHO, 2019). Community factors include lack of accessibility in shelters and staff who are not properly trained to assist (NACCHO, 2019). Individuals with disabilities may also experience housing, wage, and/or employment discrimination, which can also lead to homelessness (NACCHO, 2019).

The Connection Between Housing and Health

Strong evidence characterizes the bidirectional relationship between housing and health. In 2018, the National Academies published the consensus study report *Permanent Supportive Housing: Evaluating the Evidence for Improving Health Outcomes Among People Experiencing Chronic Homelessness*, detailing health outcomes. The report highlights evidence that those who experience homelessness have a higher risk for infectious diseases, traumatic injuries, drug overdoses, violence, and death and notes that they face harsh weather, such as sun exposure, freezing temperatures, and rain, and lack of access to places to wash themselves and/or urinate and defecate (NASEM, 2018). Furthermore, individuals experiencing homelessness can lack access to refrigeration for storing food and medications and cooking facilities (NASEM, 2018).

Housing stability, quality, safety, and affordability all affect health outcomes, as do neighborhoods' physical and social characteristics (Taylor, 2018). These conditions can potentially detract from the "ability to achieve a state of complete physical, mental, and social well-being" (NASEM, 2018). A 1988 Institute of Medicine report on the connection between housing and health illustrates that the connection between homelessness and poor health has long been recognized.

Health Challenges Facing People Experiencing Homelessness in the United States and Washington, DC

People experiencing homelessness face a variety of health challenges, including chronic mental health conditions, substance use, human immunodeficiency virus (HIV), lung disease, wound and skin infections, malnutrition, poor sleep, chronic pain conditions, and cancer (National Library of Medicine, n.d.)

Mental Health Conditions

Mental health conditions can be initiated and/or exacerbated by being unable to find stable employment and/or confronting trauma or significant challenges, such as the daily threat of food insecurity (Thrive DC, 2022). In the United States, 45 percent of people experiencing homelessness in 2019 had a mental illness, compared to 4.2 percent of the general population (Park, n.d.). In Washington, DC, about 80 percent of people experiencing homelessness are diagnosed with a mental health condition, such as anxiety, bipolar disorder, or depression (Main, 2020). They may have barriers to accessing treatment due to limited health insurance coverage, and if they require regular mental health treatment, it can be difficult to consistently take and afford medications, attend and pay for therapy, or maintain consistency in treatment due to frequent shelter moves, further exacerbating their mental illness (Thrive DC, 2022).

Substance Use

People experiencing homelessness are at higher risk for substance use and misuse (Mosel, 2023). They also may not have access to SUD treatment or safe needle exchange programs; depending on their social support networks, and especially for those in recovery, it may be more challenging to abstain (Mosel, 2023). The U.S. opioid overdose-adjusted risk rate for homeless people is 1.8 percent versus 0.3 percent for low-income people who had housing (Mosel, 2023). According to the American Addiction Center, about one-third of the population experiencing homelessness has some drug and/or alcohol problems, with two-thirds having a lifelong history of drug or alcohol misuse or abuse (Mosel, 2023).

HIV

Individuals experiencing homelessness are exposed to multiple risk factors for HIV infection, such as exchanging sex for money, abusing alcohol or other drugs, and infrequent condom usage (Logan et al., 2013). An estimated 3.3 percent of U.S. persons experiencing homelessness have tested positive for HIV, compared to only 1.8 percent of those with stable housing (Thakrar et al., 2016). A longitudinal study conducted between 2015 and 2019 found that 32.1 percent of the 947 participants who were HIV positive reported they had experienced homelessness (Reddon et al., 2023). In Washington, DC, where approximately 2 percent of residents have HIV, 15.3 percent of these individuals have experienced homelessness (Aquino et al., 2021).

Lung Disease

Individuals who are homeless are more likely to develop respiratory diseases, such as asthma and COPD, due to higher likelihood of exposure to adverse environmental impacts/conditions and cigarette smoking (Snyder & Eisner, 2004; Sutherland et al., 2020). In addition, they are more likely to have tuberculosis compared with the general population (Sutherland et al., 2020). During the COVID-19 pandemic, people experiencing homelessness were more likely to contract the disease due to limited access to soap and water for hand washing, difficulty practicing social distancing, and an inability to self-quarantine and/or isolate, which may have amplified the spread of the disease and affected the health of their lungs (Sutherland et al., 2020). Additionally, an estimated 24, 19, and 4 percent of U.S. individuals experiencing homelessness have asthma, chronic bronchitis, or COPD, respectively (Snyder & Eisner, 2004).

Wounds and Skin Infections

Dermatologic and ectoparasitic conditions are a major physical health concern for people experiencing homelessness, who tend to have a higher rate of skin conditions and infections, such as abscesses, cellulitis, foot nail pathologies, foot infections, frostbite, scabies, pubic lice, head and body lice, and pediculosis corporis (Adly et al., 2021). Extreme poverty, poor living conditions (congestion in shelters or exposure to harsh living environment and extreme weather when living outside), lack of access to facilities for bathing and hygiene, challenges with adherence to medical recommendations, and stigmatization in healthcare settings all contribute to the risk for and complications of dermatologic conditions (Adly et al., 2021).

Malnutrition and Food Insecurity

Individuals experiencing homelessness encounter food insecurity and malnutrition at a higher rate than the general population (Fitzpatrick & Willis, 2021; Ijaz et al., 2018). Multiple factors contribute to this, including low income and extreme poverty, lack of access to places to store food, and limited knowledge of food choices (Ijaz et al., 2018). As noted, many people experiencing homelessness also engage in substance misuse, and excessive consumption of alcohol can contribute to poor absorption of nutrients, contributing to malnutrition (Ijaz et al., 2018). More than 38 million U.S. people experiencing homelessness suffer from food insecurity, lack of affordable food, and inadequate nutritional supplies (Move for Hunger, 2023). Despite no specific data available on the percentage of individuals experiencing homelessness in Washington, DC who are also food insecure, it is estimated that one-third of residents across the DMV region experienced some level of food insecurity in 2021 (Olson, 2022). Additionally, homelessness has risen in the past year in Washington, DC for the first time in 5 years, so it is important to consider the potential increase in malnutrition and/or food insecurity among this growing population (Cirruzzo, 2023; Metropolitan Council of Governments, 2023).

Sleep

As a result of increased stress, noisy environments, uncomfortable sleeping surfaces, weather conditions, pests, hunger, and fear of assault, many individuals experiencing homelessness sleep less than individuals with secure housing (Gonzalez, 2020). This translates to higher rates of fatigue, insomnia, and use of substances to fall asleep (Gonzalez, 2020). Long-term sleep deprivation can also exacerbate mental health issues, such as depression, and worsen productivity (Gonzalez, 2020; Reitzel, 2017). Despite minimal literature on the U.S. prevalence of sleep disturbances for this population, qualitative research suggests that lack of sleep plays a significant role in self-reported poor health (Chang, 2015).

Chronic Illness

The long-term effects of unmanaged chronic conditions can affect physical, mental, and social health (Harris & Wallace, 2012). Individuals experiencing homelessness may have a compound risk due to lack of support structures and inadequate access to health services (Martin, 2019). Literature suggests that they have less access to preventative care services and more exposure to adverse conditions compared to housed individuals, which are associated with increased risk of chronic conditions, such as cancer, chronic pain, and diabetes (Hwang, 2011; Martin, 2019). They also have higher rates of comorbidities and high-risk behaviors (e.g., tobacco use, unprotected sex), which can increase the risk of a sexually transmitted infection and/or chronic

condition, such as cervical or oral cancer (Baggett, 2015). U.S. studies have found that individuals experiencing homelessness have more advanced stages of cancer and poorer health outcomes compared to other adults (Concannon, 2020), and treatment delays for chronic conditions, such as cancer and pain, were more common due to lack of patient follow-up (Concannon, 2020; Martin, 2019; Hwang, 2011). Furthermore, environmental barriers, such as poor living conditions and an inability to afford medications, hinder successful management of chronic illness. Within Washington, DC and the surrounding region, reports have documented that chronic health concerns are an added difficulty for individuals experiencing homelessness (Metropolitan Washington Council of Governments, 2023).

Unique Health Challenges Facing Single Women Experiencing Homelessness in the United States and Washington, DC

As discussed, homelessness is an issue that can affect anyone. However, single women experiencing homelessness face additional unique health challenges, such as with personal safety and security, menstrual health and hygiene, and reproductive health.

Health and Personal Security

Women face numerous health difficulties when experiencing homelessness. Intimate partner and sexual violence are the leading cause of homelessness for women and families (American College of Obstetricians and Gynecologists [ACOG], 2021), and these women are more likely to experience violence than housed women due to lack of personal security (ACOG, 2021). Being unhoused can expose women to even more vulnerable situations, as strangers may attempt physical, verbal, or emotional assault (Career and Recovery Resources, 2023).

Menstrual Health and Hygiene

Maintaining proper hygiene and hand washing is an important part of women's health. For women experiencing homelessness, the continuous search for food, shelter, and basic resources is compounded by other health challenges, including maintaining preventative health screenings, prenatal care, and access to menstrual hygiene products and contraception. The average woman will spend about \$20 USD on hygiene products per menstrual cycle (Kim, 2021). For women residing in homeless shelters, the high cost of pads and tampons results in many shelters lacking these resources and women having insufficient supplies (Career and Recovery Resources, 2023). This can lead to overusing pads or tampons, which can have severe health consequences, such as toxic shock syndrome, a potentially life-threatening condition caused by specific bacteria strains that produce toxins (Berger et al., 2019). Similarly, makeshift hygiene products, such as toilet paper or other paper products, can expose women to harmful bacteria and unsanitary conditions, leading to yeast infections and urinary tract infections. Extending beyond the risk for infection and physical pain of cramping and bloating are the psychological effects. The inability to feel clean can leave many women feeling less than human, depressed, and vulnerable (Parrillo & Feller, 2017).

Chronic Illness and Disability

Women experiencing homelessness also face chronic illnesses, including asthma, anemia, bronchitis, hypertension, and ulcers (ACOG, 2021). The 2023 PIT count of people of all genders in DC listed several disabling conditions, including 28, 17, 15, and 13 percent reporting a mental health condition, substance abuse, a chronic health condition, or a physical disability, respectively (Metropolitan Washington Council of Governments, 2023). Multiple barriers prevent women from obtaining needed health care, with arguably the largest being a lack of or insufficient health insurance coverage (ACOG, 2021).

Reproductive Health

Women experiencing homelessness also face numerous barriers to reproductive health care and often struggle to obtain preventative care, such as prenatal checkups, mammograms, and Pap smears (Career and Recovery Resources, 2023). Their rate of unintended pregnancy is higher, with research showing 42 percent of sexually active women not using any form of birth control in the past 12 months (ACOG, 2021; Crawford et al., 2011). This may be due to women being forced to have sex, having limited access to contraceptives, and having access to contraceptives with high user-based failure rates (ACOG, 2021; Career and Recovery Resources, 2023).

Of the women experiencing homelessness who did use contraception, condoms were the most common, yet only one-third reported consistent use for vaginal intercourse (Crawford et al., 2011). As a result, women experience higher rates of poor health status, including poor birth outcomes and mortality. Women experiencing homelessness are 2.9 and 6.9 times more likely to have a preterm delivery and an infant with low birth weight (less than 2,000 grams), respectively, after adjusting for other risk factors, including age, number of previous pregnancies, and smoking (Crawford et al., 2011). Access to long-acting reversible contraceptives (such as IUDs) may be more limited, due to lack of health insurance (ACOG, 2013).

In addition to contraception, abortion services are an important part of healthcare (ACOG, n.d.). Several factors and reasons can influence or necessitate a woman's decision to seek out abortion services. According to the American College of Obstetricians and Gynecologists (n.d.), these include contraceptive failure, barriers to contraceptive use and access, rape, incest, intimate partner violence, fetal anomalies, illness during pregnancy, and exposure to teratogenic medications. Pregnancy complications include placental abruption, preeclampsia or eclampsia, and cardiac conditions, all of which can have severe consequences for health, resulting in abortion as a necessary life-saving option.

Access to abortion services has been limited to women experiencing homelessness, and since the June 2022 Supreme Court ruling against abortion as a constitutional right, barriers to these services in the United States and DC will persist (Guttmacher Institute, 2023; McGeough et al., 2020). One study found that up to 20 percent of women seeking abortions in a metropolitan city were experiencing homelessness (Orlando et al. 2020). Abortion is legal in Washington, DC at all stages of pregnancy, but Medicaid does not cover it save for life endangerment, rape, or incest. DC is also prevented from using local tax dollars to subsidize abortion services, which creates another financial barrier for low-income people.

Preventative Health Care

Breast cancer is the second most common cancer among U.S. women (after some kinds of skin cancer), and Black women have a higher mortality rate from breast cancer than White women (Centers for Disease Control and Prevention [CDC, 2023]). Screening through mammograms and/or ultrasounds is the best way to detect breast cancer early. The national average of having an up-to-date mammogram is 72.2 percent, but studies comparing low-income domiciled women and women experiencing homelessness in New York City found that rates within a 2-year period were 57.1 and 59 percent, respectively (Asgary et al., 2014), and 53 percent of these women did not know the results.

Human papillomavirus (HPV) infection causes 70 percent of cervical cancers in the United States but is preventable or treatable via Pap tests (Ma & Richardson, 2022). In 2020, approximately 20 percent of U.S. women aged 21–65 had not been screened for cervical cancer in the previous 3 years. Furthermore, disparities in accessing screening exist, including among the population experiencing homelessness, with Pap test rates of 54–55 percent among women experiencing homelessness (Asgary et al., 2016). Additionally, for these women, a history of childhood sexual abuse, substance misuse, and isolation from family and health systems all increase the risk for sexually transmitted infections, including HPV (Asgary et al., 2016).

According to ACOG, 57 percent of people experiencing homelessness do not have access to routine health care services, compared to 24 percent for low-income individuals and 19 percent for the general population (ACOG, 2013; Teruya et al., 2010). Several factors prevent women who are experiencing homelessness from accessing needed health care, including time dedicated to finding other resources, such as food, clothing, and shelter, and lack of health insurance and transportation. Under the Affordable Care Act, individuals who are at or below 138 percent of the federal poverty level qualify for Medicaid, but securing eligibility can be complicated (Substance Abuse and Mental Health Services Administration [SAMHSA], 2020). Language, literacy, transportation and securing personal identification can all be barriers to accessing health insurance. These women also face inadequate inpatient discharge planning, follow-up care, and limited access to community referral services. This is especially difficult for individuals who are pregnant or have chronic medical and mental health conditions.

Causes of Homelessness

Homelessness is a complex social issue with multiple underlying social and economic factors, and these are intimately intertwined (Mago et al., 2013; see Figure 1). These underlying factors include poor physical and mental health conditions and unemployment (Mago et al., 2013). As the cost of living increases, the ability to pay for daily living expenses becomes challenging, especially when wages are stagnant. Furthermore, it can be challenging for individuals to apply for a new job when they do not have a permanent address to include on their application.

Other causes include poverty—a main driver of homelessness—due to the inability to pay for basic expenses, such as food, health care, and education. The cost of housing and limited supply of affordable housing also contribute to homelessness. For example, the average house price is three times more than the median income. Therefore, people have fewer options, and it is harder to find a place to live. Deteriorating mental health conditions and SUDs are also contributing factors for many, so people without access to mental health and addiction treatment services are more likely to experience homelessness (Human Rights Careers, n.d.).

Racial inequality is also a root cause of homelessness. Long-standing historical and structural racism (from slavery to segregation to redlining) have blocked Black people and people of color from socioeconomic opportunities and interrupted and/or prevented generational wealth transfer. Other factors that have been linked to homelessness include domestic violence, family conflict, and systemic failures.

When people are trying to leave domestic violence situations (with the attendant economic and housing ramifications), they may end up living in temporary homeless shelters or on the streets. Finally, “systemic failure” refers to the failure of society to support those at risk of becoming homeless (Human Rights Careers, n.d.). Figure 1 shows other social factors related to homelessness (Mago et al., 2013).

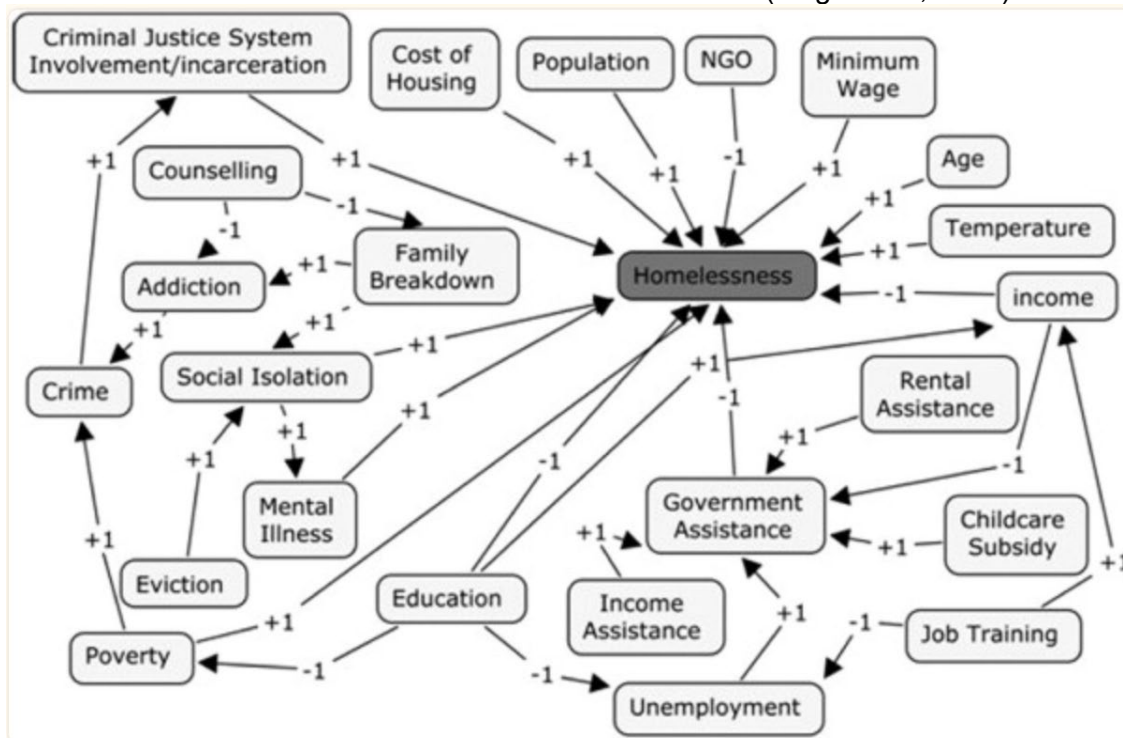


FIGURE 1: Virtual Common-Sense Map of Homelessness

NOTE: This figure illustrates the various factors that influence homelessness and how antecedent factors can positively (+1) or negatively (-1) influence consequent factors.

SOURCE: Mago et al. (2013); printed Under Creative Commons License

(<https://creativecommons.org/licenses/by/2.0/#>)

Individuals experiencing housing insecurities often have underlying health issues that are exacerbated by limited access to care. One study conducted in Washington, DC found that those with unstable housing had greater difficulty in accessing primary care services, behavioral health services, and other basic services compared to those with stable housing (Ruiz, 2022). Individuals experiencing homelessness had an increased risk for food insecurity, which is linked to a higher risk of health complications (Ruiz, 2022), such as chronic disease, infection, HIV infection, substance misuse, and poor mental health (Gilmer & Buccieri, 2020). Underserved populations, including individuals who use drugs and female sex workers, also have higher odds of these poor health outcomes and experiencing housing instability (Lim, 2019; Ruiz, 2022).

Lack of financial resources and unemployment can impact access to affordable health insurance and healthcare. This may lead to minor illnesses becoming severe conditions, which is compounded by inadequate resources and access to health care in populations experiencing homelessness. Literature suggests that housing instability in the Washington Metropolitan Area and access to free health resources have been impacted by gentrification, which has forced many individuals and small aid organizations to move due to high rent costs (Ruiz, 2022). Moreover, resource-scarce environments may impact an individual's ability to seek services.

Washington, DC Local Context

Demographics and Governance

As of 2022, Washington, DC has approximately 671,803 residents; 46.2 percent are White, 45.0 percent are Black, 11.7 percent are Hispanic or Latino, and 4.7 percent are Asian. Foreign-born residents represent 13.5 percent, and 17.3 percent of residents speak a language other than English in the home (U.S. Census Bureau, 2022). DC is divided into eight wards (see Figure 2), with each ward having 84,000–90,000 residents (Office of Planning, 2022). Each ward is subdivided into 46 units called “Advisory Neighborhood Commissions” (ANCs), served by commissioners elected by neighborhood voters. The goal of ANCs is to unify the voices of DC residents and create a liaison system to communicate residents' needs to local government (Office of Advisory Neighborhood Commissions, n.d.).

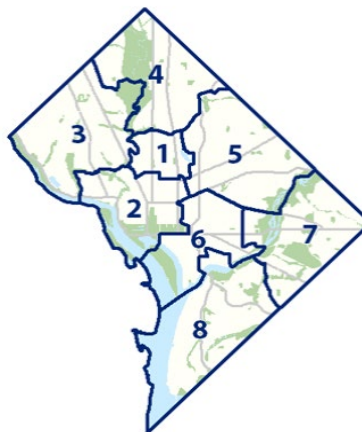


FIGURE 2. Map of DC Wards

SOURCE: Office of Planning (n.d.)

Income and Housing

The median household income is \$104,110, with differences by race and ethnicity: \$161,110 for White, \$122,201 for Asian, \$94,484 for Hispanic/Latino, \$54,401 for Black/African American, and \$50,611 for American Indian/Alaskan Native households. Additionally, an estimated 13,006 families are living below the poverty line (DC Health Matters, 2023).

DC contains approximately 360,890 housing units; 41.5 percent are owner occupied (U.S. Census

Bureau, 2022). The median mortgage cost and gross rent are \$2,751 and \$1,681, respectively (U.S. Census Bureau, 2022). In January 2021, the PIT count was 5,111. Of this group, 681 were sleeping outside and unsheltered. The survey indicated the following:

- 43.8 percent of adults have resided in an institutional setting, including incarceration.
- 40.6 percent of adults have a mental health condition.
- 21.6 percent of adults have a chronic health condition.
- 22.6 percent of adults have experienced domestic violence in their lifetime.
- 4.3 percent are veterans.
- 37.9 percent are experiencing chronic homelessness (Community Partnership for the Prevention of Homelessness, 2021).

Case Scenarios

Scenario 1: Sarah is a 27-year-old woman. She is originally from the Midwest and began experiencing homelessness at the start of the COVID-19 pandemic, due to losing her job and health insurance. After initially “couch-surfing” with friends and coworkers for a few months, she began living in a downtown Washington, DC housing encampment. She has been without housing and health insurance for several years. Sarah worries about her health and safety as a result of being homeless, particularly as she has gone months without necessary medication to treat her autoimmune condition, lupus nephritis.

Scenario 2: Jennifer, a 35-year-old trans woman, has been experiencing homelessness in DC for years, living in housing encampments and shelters, but is desperate to find stable, safer subsidized housing. At both the encampments and shelters, she was verbally, emotionally, and sexually abused by other residents and constantly taunted and shamed for being an out trans woman. Her wallet was stolen; it included her only form of identification, making it virtually impossible to get work. She is physically and mentally exhausted from living day to day this way, and she doesn’t know how much more she can take.

Scenario 3: Marie is a 78-year-old woman. Her husband, John, passed away from a heart attack 10 years ago. She doesn’t qualify for Social Security because, while she worked on and off throughout her life, it was more in the informal sector in jobs that did not withhold Social Security tax. Having had little money in retirement and barely any savings, Marie was left to rely on her \$500 a month disability check from a decades-old knee injury to survive. Eventually, she did not have enough to cover her rent and was evicted. She moved into a women’s shelter in Washington, DC but struggles to move around due to using a wheelchair. Additionally, due to the sometimes-chaotic conditions in the shelter, she feels vulnerable at times.

Scenario 4: Michelle is a 19-year-old college student who moved to Washington, DC and experiences episodic homelessness. Her college scholarship only covers enough for tuition and books, and she relies on her waitressing job for income and as her primary source of food and nutrition but does not receive any health care benefits because it is only part time. She is the daughter of a single mother who does not have health insurance, and the school health plan is too expensive. Most nights during the school year, she sleeps in her car or the school library, but the DC summer heat has made this living situation unsafe.

Key Public Health Frameworks

The following section describes four key frameworks: the SEM, social determinants of health (SDOH), housing first model, and public health approach. In its decision making, FSCW will favorably view proposals that apply one or more of these frameworks.

SEM

The SEM is a conceptual model that identifies a variety of influences that impact a person's health and well-being. It 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.

Individual Level: This level refers to an individual's demographics, personal experiences, knowledge, attitudes, beliefs, and behaviors surrounding the topic of interest. These attributes can shape health outcomes and decisions for an individual's health.

Interventions often emphasize educational strategies to improve knowledge, change attitudes, and increase self-efficacy. This sphere can be used to determine how an individual's personal beliefs or history impacts their health.

Interpersonal Level: This level refers to the relationships an individual has with others, including relationships with family members or peers and social networks. These relationships can affect an individual's attitudes and behaviors by motivating or hindering the uptake of specific health practices.

Interventions aim to influence and facilitate behavior change through a focus on shifting social and cultural norms, with a particular focus on a person's closest social network, often look like mentoring or peer-to-peer support programs, and may involve promoting positive peer norms.

Institutional Level: This level refers to the roles of institutions, such as local health departments, community organizations, health care systems, law enforcement, faith-based organizations, and other governmental agencies. Institutions often have their own institutional policies that can influence their effect on the public health challenge.

Interventions 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 Level: This level refers to the role of community organizations, the relationships between these organizations, and/or the settings in which social relationships occur (e.g., schools, workplaces, neighborhoods).

Interventions often focus on improving the physical and social environment in these settings (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 working to raise awareness and change community norms.

Public Policy Level: This level is the outermost circle; it refers to the role of local, state, and federal governments in supporting and enacting policies and laws to improve public health.

Efforts often involve advocacy and should focus on creating supportive conditions (legislative and otherwise) that allow for laws to pass. Impactful changes often address the root causes of and factors that systematically lead to issues (homelessness, lack of social support, criminalization, etc.).



FIGURE 3. Social Ecological Model

SOURCE: Aronica et al. (2019)

SDOH

SDOH are the nonmedical factors and conditions that influence health outcomes (Healthy People 2030, 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 (CDC, 2022; Healthy People 2030, n.d.). They 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 include safe housing, safe neighborhoods, educational attainment and income level, job opportunities, language and literacy skills, racism, discrimination, and violence, and access to transportation, affordable nutrient-dense foods, and affordable and quality physical and mental health care (Healthy People 2030, n.d.). Uneven access to SDOH contribute to a wide range of health disparities and inequities, which make them critical to address.

The Housing First Model

The housing first model prioritizes finding and securing permanent housing to allow people to achieve and improve their quality of life. Securing basic necessities, such as food, water, and

shelter, allows people to pursue other things that can greatly improve quality of life, such as steady employment and attending to substance use and mental health issues. The model also emphasizes that an individual's choice in housing can greatly improve their likelihood of remaining housed (National Alliance to End Homelessness, 2022).

The model does not require individuals to participate in programs that address behavioral health problems, employment, or SUD treatment or have prerequisites as a renter, allowing them to choose if and when they would like to participate. Programs that follow this model often provide rental assistance and can use two approaches: permanent supportive housing (PSH) or rapid rehousing. PSH is for individuals who experience long-term or repeated homelessness, which can include people with chronic illnesses, disabilities, mental health issues, or substance use issues. Rapid rehousing provides short-term rental assistance and case management; the goal is to help people obtain housing quickly (National Alliance to End Homelessness, 2022).

Participants in programs that employ this model are more likely to stay housed and less likely to report using stimulants or opiates (Davidson et al., 2014) or interact with the justice system regarding property offenses (Somers et al., 2013). These housing programs have also reported reduced hospital admissions for E.R. or sobering centers, saving over \$60,000 in costs per person per year (Srebnik et al., 2013).

The Public Health Approach

The public health approach uses 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 homelessness.² The following four steps make up the public health approach, accompanied with guiding questions (see Table 1).

Step 1: Define and Monitor the Problem

- Understand the “who,” “what,” “when,” “where,” and “how” associated with the **issue of homelessness**.
- Use recent population data to determine the magnitude of the issue—**demographic information of people experiencing homelessness, availability of housing**.

Step 2: Identify Risk and Protective Factors

- Identify what factors may increase or decrease the **likelihood of someone experiencing homelessness in Washington, DC**.
- Identifying risk factors or protective factors help determine where prevention efforts should be focused (**mental health status, substance use, etc.**).

Step 3: Develop and Test Prevention Strategies

- Design an evidence-based prevention strategy **specific to those in Washington, DC, taking into account DC governance, housing availability, etc.** Use knowledge from research literature, and data from needs assessments, community surveys, key collaborator interviews, and focus groups to design the prevention plan.
- Proposed plans should allow for rigorous evaluation to determine

² See <https://www.cdc.gov/violenceprevention/about/publichealthapproach.html> (accessed September 19, 2023).

effectiveness.

Step 4: Assure Widespread Adoption

- Strategies that have demonstrated effectiveness are implemented into broader target populations and contexts.
- Communities are encouraged to implement strategies based on the best available evidence and continuously assess if the strategy is a good fit for that community (National Center for Injury Prevention and Control, 2022).

The Public Health Approach	
Steps	Guiding Questions
1. Define and monitor the problem	<ul style="list-style-type: none"> • What problem do I want to prevent? • What data is available to describe the scope and burden of the problem? • Who is experiencing the problem? • How many people are affected by the problem? • When and where is the problem occurring?
2. Identify risk and protective factors	<ul style="list-style-type: none"> • What are the risk factors for the problem? • What are the protective factors for the problem?
3. Develop and test prevention strategies	<ul style="list-style-type: none"> • Do effective strategies exist based on the best available evidence? • If none exist, what resources do I need to develop a new strategy based on what was learned in Steps 1 and 2? • Where can I find research partners to help evaluate the selected strategy? • Is the strategy effective, feasible, and appropriate for the target population?
4. Assure widespread adoption	<ul style="list-style-type: none"> • Who would benefit from this strategy (parents, educators, policy makers, etc.)? • How do I get this strategy to the people who need it? • Where can I find assistance and support for implementing an effective strategy and ongoing monitoring and evaluation of the strategy?

Table 1. Guiding Questions for Using the Public Health Approach

NOTE: This table was adapted from the Public Health Approach to Violence Prevention from the National Center for Injury Prevention and Control (n.d.).

Washington, DC Organizations Working to Address Homelessness and/or Improve the Health and Well-Being of Women Experiencing Homelessness

To effectively develop a proposal for solutions to improve the health and well-being of women experiencing homelessness 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. Below are some examples of organizations that are addressing homelessness and expanding affordable housing and/or improving the health and well-being of unhoused people.

[N Street Village](#)

N Street Village is an organization based in Washington, DC and the largest provider of housing and essential services for women experiencing homelessness in the area (N Street Village, 2023). This organization offers housing support, advocacy, and other programs and services in an “atmosphere of dignity and respect” (N Street Village, 2023). It works to help women achieve stability by making meaningful progress in their housing, income, employment, mental and physical health, and addiction recovery goals (N Street Village, 2023).

[The Community Partnership for the Prevention of Homelessness](#)

Established in 1989, the Community Partnership for the Prevention of Homelessness is a nonprofit organization working to reduce and prevent homelessness in Washington, DC. It coordinates the city’s Continuum of Care on the city’s behalf; this includes establishing three components: outreach and assessment, transitional housing with support services, and permanent housing (Community Partnership for the Prevention of Homelessness, n.d.). In 2017, this organization worked with the Women's Task Force of the Interagency Council on Homelessness and published the 2017 DC Women's Needs Assessment Report (Community Partnership for the Prevention of Homelessness, n.d.).

[DC Coalition for the Homeless, Inc.](#)

Coalition for the Homeless, Inc. provides direct support and services through temporary housing, food case management, substance abuse counseling, and/or employment and housing placement assistance; its three goals are to 1) help individuals find permanent housing; 2) help individuals obtain employment; and 3) advocate for more affordable housing (Coalition for the Homeless, Inc., n.d.). In 2021, the coalition served 318 individuals, moved 133 into permanent housing, and secured employment for 21 (Coalition for the Homeless, Inc., n.d.).

[Pathways to Housing DC](#)

Pathways to Housing DC (n.d.) aims to dismantle structural racism and be guided by racial equity and social justice in fulfilling its Housing First model. That program requires coordinating multiple aspects—outreach, housing, health care, treatment, and case management—for individuals to be successful in recovery (Pathways to Housing DC, n.d.). Pathways provides stable, supportive housing using a client-centered approach and matches clients with a team of psychiatrists, nurses, social workers, certified addiction counselors, employment specialists, and/or peer health specialists; 900 clients have been housed since 2004 (Pathways to Housing DC, n.d.).

[DC Department of Human Services](#)

The DC Department of Human Services (DHS) provides multiple resources. The Coordinated

Assessment and Housing Placement program assists individuals and families in receiving housing referrals based on service needs and length of homelessness (DHS, n.d.). The Emergency Shelter program is available on a first-come, first-serve basis for adults in need of a safe place to sleep (DHS, n.d.). Day Centers provide safe places during the day to take care of needs and access services and support (DHS, n.d.). DHS (n.d.) runs several transitional and permanent housing programs, including Rapid Housing, Targeted Affordable Housing, and PSH.

Thrive DC

Initially started in 1979 as the Dinner Program for Homeless Women, Thrive DC (n.d.-a) partners with other nonprofits and government organizations to assist historically underserved and vulnerable populations with the goal of ending homelessness throughout the city. Thrive DC (n.d.-b) incorporates the values of listening and learning, respect and dignity, accountability, compassion, justice, and diversity into its work. Thrive DC (n.d.-c) services include mental health and substance abuse counseling, re-entry home from incarceration, employment coaching and training, and re-entry into transitional housing. Thrive DC (n.d.-c) has assisted over 3,000 clients, served over 28,000 meals, supplied over 40,000 toiletry and hygiene products, and supported 177 clients in sobriety with substance abuse classes.

Miriam's Kitchen

This organization uses a comprehensive approach to eliminating the housing crisis in Washington, DC in a variety of ways, including street outreach, providing healthy meals to food-insecure individuals, working to connect individuals with social services, including meals, access to bathrooms, clothing, toiletries, and connection to mental health services, and support to help individuals have access to PSH (Miriam's Kitchen, n.d.)

Friendship Place

Friendship Place provides housing services in the Washington, DC region using an empowerment model to help individuals rebuild their lives, find homes, get jobs, and recommend with family, friends, and the community. This includes a drop-in free clinic that provides medical and mental health care from a doctor, nurse, or psychiatrist (health insurance is not required) (Friendship Place, 2023).

Georgetown Street Medicine Outreach Group

This student-led initiative led by volunteer medical students assemble first aid kits, food, snacks, water, and local resources to be distributed to individuals experiencing homelessness. In this personal outreach, these medical students also gain insight about the range of health challenges facing these individuals (Georgetown University School of Medicine, 2022).

Appendix A: Acronyms and Initials

ANC	Advisory Neighborhood Commission
COVID-19	coronavirus disease 2019
FSCW	Foundation for Sustainable Change for Women
HUD	U.S. Department of Housing and Urban Development
LGBTQ+	lesbian, gay, bisexual, transgender, queer (or questioning), and other sexual identities

PIT	Point-in-Time
SDOH	social determinants of health
SEM	Social Ecological Model

Appendix B: Resources

National

Centers for Disease Control and Prevention
 Department of Health and Human Services
 Department of Housing and Urban Development
 Healthy People 2030
 HealthyWomen
 Human Rights Campaign
 Guttmacher Institute
 National Academies of Sciences, Engineering and Medicine
 National Institutes of Health
 National Women's Health Network
 Planned Parenthood
 Society for Women's Health Research
 World Health Organization
 United Nations Fund for Population Activities
 United Nations Women

DC, Maryland, Virginia

DC Coalition for the Homeless, Inc.
 DC Council
 DC Department of Health and Human Services
 DC Office of the City Administrator
 DC Office of Neighborhood Safety and Engagement
 DC Office of Planning
 DC State Data Center
 District Alliance for Safe Housing
 Friendship Place
 Georgetown Street Medicine Outreach Group
 Miriam's Kitchen
 N Street Village
 Pathways to Housing DC
 The Community Partnership for the Prevention of Homelessness
 Thrive DC
 The Women's Center

Appendix C: References

- Adly, M., Woo, T. E., Traboulsi, D., Klassen, D., & Hardin, J. (2021). Understanding dermatologic concerns among persons experiencing homelessness: A scoping review and discussion for improved delivery of care. *Journal of Cutaneous Medicine and Surgery*, 25(6), 616–626. <https://doi.org/10.1177/12034754211004558>
- American College of Obstetricians and Gynecologists. (n.d.). *Facts are important: Abortion is healthcare*. ACOG. <https://www.acog.org/advocacy/facts-are-important/abortion-is-healthcare>
- ACOG (American College of Obstetricians and Gynecologists). (2013). Committee Opinion No. 576: Health care for homeless women. *Obstetrics and Gynecology*, 122, 936–40. Retrieved August 31, 2023, from <https://www.acog.org/-/media/project/acog/acogorg/clinical/files/committee-opinion/articles/2013/10/health-care-for-homeless-women.pdf>
- ACOG. (2021). *Health Care for Homeless Women*. Retrieved on September 19, 2023 <https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2013/10/health-care-for-homeless-women#:~:text=Domestic%20and%20sexual%20violence%20is,fleeing%20domestic%20violence%207%208>.
- Aquino, G., Byrne, M., Dorsey, K., Siegel, M., Mitchell, O., Grant, S., Fox, A., Lum, G., Allston, A., Monroe, A., & Doshi, R. (2021). Examining retention in HIV care and HIV suppression on housing services intake at a Washington, DC community based organization. *Journal of Community Health*, 46(5), 861–868. <https://doi.org/10.1007/s10900-020-00959-w>
- Aronica, K., Crawford, E., Licherdel 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/>
- Asgary, R., Garland, V., & Sckell, B. (2014). Breast cancer screening among homeless women of New York City shelter-based clinics. *Women's Health Issues*, 24(5), 529–534. <https://doi.org/10.1016/j.whi.2014.06.002>
- Asgary, R., Alcabas, A., Feldman, R., Garland, V., Naderi, R., Ogedegbe, G., & Sckell, B. (2016). Cervical cancer screening among homeless women of New York City shelters. *Maternal and Child Health Journal*, 20(6), 1143–1150. <https://doi.org/10.1007/s10995-015-1900-1>
- Baggett, T. P., Chang, Y., Pornela, B. C., Bharel, M., Singer, D. E., & Rigotti, N. A. (2015). Disparities in cancer incidence, stage, and mortality at Boston Health Care for the Homeless Program. *American Journal of Preventive Medicine*, 49(5), 694–702. <https://doi.org/10.1016/j.amepre.2015.03.038>
- Berger, S., Kunerl, A., Wasmuth, S., Tierno, P., Wagner, K., & Brügger, J. (2019). Menstrual toxic shock syndrome: Case report and systematic review of the literature. *The Lancet Infectious Diseases*, 19(9), e313–e321. [https://doi.org/10.1016/S1473-3099\(19\)30041-6](https://doi.org/10.1016/S1473-3099(19)30041-6)
- Career and Recovery Resources, Inc. (2023). *Unique challenges of women experiencing homelessness*. Retrieved August 30, 2023, from <https://www.careerandrecovery.org/unique-challenges-of-women-experiencing-homelessness/>
- Centers for Disease Control and Prevention. (2023, June 8). *Breast cancer statistics*. Breast cancer. Retrieved July 15, 2023, from <https://www.cdc.gov/cancer/breast/statistics/index.htm>
- Chang, H. L., Fisher, F. D., Reitzel, L. R., Kendzor, D. E., Nguyen, M. A., & Businelle, M. S. (2015). Subjective sleep inadequacy and self-rated health among homeless adults. *American Journal of Health Behavior*, 39(1), 14–21. <https://doi.org/10.5993/AJHB.39.1.2>
- Cirruzzo, C. (2023, May 11). *Report: Homelessness up in D.C. region for the first time in years*. Axios. Retrieved July 30, 2023, from <https://www.axios.com/local/washington-dc/2023/05/11/dc-homeless-count-how-many>
- Coalition for the Homeless. (n.d.) *Helping to end homelessness in D.C.* Retrieved August 25, 2023, from

- <https://dccfh.org>.
- Community Partnership for the Prevention of Homelessness. (n.d.). *About TCP*.
<https://community-partnership.org/about/>
- Community Partnership for the Prevention of Homelessness. (2021). *Homelessness in the District of Columbia*. <https://community-partnership.org/wp-content/uploads/2021/06/Homelessness-in-the-District-of-Columbia-4.27.21.pdf>
- Community Partnership for the Prevention of Homelessness. (2023). Homelessness In DC.
<https://community-partnership.org/homelessness-in-dc/>
- Concannon, K. F., Thayer, J. H., Wu, Q. V., Jenkins, I. C., Baik, C. S., & Linden, H. M. (2020). Outcomes among homeless patients with non-small-cell lung cancer: A county hospital experience. *JCO Oncology Practice*, 16(9), e1004–e1014. <https://doi.org/10.1200/JOP.19.00694>
- Council of the District of Columbia. (n.d.). *Code of the District of Columbia: § 4–751.01. Definitions*. Retrieved August 31, 2023, from <https://code.dccouncil.gov/us/dc/council/code/sections/4-751.01>
- Crawford, D. M., Trotter, E. C., Hartshorn, K. J., & Whitbeck, L. B. (2011). Pregnancy and mental health of young homeless women. *The American Journal of Orthopsychiatry*, 81(2), 173–183.
<https://doi.org/10.1111/j.1939-0025.2011.01086.x>
- Culhane, D., Tregila, D., Byrne, T., Metraux, S., Kuhn, R., Doran, K., Johns, E., and Schretzman, M. (n.d.). *The emerging crisis of aged homelessness: Could housing solutions be funded by avoidance of excess shelter, hospital, and nursing home costs?* <https://aisp.upenn.edu/wp-content/uploads/2019/01/Emerging-Crisis-of-Aged-Homelessness.pdf>
- Davidson, C., Neighbors, C., Hall, G., Hogue, A., Cho, R., Kutner, B., & Morgenstern, J. (2014). Association of housing first implementation and key outcomes among homeless persons with problematic substance use. *Psychiatric Services*, 65(11), 1318–1324. <https://doi.org/10.1176/appi.ps.201300195>
- DC Health Matters. (2023, March). *2023 Demographics, summary data for city: District of Columbia*. Retrieved July 20, 2023, from <https://www.dchealthmatters.org/index.php?module=demographicdata&controller=index&action=index>
- District of Columbia Department of Human Services. (n.d.). *Services for individuals experiencing homelessness*. Retrieved July 14, 2023, from <https://dhs.dc.gov/page/services-individuals-experiencing-homelessness>
- Fitzpatrick, K. M., & Willis, D. E. (2021). Homeless and hungry: Food insecurity in the land of plenty. *Food Security*, 13(1), 3–12. <https://doi.org/10.1007/s12571-020-01115-x>
- Friendship Place (2023). *About us*. Retrieved August 31, 2023, from <https://friendshipplace.org/who-we-are/about-us/>
- Georgetown University School of Medicine. (2022, June 10). *Georgetown Street Medicine Outreach Group seeks to better understand health challenges of DC's unhoused people*. <https://som.georgetown.edu/news-stories/georgetown-street-medicine-outreach-group-seeks-to-better-understand-health-challenges-of-the-dc-unhoused/>
- Gilmer, C., & Buccieri, K. (2020). Homeless patients associate clinician bias with suboptimal care for mental illness, addictions, and chronic pain. *Journal of Primary Care & Community Health*, 11. <https://doi.org/10.1177/2150132720910289>
- Gonzalez, A., & Tyminski, Q. (2020). Sleep deprivation in an American homeless population. *Sleep Health*, 6(4), 489–494. <https://doi.org/10.1016/j.sleh.2020.01.002>
- Guttmacher Institute. (2023, July 26). *An overview of abortion laws*. Retrieved August 25, 2023, from <https://www.guttmacher.org/state-policy/explore/overview-abortion-laws>
- Harris, J. R., & Wallace, R. B. (2012). The Institute of Medicine's new report on living well with chronic illness. *Preventing Chronic Disease*, 9: 120126. <http://dx.doi.org/10.5888/pcd9.120126>
- Healthy People 2030. (n.d.). *Social Determinants of Health*. Retrieved August 31, 2023, from <https://health.gov/healthypeople/priority-areas/social-determinants-health>
- Human Rights Careers. (n.d.). *10 Root causes of homelessness*. Retrieved July 31, 2023, from <https://www.humanrightscareers.com/issues/root-causes-of-homelessness/>
- Hwang, S. W., Wilkins, E., Chambers, C., Estrabillo, E., Berends, J., & MacDonald, A. (2011). Chronic pain among homeless persons: Characteristics, treatment, and barriers to management. *BMC Family Practice*, 12, 73. <https://doi.org/10.1186/1471-2296-12-73>

- Ijaz, S., Thorley, H., Porter, K., Fleming, C., Jones, T., Kesten, J., Mamluk, L., Richards, A., Marques, E. M. R., & Savović, J. (2018). Interventions for preventing or treating malnutrition in homeless problem-drinkers: A systematic review. *International Journal for Equity in Health*, 17, 8. <https://doi.org/10.1186/s12939-018-0722-3>
- Institute of Medicine. 1988. *Homelessness, Health, and Human Needs*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/1092>.
- Kim. (2021, January 22). *Female homelessness and period poverty—National Organization For Women*. Retrieved August 31, 2023, from <https://now.org/blog/female-homelessness-and-period-poverty/>
- Lim, S., Park, J. N., Kerrigan, D. L., & Sherman, S. G. (2019). Severe food insecurity, gender-based violence, homelessness, and HIV risk among street-based female sex workers in Baltimore, Maryland. *AIDS and Behavior*, 23(11), 3058–3063. <https://doi.org/10.1007/s10461-019-02643-0>
- Logan, J. L., Frye, A., Pursell, H. O., Anderson-Nathe, M., Scholl, J. E., & Korthuis, P. T. (2013). Correlates of HIV risk behaviors among homeless and unstably housed young adults. *Public Health Reports*, 128(3), 153–160
- Ma, Z. Q., & Richardson, L. C. (2022). Cancer screening prevalence and associated factors among U.S. adults. *Preventing Chronic Disease*, 19, E22. <https://doi.org/10.5888/pcd19.220063>
- Mago, V. K., Morden, H. K., Fritz, C., Wu, T., Namazi, S., Geranmayeh, P., Chattopadhyay, R., & Dabbaghian, V. (2013). Analyzing the impact of social factors on homelessness: A fuzzy cognitive map approach. *BMC Medical Informatics and Decision Making*, 13, 94. <https://doi.org/10.1186/1472-6947-13-94>
- Main, C. (2020, January 15). *D.C.'s homeless receive more mental health help, but housing remains elusive*. Retrieved August 31, 2023, from <https://capitalandmain.com/washingtons-homeless-receive-more-mental-health-help-0115>
- Martin, P., Liaw, W., Bazemore, A., Jetty, A., Petterson, S., & Kushel, M. (2019). Adults with housing insecurity have worse access to primary and preventive care. *Journal of the American Board of Family Medicine*, 32(4), 521–530. <https://doi.org/10.3122/jabfm.2019.04.180374>
- McGeough, C., Walsh, A., & Clyne, B. (2020). Barriers and facilitators perceived by women while homeless and pregnant in accessing antenatal and or postnatal healthcare: A qualitative evidence synthesis. *Health & Social Care in the Community*, 28(5), 1380–1393. <https://doi.org/10.1111/hsc.12972>
- Metropolitan Washington Council of Governments. (2023). *Homelessness in Metropolitan Washington: Results and analysis from the annual point-in-time (PIT) count of persons experiencing homelessness*. Retrieved August 31, 2023, from <https://www.mwcog.org/documents/2023/05/10/homelessness-in-metropolitan-washington-results-and-analysis-from-the-annual-point-in-time-pit-count-of-persons-experiencing-homelessness-featured-publications-homelessness/>
- Miriam's Kitchen. (n.d). *The MK Mission*. Retrieved July 22, 2023, from <https://www.miriamskitchen.org/>
- Morton, M. H., Dworsky, A., Matjasko, J. L., Curry, S. R., Schlueter, D., Chávez, R., & Farrell, A. F. (2018). Prevalence and correlates of youth homelessness in the United States. *The Journal of Adolescent Health* 62(1), 14–21. <https://doi.org/10.1016/j.jadohealth.2017.10.006>
- Mosel, S. (2023, May 23). *Substance abuse & homelessness: Statistics & rehab treatment*. American Addiction Centers. Retrieved July 14, 2023, from <https://americanaddictioncenters.org/rehab-guide/homeless>
- Move for Hunger. (2023). *About hunger and homelessness*. Retrieved July 14, 2023, from <https://moveforhunger.org/hunger-and-homelessness>
- Nagourney, A. (2016, May 31). Old and on the street: The graying of America's homeless. *The New York Times*. http://www.nytimes.com/2016/05/31/us/americas-aging-homeless-old-and-on-the-street.html?_r=1
- National Academies of Sciences, Engineering, and Medicine. (2018). *Permanent supportive housing: Evaluating the evidence for improving health outcomes among people experiencing chronic homelessness*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25133>
- National Alliance to End Homelessness. (2022, March 20). *Housing first*. Retrieved August 31, 2023, from <https://endhomelessness.org/resource/housing-first/>
- National Alliance to End Homelessness. (2023, May 23). *State of homelessness: 2023*

- edition. *National Alliance to End Homelessness*. Retrieved August 31, 2023, from <https://endhomelessness.org/homelessness-in-america/homelessness-statistics/state-of-homelessness/#homelessness-in-2022>
- National Association of County and City Health Officials. (2019). *Homelessness among individuals with disabilities: Influential factors and scalable solutions*. Retrieved August 31, 2023, from <https://www.naccho.org/blog/articles/homelessness-among-individuals-with-disabilities-influential-factors-and-scalable-solutions>
- National Center for Injury Prevention and Control. (n.d.). *The public health approach to violence prevention*. Centers for Disease Control and Prevention. https://www.cdc.gov/violenceprevention/pdf/PH_App_Violence-a.pdf
- National Library of Medicine. (n.d.). *Homelessness and health*. Retrieved July 14, 2023, from <https://medlineplus.gov/homelessnessandhealth.html>
- N Street Village. (2023). *About the Village*. Retrieved August 29, 2023, from <https://www.nstreetvillage.org/about/>
- Office of Advisory Neighborhood Commissions. (n.d.) *About ANCs*. DC.gov. Retrieved August 31, 2023, from <https://anc.dc.gov/page/about-ancs#:~:text=The%20ANCs%20were%20established%20to,proliferation%20of%20special%20advisory%20groups>
- Office of Planning. (n.d.). What's my ward? DC.gov. Retrieved August 31, 2023, from <https://planning.dc.gov/whatsmyward>
- Office of Planning. (2022). *Maps of the wards of the District of Columbia*. DC.gov. Retrieved August 31, 2023, from <https://planning.dc.gov/maps-wards-2022>
- Office of the High Commissioner for Human Rights. (n.d.). *The human right to adequate housing: Special rapporteur on the right to adequate housing*. Retrieved July 14, 2023, from <https://www.ohchr.org/en/special-procedures/sr-housing/human-right-adequate-housing#:~:text=The%20right%20to%20adequate%20housing%20in%20human%20Rights%20law,Economic%2C%20Social%20and%20Cultural%20Rights>
- Olson, L. (2022, June 16). *Hunger Report 2022: 1 in 3 faced food insecurity across region last year*. Capital Area Food Bank. <https://www.capitalareafoodbank.org/blog/2022/06/16/hunger-report-2022/>
- Orlando, M. S., Vable, A. M., Holt, K., Wingo, E., Newmann, S., Shapiro, B. J., Borne, D., Drey, E. A., & Seidman, D. (2020). Homelessness, housing instability, and abortion outcomes at an urban abortion clinic in the United States. *American Journal of Obstetrics and Gynecology*, 223(6), 892.e1–892.e12. <https://doi.org/10.1016/j.ajog.2020.07.002>
- Park, K. (n.d.) *Barriers those in homelessness face when accessing mental health care. The HomeMore Project*. Retrieved July 14, 2023, from <https://thehomemoreproject.org/blog/barriers-those-in-homelessness-face-when-accessing-mental-health-care>
- Parrillo, A., & Feller, E. (2017). Menstrual hygiene plight of homeless women, a public health disgrace. *Rhode Island Medical Journal*, 100(12), 14–15.
- Pathways to Housing DC. (n.d.). *About us*. Retrieved August 31, 2023, from <https://pathwaystohousingdc.org/about-us/>
- Reddon, H., Fairbairn, N., Grant, C., & Milloy, M.J. (2023). Experiencing homelessness and progression through the HIV cascade of care among people who use drugs. *AIDS (London, England)*, 37(9), 1431–1440. <https://doi.org/10.1097/QAD.0000000000003570>
- Reitzel, L. R., Short, N. A., Schmidt, N. B., Garey, L., Zvolensky, M. J., Moisiuc, A., Reddick, C., Kendzor, D. E., & Businelle, M. S. (2017). Distress tolerance links sleep problems with stress and health in homeless. *American Journal of Health Behavior*, 41(6), 760–774. <https://doi.org/10.5993/AJHB.41.6.10>
- Ruiz, M. S., Williams, A., O'Rourke, A., MacIntosh, E., Moné, S., & Clay, C. (2022). The impact of housing insecurity on access to care and services among people who use drugs in Washington, DC. *International Journal of Environmental Research and Public Health*, 19(13), 7561. <https://doi.org/10.3390/ijerph19137561>
- Snyder, L. D., & Eisner, M. D. (2004). Obstructive lung disease among the urban homeless. *Chest*, 125(5), 1719–1725. <https://doi.org/10.1378/chest.125.5.1719>

- Somers, J. M., Rezanoff, S. N., Moniruzzaman, A., Palepu, A., & Patterson, M. (2013). Housing First reduces re-offending among formerly homeless adults with mental disorders: Results from a randomized controlled trial. *PLoS One*, 8(9), e72946. <https://doi.org/10.1371/journal.pone.0072946>
- Srebnik, D., Connor, T., & Sylla, L. (2013). A pilot study of the impact of housing first-supported housing for intensive users of medical hospitalization and sobering services. *American Journal of Public Health*, 103(2), 316–321. <https://doi.org/10.2105/ajph.2012.300867>
- Substance Abuse and Mental Health Services Administration. (2020, May 4). *Health financing's impact on behavioral health and homelessness*. <https://www.samhsa.gov/homelessness-programs-resources/hpr-resources/health-financing-impact-homelessness>
- Sutherland, H., Ali, M. M., & Rosenoff, E. (2020, June 24). *Individuals experiencing homelessness are likely to have medical conditions associated with severe illness from COVID-19 issue brief*. Office of the Assistant Secretary for Planning and Evaluation. <https://aspe.hhs.gov/reports/individuals-experiencing-homelessness-are-likely-have-medical-conditions-associated-severe-illness-0>
- Taylor, L. (2018, June 7). Housing and health: An overview of the literature. *Health Affairs Health Policy Brief*. <https://doi.org/10.1377/hpb20180313.396577>
- Teruya, C., Longshore, D., Andersen, R. M., Arangua, L., Nyamathi, A., Leake, B., & Gelberg, L. (2010). Health and health care disparities among homeless women. *Women & Health*, 50(8), 719–736. <https://doi.org/10.1080/03630242.2010.532754>
- Thakrar, K., Morgan, J. R., Gaeta, J. M., Hohl, C., & Drainoni, M. L. (2016). Homelessness, HIV, and incomplete viral suppression. *Journal of Health Care for the Poor and Underserved*, 27(1), 145–156. <https://doi.org/10.1353/hpu.2016.0020>
- Thrive DC. (n.d.-a). *About us: Our story*. Retrieved August 30, 2023, from <https://www.thrivedc.org/aboutus/>
- Thrive DC. (n.d.-b). *Values*. Retrieved August 30, 2023, from <https://www.thrivedc.org/aboutus/>
- Thrive DC. (n.d.-c). *What we do: Wrap-around services*. Retrieved August 31, 2023, from <https://www.thrivedc.org/ourwork/>
- Thrive DC. (2022, October 6). Barriers to care: Mental health in the unhoused community. <https://www.thrivedc.org/barriers-to-care-mental-health-in-the-unhoused-community/>
- U.S. Census Bureau. (2022). *QuickFacts District of Columbia*. U.S. Department of Commerce. Retrieved August 31, 2023, from <https://www.census.gov/quickfacts/fact/table/DC/HSG495221#HSG495221>
- U.S. Department of Housing and Urban Development. (2023). *Category 2: Imminent risk of homelessness*. Hudexchange.info. Retrieved August 31, 2023 from, <https://www.hudexchange.info/homelessness-assistance/coc-esg-virtual-binders/coc-esg-homeless-eligibility/four-categories/category-2/>
- Williams Institute. (2020). *Homelessness among LGBT adults in the U.S.* Retrieved August 30, 2023, from <https://williamsinstitute.law.ucla.edu/publications/lgbt-homelessness-us/>

Appendix D: Judging Rubric

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

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

	Poor	Acceptable	Very Good	Outstanding	Comments
Analysis of Problem/Challenge					
<ul style="list-style-type: none"> ● Astute synthesis of problem ● Identification of key issues 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Appropriateness/Justification of Solution					
<ul style="list-style-type: none"> ● 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 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Acceptability/Uptake of Solution*					
<ul style="list-style-type: none"> ● Acceptability to relevant DC-area stakeholders ● Cultural acceptability ● Social/behavioral considerations 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Implementation Considerations*					
<ul style="list-style-type: none"> ● Implementation plan ● Timeline and budget ● Feasibility (budget and other resources, time frame, leverages local partners/resources, logistical/infrastructure constraints) ● Monitoring and evaluation plan 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Potential for Sustainability*					
<ul style="list-style-type: none"> ● 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) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Interdisciplinary/Multisectoral#					
<ul style="list-style-type: none"> ● Use of collaborations/interactions among disciplines and/or sectors 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Teamwork#					
<ul style="list-style-type: none"> ● Engagement of whole team in preparation and/or presentation ● Clear team understanding and use of each other's roles and expertise 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Presentation Delivery					
<ul style="list-style-type: none"> ● Clarity of content and logic of flow ● Time management ● Audience engagement 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

● Visual aesthetic					
● Professionalism, poise, and polish					
Questions and Answers					
● Clarity and thoughtfulness of responses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
● Ability to draw from evidence					

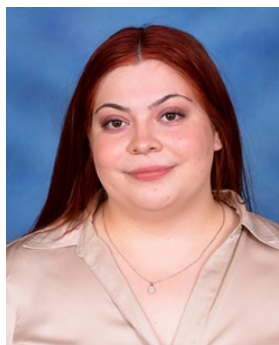
Appendix E: Case-Writing Team Biographies

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 M.P.H. (case-writing team lead) is a 3rd-year public health doctoral candidate at George Washington University; her dissertation is focused on evaluating means restriction efforts as a population-level strategy to prevent jumping suicides. She is also works full time as the associate director for the Skorton Center for Health Initiatives at Cornell University. 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 student team leader for George Washington University's team in the DC Public Health Case Challenge, which won the 2022 Grand Prize.

"It has been an honor to serve as the team lead for the case-writing team for 2023!"

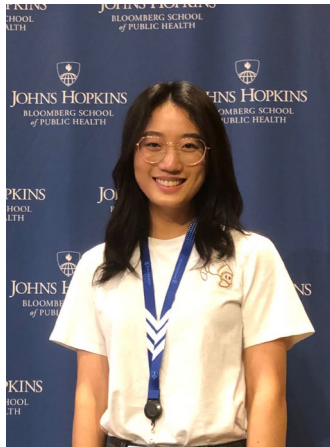


Belen Avelar is a 1st-year Ph.D. student in the Molecular Medicine program at the University of Maryland, Baltimore. She is hoping to join a research lab next year that studies the role of impaired muscle metabolism in various physiological diseases. She graduated from the University of Maryland, College Park with a B.S. in kinesiology in 2021. She joined the Science Training for Advancing Biomedical Research Post-Baccalaureate Research Education Program at UMB, where she studied the role of herbal supplements in aiding immune responses against ovarian cancer. She was a member of the UMB team in the 2022 DC Public Health Case Challenge, which won the Wildcard prize.



Carolyn Faith Hoffman, M.P.H., is a 3rd-year doctoral student in health services research at George Mason University. She serves as a graduate research assistant in the Department of Health Administration and Policy in the College of Public Health, where her research is concentrated on individuals with disabilities and the rural–urban divide. She is working on her dissertation proposal, which is focused on potential disparities in endometriosis diagnoses, pain management, and health insurance use between rural- and urban-dwelling U.S. women. She graduated with a B.A. from the Pardee School of Global Studies at Boston University in 2019 and an M.P.H. from the Boston University School of Public

Health with a functional certificate in health policy and law in 2020. Before beginning her Ph.D. in 2021, she served as a volunteer for AmeriCorps VISTA, 2020–2021. She was a member of the George Mason University team in the 2022 DC Public Health Case Challenge.



Yongyi Lu is a 2nd-year master’s student in population, family, and reproductive health at the Johns Hopkins Bloomberg School of Public Health, where she also holds a certificate in maternal and child health. She also works as a graduate research assistant with Performance Monitoring for Action at Johns Hopkins. She graduated from American University with a B.A. in public health in 2021. She was a member of the American University team for the 2021 DC Public Health Case Challenge.



Carrigan Rice is a 4th-year global health undergraduate student in the School of Health at Georgetown University. She has done research on health policy surrounding neglected tropical diseases, health equity and access, and population health. She has also worked as a teaching assistant for the School of Health’s Human Biology course. She volunteers as an EMT in Montgomery County and at Joseph’s House. In 2022, she was a member of Georgetown’s Wildcard prize–winning team in the DC Public Health Case Challenge.



Remle Scott, M.P.H., is a 3rd-year public health doctoral candidate at the 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.

F: Guide for Student Teams and Advisors

The National Academies of Sciences, Engineering, and Medicine will host the tenth annual DC Public Health Case Challenge on Friday, October 6, 2023, 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 DC-area community and to 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 Baciú (abaciú@nas.edu)

Case-Writing Team

Laura Santacrose (George Washington University, case lead)

Belen Avelar (University of Maryland, Baltimore)

Carolyn Hoffman (George Mason University)

Yongyi Lu (American University)

Carrigan Rice (Georgetown University)

Remle Scott (U.S. Naval Academy)

Theme

The broad topic of this year's case is *Women's Health*.

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.
- A orientation **webinar** will be offered to all students who will be competing (advisors are also welcome to tune in). 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. The webinar will take place from 12:00 to 1:00 pm ET on Thursday, September 21.

- **Student teams** will be provided with a case that is based on a real-life public health challenge faced by individuals and organizations in the DC area. Teams will be given 2 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 2013-2021 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 9** 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, and beyond. See <https://nam.edu/events/> for more information.
 - *Advanced registration for the NAM meeting is required for those interested in attending; information will be sent to the teams in September.*
- **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, ITIN (tax ID), or a university able to accept the prize on a student's behalf.

Timeline

Please note that the timelines are firm.

- **Friday, September 8:** Deadline for universities to confirm participation (please email Maggie Anderson at maanderson@nas.edu).
- **Monday, September 18 (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).

- **Thursday, September 21, 12:00 to 1:00 pm:** A one-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 webinar provides a primer on upstream, evidence-based policy solutions for public health issues, an overview of the Case Challenge process, and Q&A.
- **Thursday, September 21 at 1:00 pm:** Case is released.
- **September 21–October 5:** Teams develop their solution to the case.
- **Friday, October 6:** 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 9:** NAM annual meeting where all teams will have the opportunity to attend the meeting and present their solutions at a poster session.

Getting to the National Academy of Sciences Building

The National Academy of Sciences (NAS) building is located at **2101 Constitution Avenue, NW, Washington, DC** and accessible by car or metro.

Driving to the NAS building: Limited visitor parking is available within the building's main parking lot. To park for free, tell the garage attendant that you are participating in the Case Challenge and provide your name and license plate number. Street parking is also available at normal DC rates.

Taking the Metro: The closest metro station is Foggy Bottom, located along the blue and orange lines. Upon exiting the metro, head South on 23rd Street, NW. Walk for about half a mile. Turn left onto C Street, NW (before Constitution Avenue, NW), and walk on the side of the street opposite the State Department. The NAS Building will be the second on your right, after you pass 22nd St NW, which is closed to traffic.

Upon entering the building, you will need to present a photo ID to the guard at the front desk. Proceed to Room 120 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 to get to know each other, look at examples from previous case competitions (<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 2 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 2 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 5.

- Teams should not discuss their case presentations or case content with other teams during the Case Challenge period (September 21–October 6) 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.
- 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 are used as resources should not generate ideas for case solutions but are permitted to provide relevant information, 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 6. Please help the organizers by adhering to this rule during breaks.

Faculty Advisors:

Each team must have at least one faculty advisor, who will serve as a point of contact with the Case Challenge organizers. The faculty advisor(s) will also ensure that the team is made up of only undergraduate and graduate students of their university and has representatives of 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,
 - 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 guidelines and logistics.
- Faculty advisors **CANNOT**
 - Generate ideas for case solutions and recommendations, and
 - 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 NAS building 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 25 minutes (note: 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 used 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.
- Hardcopies of each team's PowerPoint will be provided to judges by staff. Teams may bring a hardcopy 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.
- 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 6**. 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 1 week before the event, and their biographical sketches 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
 - Ability to respond to questions
- Detailed judging criteria will be provided with the case when it is released on September 21.

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 international issues; 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 G: Presentation Day Agenda

October 6, 2023

National Academy of Sciences Building | 2101 Constitution Avenue, NW, Washington, DC

8:00–8:30am	Arrival and Registration (<i>outside of Room 125; breakfast available outside Room 120</i>)
8:30am	Deadline to Turn in Presentation (<i>Room 125</i>) <i>Please take your flash drive to the Case Challenge staff member at the computer. This is when teams draw a number for presentation order.</i> Judges Check In (<i>Front of Room 125</i>)
8:45am	Welcoming Remarks (<i>Room 125</i>) <i>Victor J. Dzau</i> <i>President, National Academy of Medicine</i>

8:55am	Logistics (<i>Room 125</i>)																		
9:00am–1:00pm	<p>Presentations (<i>Room 125</i>)</p> <p><i>At this time, all but the first team should leave and go to Room 120. Return to Room 125 when it is your teams turn to present. After your team has presented, you may remain in Room 125 to watch the remaining presentations, Room 120, or outside. During the morning, an organizer will gather each team to take a photo at the Einstein statue in front of the NAS building—see schedule below.</i></p> <table> <tr> <td>9:00–9:30</td><td>Team 1</td></tr> <tr> <td>9:30–10:00</td><td>Team 2</td></tr> <tr> <td>10:00–10:30</td><td>Team 3</td></tr> <tr> <td>10:30 – 10:45</td><td>Break</td></tr> <tr> <td>10:45–11:15</td><td>Team 4</td></tr> <tr> <td>11:15–11:45</td><td>Team 5</td></tr> <tr> <td>11:45-12:15</td><td>Break</td></tr> <tr> <td>12:15–12:30</td><td>Team 6</td></tr> <tr> <td>12:30–1:00</td><td>Team 7</td></tr> </table>	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	11:45-12:15	Break	12:15–12:30	Team 6	12:30–1:00	Team 7
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9:00-10:30am	<p>Team Photo Times (meet at registration table; bring your numbered folder with you):</p> <p>Teams 3-5: 9:05am</p> <p>Teams 6-7: 9:40am</p> <p>Teams 1-2: 10:05am</p>																		
1:00–1:45pm (<i>students</i>)	Lunch (<i>Food available outside room 120</i>)																		
1:00–3:20pm (<i>judges</i>)	Judges’ Deliberations (<i>pick up lunch from outside Room 120 and reconvene in Board Room at 1:25</i>)																		
1:45pm	Group Photo with Students and Advisors (<i>Outside</i>)																		
2:00–2:45pm	<p>Team Solutions Recap (<i>Room 125</i>)</p> <p><i>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.</i></p>																		

2:45–3:00pm	Expert Presentation (Room 125) <i>Valerie DiCristoforo Development Senior Manager, Everyone Home DC</i>
3:00–3:15pm	Expert Presentation (Room 125) <i>Martha Sanchez (She/Her/Hers)</i> <i>Director of Health Policy and Advocacy</i> <i>Young Invincibles</i>
3:15–3:40pm	Discussion
3:40–4:00pm	Awards Ceremony (Room 125)
4:00–5:00	Reception (Room 120)