#### Testimony of Deanna Wilson, M.D., M.P.H. Assistant Professor of Medicine and Pediatrics University of Pittsburgh School of Medicine

before the

### Subcommittee on Health House Committee on Energy and Commerce U.S. House of Representatives

# Hearing on "An Epidemic within a pandemic: understanding substance use and misuse in America."

April 14, 2021

Chairwoman Eshoo, Ranking member Guthrie, and members of the committee, thank you for the opportunity to speak with you today on the importance of addressing substance use and the ongoing epidemic of opioid-related deaths in the United States.

My name is Dr. Deanna Wilson. I am a pediatrician and internist with subspecialty training in addiction medicine. I am an Assistant Professor of Medicine and Pediatrics at the University of Pittsburgh and I treat patients at UPMC and UPMC Children's Hospital of Pittsburgh. I provide care to patients across the life spectrum—currently, I am treating patients ages 13 to 74 with substance use disorders in both the hospital and outpatient settings. My institution serves a large catchment area including the city of Pittsburgh and also Eastern Ohio, Northern West Virginia, and Western PA. I conduct research focused on understanding how we can improve health equity and reduce disparities among vulnerable populations with substance use disorders, particularly focused on patients who inject opioids.

I am honored to speak with you all today and grateful that even while confronted with the ongoing COVID-19 pandemic, we are not forgetting the co-occurring public health crisis related to opioids and other substance use in America. While COVID-19 has unmasked significant health inequities, it has also created opportunities to rethink how we deliver care to patients with substance use disorders in ways that prioritize equity, increase access, and reduce morbidity and mortality.

### Racial and ethnic disparities in addiction treatment

COVID-19 has brought to the forefront the striking racial and ethnic disparities that impact millions of Black and Brown Americans—people from racial and ethnic minority groups have disproportionately born the burden of the pandemic as a result of longstanding systemic health and social inequities.<sup>1</sup> As disparities related to the COVID-19 pandemic are driven by pre-existing inequities, such as a lack of access to primary care providers, disparate financial resources, racial segregation, and policies driven by and supporting systemic racism, so too has the opioid crisis.<sup>2</sup>

During this past year, over 81,000 drug overdose deaths have occurred with striking racial disparities in overdose rates.<sup>3</sup> In cities, like Philadelphia, where there was an increase by more than 50% in overdose deaths among Black Americans, rates of overdose death fell by 31% among white Americans.<sup>4</sup>

The acceleration of overdose deaths among Black communities is a result of earlier policy missteps. As someone who trained in Baltimore for seven years, the patients I cared for came from communities that had been dealing with heroin for decades, long before the opioid crisis became a very visible public health problem centering white, suburban middle-class families. My patients would comment on the irony of addiction now being seen as a disease requiring medical treatment when they lived in communities devastated by the War on Drugs and mass incarceration-the treatment strategies they had been offered. These policies devastated families, communities, and entire neighborhoods. They shared deep frustration with me that financial resources and solutions to the epidemic were focused on better-resourced, White communities and ignored the needs of Black urban communities. The racial and ethnic disparities we are seeing in opioid overdose rates today are what happens when we design treatments and interventions focusing on offering equal access to treatment without thinking of the need for equitable access—without centering the unique needs of communities of color and without addressing the systemic inequities, social inequalities, and structural racism that drive differential access and disparate treatment outcomes.

For example, we know that medications like buprenorphine and methadone are efficacious in retaining people in treatment, suppressing illicit opioid use, decreasing opioid craving and treating opioid withdrawal.<sup>5</sup> They substantially reduce the risk for all-cause and overdose mortality—making them truly life-saving medications.<sup>6</sup> And yet, your race determines how likely you are to receive them. Studies have shown that while rates of opioid use disorder are similar for Black and white Americans, for every 35 white patients with OUD who receive a buprenorphine prescription, only 1 racial or ethnic minority patient will receive one: Black patients have 77% lower odds of receiving a buprenorphine prescription during an office visit for OUD.<sup>7</sup>This is unjust. Even among pregnant women, for whom the use of medications like methadone and buprenorphine have been associated with improved maternal, fetal, and pregnancy outcomes, Black and Latinx women were significantly less likely to receive any medications to treat OUD compared to white women.<sup>8</sup>This further propagates inequities to the next generation.

Access to medications to treat opioid use disorder is often driven by racial segregation with differences in access determined by demographics at the neighborhood level.<sup>9</sup> Stigma is also an important contributor. Stigma, defined as a social process by which individuals are labeled, stereotyped, and marginalized based on real or perceived status or attributes,<sup>10</sup> is well-documented in patients with opioid use disorder.<sup>11</sup> Stigma from healthcare clinicians, and embedded within the healthcare system, negatively impact the quality of care.<sup>12</sup> For example, stigma causes clinicians to underestimate the

efficacy of evidence-based treatments and implicitly or explicitly create environments where patients feel unwelcome.<sup>13</sup> Effective, targeted interventions to eliminate stigma in addiction treatment are desperately needed to improve health. Stigma associated with OUD may be compounded by racial bias, leading to worse outcomes for Black, Indigenous, and Latinx patients.

Racial bias or racism contributes to inequitable prescribing practices and treatment approaches, which in turn results in disparities for racial and ethnic minorities. Disparities in pain management are well-known and documented, including lower rates of opioid prescribing and increased oversight for Black patients.<sup>14</sup> In addition to being less likely to receive medications to treat opioid use disorder,<sup>15</sup> Black patients are also less like to receive naloxone for overdose prevention and are also less likely to be retained in treatment if they are started.<sup>16</sup> Opioid use disorder and racial bias intersect to create overlapping and compounding systems of disadvantage, which contributes to lower quality of care and worse outcomes for racial and ethnic minorities.

And so, what do we need to do? As a physician treating patients at a low-threshold program in Baltimore based out of a community-based organization, I cared for many patients who would never have sought treatment within the walls of my hospital clinic, but who were willing to seek care from me because I was practicing at and partnering with a trusted community site. Similar to the efforts taken by states to facilitate equitable distribution of COVID-19 vaccine, we need to fund addiction treatment models, which center the needs of and recognizes the strengths of communities of color. We need research and funding to support innovative models that reimagine addiction medicine treatment and leverage community partnerships, such as engaging the faith-based community and delivering care in churches, offering medication to treat opioid use disorder alongside well-entrenched and well-trusted needle and syringe exchange programs, and with low-threshold models that minimize the barriers that have traditionally prevented marginalized groups from being well-served by traditional health systems. We need greater investment in research demonstrating how best to support these programs, to document their efficacy, and to scale-up their use. We need additional investment in models that train and support peer recovery specialists from our target communities who can leverage their lived experience to connect with and support patients.

Additional vulnerable groups are those who have been recently incarcerated. We also know that people of color are disproportionately represented in the criminal justice system. Incarcerated individuals are 129 times more likely to die from an overdose within the first two weeks after release compared to the general population and this is particularly heightened for those with opioid use disorder. We need to reform how we approach the care of individuals who are incarcerated and to offer comprehensive behavioral, social, psychological, and evidence-based pharmacological treatments for their substance use disorder. Anything less is inhumane and contributes to ongoing racial and ethnic disparities. Lengthy lag times in the reactivation of insurance coverage from the time people leave jail or prison create a dangerous situation that predisposes individuals to a possibly fatal return to use. We need to reform payment policies so that

individuals who leave jail or prison can quickly connect and get linked back into substance use disorder treatment.

### Expand access to current medications and treatment for addiction

The COVID-19 pandemic has created several opportunities for re-imagining the way that addiction care is delivered in the US. While these guidelines were designed to be temporary solutions to the pandemic, they have shown significant promise for increasing access to treatment for vulnerable populations, including for rural Americans.

Guidelines have allowed greater flexibility and funding to support telemedicine for the initiation and maintenance of buprenorphine. This has been essential at maintaining contact with existing patients during the pandemic. I can call patients that are unable to make it to clinic because of transportation or childcare barriers and I can conduct a telehealth visit minimizing the risk they will fall out of care. I can treat patients who would otherwise have to travel long distances-at times over an hour-to see me in person, but for whom I can build relationships, offer medication, and monitor their progress all through telehealth. These are patients who otherwise may never have initiated or linked to care. I have seen patients virtually from a homeless encampment where they have called me from their tent, from their living rooms, from streets in their neighborhoods. Each encounter allowing me to get a greater glimpse into their lives outside my clinic. We need legislation that permanently supports our ability to use technology to expand access to treatment for patients, support maintenance, and help prevent patients from falling out of care. We also need to take care that as we expand access to telehealth we are thoughtful about supporting other initiatives that make telehealth more equitable, such as supporting digital literacy and improving access to internet broadband coverage.<sup>17</sup>

Additionally, while methadone has been a highly effective treatment for many Americans, it is only able to be offered in certified opioid treatment programs. These are often located in urban settings and require patients to attend daily, most days of the week to take their medication. Federal guidelines for dispensing unsupervised takehome doses of methadone focused on minimizing diversion and misuse, but these policies are overly restrictive and make it challenging for patients to integrate methadone treatment into their work or school day. I treat many patients who reside in rural areas who may prefer methadone but are unable to access it because of daily dosing requirements and the long distances they would need to travel.

In response to the COVID-19 state of emergency, opioid treatment programs were granted flexibility allowing increased take-home doses of methadone and requiring reduced toxicology testing. Preliminary studies from this period show no increase in fatal overdose among patients and suggest that the intense regulation of methadone distribution may be unnecessarily restrictive.<sup>18</sup> We urgently need studies that further examine outcomes from this period and we need to use these findings to reform methadone regulations to become more evidence-based and patient-centered.

While I focused thus far on opioid use disorders, we are now seeing growing numbers of patients that use stimulants predominantly or in conjunction with opioids. We have limited effective pharmacotherapies to treat stimulant use from stimulants like cocaine or methamphetamines and need research to identify novel therapies. We also need funding to support behavioral health interventions, like contingency management, which have evidence showing they are efficacious at incentivizing individuals to quit using stimulants.<sup>19</sup> Also, licensed residential treatment programs should be required to offer evidence-based medications as part of their complement of behavioral treatment as they have been shown to reduce mortality, however, only a third of residential facilities offered buprenorphine and only 2% offered methadone.<sup>20</sup>I

### Improve capacity of providers to treat patients with addiction

While increasing access to medications to treat opioid use disorder is essential, we also need to increase the capacity of the provider workforce to treat patients with addiction more broadly. As of 2019, only 35 percent of people with OUD receive treatment for their addiction, leaving an estimated 2.2 million people undertreated.<sup>21</sup> Certain populations, like adolescents and young adults, are underserved with only 1% of waivered providers identifying as pediatricians.<sup>22</sup> Certain areas are also underserved with approximately half of all rural counties lacking a provider waivered to prescribe buprenorphine, contributing to the high rates of overdose deaths in rural areas such as Appalachia.<sup>23</sup>

While the Drug Addiction Treatment Act of 2000 and the subsequent Comprehensive Addiction and Recovery Act of 2016 aimed to expand treatment capacity by allowing first physicians and then nurse practitioners and physician assistants to receive training allowing them to receive a waiver to prescribe buprenorphine. The buprenorphine waiver requirement or "x-waiver" has unnecessarily restricted buprenorphine access. Only 5% of medical providers are licensed to prescribe buprenorphine<sup>24</sup> and the training and associated regulatory barriers to receive the "x-waiver" are onerous and serve as critical barriers to care.

The "x-waiver" requirement also reinforces stigma that treating patients with substance use disorders is different from delivering other types of medical care. It reinforces false beliefs that prescribing buprenorphine is more clinically challenging or riskier than other forms of medical treatment, such as starting patients on insulin or even prescribing opioids for pain, both things that require more nuanced management than managing buprenorphine. The regulatory barriers, such as DEA audits, imposed by the "x-waiver," intimidate physicians and can cause waivered providers to stop prescribing.<sup>25</sup> The time requirements and costs of the waiver training are particularly onerous for front-line primary care providers who have limited time and resources to complete the training despite being the group most likely to see and treat patients with addiction. Many states inhibit the ability of nurse practitioners and physician assistants to treat patients with buprenorphine even if they have completed "x-waiver" training unless they also work with a collaborating physician who also has an "x-waiver."

access to buprenorphine for many more patients. There are multiple models from other countries showing buprenorphine can be more liberally prescribed without adverse public health outcomes. In France, for example, they deregulated buprenorphine and the rate of opioid overdose decreased by approximately 80%.<sup>26</sup>

I also recognize that physicians, in general, do not receive sufficient education on how to recognize and treat substance use disorders. We need to require training in addiction medicine to be integrated into medical education and residency training for all providers. As health professional schools work to implement this, including education on addiction as part of DEA licensing requirements would enable all providers with a DEA license to know how to treat recognize and treat patients with opioid use disorders.

In addition, as we think about increasing the capacity of our workforce, we should also think about the importance of building a more diverse workforce capable of treating our diverse communities. America has a shortage of physicians of color in general, and addiction medicine trainees are no different. Among fellowship trainees in ACGME-certified Addiction Medicine fellowships, only 5.1% are Black and 11.4% are Latinx.<sup>27</sup> We need to support the recruitment of a diverse addiction medicine physician workforce to better care for our diverse communities and incentivize Addiction Medicine subspecialty training and practice through targeted loan repayment programs.

## Need better integration and support for harm reduction services

Harm reduction is a set of practical strategies focused on reducing negative consequences of health behaviors, such as drug use.<sup>28</sup> Not every patient I see is ready for abstinence or to quit using substances. Abstinence-only approaches to substance use treatment can further stigmatize and marginalize patients who are not yet ready to stop using substances from care. They can serve as a deterrent for patients who may be open to reducing their use or using in less risky ways. Not only are harm reduction services effective at reducing harms from drug use, like preventing transmission of HIV and hepatitis C or reducing fatal overdose, but by engaging patients who may be ambivalent over time they can also serve as access points for individuals to link to medical care and addiction treatment.<sup>29</sup>

In the setting of exponential increases in overdose deaths, we must look to the science to think creatively about how best to keep patients who use drugs safe, including those who do not yet want to quit. For example, a byproduct of the transition to synthetic opioids like fentanyl, with a faster onset and shorter duration, are potentially more frequent injections leading to an increased risk for infectious complications.<sup>30</sup> This is demonstrated by the secondary epidemic of hospitalizations for infectious complications from injection drug use, like infective endocarditis.<sup>31</sup> We need to more aggressively distribute sterile injection supplies and fentanyl testing strips to patients who use drugs across the country and educate them on how to use them. There has been growing evidence supporting the use of novel interventions, such as supervised consumption sites, which have been shown in other countries to reduce mortality, decrease ambulance calls, and decrease HIV infections without significant harms.<sup>32</sup>We need

research to thoughtfully implement and study the impact of interventions like these in the United States.

In summary, I appreciate your time and the ability to share my clinical experiences and an overview of the science. If I may leave you with these four thoughts:

- 1. Racial and ethnic disparities exist in the treatment of substance use disorders, particularly opioid disorders. We need research and public programming focused on the delivery of equitable addiction care that addresses the systemic inequities, social inequalities, and structural racism that drive differential access and disparate treatment outcomes.
- 2. We need to use data to identify those at high-risk for substance-use related harms and need research and public programming that targets these groups: for example, reducing regulatory barriers that prevent the recently incarcerated from linking to substance use disorder treatment upon release or coverage gaps preventing the use of effective treatments, such as contingency management, for those with stimulant use disorders.
- 3. We have a large treatment gap with an insufficient number of providers trained to treat all those with addiction. We need to remove onerous barriers, such as the x-waiver, that reinforce stigma and make it harder for all providers to treat patients with addiction. We also need to better integrate training in addiction medicine into health professional education and as part of DEA licensing requirements.
- 4. We need better integration and support for harm reduction services as these are essential, evidence-based programs that reduce mortality and morbidity associated with substance use.

Thank you for the honor and privilege of sharing these thoughts with you today and for your consideration of these recommendations.

<sup>&</sup>lt;sup>1</sup> Lopez L, Hart LH, Katz MH. Racial and Ethnic Health Disparities Related to COVID-19. *JAMA*.2021;325(8):719–720. doi:10.1001/jama.2020.26443

<sup>&</sup>lt;sup>2</sup> Nguemeni Tiako MJ. Addressing racial & socioeconomic disparities in access to medications for opioid use disorder amid COVID-19. *J Subst Abuse Treat*. 2021;122:108214. doi:10.1016/j.jsat.2020.108214

 <sup>&</sup>lt;sup>3</sup> CDC Health Alert Network. Increase in fatal drug overdose across the United States driven by synthetic opioids before and during the COVID-19 pandemic. 2020. https://emergency.cdc.gov/han/2020/han00438.asp
 <sup>4</sup> Khatri UG, Pizzicato LN, Viner K, et al. Racial/Ethnic Disparities in Unintentional Fatal and Nonfatal Emergency

Medical Services–Attended Opioid Overdoses During the COVID-19 Pandemic in Philadelphia. *JAMA Netw Open.* 2021;4(1):e2034878. doi:10.1001/jamanetworkopen.2020.34878

<sup>&</sup>lt;sup>5</sup> Mattick RP BC, Kimber J, Davoli M. Buprenorphine maintenance versus placebo or methadone maintenance for opioid dependence. *Cochrane Database Syst Rev.* 2014;6.

Larochelle MR, Bernson D, Land T, et al. Medication for Opioid Use Disorder After Nonfatal Opioid Overdose and Association With Mortality: A Cohort Study. *Ann Intern Med.* 2018;169(3):137-145. doi:10.7326/M17-3107

 <sup>6</sup> Larochelle MR, Bernson D, Land T, et al. Medication for Opioid Use Disorder After Nonfatal Opioid Overdose and Association With Mortality: A Cohort Study. *Ann Intern Med.* 2018;169(3):137-145. doi:10.7326/M17-3107
 <sup>7</sup> Lagisetty PA, Ross R, Bohnert A, Clay M, Maust DT. Buprenorphine Treatment Divide by Race/Ethnicity and

Payment. JAMA Psychiatry. 2019;76(9):979–981. doi:10.1001/jamapsychiatry.2019.0876

<sup>8</sup> Schiff DM, Nielsen T, Hoeppner BB, et al. Assessment of racial and ethnic disparities in the use of medication to treat opioid use disorder among pregnant women in Massachusetts. *JAMA Netw Open*. 2020;3(5):e205734.
 <sup>9</sup> Hansen HB, Siegel CE, Case BG, Bertollo DN, DiRocco D, Galanter M. Variation in use of buprenorphine and

methadone treatment by racial, ethnic, and income characteristics of residential social areas in New York City. *J Behav Health Serv Res.* 2013;40(3):367-377. doi:10.1007/s11414-013-9341-3

Goedel WC, Shapiro A, Cerdá M, Tsai JW, Hadland SE, Marshall BDL. Association of Racial/Ethnic Segregation With Treatment Capacity for Opioid Use Disorder in Counties in the United States. *JAMA Netw Open.*2020;3(4):e203711. doi:10.1001/jamanetworkopen.2020.3711

<sup>10</sup> Ahmedani BK. Mental Health Stigma: Society, Individuals, and the Profession. *J Soc Work Values Ethics*. 2011;8(2):41-416

<sup>11</sup> Volkow, ND. Stigma and Toll of addiction. *N Engl J Med.* 2020; 382:1289-1290

<sup>12</sup> van Boekel LC, Brouwers EPM, van Weeghel J, Garretsen HFL. Stigma among health professionals towards patients with substance use disorders and its consequences for healthcare delivery: systematic review. *Drug and Alcohol Dependence*. 2013.

13 ibid

<sup>14</sup> Hoffman KM, Trawalter S, Axt JR, Oliver MN. Racial bias in pain assessment and treatment recommendations, and false beliefs about biological differences between blacks and whites. *Proc Natl Acad Sci U S A*. 2016;113(16):4296-4301. doi:10.1073/pnas.1516047113

Todd KH, Deaton C, D'Adamo AP, Goe L Ethnicity and analgesic practice. *Ann Emerg Med.* 2000 Jan; 35(1):11-6. Cleeland CS, Gonin R, Baez L, Loehrer P, Pandya KJ. Pain and treatment of pain in minority patients with cancer. The Eastern Cooperative Oncology Group Minority Outpatient Pain Study. *Ann Intern Med.* 1997;127(9):813–816. Shavers VL, Bakos A, Sheppard VB. Race, ethnicity, and pain among the U.S. adult population. *J Health Care Poor Underserved.* 2010;**21**(1):177–220

Meghani SH, Byun E, Gallagher RM. Time to take stock: A meta-analysis and systematic review of analgesic treatment disparities for pain in the United States. Pain Med [Internet]. 2012;13(2):150-74.

<sup>15</sup> Hadland SE, Wharam JF, Schuster MA, Zhang F, Samet JH, Larochelle MR. Trends in Receipt of Buprenorphine and Naltrexone for Opioid Use Disorder Among Adolescents and Young Adults, 2001–2014. *JAMA* 

pediatrics. 2017;171(8):747–755. doi: 10.1001/jamapediatrics.2017.0745.

Lagisetty PA, Ross R, Bohnert A, Clay M, Maust DT. Buprenorphine Treatment Divide by Race/Ethnicity and Payment. *JAMA Psychiatry.* 2019;76(9):979–981. doi:10.1001/jamapsychiatry.2019.0876

<sup>16</sup> Weinstein ZM, Kim HW, Cheng DM, et al. Long-term retention in Office Based Opioid Treatment with

buprenorphine. J Subst Abuse Treat. 2017;74:65-70. doi:10.1016/j.jsat.2016.12.010

<sup>17</sup> "Ensuring The Growth Of Telehealth During COVID-19 Does Not Exacerbate Disparities In Care, " *Health Affairs Blog*, May 8, 2020.DOI: 10.1377/hblog20200505.591306

<sup>18</sup> Joseph G, et al. Reimagining patient-centered care in opioid treatment programs; Lessons from the Bronx during COVID-19. *Journal of Substance Abuse Treatment*, 122:2021 https://doi.org/10.1016/j.jsat.2020.108219

<sup>19</sup> Glass JE, Nunes EV, Bradley KA. "Contingency Management: A Highly Effective Treatment For Substance Use Disorders And The Legal Barriers That Stand In Its Way," *Health Affairs Blog,* March 11, 2020.DOI: 10.1377/hbloq20200305.965186

<sup>20</sup> Huhn AS, Hobelmann JG, Strickland JC, et al. Differences in Availability and Use of Medications for Opioid Use Disorder in Residential Treatment Settings in the United States. *JAMA Netw Open.* 2020;3(2):e1920843. doi:10.1001/jamanetworkopen.2019.20843

<sup>21</sup>Substance Abuse and Mental Health Services Administration. *Key substance use and mental health indicators in the United States: Results from the 2018 National Survey on Drug Use and Health* (HHS Publication No. PEP19-5068, NSDUH Series H-54). 2019. Rockville, MD: Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration. Retrieved from https://www.samhsa.gov/data/
<sup>22</sup> Data from SAMHSA, Presented in ASAM Buprenorphine Waiver Training Course, 2020.

<sup>23</sup> Haffajee, RL, Lin LA, Bohnert ASB, Goldstick, JE. 2019. Characteristics of US Counties With High Opioid
 Overdose Mortality and Low Capacity to Deliver Medications for Opioid Use Disorder. *JAMA Network*

Open 2(6):e196373–e196373. https://doi.org/10.1001/jamanetworkopen.2019.6373

<sup>24</sup> Berk, J. "To Help Providers Fight The Opioid Epidemic, "X The X Waiver", " *Health Affairs Blog*, March 5, 2019.DOI: 10.1377/hblog20190301.79453

<sup>25</sup> Huhn, A. S., and K. E. Dunn. 2017. Why aren't physicians prescribing more buprenorphine? *Journal of Substance Abuse Treatment* 78:1–7. https://doi.org/10.1016/j.jsat.2017.04.005

<sup>26</sup> Fatseas, M., and M. Auriacombe. 2007. Why buprenorphine is so successful in treating opiate addiction in France. *Current Psychiatry Reports* 9(5):358–64. https://doi.org/10.1007/s11920-007-0046-2

<sup>27</sup> Personal communication. American College of Academic Addiction Medicine. 2021.

<sup>28</sup> Hawk, M., Coulter, R.W.S., Egan, J.E. *et al.* Harm reduction principles for healthcare settings. *Harm Reduct J* 14, 70 (2017). https://doi.org/10.1186/s12954-017-0196-4

<sup>29</sup> CDC.gov. Summary of information on the safety and effectiveness of syringe services programs. https://www.cdc.gov/ssp/syringe-services-programs-summary.html

<sup>30</sup> Alyssa M Peckham, Erika H Young, Opportunities to Offer Harm Reduction to People who Inject Drugs During Infectious Disease Encounters: Narrative Review, *Open Forum Infectious Diseases*. 2020: 7:11, ofaa503, https://doi.org/10.1093/ofid/ofaa503

<sup>31</sup> Springer SA KT, del Rio C. Integrating Treatment at the Intersection of Opioid Use Disorder and Infectious Disease Epidemics in Medical Settings: A Call for Action After a National Academies of Sciences, Engineering, and Medicine Workshop. *Ann Intern Med*, 2018.

Fleishchauer AT RL, Rhea S, Barnes E. . Hospitalizations for endocarditis and associated health care costs among persons with diagnosed drug dependence—North Carolina, 2010-2015. . *MMWR*, 2017;66:1-5.

<sup>32</sup> Ng J, Sutherland C, Kolber MR. Does evidence support supervised injection sites?. *Can Fam Physician*. 2017;63(11):866.

Magwood Ó, Salvalaggio G, Beder M, Kendall C, Kpade V, Daghmach W, et al. (2020) The effectiveness of substance use interventions for homeless and vulnerably housed persons: A systematic review of systematic reviews on supervised consumption facilities, managed alcohol programs, and pharmacological agents for opioid use disorder. *PLoS ONE* 15(1): e0227298. https://doi.org/10.1371/journal.pone.0227298