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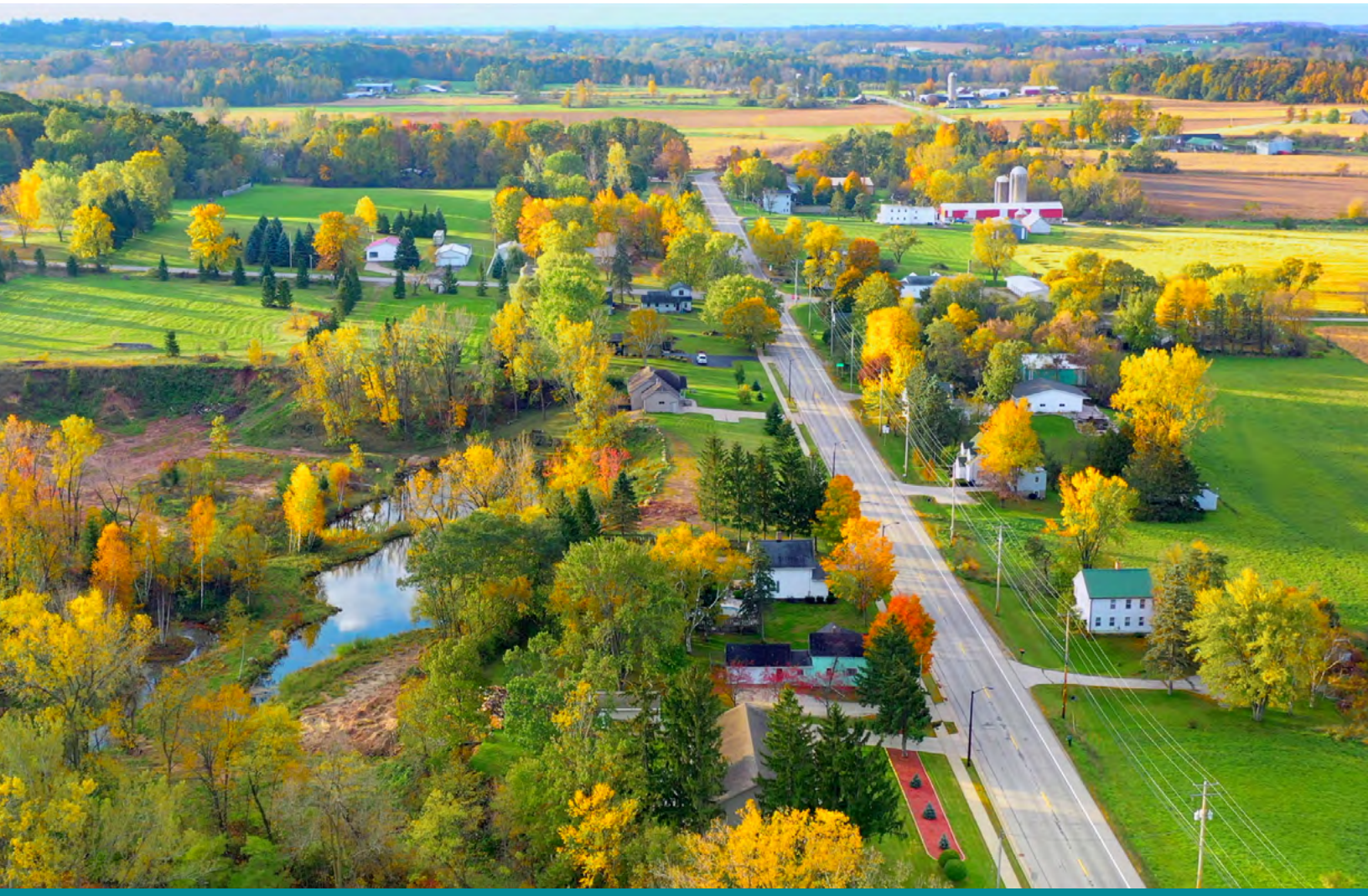

Understanding the Needs of Rural Communities:

Principles and Practices for Overdose Prevention and Response

July 2024

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Acronym List

AI/AN	American Indian or Alaska Native
CBO	community-based organization
CBPR	community-based participatory research
CDC	Centers for Disease Control and Prevention
DAWN	Drug Abuse Warning Network
EBP	evidence-based practice
ECHO	Extension for Community Healthcare Outcomes
ED	emergency department
EMS	emergency medical services
FQHC	federally qualified health center
MOUD	medications for opioid use disorder
NACCHO	National Association of County and City Health Officials
NIH	National Institutes of Health
OEND	overdose education and naloxone distribution
OPR	overdose prevention and response
OUD	opioid use disorder
PRSS	peer recovery support specialist
PWUD	people who use drugs
SAMHSA	Substance Abuse and Mental Health Services Administration
SBIRT	screening, brief intervention, and referral to treatment
SDOH	social determinants of health
SME	subject matter expert
SSP	syringe service program
SUD	substance use disorder

Executive Summary

Background

Fatal and non-fatal overdoses, due to opioids alone or in combination with other drugs, continue to be a public health problem. While overdose deaths occur across all communities, research shows that rural communities shoulder a disproportionate burden due to lesser access to community-based harm reduction and treatment services.[1,2] Therefore, this needs assessment report is intended to support future action and funding mechanisms for rural overdose prevention and response (OPR) efforts. Working with rural OPR leaders, including people with lived and living experience of substance use (PWLLE), JBS International, Inc. (JBS) identified rural overdose and drug use trends, guiding principles, and evidence-based and promising practices that are essential for successful and effective OPR in rural settings. The needs assessment was produced in partnership with the National Association of County and City Health Officials (NACCHO) and with funding from the Centers of Disease Control and Prevention (CDC).

Methodology

The needs assessment was conducted from December 2023 to July 2024. It included four components:

- **Environmental Scan and Gap Analysis** that examined OPR efforts successfully implemented in rural communities and identified populations most affected by overdose across the United States, using publicly available resources, studies, and best-practice guidance.
- **Virtual Roundtable Discussions** with rural health and OPR subject matter experts (SMEs) to identify barriers, facilitators, resources, and best practices within rural OPR efforts and make recommendations for the community engagement strategy.
- **Participant Observation** of a 3-day in-person Reaching Rural convening provided an opportunity to learn directly from a cohort of rural community leaders about the successes, challenges, and resources needed to prevent and reduce overdoses.

- **Community Engagement Interviews** provided in-depth insights into the successes, challenges, and needs for addressing rural OPR efforts.

Insights and findings from these four components informed the identification and development of the guiding principles and evidence-based and promising practices to strengthen rural OPR efforts presented in the report. The term "rural OPR leaders" is used throughout the report to refer to experts involved in the various components of the needs assessment.

Guiding Principles

JBS and rural OPR leaders identified eight "Guiding Principles" that are essential to providing effective OPR in rural settings.

INCLUSION:
Include PWLLE in all aspects of the planning, implementation, and evaluation processes

LOCALIZATION:
Use local data sources to identify populations disproportionately impacted by overdoses to determine the service landscape and to guide rural OPR interventions

REPRESENTATION:
Reflect the community served

TRUST:
Invest in building and maintaining trust and relationships with the people you serve

MOBILITY:
Bring supplies and services to your community, including through co-location, to increase access and reduce transportation barriers

PERSON-CENTERED:
Employ trauma-informed strategies while addressing social determinants of health (SDOH)

AUTONOMY:
Respect multiple pathways of recovery and any positive change made by a person who uses drugs, to meet individual needs and address stigma

CHAMPIONS:
Identify and invest in local champions, advocates, and partnerships to reduce stigma

Evidence-Based and Promising Practices

JBS and rural OPR leaders identified eight evidenced-based and promising practices as priorities for implementing successful OPR efforts in rural settings. Practices are grouped into three categories: (1) planning for impact, (2) preventing and responding to fatal and non-fatal overdoses, and (3) meeting individual needs to prevent overdoses.

Table 1. Evidence-Based and Promising Practice for Rural OPR Efforts

Planning for Impact	
Community-based needs assessments and feedback loops	▪ Provides a systematic and purposeful first step in addressing rural OPR, particularly considering the relative dearth of resources in many rural communities and emphasizing the need to leverage or strengthen existing capacities, rather than duplicate what is already working, and determine what new resources are needed to address gaps ▪ Requires creating and maintaining a strong feedback loop for dissemination of results to ensure that data are utilized to design necessary and acceptable OPR interventions within rural communities
Preventing and Responding to Fatal and Non-fatal Overdoses	
Targeted overdose education and naloxone distribution (OEND) to people who use drugs (PWUD)	▪ One of the most important and effective evidence-based practices for getting naloxone into the hands of the people most likely to witness and respond to an overdose in rural settings ▪ Requires a multi-pronged approach, including utilizing multiple naloxone distribution methods (e.g., fixed sites, secondary distribution, and personal delivery), targeting venues where individuals may be at higher risk for overdose (e.g., syringe service programs (SSPs), emergency departments (EDs), carceral settings), and employing passive naloxone distribution methods such as naloxone dispensing machines (e.g., public health vending machines, repurposed newspaper boxes) and mail delivery programs
Community outreach and peer support	▪ Enables organizations to connect and build trust within a community with the purpose of ultimately increasing awareness of, and providing services to, people at risk for overdose ▪ Offers ongoing peer support for engaging individuals at risk of overdose in community, carceral, and healthcare settings and linking them to OPR, substance use disorder (SUD) treatment, mental health support, and other social services based on individual need and preference
Drug checking	▪ Distributes test strips as a low-barrier overdose prevention tool, helping individuals detect specific substances in their drug supply, providing them a means to regulate use ▪ Provides a helpful outreach and community engagement tool to increase understanding of local drug supply trends within rural communities, which may differ from national or urban trends

OEND to first responders and community members	▪ Engages local health departments (LHDs) and community-based organizations (CBOs) to provide OEND capacity building to first responders. This can be leveraged to address stigma, build partnerships, and help establish linkages to services, especially in rural settings where stigma against PWUD and resistance to harm reduction approaches—including naloxone—persists ▪ Must include stigma reduction efforts, and be in addition to, not in place of or prioritized over, OEND to PWUD
Meeting Individual Needs to Prevent Overdoses	
Needs-based SSPs and harm reduction programs	▪ Strengthens the likelihood that rural community members will access services by championing multiple pathways of recovery, individual autonomy, and continued support, regardless of an individual's current substance use ▪ Plays a vital role in providing a wide range of evidence-based OPR efforts in rural communities
Physical and behavioral health clinical services	▪ Offers evidence-based clinical services, including medications for opioid use disorder (MOUD) to PWUD in rural communities through trusted service providers and is critical to rural OPR efforts ▪ Addresses the interconnected relationship between SUD and lack of appropriate mental health support and requires a multi-pronged, holistic approach to effective OPR efforts in rural settings
Basic needs support	▪ Directly provides or links to low-barrier basic needs services, which are crucial in rural settings where there may be limited or no social services available to address the pressing needs of people at risk for overdose ▪ May include food, hygiene pantries and services, safety supplies, telecommunications support, transportation, legal aid, housing, or employment support

Conclusion

Rural communities—especially PWUD and people from disproportionately impacted and historically marginalized communities—continuously show ingenuity in implementing and adapting OPR principles and evidence-based best practices to meet the needs of their community members at risk for overdose. To strengthen and expand the reach of the successful evidence-based and promising practices for rural communities highlighted in this needs assessment, it is essential that increased support, training, and investment is provided to the rural organizations doing the work on the ground. Additional strategies for ensuring that funding reaches and benefits rural communities impacted by the overdose crisis can be found in Appendix A.

Introduction

PURPOSE

To develop evidence-based, best-practice recommendations for future action and funding to prevent and respond to overdoses in rural communities. The information in this report draws from an environmental scan, subject matter expert roundtables, participant observation, and community interviews, including perspectives from PWLLE.

Background

Fatal and non-fatal overdoses, due to opioids alone or in combination with other drugs, continue to be a public health problem. While deaths occur in rural and urban communities alike, research shows that rural communities shoulder a disproportionate burden.[3,4] There is a critical need to address OPR efforts in rural communities across the United States, in which workforce shortages, transportation barriers, and stigma about PWUD and harm reduction can be heightened obstacles. While there are many challenges, rural communities are also often described as having social cohesion, community spirit, and cooperation among community members. These assets are shaped by a community's history, culture, strengths, and resilience and should be leveraged in OPR efforts. As rural communities grapple with distinct SDOH, that encompass economic, geographic, educational, social, healthcare, food, and housing factors, it is imperative to understand what is working to prevent and respond to fatal and non-fatal overdoses in rural areas. To this end, in 2023, NACCHO, with funding from the CDC, contracted JBS to conduct a needs assessment to elucidate the multifaceted dimensions of rural OPR efforts. The objectives of this needs assessment are to:

1. Leverage existing data and resources to fully understand evidence-based rural OPR efforts
2. Assess rural communities' use of innovation, ingenuity, and community-specific efforts to improve harm reduction efforts
3. Amplify community insights, including PWLLE perspectives, to develop strategic recommendations for future action and funding

Key Terminology

OVERDOSE. For the purposes of the needs assessment and this report, overdose is defined as an instance in which a single drug or combination of drugs causes depression of the central nervous system, causing an individual to be unresponsive to stimulation and/or experience respiratory depression. The literature commonly uses the term "opioid overdose" to focus on the causal agent of respiratory depression and loss of life in situations where the overdose is not successfully reversed.[5] The strength and frequent lack of purity of today's illicit drug supply has contributed to the evolving overdose crisis, making it common for multiple substances to be involved in an overdose, including in rural communities.[6,7,8] As a result, it is critical that OPR efforts focus not just on the needs of people who use opioids, but other substances as well, such as methamphetamine and cocaine.[9] These conditions were factored into this needs assessment by including broader terms (e.g., "substance use") rather than just "opioid use."

RURAL. A central challenge in examining rural OPR data and efforts is the variety of definitions of rural found in academic literature and government resources. The Rural Health Information Hub identifies eight common definitions of rural that vary widely in geographic region and number of people living in rural areas.[10] As an example, based on the 2010 U.S. Census Bureau's definition, 19.3 percent of people living in the United States live in rural communities, but that drops to 15 percent according to the Office of Management and Budget's definition.[11] These varying definitions of rural are seen across datasets that examine fatal and non-fatal overdose rates, making it difficult to draw clear conclusions when comparing information from different sources (e.g., urban vs. rural fatal overdose rates, disparities in rural overdose rates by demographics). Therefore, data comparisons included in this report are drawn from the same data sources. We recommend caution in attempting to draw comparisons between datasets or research articles without confirming the definition of rural used in the corresponding analysis. Academic sources and grey literature also used varying definitions of rural, and frequently did not specify which one was used. Therefore, the resources were included simply by self-identifying as pertaining to rural populations.

Intended Audience

This report is intended for CBOs; LHDs and public health departments; healthcare providers; emergency medical services (EMS) agencies; law enforcement and fire departments; and grassroots and other community partners as they work to plan, build capacity for, and implement OPR efforts. This report is informed by rural community insights and the experiences of a diverse group of individuals leading rural OPR efforts, including PWLLE. It contains evidence-based, best practice recommendations to agencies and organizations that support OPR efforts in rural communities across the United States.

Methodology

The following methods comprised the needs assessment: 1) environmental scan and gap analysis, 2) roundtable discussions with SMEs, 3) participant observation drawn from the in-person Reaching Rural convening, and 4) key informant interviews as part of community engagement. Results from these methods are integrated and summarized in this report. The following research questions guided the design, implementation, and analysis of the needs assessment activities or components:

1. Who is experiencing overdose in rural communities? What substances are involved in these overdoses?
    a. What disparities exist between rates of substance use in rural areas and rates of fatal and non-fatal overdose?
2. What resources and practices currently exist in rural communities to effectively prevent and respond to overdoses? What novel and/or promising approaches to overdose prevention and response have been successfully implemented in rural communities?
    a. What disparities exist between rural overdose prevention and response efforts?
    b. What practices and resources exist to reduce existing disparities, i.e., to effectively prevent and respond to overdose among historically marginalized or disproportionately impacted populations in rural communities?

Environmental Scan and Gap Analysis: Between December 2023 and March 2024, JBS conducted a comprehensive environmental scan and gap analysis of rural communities to examine available resources, studies, and best practices related to OPR efforts in rural settings as well as identify populations that are disproportionately impacted by overdose. The scan and analysis reviewed available literature and federal datasets, including educational materials, training programs, community initiatives, healthcare services, harm reduction programs, and government programs and policies; academic literature (using Google Scholar, Semantic Scholar, and reference lists of the reviewed literature); and best practices of OPR efforts that have been successfully implemented in rural communities, focusing on evidence-based practices (EBPs) identified from the National Institutes of Health's (NIH) Helping to End Addiction Long-Term (HEAL) Initiative 2023 practice

guide, Opioid-Overdose Reduction Continuum of Care Approach,[12] and CDC's 2018 guide, Evidence-Based Strategies for Preventing Opioid Overdose.[13] Grey literature, identified through science.gov, included published reports and datasets (e.g., from government agencies), conference proceedings, white papers, and policy briefs. Based on feedback from NACCHO and CDC, slight revisions were incorporated into the environmental scan and gap analysis. The final environmental scan and gap analysis report can be found in Appendix B.

SME Roundtables: Between February and March 2024, JBS held two virtual roundtables with rural health and OPR SMEs to identify barriers and facilitators to rural OPR and recommendations for outreach and best practices. A total of 13 SMEs were selected to ensure the roundtable participants represented expertise spanning: OPR, health equity and SDOH, rural health, health department program funding and implementation, epidemiology, and federal OPR funding mechanisms. Multiple SMEs were also PWLLE. The first roundtable took place during the environmental scan and gap analysis development and focused on soliciting SMEs' insights on facilitators and challenges to rural OPR efforts. The second discussion focused on identifying existing or needed rural-specific tools and resources to support OPR efforts in rural communities, along with SMEs' recommendations for developing and implementing the community engagement strategy component of the needs assessment. JBS also presented SMEs with results from the environmental scan and gap analysis.

Reaching Rural[1] Participant Observation: In April 2024, JBS conducted a 3-day participant observation at the Reaching Rural In-Person Convening, which brought together rural practitioners from across the nation to address persistent challenges of substance use in their communities. This was an opportunity to learn directly from rural community leaders about the successes, challenges, and resources they need to prevent and reduce overdoses. Reaching Rural is an initiative co-sponsored by the Bureau of Justice Assistance, CDC, and the State Justice Institute. Observation regarding OPR trends, facilitators, barriers, disparities, funding needs, and partnerships were captured in daily debrief forms and summarized in written notes.

Community Engagement Interviews: Based on feedback and recommendations from SME roundtables, input from CDC and NACCHO, and key takeaways from the environmental scan and gap analysis, JBS developed selection criteria and identified eight sample communities to conduct interviews with and gather insights into the successes, challenges, and needs in addressing rural OPR. The collaboration of CBOs, LHDs, and their partners was essential to shed light on the full range of issues rural communities face and devise clear, evidence-based, and community-driven solutions.

"Populations served" was the primary criterion for interview selection. All interviewees worked in organizations that serve PWUD. Given disparate OPR outcomes, the following populations were prioritized: Black and African American people, Indigenous people, Spanish-speaking people, LGBTQ+ people, pregnant and parenting people, and people

1 Reaching Rural fellows complete a 1-year program to plan a project that addresses challenges associated with substance use in their community, including overdose prevention and response and then may receive $100,000 in funding to implement their plan.

who have been incarcerated. Each of these populations was intentionally served by at least one of the eight CBOs or LHDs interviewed. The eight communities selected represented the four US Census Bureau's geographic regions (Northeast, South, Midwest, West) and five different geographic divisions (New England, East North Central, South Atlantic, Mountain, and Pacific). Each of the included communities met the Federal Office of Rural Health Policy (FORHP) definition of rural, as well as a combination of other rurality standards.[14] Three out of eight had well-established partnerships between CBOs and LHDs, while two had limited or no engagement between CBOs and LHDs.[2] The sample included communities with a history of successful harm reduction services (n = 4), as well as those with programs or partnerships in early development (n = 4). All the communities selected for outreach agreed to participate in the interviews.

In May 2024, JBS completed a total of 9 interviews[3] across 8 rural communities, with a total of 13 participants. Three interviews were in-person, and six were held via Zoom. Group interviews included up to three participants from the same community. JBS conducted the qualitative interviews with a semi-structured protocol that allowed for organic probes.

Interviewees were compensated for their time. All interviews were recorded, transcribed, and then analyzed in Atlas.ti data analysis software. JBS conducted thematic analysis of the transcripts to identify common themes and patterns across interview respondents. Insights and findings from the environmental scan and gap analysis, SME roundtables, Reaching Rural participant observation, and community engagement interviews informed the development and identification of evidence-based, actionable recommendations to strengthen rural OPR efforts. Additional information regarding the community engagement interview may be found in Appendix D: Community Engagement Strategy and Appendix E: Community Engagement Interview Guides.

How to Use This Document

This report provides recommended principles and practices to support rural OPR efforts and programs. These recommendations are designed for local community stakeholders to make program implementation decisions to best serve the community and reduce fatal and non-fatal overdoses. These recommendations may be useful in determining evaluation criteria for funding. Given the diversity of rural communities and the ever-changing overdose risk environments, program goals and operational strategies should be reviewed, reconsidered, and refined over the life of the program to achieve better OPR efforts and public health outcomes. These recommendations act as a primary effort at evidence-based and promising practices for new and existing programs. The sections to follow outline eight principles and eight practices for successful OPR efforts.

2 Totals do not equal eight as some programs fall between the descriptors (e.g., communities where CBOs and LHDs had a strong relationship that has since changed).

3 Due to scheduling conflicts, JBS completed two separate individual interviews with staff members from the same CBO.

Rural Overdose Trends and Data

To gain a better understanding of overdoses in rural communities across the United States, publicly available data on drug use and overdose trends were examined. Unfortunately, not all datasets tease out rural communities and for those that do, data are frequently suppressed. Additionally, varying definitions of rural are used across research, restricting the ability to cross-compare data. While this limits understanding the true scope of the issue, supplemental data from sources close to the problem help to complete the picture. Hence, this section concisely summarizes rural fatal and non-fatal overdose trends garnered from secondary data sources (see *Environmental Scan and Gap Analysis* in Appendix B for detailed information), and summarizes insights shared during the community engagement interviews.

Trends in Fatal Overdoses and Populations Disproportionately Impacted

According to mortality data from the National Vital Statistics System, drug overdose deaths have continued to climb in rural communities across the United States since 1999.[15] The most common substance involved in rural overdose deaths is synthetic opioids (i.e., fentanyl and fentanyl analogs, 14.3 deaths per 100,000 standard population), followed by psychostimulants (e.g., methamphetamine, amphetamine, and methylphenidate, 9.4 per 100,000), natural and semisynthetic opioids (e.g., morphine, codeine, hydrocodone, oxycodone, 4.5 per 100,000 , heroin [3.2 per 100,000], and cocaine [3.0 per 100,000]. Overdose deaths involving psychostimulants were 31 percent higher in rural compared with urban communities.[16] This may be due to the growth in methamphetamine use in the rural US.[17] While nearly half of states (n = 23) had higher fatal overdose rates in urban counties in 2020, eight states (California, Connecticut, Maryland, New York, North Carolina, North Dakota, Vermont, and Virginia) had higher fatal overdose death rates in rural communities.[18]

Synthesis of data on fatal overdoses revealed that rural overdose death rates varied by individual demographics. Males are almost two times more likely than females to die from an overdose.[19] Fatal overdose deaths were more common among individuals who identified as non-Hispanic American Indian or Alaska Native (AI/AN) followed by individuals who identified as non-Hispanic White, non-Hispanic Black, Hispanic, and non-Hispanic Asian.[20] In terms of age, individuals 25–44 years of age had the highest overdose death rates followed by with those aged 45–64 years.[21, 22]

Trends in Non-Fatal Overdoses and Populations Disproportionately Impacted

Rates of non-fatal overdose are more difficult to assess due to underreporting and other challenges (e.g., lack of electronic health records infrastructure) when trying to access rural data. Nonetheless, national-level estimates provide insights into this topic. According to the Drug Abuse Warning Network (DAWN), nearly half (48.1 percent) of ED visits for non-fatal overdoses involved an opioid.[23] Since using an opioid in combination with other drugs can increase overdose risk, it is not surprising that between 39 and 52 percent of non-fatal overdoses involve more than one substance.[24,25] In rural communities across 10 states, PWUD who self-reported using both opioids and methamphetamine had higher rates of non-fatal overdoses compared with people who used opioids or methamphetamine independently.[26]

National-level non-fatal overdose rates also varied by demographic characteristics. Males were more likely than females to be treated for a non-fatal overdose in a hospital ED. Further, individuals who are Black had the highest non-fatal overdose rates with multi-racial and AI/AN individuals having the lowest.[4] With regard to age, individuals aged 26–44 years had the highest non-fatal overdose ED visits.[27]

Overdose risk is compounded by other intersecting characteristics, such as decreased tolerance to opioids following time in carceral settings or due to less safe consumption patterns common in public use when individuals are unhoused.[28,29,30] Cross sectional studies conducted by the Rural Opioid Initiative in 10 states (Illinois, Wisconsin, North Carolina, Oregon, Kentucky, West Virginia, Ohio, Massachusetts, New Hampshire, and Vermont) using data from January 2018 to March 2020 provide valuable insights and confirmed these intersecting risk factors.[31,32] Among rural study participants who reported past 30-day drug use, 41.7 percent reported recent incarceration and 53 percent reported being homeless in the last 30 days.[33,34]

4 The report indicated Asian, Native Hawaiian or Pacific Islander data was suppressed.

Insights & Observations from Rural Communities

During the needs assessment, three main themes emerged from observations and insights shared by rural OPR leaders: (1) proliferation of fentanyl, (2) increases in polysubstance use, and (3) shifts in consumption methods.

Proliferation of Fentanyl

Many rural OPR leaders noted a proliferation of fentanyl, either intentional or unintentional, within local drug supplies. Several rural OPR leaders were resigned to the belief that within their communities, fentanyl is probably going to be present in most people's substances. One rural OPR leader reported that when testing with fentanyl test strips, *"everything's coming back positive, nothing comes back negative."*

Although some of the increased fentanyl presence was attributed to personal preferences and intentional use, several rural OPR leaders expressed concern over unintentional fentanyl consumption This is particularly applicable for pressed pills and, to a lesser extent, stimulants based on information shared. Rural OPR leaders noted that younger people often think they are consuming authentic prescription pills for non-medical purposes (e.g., Adderall, OxyContin, Ritalin, or Xanax). As one leader shared, *"I think the people who are dying from fentanyl truly don't even know they're getting fentanyl, and they would not be testing for it. They think they're buying OxyContin or some kind of pill form ... and fentanyl has been put in there."* Additionally, several rural OPR leaders voiced concern that there remains a lack of recognition that people who use stimulants benefit from OPR efforts in rural areas. As one participant noted, *"For folks who use meth, I notice there's a lot of stigma within the drug user community too. They're like, 'Oh, I don't need Narcan. We don't do that stuff.'... So, [I] have a lot of conversations around [the fact that] because you don't do it, that means you have no tolerance to it, which [puts you at] even higher risk for an overdose if there were to be some cross-contamination or something like that."*

EQUITY CONSIDERATIONS

Rural OPR leaders recommended that communities monitor and engage with the following rural populations during outreach and information-gathering activities given the potential for increased overdose risk and barriers to accessing OPR services.

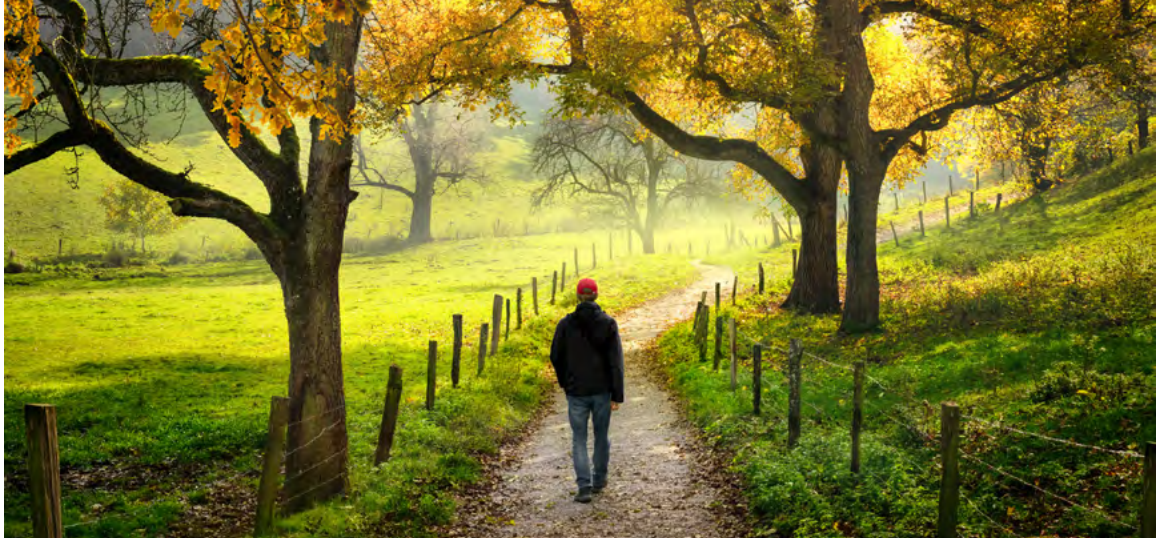
- Agricultural and seasonal workers
- Black and African American community members
- Indigenous community members
- Non-English speakers
- LGBTQ+ community members
- Pregnant and parenting people
- People leaving carceral settings
- People leaving inpatient or outpatient treatment
- People who have returned to drug use
- People who are undocumented
- People who are unhoused
- Youth under 18 years of age
- Young adults under 30 years of age
- Older adults

Increases in Polysubstance Use

Multiple rural OPR leaders shared perceptions that polysubstance use is pervasive and increasing, with particular concern over the combined use of opioids and stimulants. Rural OPR leaders cited local data and personal observations, including one indicating that it is *"very evident that there is a lot more stimulant use co-occurring with opioids, which makes [everything] even more dangerous."* One leader reported that roughly one in three overdose deaths in their community included a stimulant. One rural OPR leader described the negative impact of the combined use of opioids and stimulants on their community as follows: *"... the meth use ... combined with the extreme fentanyl use, is really leading to a lot of ... very aggressive, out of control behavior ... people are a lot worse and harder to manage and have more challenges, than they did prior to COVID ... People are in much more compromised positions due to the changes in the underground drug market, and we just have not made those investments in supporting them."* Hence, OPR efforts need to address the complex needs among individuals engaged in polysubstance use, including providing pathways to OPR and treatment options that address this trend.

Shifts in Consumption Methods

Many rural OPR leaders observed shifts in drug consumption methods, noting an increased demand for safer smoking supplies and education. Although the degree of the shift varied based on the community and populations served, a common theme during engagement interviews was the growing demand for safer smoking supplies and declining need for safer injection supplies. For example, one SSP staff member explained that pipes are the most popular instruments used by individuals in their community and reported that they were *"surprised by how few syringes we give out at the syringe exchange program."* Another SSP estimated that approximately three quarters of the people they serve continue to inject as their primary form of drug consumption. Rural OPR leaders stressed that OPR policy and programming must be attuned and responsive to local consumption trends or risk missing out on opportunities to engage PWUD in OPR strategies.



Guiding Principles and Evidence-Based & Promising Practices

Defining Principles and Practices

Sentiments shared during the roundtables, participant observation, and community engagement interviews echoed that OPR is not just about specific services or practices but also fundamentally about how you approach and build relationships with the people you partner with and serve. This was discussed in the research and resources reviewed for the environmental scan and gap analysis, but to a lesser degree, as these less tangible social components are often more difficult to investigate and characterize. Given the importance of both the 'what you do' and 'how you approach' rural OPR efforts, this section of findings and recommendations is divided by principles and practices. The principles are foundational components for OPR efforts that must be considered—regardless of the specific strategy that a community implements. The practices are specific services supported by rigorous research and/or identified by rural OPR leaders during the needs assessment as successful in preventing or reducing overdose in rural communities.

Guiding Principles for Rural OPR

Drawing on insights and findings from the roundtables, participant observation, community engagement interviews, and environmental scan and gap analysis, JBS and rural OPR leaders identified the following "Guiding Principles" as essential to providing effective OPR in rural settings. While many of these principles have been discussed or highlighted in OPR best practices or guidance,[35] the principles presented in this section are essential to successful OPR efforts, according to leaders across multiple rural communities in the United States. Each principle includes a description of its importance to rural settings, along with quotes from rural OPR leaders.

INCLUSION: Include PWLLE in all aspects of planning, implementation, and evaluation processes.

PWLLE bring firsthand knowledge of the unique needs, assets, barriers (e.g., treatment deserts, transportation issues), stigma, and discriminatory practices in rural areas. This provides valuable insights into making rural services accessible and acceptable.[36,37] Including them in decision-making processes and activities is a guiding principle and best practice for rural OPR efforts[38] and is highlighted in Substance Abuse and Mental Health Services Administration's (SAMHSA) Harm Reduction Framework.[39] Meaningful inclusion requires intentionality, respect, and thoughtfulness, as well as equitable voices throughout the process and compensation for shared expertise.

Throughout the needs assessment, rural OPR leaders highlighted the importance of thoughtfully including PWLLE in all aspects of the program planning, implementation, and evaluation process. This includes as many PWLLE and/or their family members serving on opioid settlement boards, boards of directors, steering committees, and advisory bodies in meaningful ways to provide input, oversight, and guidance on rural OPR programming.[40] Additionally, these roles should include training and compensation. One CBO reported that at least 51% of their board members are individuals directly impacted by substance use. Another CBO convenes community advisory boards to gather insights and feedback from the people they serve on specific topics related to adapting or designing new programs. Multiple studies identified in the needs assessment, including from the Rural Opioid Initiative, use community-based participatory research (CBPR) practices to gather quantitative and qualitative information from PWUD in rural communities.[41] These studies have led to practical changes to services, such as different supplies provided at SSPs, more educational campaigns to address misinformation within the community, specific training for healthcare providers, and a more person-centered approach in organizational policies.

INSIGHTS FROM RURAL OPR LEADERS

> **"[We employ] 100% individuals that identify as being a person in recovery or directly impacted by mental illness, substance use, or have lost a child to substance use."**

> **"We've had our pipeline of folks who are secondary distributors, who become contractors, who become staff … [It] is a really wonderful thing that we've been able to see … So, we have a lot of established partnerships with folks who are just really huge advocates and eventually being able to hire them, they're already doing the work, they're usually people in recovery themselves. [The fact that] they're folks who've maintained contact with the [other people using drugs in the community], who are going to need the support is what's really important."**

Employing PWLLE is a practical way to ensure that firsthand knowledge is infused throughout the organization. Rural OPR leaders called for hiring, training, and investing in PWLLE on staff. It is critical to use equitable practices, like offering career paths/ladders to management and leadership positions, professional development opportunities, competitive employee benefits (including quality health insurance), and competitive wages. Support for the overall well-being of all staff, including PWLLE, is critical.

Rural OPR leaders also emphasized the importance of providing appropriate financial compensation for PWLLE for sharing their valuable time, expertise, and insights (e.g., $25 for completing a short survey; $75 for participating in a 1–hour interview; $100 for participating in a 1–hour advisory board meeting).

INSIGHTS FROM RURAL OPR LEADERS

"We always really advocate for … financially … giving back to people who give us their time. Paying people who use drugs for their time. It's really huge … A lot of times they're asked to do a billion surveys to give their opinion on a billion things, and they might be in survival mode. These might be unsheltered folks who don't have time for that because they need to figure out what they're going to do for the rest of the day or find their next meal."

LOCALIZATION: Use local data sources to identify populations disproportionately impacted by overdoses to determine the service landscape and to guide rural OPR interventions.

Rural communities have similar—and different—characteristics. From overdose hotspots to treatment and harm reduction sites and approaches, no two communities are exactly alike. As such, local data—both quantitative and qualitative—provide a nuanced picture of what is and is not working, what is facilitating or impeding OPR, emerging needs and gaps, and changes in overdose and drug use trends. Gaining a more granular picture of community characteristics ensures that evidence-based approaches will be locally accepted and effective. Ongoing information gathering (e.g., soliciting insights and guidance from PWLLE and

TIP: DATA SHARING AGREEMENTS

Establish data-sharing agreements with community partners (e.g., academic research partners, health systems) to expand data access and share resources.

PWUD, discussions with community members and service providers, review of EMS reports and various meeting notes, examination of local secondary data) provides pertinent information that allows OPR efforts to address real-time needs and reach all community members, including those historically excluded. Rural OPR leaders were quick to point out that an active community feedback loop ensures that decisions and approaches are timely and data-based. Creating and maintaining a strong feedback loop between those delivering OPR services and the community, including PWLLE and PWUD, is critical to ensure OPR interventions remain relevant and responsive to changing local needs.

REPRESENTATION: Reflect the community served.

Representation is a universal principle, but its precise interpretation and application can look different from community to community. Limited numbers of treatment providers and CBOs in rural settings can result in smaller and less diverse teams providing OPR services. PWUD may not feel safe and included if they do not see people like them reflected in the environments where they can seek OUD/SUD services. One CBO reported that many organizations that have historically received funding have not developed relationships with marginalized community members. Many in the community were said to be uncomfortable seeking services from these long-standing organizations who historically were not attuned to their needs. Seeking services from facilities where people like them are employed enhances their comfort level and can help to reduce stigma.

OPR leaders talked about intentionally recruiting from within their rural areas to ensure staff and contractors mirror the community being served. Beyond geographic characteristics, this also included ensuring that staff are linguistically and culturally representative of the community. Especially for community members who may experience stigma associated with factors beyond drug use (e.g., members of the LGBTQ+ community, people without a legal immigration status, or people who have been incarcerated), knowing that staff at the organization where they are seeking services share similar experiences and can tailor services accordingly is critical.

INSIGHTS FROM RURAL OPR LEADERS

“Some of our most successful staff live in the area already … [and] having people who are already incorporated into the community, who know that community, who know the things that those people face because perhaps they have engagement with the criminal justice system, food insecurity, housing insecurity, it’s really important to hire people in those areas.”

> **"Over the long history of the last century of local public health departments existing, local government workers might not have always reflected the diversity of their community. And so, trust, especially in the rural south, might have been not as good as it is today. I think the evolution of understanding that workforce and community are connected and need to be reflective…is an important part of delivering health services in a rural area."**

TIP: SECONDARY DISTRIBUTION

To better reflect the community, establish a network of compensated secondary distributors as an extension of your organization. Secondary distributors are program participants who disseminate safer consumption supplies and OPR information to their existing network of PWUD. This is an opportunity to better reflect the community and reach people who are not yet comfortable engaging directly with the service provider.

TRUST: Invest in building and maintaining trust and relationships with the people you serve.

Due to a history of limited resources and lack of provider presence in rural areas, community members may be suspicious when new services are introduced. Launching these services requires patience, consistency, and time to build and maintain trust with the service populations. This can involve months of showing up at the same time and place to provide pop-up harm reduction services before community members feel comfortable engaging with staff. Maintaining a presence is essential to monitor and address new or ongoing needs and service disparities. As noted by one rural OPR leader, *"In rural spaces we have to spend more hours just showing up places … if you don't have a face attached to an organization, a presence in the community that people have seen multiple times, that's going to be important. So, making sure that you are building the capacity to have people just attend events, maybe with no actual final goal besides just being there. I think that's one of the really important things about our staff is having to send them to more things that might not result in much … but we know that building that trust, building that presence in the community is going to be the big step."*

Rural OPR leaders highlighted that the investment needed in rural communities to build trust is commonly greater than that needed in urban communities. Strategies for successfully developing trusting relationships include being consistent in conducting community outreach, attending community events, reducing the amount of information needed from program participants (e.g., not requiring identification when possible), hiring secondary distributors to be program ambassadors, minimizing intrusive data collection where possible, and ensuring that referral partners are trusted organizations.

INSIGHTS FROM RURAL OPR LEADERS

"A lot of the folks that I meet … haven't heard the term 'harm reduction.' They don't understand why I might want to give them [naloxone and safer consumption supplies] and they're very suspicious. And sometimes it takes me just saying 'hi' to someone for months before they stop and pick up a Narcan or a pipe or a pack of syringes. Really, it's been eight months sometimes of me saying 'hi' to someone before they take something."

"We're needs-based, we're low-barrier. We don't ask people for identification … we've always served the community as a whole. We're never going to not do that. And we're not alone. Most tribal organizations that … I know about are serving everyone because that's best practice. If we want to get to a tribal population, the people who are at highest risk, who are using drugs … we're not going to be asking for IDs. That's not a good practice."

MOBILITY: Bring supplies and services to your community, including through co-location, to increase access and reduce transportation barriers.

The mantra of "meeting people where they are" was repeated by rural OPR leaders throughout the needs assessment. While this commonly means aligning service provision with what the individual is ready for, it means meeting people where they physically are. Bringing supplies and services into the community helps address transportation barriers, thereby improving access and increasing continuity of care. Mobile service provision can also protect confidentiality of the people being served by parking in more secluded areas that reduce an important barrier in rural communities—the risk of being seen by other community members.

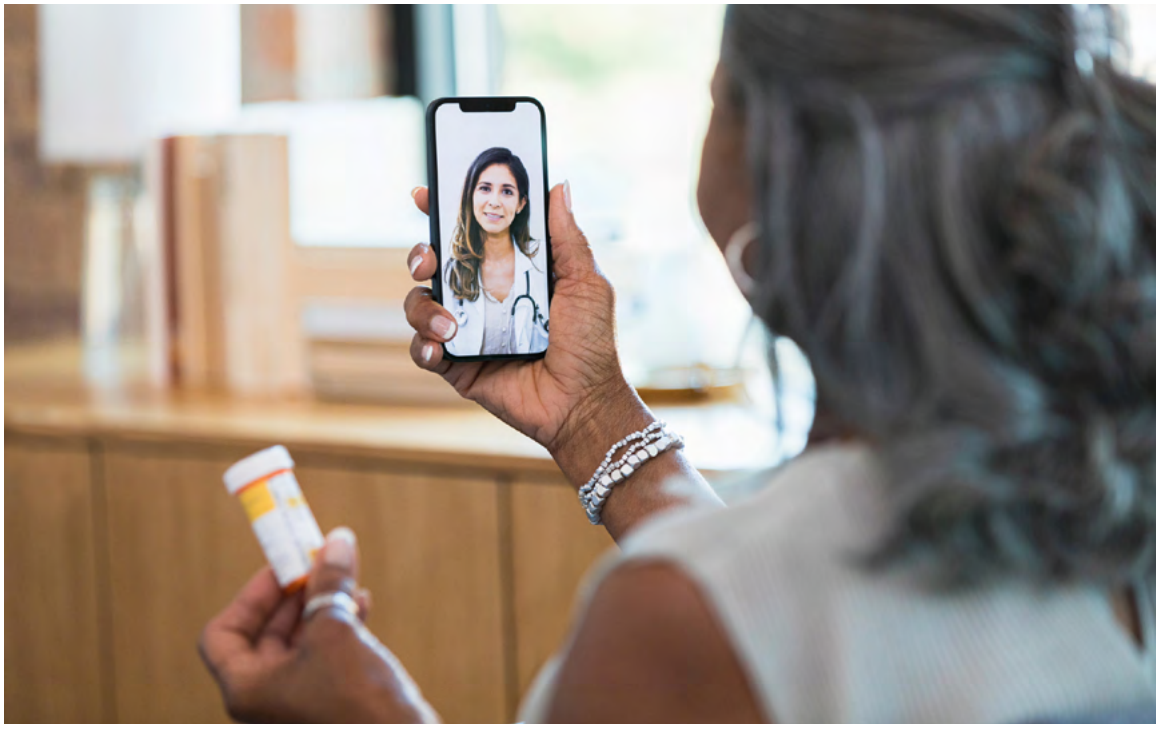
Rural OPR leaders address the mobility principle through mobile health units, pop-up harm reduction programs, home visiting programs, and field-based counselors who can all bring harm reduction and treatment services to the individual. Another common strategy is co-locating OPR-related services in settings already frequented by people at risk for overdose, such as federally qualified health centers (FQHCs) and food pantries. Additionally, it is paramount to offer OPR services at jails and hospitals given the increased risk of overdose for individuals leaving carceral settings or following hospital admission for an overdose. For instances where it is more challenging for programs to set up mobile services, rural OPR leaders suggested mail-based or vending machine-based distribution that does not require the same extent of staff travel. Telehealth is an additional strategy to mitigate logistics barriers and support confidentiality of participants, but telehealth requires internet bandwidth and proper devices to access, which may be more limited in some rural areas.

INSIGHTS FROM RURAL OPR LEADERS

> **"In rural spaces it's … a big investment for people to come into town to go to an appointment or meet a case manager or get to know something that they're not sure is really going to work for them. So having people [for example other service providers] who are able to come to the [mobile SSP] site somewhat regularly makes a big difference so they can meet them without having to invest too much energy, or time, or resources."**

> **"[Our counselor] goes and meets people literally where they are in order to do therapy with them … it could be talk-therapy…all kinds of [services], she kind of wears many hats. We have one person … they refuse to go on medications and so she just walks with them around downtown or around a park or something like that, and that's how they do it. Other people, she knows … to wait for … Wednesday morning release from the temporary shelter, and then they'll go walk over to McDonald's together and she'll get them an egg McMuffin or something, and they'll talk on the walk and they'll talk there and then … but if people can come into her office and make an appointment, that's fine, or she'll do telehealth with people."**

> **"We talk about … equal opportunities, but if you don't have internet, then you can't have telehealth."**



PERSON-CENTERED: Employ trauma-informed strategies while addressing SDOH.

Trauma coupled with multiple unmet needs is a common experience among PWLLE and PWUD. Rural OPR leaders reinforced that this is the product of systemic inadequacies that continue to intimately impact their communities. Being cognizant of these issues is necessary to provide a physically and emotionally safe space within which respectful and positive communication can occur. Expressions of kindness and acceptance, together with active listening, eye contact, and positive body language can influence whether someone will engage with offered services, lowering their overdose risk.

Addressing SDOH further improves the likelihood of trust and engagement to reduce overdose risk.[42,43] Rural OPR leaders emphasized that naloxone distribution, while critical, is less effective when basic needs are not met. By addressing basic needs (e.g., hunger, housing, employment), individuals may be able to devote attention to safer consumption strategies or reducing or stopping use, if that is their goal. Individuals, especially those who are unhoused, may be more motived to visit an SSP if food, clothing, or linkages to other social services are available.[44] Embedding these offerings or services in locations PWUD frequent is critical in rural communities where programs to address SDOH are either non-existent or so spread out that they are not accessible.

INSIGHTS FROM RURAL OPR LEADERS

"At the end of the day, it's about changing people's lives. It's about people getting better, getting healthier, [and understanding that all] people [are] worth saving … and it's very pride-filling to know that our staff agree with that. And that they know harm reduction and they know trauma-informed care. And that they know a pregnant woman could come in here for centering pregnancy and prenatal care. And at the end of the day, we might have ensured that she has six other services, including MOUD as one of them, and that there's a better health outcome for her and her baby."

"We live in a racialized society where obviously native people in this community are discriminated against, horrifically. And in schools, in the legal system, in the employment system. So, if we want to create equitable situations for folks, we need more—more workforce development funding. We absolutely need that, and this is critical for overcoming the opioid epidemic."

AUTONOMY: Respect multiple pathways of recovery and any positive change to meet individual needs and address stigma.

Stigma and stigmatizing views of substance use are pervasive across the country—in urban, suburban, and rural communities alike. However, given the tightknit nature of rural communities, stigma is often exacerbated in these regions. First, PWUD may face greater social scrutiny and judgement because personal matters are more likely to be shared and discussed in small communities. Second, the presence of fewer service sites may increase the likelihood of a person being seen entering a site and experiencing stigma due to assumptions about their drug use. This can result in an increased fear of being ostracized and deter individuals from seeking support. Not only is stigma associated with adverse impacts such as discriminatory practices, poor healthcare outcomes, and mental health issues like depression, but a study examining stigma among rural PWUD also demonstrated its association with a higher risk of overdose.[45]

For OPR efforts to be successful, it is vital to create an environment in which people are comfortable accessing services and discussing their substance use or SUD honestly without fear of judgement. Rural OPR leaders emphasized the importance of service provision without expectations of abstinence or specific recovery-related goals. At the end of the day, OPR is most successful when focused on PWUD, and that means working with and accepting them for who they are and where they are in their relationship to substances. Rural OPR leaders highlighted the need for continuous education to address the stigma and internal bias that may prevent organizations or leaders from embracing and implementing this principle. Rural OPR leaders noted that when rural service providers are abstinence-based, people who are still actively using drugs are frequently marginalized, further limiting access to important community services. While abstinence-based programs should exist for individuals who have set that goal, alternatives are critical to prevent overdoses among people who are not

INSIGHTS FROM RURAL OPR LEADERS

"Having zero barriers to access naloxone, having access to treatment and medication-assisted treatment options and with minimal barriers. And that means telehealth, not … kicking somebody out of a program because they've had a setback … Continuing to support people, with minimal barriers …That is what's working. Giving people the opportunity to stay alive while they work through their junk and find out how to live and be more of invested in their own lives. So self-directed pathways. Nothing is linear when it comes to the work that we get to do and the people that we get to serve."

"No matter what you walk in with, we're going to try and bring the full complement of services to benefit you, the client in front of us."

ready to cease using. This process reflects the effectiveness of "meeting people where they are," regardless of substance use or recovery pathways. Within rural OPR efforts, leaders stressed that people should not lose access to care or services due to current or recurrent substance use. Additionally, recovery must be self-directed and as such, will look different for each person. Autonomy must be a core tenet of any program.

CHAMPIONS: Identify and invest in local champions, advocates, and partnerships to reduce stigma.

Rural OPR leaders discussed the prevalence of stigma at every turn. Ongoing education related to stigma, substance use and SUD, and SDOH are fundamental for any organization providing services to PWUD, particularly OPR-related services. Challenging stigmatizing views and policies is a delicate balance of having honest conversations while not alienating the individual or organization being educated. Some of the most important players in addressing stigma in rural communities are local champions and advocates of OPR efforts who are respected within the community (e.g., community members, first responders, trusted service providers). Identifying and investing in relationships with champions can help reduce stigma and increase receptivity of rural OPR efforts, leading to better outcomes.

Local changemakers (e.g., LHD leaders and staff, county commissioners, specific healthcare providers, secondary distributors) can change perspectives by prioritizing trainings within their respective agencies (e.g., the LHD medical directors training all staff on the value of and evidence supporting MOUD) and offering "like-training-like" (e.g., a police chief training other law enforcement officers, a pharmacist training fellow pharmacists). Roundtable SME participants noted that it often takes "ground game" (efforts focused on personal contact with individuals) and talking directly to trusted peers for service providers to make OPR evidence-based practices, resources, and services more accessible in rural settings. Cross-sector community coalitions, forums, boards, or committees related to rural OPR efforts, including overdose fatality review boards, can serve as recruitment venues for these types of partners. Additionally, partnering with PWLLE in the community, including PWUD and their families, secondary distributors, local drug user unions, and local harm reduction coalitions, who are already champions within the community, can increase awareness and understanding of evidence-based OPR strategies.

INSIGHTS FROM RURAL OPR LEADERS

"It's just about making sure you have the right people speaking to the right folks. Providers like to hear from other providers. Service [providers] and such also like to hear from other folks who have implemented these programs. And so, making sure that when we do provide that technical assistance and folks are doing that, maybe naloxone distribution for the community and stuff, showcasing them as a champion and being like, 'these folks are doing this work, you should too, and here's why'."

"[The police chief] is a huge proponent … having somebody like him in your community who … just normalizes it all. … His kids have gone through … substance use challenges. … And we did a law enforcement training a few years ago and his daughter came and spoke. … And there are a couple of other law enforcement people who have lost children, and they spoke to the group … I think those kinds of events have made a difference."

TIP: PARTNERS TO CONSIDER

Given resource challenges and the power of collaboration, rural OPR leaders consistently emphasized the importance of partnerships within their communities. Thinking creatively about with whom to partner is important when considering how to best reach all members of your community. Consider the following sectors for OPR collaborations as they may become OPR champions:

- Chambers of commerce
- Cultural organizations
- Drug user unions
- Emergency medical services
- Employment services and job training programs
- Faith-based organizations
- Fire departments
- Food pantries
- Harm reduction programs
- Health care providers (including FQHCs, community health clinics, and critical access hospitals)
- Housing programs
- Jails and prisons
- Law enforcement-Legal aid
- Librarians
- Local health departments
- Pharmacies
- Schools
- State health departments
- State offices of rural health
- Transportation authorities and service providers
- Treatment providers
- Tribal organizations
- Universities, academic institutions, and agricultural extension programs
- Workforce programs (e.g., AmeriCorps MedServe)

Successful Evidence-Based and Promising Practices for Rural OPR

This section presents evidence-based and promising practices for preventing and responding to overdose in rural communities. For this needs assessment, evidence-based and promising practices include approaches and strategies identified in rigorous peer-reviewed research on effective OPR efforts, as well as activities and interventions said to work well by rural OPR leaders and practitioners, based on their experience and expertise. While many of these practices have been previously discussed or highlighted in other OPR guidance, OPR leaders across multiple rural communities in the United States identified these specific practices as especially important or relevant.[46,47] The practices are divided into three categories: (1) planning for impact, (2) preventing and responding to fatal and non-fatal overdoses, and (3) meeting individual needs to prevent overdoses. This section describes each practice, highlights rural-specific considerations associated with the practice, and provides illustrative examples of how it has been, or can be, applied in rural communities.

Planning for Impact

Community-based needs assessments and feedback loops

What does this mean and why is it important for rural communities? Local, community-based needs assessments play a significant role in planning for, and subsequently developing and implementing, effective OPR efforts that address gaps, use existing resources, and respond to community needs. Needs assessments are a systematic and purposeful first step in addressing rural OPR, particularly given the relative paucity of resources in these communities and the need to leverage or strengthen what exists (not duplicate what is working) if capacity is sufficient and determine what new resources are needed to address gaps. Community-based needs assessments uncover drug use and overdose trends, geographic hotspots, and populations disproportionately impacted, who are unlikely to be reached through existing OPR efforts. They identify what assets and resources exist, what has been effective, what is lacking, and how OPR would best be accessed by the local community. Finally, they uncover barriers and facilitators to OPR efforts which inform service design for increased impact. These efforts meaningfully engage, and solicit input from, those most directly impacted by overdose, including PWLLE and PWUD. Creating and maintaining a strong feedback loop for disseminating results helps to ensure data are employed to design necessary and acceptable OPR interventions. While not strategically different from approaches used in non-rural communities, rural OPR leaders highlighted the critical role that needs assessments and planning periods played in the successful rollout of services adapted to their communities.

INSIGHTS FROM RURAL OPR LEADERS

> **"Even though it's very difficult, making sure that you are engaging people who are going to use the services [is important] because if you're not asking them, whatever you do is not going to be successful. It is not a 'build it and they will come' situation. Where we've had successes, here is where we have asked people what they wanted, what they needed, or where we have looked at the data and said, 'okay, we have a serious gap here, this is what we should be doing."**

How can this be done in rural areas?

- Conduct a local needs assessment where data feeds back to the community and service providers by:
  - Determining what you need to know, who needs to participate, what resources exist for conducting the assessment (use planning grants to support this work whenever possible), what methods and data sources you will use, and how and with whom you will share results.
  - Identifying and obtaining existing local data from overdose fatality review boards, first responders, 911 logs, and hospital emergency rooms about the types of substances used, overdose trends, drugs in a person's system when overdose occurs, post-overdose responses, and disproportionately impacted communities. Supplement these data with Overdose Detection Mapping Application Program (ODMAP) and state-level overdose data when at least county-level data are available, timely, and not suppressed.
  - Gathering additional information through surveys, interviews, and focus groups conducted with advisory boards, services providers, PWUD, PWLLE, and other community members and leaders.
  - Utilizing CBPR partnerships to identify how to best tailor programs to meet local needs.[48]
  - Working with academic research partners and universities to support independent evaluations of the reach, acceptability, and effectiveness of OPR and harm reduction services.
  - Whenever possible, adding questions related to substance use and overdose into existing community health assessments.
- Translate results into practical recommendations and disseminate them in multiple formats, tailored to different audiences, to guide decisions and focus future OPR efforts. For example, community needs assessment and information gathering was used to support the development of SSP programs within Indigenous reservation settings that are culturally relevant while also meeting the practical needs of people who use drugs in a rural context.[49]

Preventing and Responding to Fatal and Non-fatal Overdoses

Targeted OEND to PWUD

What does this mean and why is it important for rural communities? Throughout the SME roundtable discussions, Reaching Rural participant observation, and community engagement interviews, rural OPR leaders underscored active, targeted OEND to PWUD as one of the most important and effective EBPs for OPR in rural settings. As one rural OPR leader stated, *"we just need as many ways of getting [naloxone] into the hands of people most likely to overdose as possible."* Another leader emphasized that the *"most efficient use of [naloxone] is giving it straight to people who use substances***,"** citing a local study on naloxone distribution in their area which found that when naloxone was distributed to lay people it was more likely to be used for reversing an overdose than when distributed to law enforcement. This assertion reflects findings from other regions as well.[50,51,52] According to rural OPR leaders, OEND also serves as an effective community engagement tool for initial outreach, establishing relationships, and building trust with PWUD and their contacts who may need or be interested in additional harm reduction services and support.

Both OPR leaders and the literature confirm that the approaches or methods for effective OEND in rural communities differ from their urban counterparts.[53,54,55] Transportation and travel time to obtain naloxone are ubiquitous barriers that pose even greater challenges in rural settings. Naloxone use is inconsistent; in some rural communities first responders do not, or are unwilling to, carry naloxone, and some carry but rarely administer it. Stigma and lack of confidentiality in small towns also hamper access, as can a declining pharmacy footprint in U.S. rural communities. Considering these challenges, ensuring that needs-based distribution is prioritized and adapted to the realities of rural communities is critical to the success of any multi-pronged OEND approach.[56]

INSIGHTS FROM RURAL OPR LEADERS

"As far as fixed sites … not everyone is likely going to … be able to get your services. From my experience, I think delivery is really more accessible for people in rural spaces. Asking someone to come to a fixed site that's going to be in a public place in a really small town is asking them to be … really, really vulnerable. They don't know who's going to be walking by, driving by … I think if it is possible to do deliveries and that's what people who use drugs want, I think that's probably a good thing to have."

How can this be done in rural areas?

- Employ multiple naloxone distribution methods. For example, in addition to fixed sites, distribute naloxone (and other harm reduction supplies) to PWUD via personal delivery to increase access, reduce transportation barriers, and support confidentiality. This involves staff or contractors driving to an agreed upon meeting place to distribute supplies to PWUD. Rural OPR leaders advocated for flexibility in determining meeting places (e.g., homes, encampments, gas stations), emphasizing it works best when it's on their terms. They also emphasized the importance of using discreet, unmarked vehicles to support confidentiality.
- Provide OEND in EDs, carceral settings, and any other venues where individuals may be at higher risk of overdose.[57,58] One rural OPR leader discussed the need to distribute harm reduction bags that include naloxone at discharge from hospitals or release from carceral settings.
- Implement needs-based, secondary distribution where individuals obtain naloxone kits from partner organizations and then share those kits with others in their network. This mitigates barriers related to transportation and travel time as well as stigma and concerns of confidentiality.

INSIGHTS FROM RURAL OPR LEADERS

> **"There's just a lot of stigma there … so something … [our organization] tries to do and does well in rural spaces is … having a really hardy secondary distribution program. Because the participants there know [the town], or whatever rural space it may be, better than I do. So, making sure that we have an equitable way to distribute our very limited supplies that includes those folks, I think is important and does help."**

- Employ passive naloxone distribution methods such as naloxone dispensing machines (e.g., public health vending machines, repurposed newspaper boxes) and mail-delivery programs. This approach can facilitate 24/7 access near known overdose hotspots. While these approaches are useful to help fill access gaps, many rural OPR leaders stressed that they cannot replace supply distribution and education offered through direct engagement. In these passive strategies, supply distribution is the goal, whereas through direct outreach, providing supplies becomes an opportunity for connection, ongoing education, and a potential facilitator of positive change.

INSIGHTS FROM RURAL OPR LEADERS

> **"I was not on the bandwagon for naloxone vending machines for a long time because I know that … the real long-term change is the relationship that you have with people who need you. But I think we're just at that point where overdose rates are so bad that anywhere we can put them [is valuable]."**

- Increase awareness of pharmacy-based naloxone where available. While pharmacies are another access point for prescribed and over-the-counter naloxone, not all rural communities have a pharmacy and findings around interest and effectiveness of naloxone availability via pharmacies were mixed. Rural pharmacies can be a potential asset, but barriers related to bias against, and stigmatization of, PWUD and harm reduction strategies as well as out-of-pocket costs need to be addressed.[59]

INSIGHTS FROM RURAL OPR LEADERS

> **"I was really unimpressed with making it over the counter. And it's great, but if you're into heavy use with fentanyl, you're not going to spend $50 on Narcan, and you're not going to ask the pharmacist for it because they're going to know why you want it because you're going to look like you're using drugs and then you're going to get shamed. So, to me it was like a politician's solution, not a practical provider's solution."**

- Include overdose safety planning information such as making use of overdose prevention hotlines and apps (e.g., Brave, Canary, Never Use Alone, Safe Spot). These resources alert first responders of a potential overdose when prompts go unanswered. These can be powerful response tools, although their impact can be limited by longer travel times for first responders in rural areas.

TIP: IMPLEMENTING PUBLIC HEALTH VENDING MACHINES

- Use local overdose data along with input and feedback from PWUD and their networks to identify overdose hotspots and venues where people are at high risk of overdose and would benefit from a naloxone dispensing machine (e.g., libraries, jail waiting rooms, health centers, highway rest stops).
- Identify locations and spaces that are accessible and discrete.
- Reduce stigma by also stocking supplies that are unrelated to drug use, such as food and water, hats, and gloves. This mitigates concerns that using the machine automatically connotes drug use.
- Include QR codes on naloxone kits that link to information on other community services, systems for reporting overdoses, and sites to report overdose reversals. Provide the same resources in print for individuals who do not have access to phones.
- Be creative in repurposing existing community resources (e.g., newspaper boxes) to house naloxone and other supplies. "Machine" does not need to mean high-tech.

Community outreach and peer support

What does this mean and why is it important for rural communities? Multiple rural OPR leaders identified community outreach and peer support services as highly effective interventions for supporting OPR in rural settings. Community outreach enables organizations to engage with their community to increase awareness of services and offer them directly within the community. Peer supports are specific services and conversations that occur between individuals with shared experience. While community outreach and peer support can be separated into distinct practices, there is substantial overlap as a means of maximizing use of staff and time in rural communities. Outreach paired with peer support reduces barriers and builds stronger connections to the local community. This may be due to the fact that as PWLLE, peer specialists bring valuable expertise and engender trust and credibility.

Rural OPR leaders noted two primary obstacles to peer supports in rural communities. First, the limited number of peers means that peer supports may be delivered by peers with specific certifications such as peer recovery support specialists (PRSS) or they can

be individuals with lived experience who have not received such certifications. This can impact the type of supports and services that are delivered as well as what can be reimbursed by insurance. Rural OPR leaders were clear, however, that since peers play a key role in OPR efforts, they prioritize involving this group regardless of credentialing. In some instances, organizations even intentionally hire or contract PWLLE without PRSS certifications because desired staff are not eligible for certification due to abstinence requirements or previous criminal convictions. As one rural OPR leader noted, *"maybe they used [X] drug before, but now, they use [Y] drug, which is harm reduction."* The limited number of peers also contributes to burnout when they support wide geographic areas.

INSIGHTS FROM RURAL OPR LEADERS

"[Peer support] is something that takes an overwhelming amount of capacity, a lot of training, and a lot of support for the staff who are doing it. And that's where we just see a lot of difficulty … that a lot of times the folks who are peer support are one in the entire county for their program, and that—we know that that's not how peer support works. You need to be able to be there. So unfortunately, a lot of times folks are just really burnt out and exhausted and wanting to do so much more."

How can this be done in rural areas?

Community outreach

- Engage PWLLE that reflect the community served and understand community needs, values, and the cultures of populations disproportionately impacted to lead outreach in rural settings (including OEND and needs-based supply distribution, and engaging individuals who may not be accessing OPR services).
- Improve access to services and support for all populations by tailoring OPR outreach and programming to those who live in your community and may not currently be accessing services. Staff with local knowledge, particularly PWLLE, are uniquely adept at adapting services to meet local, rural needs.
- Identify cultures and languages in target communities so you can provide multilingual outreach services and translated materials for non-English speakers, to strengthen outreach efforts and support increased access.
- Implement quick response teams (QRTs) or post-overdose response teams (PORTs) as a targeted outreach and engagement strategy. PWLLE should be part of the interdisciplinary team.

Peer support

- Offer ongoing peer support to engage individuals at risk of overdose in community, carceral, and ED settings, and link them to SUD treatment, mental health support, and other social services based on individual needs and preferences.[60]
- Because transportation constitutes a critical barrier to OPR and other services in rural communities, try to recruit and engage drivers with lived experience who can also provide peer supports. In some states this may be billable to Medicaid.
- Work to credential peers as PRSS to increase the types of supports and services that can be offered and facilitate reimbursement. Establish clearly defined roles and expectations, especially when developing and working within multi-sector teams or coordinating linkages across different service providers or settings. This will prevent the peer specialist's role from expanding beyond what is realistic for one individual and decrease the risk of burnout.
- Provide competitive salaries for peer specialists that align with the value, expertise, and skills they bring to their work in highly demanding and challenging settings. This must be in addition to creating supportive, positive work environments for PWLLE (e.g., ongoing training and professional development, strong employee benefits packages, policies that recognize that substance use recurrences can happen and are not automatically a basis for termination).
- To address the limited number of peers available in rural communities, establish referrals/linkages to peer support specialists through free call lines, such as 211 or a 1-800 number, where a greater number of PWUD can access support and obtain information about naloxone and referrals to health and human services.
- Partner with local entities to provide peer support services in settings that will reach PWUD such as EDs and carceral settings. As a starting point, local agencies may be a referral source with the goal of a peer support specialist co-locating services at the partner site.
- Explore innovative funding models to cover peer support services. Peer support as a billable service is an especially pronounced challenge in rural communities where smaller organizations may not have diverse funding or other resources to cover the costs, such as supporting staff to obtain certifications. Additionally, smaller organizations may need support building infrastructure to bill for these services.

INSIGHTS FROM RURAL OPR LEADERS

"Actually, having the ability to have a peer recovery coach actually also show up at that ER has been huge, [but] it's hard to figure out payment models for that."

Drug checking

What does this mean and why is it important for rural communities? Multiple rural OPR leaders identified drug checking[61] as a low-barrier overdose prevention tool and promising practice to support rural OPR efforts, emphasizing in-person or mail-order distribution of fentanyl and xylazine (a non-opioid sedative that is sometimes added to illicit drugs) test strips. These supplies help individuals detect fentanyl and xylazine, providing them a means to regulate use.[62,63,64] Multiple rural OPR leaders cited drug checking as a tool for educating the community about local drug supply trends as well as a helpful outreach and engagement tool to start conversations and empower PWUD with the ability to try to be safe.

Mass spectrometry, which uses machines to analyze the chemical composition of a drug sample and determine its components, was also mentioned as a drug-checking tool, but is less commonly used. Drug checking is particularly important in rural areas as national drug data may not reflect what is happening in rural communities. One OPR leader stated that while they were initially reluctant to set up a drug checking program as part of their SSP, they concluded that without it, *"the only way we know what's [in] an underground drug supply ... is at a drug bust, which is not representative of what's out there, or an autopsy, which is too late."*

INSIGHTS FROM RURAL OPR LEADERS

"So, we offer fentanyl test strips as well as xylazine test strips ... [The demand for] fentanyl test strips has wound down a little bit ... now that ... [the presence of fentanyl] is just so overwhelming that we know that it's probably going to be present in most people's [opioid] substances, but especially for people who are using stimulants, it's really helpful for them."

How can this be done in rural areas?

- Include test strips in OEND at SSPs, LHDs, healthcare, and community outreach venues for PWUD.[65,66]
- Establish feedback loops that disseminate drug checking results to inform and educate rural community members, especially PWUD, about local drug supply trends, noting that they may not mirror reported national data.
- Provide needs-based distribution that incorporates feedback from PWUD regarding which type of test strips and drug checking programs are of interest. For example, some rural OPR leaders cited an increasing demand for xylazine test strips and decreasing demand for fentanyl test strips because fentanyl was so commonplace in their region's drug supply that they could assume its presence.
- Provide incentives for PWUD to participate in drug checking programs as a means of establishing initial trust.
- Partner with state agencies and/or academic institutions to offer confirmatory testing.

OEND to first responders and community members

What does this mean and why is it important for rural communities? Multiple rural OPR leaders discussed how OEND for first responders and community members can be leveraged to address stigma, build partnerships, and help establish linkages to services, especially in rural settings where stigma against PWUD and resistance to harm reduction approaches—including naloxone—persists.

Multiple rural OPR leaders stressed that provision of naloxone to first responders must include stigma-reduction efforts, and be in addition to, and not in place of or prioritized over, the distribution to PWUD and other community members. Some cited frustrations that the rural residents who need naloxone and other resources the most are not always considered when distribution decisions are being made. Ensuring distribution decisions include PWUD and other community members is especially important in rural areas where there are frequently long wait times for receiving EMS services or resistance to engaging overdose-related EMS services due to fear of arrest or criminal repercussions. As previously mentioned, PWUD continue to face considerable stigma and discrimination from first responders in some rural communities. For example, some rural OPR leaders discussed successful and supportive engagement with law enforcement and other first responder partners, while others faced considerable hurdles such as first responders not being required and/or interested in carrying or administering naloxone, and in some cases, first responders administering it incorrectly.

INSIGHTS FROM RURAL OPR LEADERS

"[OEND with local law enforcement] did so much to shift our relationship with the community. We were no longer having to fight with them about … [an unfounded] enabling hypothesis. We could talk about life saving measures and how hard it is for people on the front lines like them and how much we understand where they're coming from and then they could kind of take a breath and say, we can kind of see where you're coming from too. Certainly not everyone … but this made them come out to the community, hear from us, see our staff, hear stories from us, and later when we got into [law enforcement assisted] diversion programs, we already had … some relationships with them, and it let us really expand on that … I don't think we're yet natural partners with each other, but … just bringing naloxone to places who needed it, to organizations and people who needed it … a lot of those places who refused to … use it on the public, that faded away because when there really was someone in front of them and they knew they were going to be there minutes ahead of the ambulance … the vast majority of the time the officer used it."

How can this be done in rural areas?

- Engage local harm reductions organizations to provide OEND capacity building to first responders. Priority training topics should include how to use non-stigmatizing and person-first language, an overview of local Good Samaritan laws and other pertinent legislation, how to identify and respond to an opioid overdose, fentanyl myths and facts,[67] and a rundown of the local overdose landscape.
- Integrate OEND capacity building into the development and implementation of multi-sector QRTs or PORTs.
- Build goodwill between first responders and community members by inviting them to community OPR-related events.

Meeting Individual Needs to Prevent Overdoses

Needs-based SSPs and harm reduction programs

What does this mean and why is it important for rural communities? Findings from the environmental scan, roundtable discussions, and community engagement interviews underscore the critical role SSPs and harm reduction programs play in providing much needed services to PWUD in rural settings, including preventing and responding to overdoses through directed OEND.[68,69] When implemented successfully in a rural setting, these programs are pillars of the guiding principles summarized previously. By championing multiple pathways of recovery, individual autonomy, and continued support, regardless of an individual's current substance use, SSPs strengthen the likelihood that rural community members will access services as needed. Comprehensive SSPs often play a critical role in providing a wide range of evidence-based OPR efforts in rural communities, and there is a need to continue to foster these programs.

TERMINOLOGY NOTE: SSPS AND HARM REDUCTION PROGRAMS

Throughout the community engagement interviews, rural OPR leaders often used the terms "SSPs" and "harm reduction program" interchangeably to describe their programs' set of interventions and services. While the core tenets, values, and principles are generally consistent across the two types of programs and there are often overlaps in the types of service provided, this shift towards "harm reduction programs" reflects the need to make services feel more open and accessible to PWUD who do not inject, use stimulants, or have historically not felt welcomed or included at traditional SSPs that were often associated with primarily white-serving, urban settings.

The National Survey of Syringe Service Programs offers insights into the current state of SSPs across the country and highlights how underfunded these programs frequently are. The cost of operating a comprehensive[5] SSP in a rural area, serving 250 people, is estimated to be $400,000 annually—a fraction of the operating cost of an urban program but with a higher cost per participant. An analysis of 2022 survey data showed rural SSPs, on average, have an annual budget that meets only 5 percent of the needs associated with a comprehensive program, compared to 46 percent for urban programs.[70] This was reinforced by rural OPR leaders who discussed the frequency with which work goes unrecognized and/or uncompensated. For CBOs, the lack of compensation was particularly frustrating when local and state government publicly acknowledge the lives saved by the programs.

5 The study examined provision of (1) syringes, (2) naloxone, (3) fentanyl test strips, and (4) the implementation of buprenorphine.

INSIGHTS FROM RURAL OPR LEADERS

"We, as an underrepresented community that has been materially sabotaged, are dealing with these situations because of all the failed policies. And then they're saddling us with unpaid labor to get the thing that we need to survive?"

A separate study, using the same 2022 data, comparing services offered by CBO-run and LHD-run SSPs found that those run by CBOs were more likely to offer more comprehensive services. In rural communities, 70.1 percent of SSPs are operated by LHDs, compared to 11.2 percent in urban settings. This highlights the need to support LHDs in offering comprehensive support.[71] This priority was echoed by rural OPR leaders who also suggested that CBO-run services are better positioned to weather shifting political dynamics in rural communities. One interviewee noted that fatal and non-fatal overdoses decreased in their community once operation of the local SSP moved from the LHD to a CBO. However, as stressed by another convening participant, LHDs may be the only safeguard to provide harm reduction programming in some rural communities. This emphasizes the need to support rural LHDs in becoming more comprehensive in their service provision and in partnering with CBOs to build local capacity.

SIX CORE COMPONENTS OF RURAL SSP IMPLEMENTATION FIDELITY[72]

1. Needs-based harm reduction supply distribution
2. Sexual, injection, and overdose risk education and counseling
3. Cooperation between SSPs and local law enforcement
4. Provision alongside, or in coordination with, other health and social services
5. Low-barrier access to services
6. PWUD are treated with dignity

Rural OPR leaders identified several operational challenges faced when operating rural harm reduction programs: costs associated with the high degrees of travel required for OEND and supply distribution across large distances; limited SSP staff, leadership capacity, shortages, and burnout; and restrictions on reimbursable costs related to harm reduction supplies and services. They also discussed how shifting laws around the legality of providing various harm reduction services and supplies often leave organizations in legal gray areas.

How can this be done in rural areas?

- As also described above in the OEND sections, increase access to SSPs and harm reduction programs in community and carceral settings through multi-pronged distribution and service delivery methods such as street outreach, mobile supply and service delivery, secondary distribution, home or community location visiting, personal or mail-based delivery programs, public health vending machines.
- Procure low-cost or free naloxone or other harm reduction supplies through available local, state, and national resources (e.g., state portals, bulk purchasing, buyers' clubs).
- Participate in informal and formal mentorships, training, and technical assistance from other SSPs or harm reduction leaders to build internal and external understanding of how to design and implement SSP programming, especially in rural settings and/or with populations that have been disproportionately impacted or historically marginalized.
- Utilize harm reduction SMEs to provide training and technical assistance to service providers, community partners, and community members on content related to OPR EBPs, harm reduction principles and approaches, and stigma reduction.
- Engage in strategic local partnerships to strengthen harm reduction program infrastructures (e.g., collaborating with a partner on grant writing).
- Support and invest in staff well-being, especially PWLLE, and provide professional development opportunities to reduce burnout and turnover, and support sustainability of OPR programming and services.
- Implement a "braided/blended" funding strategy to cover supplies, staff, and services that are often non-reimbursable, non-billable, or would otherwise require invasive and costly data collection and reporting. For example, this may include supplementing more restrictive federal funding with more flexible private foundation grants to cover non-reimbursable costs like syringes and safer smoking supplies.

Physical and behavioral health clinical services (including MOUD)

What does this mean and why is it important for rural communities? Multiple rural OPR leaders cited the importance of providing evidence-based clinical services to PWUD in rural communities through trusted service providers. They highlighted the interconnected relationship between SUD and lack of appropriate mental health support, and the need for multi-pronged, holistic approaches to effective OPR efforts.

Many rural OPR leaders stressed that the limited or lack of high-quality clinical services options was a major barrier to effective OPR efforts in their areas. This is an especially acute shortage of mental health and trauma-informed care providers. Health screenings and continuity of care are also a challenge in rural areas when linkages to specific treatment options (e.g., MOUD, hepatitis C treatment) are unavailable because local services do not exist. This causes individuals to consider or seek care elsewhere in geographic areas where trust and credibility may be lacking.

The effectiveness and desire for access to MOUD, particularly buprenorphine and methadone,[6] was brought up throughout the needs assessment. Rural OPR leaders stated that stigma and discrimination against PWUD (including a lack of understanding of the multiple pathways to recovery and resistance to MOUD from providers across the range of health and behavioral health) were not uncommon. These barriers are compounded by limited service hours and transportation challenges. Individuals in need of perinatal MOUD faced substantial disparities in access to care.[73] This may be because few obstetrician-gynecologists feel comfortable initiating MOUD, and other practitioners who do prescribe MOUD do not feel comfortable seeing pregnant patients.[74]

INSIGHTS FROM RURAL OPR LEADERS

> **"For most people, they're never going to come out of this if they don't have access to a multi-pronged approach that includes some kind of behavioral health intervention. I mean, obviously, harm reduction is making sure we get them stabilized on MOUD, or contingency management, or whatever is the most appropriate strategy … But without some kind of behavioral health intervention, we know that … the chances of a recurrence are pretty high."**

> **"[We need] more providers in general … More of a recovery or substance use ecosystem that was therapy, medication management, primary care, mental health medication—kind of like an all-in-one location that was very easy and simple to navigate for people."**

6 Naltrexone is also an approved medication for OUD. It was brought up less frequently than buprenorphine and methadone in the community engagement interviews.

MOUD has long been the gold standard for treating OUD. While many service providers focus on the treatment components and goals of MOUD, it is important to note that buprenorphine and methadone have both been shown to reduce overdose risk and help prevent overdose recurrence.[75,76] Despite the evidence supporting MOUD as treatment and overdose prevention, there are a wide variety of barriers impacting buprenorphine and methadone access in rural communities, especially methadone.[77] This includes fewer MOUD providers, especially opioid treatment programs, compared to urban counterparts.[78] A 2019 study found that drive times to an opioid treatment program were six times greater in rural communities compared to urban counterparts.[79] The 2023 removal of the DATA 2000 waiver requirement to prescribe buprenorphine eliminated policy barriers and expanded buprenorphine access in rural communities; however, studies continue to show that the medication remains underutilized.[80] Expansion of MOUD in rural areas is an opportunity to address existing inequities to reduce overdose.[81]

How can this be done in rural areas?

- Before referring individuals to clinical services, vet service providers to ensure they are well-trained in MOUD, cultural considerations, and who are accepted and trusted by the community. When possible, gather information (e.g., through "secret shopper programs") on how PWUD are treated by potential providers and whether evidence-based treatments (e.g., MOUD, cognitive behavioral therapy) are available. Synthesize this information and create a resource list to be shared among local OPR leaders, peer specialists, and community members. Where possible, provide feedback to programs and determine if they are open to partnering to improve service provision.

INSIGHTS FROM RURAL OPR LEADERS

"If we have worked so hard, creating trust in a community that's very tightly knit, and then you hand [PWUD] off to some organization that treats them terribly, they're going to be like, 'what are you guys doing?' They're not going to trust us anymore … at least sometimes they'll come back and [share that] those people are horrible. And we'll [say], 'oh my goodness, I'm so sorry, right?' But the damage that's done, there can be some really serious damage and trauma that people face."

> **"I've … learned who is very good at working with people in recovery, working with people that are still using substances, because a lot of that chronic care or acute needs don't get met while people are still using, because of stigma. [There is] actual terrible treatment in the ER and other places … so partnering with providers that are very open and willing to do primary care for people that are still using [is critical, or] … the trust is gone."**

- Increase the availability to, and accessibility of, relevant health (e.g., infectious disease testing and treatment), behavioral health (e.g., MOUD, mental health services), and reproductive health clinical services for PWUD in rural settings by co-locating clinical staff at programs trusted by the community (e.g., mobile or fixed-site harm reduction programs). For example, several rural OPRs leaders expanded existing programs by co-locating nurses, nurse practitioners, primary care physicians, counselors, social workers, case managers, and community health workers, as full- or part-time staff, or through partnerships, to provide low-barrier MOUD and other clinical services in a stigma-free, judgement-free environment. For services that cannot be provided at these sites due to capacity or licensing constraints, links to trusted service providers (including telehealth providers) is crucial.

- Integrate clinical services, especially MOUD, into existing rural health systems. Work with trusted primary care providers to integrate behavioral health care into their practices. Provide stigma-reduction services whenever possible, to increase the number of providers willing to prescribe MOUD and offer trauma-informed services.
- Decrease transportation costs and travel burden of accessing MOUD through expanded virtual or at-home induction and take-home medication policies. Promote telehealth models that use phones or are accessible through satellite clinics and mobile treatment units.
- When introducing and initiating MOUD services or programs, involve all staff in MOUD training, provide a broad menu of training topics and resources, and provide multiple formats and levels of engagement.
- Develop and implement a tele-mentoring program to engage rural providers, promote MOUD buy-in, and eliminate stigmatizing beliefs and practices.[82]
- Train health care providers on screening, brief intervention, and referral to treatment (SBIRT), MOUD, healthcare needs of specific populations (e.g., LGBTQ+, pregnant patients), and topics that impact care like cultural humility, substance use stigma, and trauma-informed interactions and care.[83]
- Ensure people receiving MOUD while incarcerated are linked to timely MOUD care upon release.
- Provide childcare for parents or caregivers who may otherwise not be able to attend healthcare appointments.

Basic needs support

What does this mean and why is it important for rural communities? Throughout the interview, rural OPR leaders emphasized that many of the people they serve are struggling with a multitude of competing priorities that may take precedence over safer consumption practices, such as where to find their next meal, where to sleep, or how to pay bills. As one rural OPR leader noted, *"you need to have your basic human needs met before you can even think about all this other stuff … I mean, it's hard enough to do it if you have all the support and if you have food and a place to live, much less if you don't have any of those … meeting the basic needs is crucial."* Other leaders highlighted how in rural spaces there may be limited or no social services available within the immediate community. This makes the direct provision of or linkages to these supports even more crucial for those implementing OPR efforts in these settings, especially with historically underserved communities.

INSIGHTS FROM RURAL OPR LEADERS

"In rural spaces there's just less of everything … that makes [PWUD] more susceptible to an overdose … if they don't have the ride to get to a methadone clinic, then they're not going to be able to [use methadone] … If they only have enough money to get their kid school supplies or food, then [they can't afford to engage in treatment] … They shouldn't have to choose … we should just have the food … it's harder to just specialize in this one thing. Like the people who are coming to me also need these other things just as much, and probably more so, than people do in the city because there's no one else out there doing those things either. So, it's hard to give somebody just a Narcan if I don't also have a gift card and a few granola bars … It doesn't have to be huge, but … it just feels hard to have somebody walk away from the site hungry."

"In harm reduction, we advocate so much for any positive change, but how can we help people make positive change when their living situation can be incredibly unstable? When perhaps they're going through issues of domestic violence … [or] food insecurity. All of those become really, really big barriers."

How can this be done in rural areas?

- Partner with organizations to provide low-barrier access to:
  - Food: snacks, granola bars, baby formula, connection to sites offering a regular hot meal, groceries, and a place to make a meal.
  - Hygiene pantries and services: soap, menstrual supplies, showers, washing machines with detergent, and dryers.
  - Basic supplies: diapers and other baby supplies, clothing (including hats and gloves), backpacks, tents, bike lights, safer-sex supplies, wound care kits.
  - Telecommunications: phone cards, a charging station, a dedicated phone line at service sites for participants to make or receive calls, cell phones, and loan programs.
  - Transportation: transportation passes or vouchers, bus fares, linkages to ride-share programs (e.g., Uber Health); volunteers, contractors, or staff providing rides for people to get to appointments and upon release from carceral settings.

  - Legal aid: pro-bono assistance with immigration issues, civil cases, child welfare cases, and criminal record expungement.
  - Housing: housing vouchers, temporary housing assistance, and help accessing shelters.
  - Employment support: connections to second chance employers, assistance with resume development, lists of recovery-friendly workplaces.
- Deliver or provide linkages to trusted partners, especially to address larger, systemic barriers and challenges like housing, employment, legal issues, and health services.
- Integrate distribution of basic needs supplies into OEND efforts through community outreach and vending machines. This may also reduce stigma associated with taking naloxone or safer consumption supplies if the perception is that an individual may just be receiving something unrelated to substance use, like a granola bar.
- Co-locate OEND with community programs that address basic needs support such as food pantries, health fairs, and legal aid clinics.
- Tailor which basic needs supplies are distributed to the local community. As an example, consider local food practices, seasonal clothing needs, and local holidays.
- Use case managers, system navigators, or community health workers to identify and coordinate what is required to meet the basic needs of the population.

Conclusion

This needs assessment highlights rural OPR leaders' insights on overdose-related trends, essential guiding principles, and evidence-based and promising practices currently being used to prevent and respond to overdose in rural communities, along with the opportunities and challenges that persist in these settings. It elucidates the significant strides rural communities have made in addressing the overdose crisis, including how EBPs are being successfully implemented and adapted to rural settings. For example, rural community OPR leaders have increased delivery of targeted, needs-based OEND for PWUD and their networks by making it available through multiple channels of access. Other examples of interventions being implemented in rural settings to prevent and respond to fatal and non-fatal overdoses include community outreach and peer support, drug checking, and OEND capacity-building among first responders and other community members. In addition, the most successful activities for overdose prevention in rural settings are those that meet the individual needs of PWUD. These included needs-based harm reduction programs and SSPs, clinical services that include MOUD, and the provision of basic needs support.

Rural OPR leaders also emphasized that embracing the principles of inclusion, localization, representation, trust, and mobility throughout the implementation of their OPR efforts enables them to successfully reach and connect with individuals in rural communities in need of these critical services. Providing services that are person-centered and support individual autonomy also helps build trust, increase access to services, and support engagement in OPR interventions. Identifying and investing in local champions also provides a helpful mechanism to reduce stigma and increase receptivity to evidence-based OPR efforts in rural settings, including OEND, MOUD, and harm reduction approaches.

The findings from the needs assessment also demonstrate the central role that local data and information play in planning for impact. By understanding current needs and local contexts, interventions can be better tailored to meet the complex needs of diverse rural populations, especially for PWUD and communities disproportionately impacted by overdose. Making data on drug use and overdose trends in rural communities—particularly when categorized by demographic information—more accessible will only strengthen this work.

Qualitative approaches like CBPR, key informant interviews, and focus groups—especially conducted with PWLLE—also play a critical role in contextualizing and understanding the nuance of needs, challenges, opportunities, and successes within a local population that address the overdose crisis in rural settings, as well as fill in gaps in existing overdose data and drug use trends.

Moreover, while under-resourced rural communities (especially PWUD, PWLLE, and people from disproportionately impacted and historically marginalized communities) continuously show creativity, flexibility, and a commitment to meet the needs of their community members at risk for overdose, this integral work often goes unrecognized and uncompensated. To leverage and strengthen the existing successful evidence-based and promising practices in rural OPR efforts discussed throughout this assessment, its crucial to invest in and support the leaders, champions, and advocates, especially PWLLE, already doing the work on the ground. This must include funding to support these efforts in rural communities. Additional information on recommended strategies for ensuring that funding reaches and positively impacts rural communities affected by the overdose crisis can be found in Appendix A.

Limitations

This report has several limitations to consider. The environmental scan portion of the needs assessment focused primarily on recent, publicly available academic literature that addressed OPR in rural communities within the US, supplemented by relevant grey literature. Because additional studies and literature that were not readily accessible online (e.g., they were behind pay walls) were not included in this scan, the search may not have identified all relevant interventions. In addition, while the eight rural communities interviewed for the community engagement component of the needs assessment includes a range of different types of rural communities, the sample was purposeful, and it is not representative. The type of community interviewee respondents engaged included LHDs and CBOs. Most organizations were either SSPs and/or primarily focused on implementation of harm reduction approaches and programming, although some interviewees also discussed the provision of clinical services such as MOUD and behavioral health. As such, there may be additional OPR interventions being implemented in rural communities that were not identified during the needs assessment. The primary focus of the analysis is on cross-cutting rural trends. While different rural populations of interest were identified in the environmental scan, and organizations that serve these populations were included in the community engagement interviews, it was not feasible, per needs assessment duration and scope, to do an in-depth or nuanced analysis of intersectional rural experiences for each of the identified key populations.

Future Opportunities to Strengthen Rural OPR Efforts

While this needs assessment contributes to the growing body of literature on rural OPR, it's essential to continue to dedicate attention, research, and funding to better understand, amplify, and strengthen OPR efforts in rural settings—especially the life-saving work that CBOs, LHDs, and other service providers are already doing on the ground in rural communities throughout the United States. While this needs assessment provides a general overview of rural OPR, some of the strategies identified in the environmental scan and gap analysis were not discussed extensively in the other components of the needs assessments (e.g., QRTs and PORTs) due to the more limited size, scope, and duration of this project. In turn, there is a need for additional research to establish a deeper and more nuanced understanding of the diverse and multifaceted experiences of individuals at risk for overdose in rural settings to inform more effective adaptations and target relevant OPR interventions and approaches within rural settings, especially for disproportionately impacted and historically marginalized populations in these areas. More specifically, there is a need for directed research to provide more robust and detailed understanding of the complex challenges, needs, and best practices for adapting OPR efforts for each of the specific sub-populations identified in this needs assessment. An intersectional lens is central for future research—which may be conducted through a number of different approaches or formats like CBPR, targeted needs assessments, case studies, communities of practice, learning or working groups, and more. Finally, it is essential that PWLLE and champions from the relevant communities play a central role in the design, implementation, analysis, reporting, and dissemination of findings and learnings generated from the research.

Endnotes

1 Palombi, L. C., St. Hill, C. A., Lipsky, M.,S., Swanoski, M.T., & Lutfiyya, M. N. (2018). A scoping review of opioid misuse in the rural United States. *Annals of Epidemiology,* 28, 641–652. https://doi.org/10.1016/j.annepidem.2018.05.008

2 Hedegaard H., Spencer M. R. (2021). *Urban–rural differences in drug overdose death rates, 1999–2019*. NCHS Data Brief, no 403. National Center for Health Statistics. https://dx.doi.org/10.15620/cdc:102891

3 Palombi, L. C., et al. (2018).

4 Hedegaard H. & Spencer M.R. (2021).

5 Baldo B. A. & Rose M. A. (2022) Mechanisms of opioid-induced respiratory depression. *Archives of Toxicology*. *96*(8), 2247–2260. https://doi.org/10.1007/s00204-022-03300-7

6 Jenkins, R. A. (2021). The fourth wave of the US opioid epidemic and its implications for the rural US: A federal perspective. *Preventive Medicine*, *152*(2), 106541. https://doi.org/10.1016/j.ypmed.2021.106541

7 Jenkins, R. A., Whitney, B. M., Nance, R. M., Allen, T. M., Cooper, H. L. F., Feinberg, J., Fredericksen, R., Friedmann, P. D., Go, V. F., Jenkins, W. D., Korthuis, P. T., Miller, W. C., Pho, M. T., Rudolph, A. E., Seal, D. W., Smith, G. S., Stopka, T. J., Westergaard, R. P., Young, A. M., Zule, W. A., … Crane, H. M. (2022). The Rural Opioid Initiative Consortium description: Providing evidence to understand the fourth wave of the opioid crisis. *Addiction Science & Clinical Practice*, *17*(1), Article 38. https://doi.org/10.1186/s13722-022-00322-5

8 Friedman, J., & Shover, C. L. (2023). Charting the fourth wave: Geographic, temporal, race/ethnicity and demographic trends in polysubstance fentanyl overdose deaths in the United States, 2010–2021. *Addiction*, *118*(12), 2477–2485. https://doi.org/10.1111/add.16318

9 Korthuis, P. T., Cook, R. R., Foot, C. A., Leichtling, G., Tsui, J. I., Stopka, T. J., Leahy, J., Jenkins, W. D., Baker, R., Chan, B., Crane, H. M., Cooper, H. L., Feinberg, J., Zule, W. A., Go, V. F., Estadt, A. T., Nance, R. M., Smith, G. S., Westergaard, R. P., Van Ham, B., … Young, A. M. (2022). Association of methamphetamine and opioid use with nonfatal overdose in rural communities. *JAMA Network Open*, *5*(8), e2226544. https://doi:10.1001/jamanetworkopen.2022.26544

10 RHIhub. (2024). Am I rural? – Help. Rural Health Information Hub. https://www.ruralhealthinfo.org/am-i-rural/help#classification.

11 Mueller, K. J., Coburn, A. F., Knudson, A., Lundblad, J. P., MacKinney, A. C., McBride, T. D., Mobley, E., Ullrich, F., Barker, A. (2020). *Considerations for defining rural places in health policies and programs*. Rural Policy Research Institute. https://rupri.public-health.uiowa.edu/publications/policypapers/Considerations%20For%20Defining%20Rural%20Places.pdf

12 National Institutes of Health HEAL Initiative. (2023). *Opioid-overdose reduction continuum of care approach: A guide for policymakers for implementing evidence-based strategies that address opioid overdose*. National Institute on Drug Abuse. https://heal.nih.gov/files/2024-01/policymaker-ORCCA.pdf

13 Carroll, J. J., Green, T. C., & Noonan, R. K. (2018). *Evidence-based strategies for preventing opioid overdose : What's working in the United States : An introduction for public heath, law enforcement, local organizations, and others striving to serve their community*. CDC. National Center for Injury Prevention and Control. https://stacks.cdc.gov/view/cdc/59393

14 Health Resources & Services Administration. (n.d.). *What is rural?* https://www.hrsa.gov/rural-health/about-us/what-is-rural#:~:text=We%20define%20the%20following%20areas%20as%20rural%3A%20All,less%20per%20sq.%20mile%20with%20RUCA%20codes%202-3

15 Hedegaard H. & Spencer M.R. (2021).

16 Spencer, M. R., Garnett M. F., & Miniño, A. M. (2022). *Urban-rural differences in drug overdose death rates, 2020* (NCHS Data Brief, No. 440). CDC. National Center for Health Statistics. https://dx.doi.org/10.15620/cdc:118601

17 Ellis M. S ., Kasper Z. A., & Cicero T. J. (2021). Polysubstance use trends and variability among individuals with opioid use disorder in rural versus urban settings. *Preventive Medicine,* 152(Pt 2), Article 106729. https://doi.org/10.1016/j.ypmed.2021.106729

18 Spencer, M. R., et al. (2022).

19 Spencer, M. R., et al. (2022).

20 Spencer, M. R., et al. (2022).

21 Kramarow, E. A., & Tejada-Vera, B. (2022). QuickStats: Drug overdose death rates* among persons aged ≥ 15 years, by age group and urban-rural status (†) – National Vital Statistics System, United States, 2020. *MMWR: Morbidity and mortality weekly report, 71*(47), e1503-e1503. http://dx.doi.org/10.15585/mmwr.mm7147a3

22 CDC Wonder. (n.d.). *National vital statistics system, mortality data, 2020*. [Data set]. National Center for Health Statistics. https://wonder.cdc.gov/ucd-icd10.html

23 Substance Abuse and Mental Health Services Administration (SAMHSA). (2023, March 23). *Drug abuse warning network (DAWN): Non-fatal overdoses short report, 2021–2022.* Department of Health and Human Services. https://www.samhsa.gov/data/report/dawn-non-fatal-overdoses

24 Substance Abuse and Mental Health Services Administration. (2023, March 23).

25 CDC Overdose Prevention. (2024, February 29). *The Fentalog study: A subset of nonfatal suspected opioid-involved overdoses with toxicology testing.* https://www.cdc.gov/overdose-prevention/data-research/facts-stats/fentalog-study-dashboard.html?CDC_AAref_Val=https://www.cdc.gov/drugoverdose/nonfatal/fentalog/dashboard/index.html

26 Korthuis, P. T., et al. (2022).

27 Substance Abuse and Mental Health Services Administration. (2023, March 23)

28 Hoover, D. B., Korthuis, P. T., Waddell, E. N., Foot, C., Conway, C., Crane, H. M., Friedmann, P. D., Go, V. F., Nance, R. M., Pho, M. T., Satcher, M. F., Sibley, A., Westergaard, R. P., Young, A. M., & Cook, R. (2023). Recent incarceration, substance use, overdose, and service use among people who use drugs in rural communities. *JAMA Network Open*, *6*(11), e2342222. https://doi.org/10.1001/jamanetworkopen.2023.42222

29 Cooper, J.A., Onyeka, I., Cardwell, C., Paterson, E., Kirk, R., O'Reilly, D., & Donnelly, M. (2023). Record linkage studies of drug-related deaths among adults who were released from prison to the community: A scoping review. *BMC Public Health, 23*(1), Article 826. https://doi.org/10.1186/s12889-023-15673-0

30 Ballard, A. M., Falk, D., Greenwood, H., Gugerty, P., Feinberg, J., Friedmann, P. D., Go, V. F., Jenkins, W. D., Korthuis, P. T., Miller, W. C., Pho, M. T., Seal, D. W., Smith, G. S., Stopka, T. J., Westergaard, R. P., Zule, W. A., Young, A. M., & Cooper, H. L. F. (2023). Houselessness and syringe service program utilization among people who inject drugs in eight rural areas across the USA: A cross-sectional analysis. *Harm Reduction Journal*, *20*(1), 157. https://doi.org/10.1186/s12954-023-00892-w

31 Korthuis, P. T., et al. (2022).

32 Hoover, D. B., et al. (2023).

33 Hoover, D. B., et al. (2023).

34 Korthuis, P. T., et al. (2022).

35 Carroll, J. J., et al. (2018).

36 Bommersbach, T., Justen, M., Bunting, A. M., Funaro, M. C., Winstanley, E. L., & Joudrey, P. J. (2023). Multidimensional assessment of access to medications for opioid use disorder across urban and rural communities: A scoping review. *The International Journal of Drug Policy*, *112*, Article 103931. https://doi.org/10.1016/j.drugpo.2022.103931

37 Ibragimov, U., Young, A. M., & Cooper, H. L. F. (2020). Understanding rural risk environments drug-related harms: Progress, challenges, and steps forward. *International Journal of Drug Policy*, *85*, Article 102926. https://doi.org/10.1016/j.drugpo.2020.102926

38 Carroll, J. J., et al. (2018).

39 Center for Substance Abuse Prevention. Harm reduction framework. (2023). Substance Abuse and Mental Health Administration. https://www.samhsa.gov/sites/default/files/harm-reduction-framework.pdf

40 Substance Abuse and Mental Health Services Administration. (n.d.). *Guidelines for partnering with people with lived experience*. U.S. Department of Health and Human Services. https://www.samhsa.gov/grants/how-to-apply/forms-and-resources/guidelines-lived-experience

41 Rural Opioid Initiative. (n.d.). https://ruralopioidinitiative.org/

42 Walters, S. M., Bolinski, R., Almirol, E., Grundy, S. A., Fletcher, S., Schneider, J. A., Friedman, S. R., Ouellet, L., Ompad, D. C., Jenkins, W. D., & Pho, M. T. (2022). Structural and community changes during COVID-19 and their effects on overdose precursors among rural people who use drugs: A mixed-methods analysis. *Addiction Science & Clinical Practice*, *17*(1). https://doi.org/10.1186/s13722-022-00303-8

43 Rengifo, S., Wu, A., Ioffreda, P., & Ilyas, A. M. (2023). Differences in opioid-related deaths in the Appalachian region in 2018-2021 by state and rural-urban county classification. Cureus, 15(6), e40480. https://doi.org/10.7759/cureus.40480

44 Ballard, A. M., et al. (2023).

45 Sibley, A. L., Klein, E., Cooper, H. L. F., Livingston, M. D., 3rd, Baker, R., Walters, S. M., Gicquelais, R. E., Ruderman, S. A., Friedmann, P. D., Jenkins, W. D., Go, V. F., Miller, W. C., Westergaard, R. P., & Crane, H. M. (2024). The relationship between felt stigma and non-fatal overdose among rural people who use drugs. *Harm Reduction Journal*, *21*(1), 77. https://doi.org/10.1186/s12954-024-00988-x

46 Carroll, J. J., et al. (2018).

47 National Institutes of Health HEAL Initiative. (2023).

48 Parker, R. D., Meyer, J. A., & Abram, M. A. (2023). National data and the applicability to understanding rural and remote substance use. *Journal of Prevention, 44*(4), 491–500. https://doi.org/10.1007/s10935-023-00734-2

49 Kebec, P., Remacle, C., Conley, C., Akerman S., Tochterman A. (2020). *Expanding the circle of care: A practical guide to syringe services for rural and tribal communities*. Little Big Bay LLC. https://www.badriverharmreduction.org/s/CircleofCare-web1-1.pdf

50 Townsend, T., Blostein, F., Doan, T., Madson-Olson, S., Galecki, P., & Hutton, D. W. (2020). Cost-effectiveness analysis of alternative naloxone distribution strategies: First responder and lay distribution in the United States. *The International Journal on Drug Policy*, *75*, 102536. https://doi.org/10.1016/j.drugpo.2019.07.031

51 California Opioid Response. (Updated 2024). *Naloxone distribution project data*. California Department of Public Health. https://californiaopioidresponse.org/outcomes/naloxone-distribution-project-data/

52 Alcohol & Drug Abuse Institute, University of Washington. (2021). Washington State Police Diversion Program: Final report (Report No. ADAI-2021-04). https://adai.uw.edu/wordpress/wp-content/uploads/WAPDOfinalreport-11-2021.pdf

53 Hanson, B. L., Porter, R. R., Zöld, A. L., & Terhorst-Miller, H. (2020). Preventing opioid overdose with peer-administered naloxone: Findings from a rural state. Harm Reduction Journal, 17(1), 4. https://doi.org/10.1186/s12954-019-0352-0

54 Faul M., Dailey M. W., Sugerman D. E., Sasser S. M., Levy B., Paulozzi L. J. Disparity in naloxone administration by emergency medical service providers and the burden of drug overdose in US rural communities. American Journal of Public Health, 105(Suppl 3), e26–32. https://doi.org/10.2105/AJPH.2014.302520

55 Zhang X., Marchand C., Sullivan B., Klass E. M., Wagner K. D. (2018). Naloxone access for emergency medical technicians: An evaluation of a training program in rural communities. Addiction Behavior, 86, 79–85. https://doi.org/10.1016/j.addbeh.2018.03.004

56 Centers for Disease Control and Prevention. (Updated February 2024). *Syringe services programs (SSPs)*. https://www.cdc.gov/overdose-prevention/media/pdfs/Syringe-Services-Programs-SSPs.pdf

57 Hoover, D. B., et al. (2023).

58 Cooper, J. A., et al. (2023).

59 Spector, A. L., Galletly, C. L., Christenson, E. A., Montaque, H. D. G., & Dickson-Gomez, J. (2022). A qualitative examination of naloxone access in three states: Connecticut, Kentucky, and Wisconsin. BMC Public Health, 22. https://doi.org/10.1186/s12889-022-13741-5

60 Davis, S. M., Stover, A. N., Linn, H., Dower, J., McCawley, D., Winstanley, E. L., & Feinberg, J. (2021). Establishing peer recovery support services to address the Central Appalachian opioid epidemic: The West Virginia Peers Enhancing Education, Recovery, and Survival (WV PEERS) Pilot Program. *Journal of Appalachian Health*, *3*(3), 36-50. https://doi.org/10.13023/jah.0303.04

61 Pu, J., Kim, S., & Finkelstein, E. A. (2021). Drug checking programs in the United States and internationally: Environmental scan summary. U.S. Department of Health & Human Services. https://aspe.hhs.gov/reports/drug-checking-environmentalscan

62 Victor, G., Hedden-Clayton, B. J., Lister, J., Lee, G., Huynh, P., & Ray, B. (2023). Community overdose surveillance: Fentanyl involvement in overdose deaths in rural Michigan. Drug and Alcohol Dependence Reports, 7, Article 100150. https://doi.org/10.1016/j.dadr.2023.100150

63 Peiper, N. C., Clarke, S. D., Vincent, L. B., Ciccarone, D., Kral, A. H., Zibbell, J. E., (2018). Fentanyl test strips as an opioid overdose prevention strategy: Findings from a syringe services program in the Southeastern United States. *The International Journal of Drug Policy*, *63*, 122–128. https://doi.org10.1016/j.drugpo.2018.08.007

64 Walters, S. M., Felsher, M., Frank, D., Jaiswal, J., Townsend, T., Muncan, B., Bennett, A. S., Friedman, S. R., Jenkins, W., Pho, M. T., Fletcher, S., & Ompad, D. C. (2023). I don't believe a person has to die when trying to get high: Overdose prevention and response strategies in rural Illinois. *International Journal of Environmental Research and Public Health*, *20*(2), 1648. https://doi.org/10.3390/ijerph20021648

65 Walters, S. M., et al. (2022).

66 Victor, G., et al. (2023).

67 Wood, C. A., Duello, A., Horn, P., Winograd, R. P., Jackson, L., Mayen, S., & Wallace, K. (2021). Overdose response training and naloxone distribution among rural first responders. *Journal of Rural Mental Health, 45*(3). https://psycnet.apa.org/doi/10.1037/rmh0000166

68 Carnes, N. A., Asher, A. K., Bohm, M. K., & Bessler, P. A. (2021). Access to HIV, viral hepatitis, and substance use disorder treatment/overdose prevention services: A qualitative analysis of syringe service programs (SSPs) serving rural PWID. Substance Use & Misuse, 56(13), 1933–1940. https://doi.org/10.1080/10826084.2021.1958863

69 Rowe C., Santos G. M., Vittinghoff E., Wheeler E., Davidson P., Coffin P. O. (2015). Predictors of participant engagement and naloxone utilization in a community-based naloxone distribution program. Addiction, 110(8), 1301–1310. https://doi.org/10.1111/add.12961

70 Facente, S. N., Humphrey, J. L., Akiba, C., Patel, S. V., Wenger, L. D., Tookes, H., Bluthenthal, R. N., LaKosky, P., Prohaska, S., Morris, T., Kral, A. H., & Lambdin, B. H. (2024). Funding and delivery of syringe services programs in the United States, 2022. *American Journal of Public health*, *114*(4), 435–443. https://doi.org/10.2105/AJPH.2024.307583

71 Ray, B. R., Humphrey, J. L., Patel, S. V., Akiba, C. F., Bluthenthal, R. N., Tookes, H., LaKosky, P. A., Wenger, L. D., Kral, A. H., & Lambdin, B. H. (2024). Comparing harm reduction and overdose response services between community-based and public health department syringe service programmes using a national cross-sectional survey. *Lancet Regional Health. Americas*, *34*, 100757. https://doi.org/10.1016/j.lana.2024.100757

72 Batty, E. J., Ibragimov, U., Fadanelli, M., Gross, S. B., Cooper, K., Klein, E. M., Ballard, A. M., Young, A. M., Lockard, A. S., Oser, C. B., & Cooper, H. L. F. (2022). A qualitative analysis of rural syringe service program fidelity in Appalachian Kentucky: Staff and participant perspectives. *The Journal of Rural Health, 39*(2), 328–337. https://doi.org/10.1111/jrh.12715

73 Higgins, T. M., Goodman, D. J., & Meyer, M. C. (2019). Treating perinatal opioid use disorder in rural settings: Challenges and opportunities. *Preventive Medicine*, *128*, Article 105786. https://doi.org/10.1016/j.ypmed.2019.105786

74 Leech, A. A., McNeer, E., Stein, B. D., Richards, M. R., McElroy, T., Dupont, W. D., & Patrick, S. W. (2023). County-level factors and treatment access among insured women with opioid use disorder. *Medical Care*, *61*(12), 816–821. https://doi.org/10.1097/MLR.0000000000001867

75 Heimer, R., Black, A. C., Lin, H., Grau, L. E., Fiellin, D. A., Howell, B. A., Hawk, K., D'Onofrio, G., & Becker, W. C. (2024). Receipt of opioid use disorder treatments prior to fatal overdoses and comparison to no treatment in Connecticut, 2016-17. *Drug and Alcohol Dependence*, *254*, 111040. https://doi.org/10.1016/j.drugalcdep.2023.111040

76 Larochelle, M. R., Bernson, D., Land, T., Stopka, T. J., Wang, N., Xuan, Z., Bagley, S. M., Liebschutz, J. M., & Walley, A. Y. (2018). Medication for opioid use disorder after nonfatal opioid overdose and association with mortality: A cohort study. *Annals of Internal Medicine*, *169*(3), 137–145. https://doi.org/10.7326/M17-3107

77 Bommersbach, T., et al. (2023).

78 Dick, A. W., Pacula, R. L., Gordon, A. J., Sorbero, M., Burns, R. M., Leslie, D., & Stein, B. D. (2015). Growth in buprenorphine waivers for physicians increased potential access to opioid agonist treatment, 2002-11. *Health Affairs (Project Hope)*, *34*(6), 1028–1034. https://doi.org/10.1377/hlthaff.2014.1205

79 Joudrey, P. J., Edelman, E. J., & Wang, E. A. (2019). Drive yimes to opioid treatment programs in urban and rural counties in 5 US States. *JAMA*, *322*(13), 1310–1312. https://doi.org/10.1001/jama.2019.12562

80 Chua, K. P., Bicket, M. C., Bohnert, A. S. B., Conti, R. M., Lagisetty, P., & Nguyen, T. D. (2024). Buprenorphine Dispensing after Elimination of the Waiver Requirement. *The New England journal of medicine*, *390*(16), 1530–1532. https://doi.org/10.1056/NEJMc2312906

81 Golan, O. K., Sheng, F., Dick, A. W., Sorbero, M., Whitaker, D. J., Andraka-Christou, B., Pigott, T., Gordon, A. J., & Stein, B. D. (2023). Differences in medicaid expansion effects on buprenorphine treatment utilization by county rurality and income: A pharmacy data claims analysis from 2009-2018. *Drug and alcohol dependence reports*, *9*, Article 100193. https://doi.org/10.1016/j.dadr.2023.100193

82 Salvador, J. G., Myers, O. B., Bhatt, S. R., Jacobsohn, V., Lindsey, L., Alkhafaji, R. S., Rishel Brakey, H., & Sussman, A. L. (2023). Association of MOUD ECHO participation on expansion of buprenorphine prescribing in rural primary care. *Substance Abuse*, *44*(4), 282–291. https://doi.org/10.1177/08897077231198971

83 Bryan, M. A., Smid, M. C., Cheng, M., Fortenberry, K. T., Kenney, A., Muniyappa, B., Pendergrass, D., Gordon, A. J., & Cochran, G. (2020). Addressing opioid use disorder among rural pregnant and postpartum women: A study protocol. *Addiction Science & Clinical Practice*, *15*(1), 33. https://doi.org/10.1186/s13722-020-00206-6

Appendices

APPENDIX A.

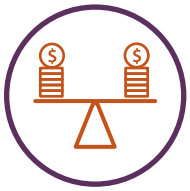
A Funding Brief for Rural Overdose Prevention and Response

Purpose

This brief summarizes information collected by JBS International, Inc. on overdose prevention and response (OPR) funding challenges faced by rural communities, along with rural OPR leaders' recommendations for mitigating these challenges. Recommendations are informed by the insights and the experiences of a diverse group of individuals leading rural OPR efforts, including people with lived and living experience (PWLLE) and staff at organizations that serve people who use drugs (PWUD).[1] The brief highlights seven actionable recommendations for funders to strengthen support for rural OPR efforts across the United States, including strategies for ensuring that funding reaches, and positively impacts, rural communities working to prevent and respond to the overdose crisis.

1 Insights and information from rural OPR leaders are drawn primarily from community engagement interviews conducted with 13 rural OPR leaders in 8 communities across the United States, including perspectives from PWLLE. Other sources include subject matter expert roundtables, a participant observation of the *Reaching Rural In-Person Convening*, as well as key findings from an environmental scan completed as part of a larger needs assessment on rural OPR efforts. Additional details on the needs assessment may be found in the *Comprehensive Report*.

Funding Recommendations



Develop dedicated rural-specific OPR funding opportunities to ensure equitable OPR funding to implement evidence-based and culturally adaptive interventions

Rural OPR leaders identified several challenges that prevented funding from reaching and positively impacting rural communities. Rural organizations often have limited resources and grant writing capacity to identify, apply, and compete with their urban counterparts for OPR related grants. OPR funding is not necessarily distributed equitably (e.g., when based on population size), despite high overdose rates in rural communities. Rural OPR leaders also cited examples of existing funding within their communities often focusing on organizations or service providers that support abstinence-only based approaches, or providers who lack an awareness of or interest in providing certain evidence-based practices (EBPs) and strategies, such as MOUD or harm reduction approaches. OPR leaders shared additional concerns when OPR-related funding for overdose education and naloxone distribution (OEND) focuses primarily on first responders and service providers rather than equipping and building the capacity of those who are most directly impacted by the overdose crisis (i.e., PWUD and their networks) and are best positioned to prevent and respond to overdoses. Rural OPR leaders also identified a strong need to fund culturally adaptive OPR interventions that are tailored to rural populations or groups that are not being reached by existing efforts. An example highlighted during a roundtable discussion included a guide for adapting syringe service programs (SSPs) to Indigenous and rural communities.[2]

How can this be done?

- Establish funding streams that prioritize applicants that are primarily rural-based in their eligibility and/or evaluation criteria for OPR-related funding, intentionally including organizations that are led by PWLLE and reflect the communities being served, especially historically marginalized or disproportionately impacted populations. Examples of dedicated rural funding for prevention, harm reduction, treatment, and recovery efforts exist across federal agencies, such as the Health Resources and Services Administration's (HRSA) Rural Communities Opioid Response Program (RCORP) and the Substance Abuse and Mental Health Services Administration's (SAMHSA) Rural Emergency Medical Services Training program. Other federal funding streams, such as the Department of Justice's Comprehensive Opioid, Stimulant, and Substance Use Program (COSSUP), include dedicated rural funding opportunities or rural categories for grant applications to ensure rural representation. Similar funding strategies for more targeted OPR efforts will be valuable.

- Prioritize data-driven, needs-based OPR funding to communities and populations that have been disproportionately impacted by overdose or historically marginalized as well as in rural settings that are designated as medically underserved areas.

- Provide flexible funding to support the development, adaptation, and implementation of evidence-based OPR practices in rural settings, especially key populations (e.g., dedicated funding for tribal entities) within rural settings.

2 Kebec, P., Remacle, C., Conley, C., Akerman S., Tochterman A (2020). E*xpanding the circle of care: A practical guide to syringe services for rural and tribal communities*. Little Big Bay LLC. https://www.badriverharmreduction.org/s/CircleofCare-web1-1.pdf

Increase accessibility and transparency in grant application process and reporting requirements, especially around allowable expenses for OPR efforts

Rural OPR identified the overall grant application process and complexity of reporting requirements as impeding rural OPR efforts. Rural organizations often have limited resources and staff capacity to identify, develop, and submit complex grant applications required to secure funding. Short turnaround times were also noted as hindering smaller organizations with limited grant writing capacity from applying and also reducing their ability to meaningfully engage PWLLE in the application process. Lack of transparency in OPR grant funding around the administrative burden associated with complex financial reporting requirements, restrictions on billable services and reimbursable costs, and burdensome data collection and reporting requirements further impeded the pursuit and management of rural OPR funding. Given the restrictions on use of federal grant funds, rural OPR leaders frequently discussed that in order to cover the true costs of effectively implementing their interventions and programming, they needed to secure and manage complex braided funding to cover overhead costs (e.g., those associated with program administration, operations, and fringe benefits), food-related expenses, and harm reduction supplies (e.g., syringes, pipes, and in some cases naloxone).

How can this be done?

- Publicize funding opportunities through multiple formats and modalities, including disseminating notices of funding opportunities (NOFOs) through channels that specifically target rural local health departments (LHDs), harm reduction organizations and SSPs, rural service providers, and rural communication platforms (e.g., social media, rural-focused bulletins or newsletters, and harm reduction websites or listservs).
- Explore and support low-barrier grant application approaches, including reducing the length and complexity of application processes and offering alternative submission formats like video applications.
- Make training and technical assistance (T/TA) readily available and accessible to potential applicants on how to apply, develop, and manage OPR-related grants. Provide T/TA through a variety of formats, such as live and recorded webinars, virtual office hours (phone-based and online), and plain-language guidance documents, FAQs, templates, and resource lists. Training topics may include:
  - Setting up SAM.gov, Unique Entity Identifiers (UEI), and Commercial and Government Entity (CAGE) numbers
  - Rural considerations for developing OPR budgets
  - Financial reporting requirements and allowable OPR-related expenses
  - Data reporting expectations and compliance
  - Best practices for identifying and managing braided or blended funding
  - Best practices for engaging and compensating PWLLE (e.g., for serving on advisory boards, participating in surveys or focus groups, etc.)

Support ~1-year planning grant funding for grassroots leaders or smaller organizations engaging in rural OPR efforts

Multiple rural OPR leaders highlighted the positive impact of "planning" and "accelerator" grants on tailoring OPR plans to the needs of their communities. Planning grants can support needs assessments that help organizations gain a deeper understanding of local data and the context within which overdose and drug use occur in their communities. Needs assessments must also identify assets and partners that could be leveraged to implement tailored OPR projects. Planning grants provide a framework and infrastructure to support cross-sector engagement and develop partnerships for improved implementation of OPR interventions. Rural OPR leaders noted that "accelerator" grants are highly impactful, especially for grassroots leaders and PWLLE with limited experience in nonprofit administration or grant management. These grants support grassroots leaders and newer CBOs with strategic planning and building nonprofit infrastructure and are especially valued for the practical technical, administrative, and operational support that grantees receive from coaches and subject matter experts.

How can this be done?

- Support low-barrier 12–18-month planning grants with T/TA support and coaching for grassroots leaders, smaller CBOs, or LHDs, especially in medically underserved areas that have limited or no SSPs, OEND, and/or MOUD in their area.
- Consider prioritizing or including eligibility criteria for organizations that have not previously received federal funding, nonprofits that are less than 5 years old, and organizations that can demonstrate that their efforts are underfunded. Grassroots initiatives or CBOs that are led by PWLLE or leadership that reflect the communities being served, especially historically marginalized or disproportionately impacted populations, may also be prioritized.
- Provide T/TA and support on how to conduct community-based needs assessments and how to engage PWLLE within planning grants to identify specific OPR needs, assets, and opportunities and develop an intervention or action plan for addressing identified needs. T/TA during planning periods should establish cross-sector partnerships, collaborations, and linkages needed to support local OPR efforts.
- Explore the option to include follow-on implementation grants of at least $150,000 per year for planning projects. The implementation funding can follow the successful completion of the planning goals, such as having grantees present or submit the results of the needs assessment or cross-sector coordination meetings in an action plan. The Reaching Rural Initiative, co-funded by the Bureau of Justice Assistance, the Centers for Disease Control and Prevention (CDC), and the State Justice Institute, is a federal initiative that offers a similar opportunity.

Offer financial support for peer-to-peer training and technical assistance

Many rural OPR leaders highlighted the central role that peer-to-peer T/TA played in helping establish, strengthen, or expand their rural OPR efforts. Effective support was provided through diverse formats, including individualized T/TA and coaching received for grant recipients or fellows; formalized peer-to-peer learning conducted during convenings, workshops, and site visits (both virtual and in-person); as well as formal and informal learnings and expertise shared by other local, regional, or national harm reduction or SSP leaders. Rural OPR leaders shared their gratitude for the support they have received from their peers in building and strengthening their OPR efforts, as well as an openness and willingness to share their expertise with others. However, leaders highlighted how this work often goes uncompensated, which can be challenging for small, rural CBOs that are already working with limited staff capacity and budget constraints.

How can this be done?

- Sponsor virtual and in-person regional convenings or trainings to support peer-to-peer learning by highlighting model programming, best practices, and promising practices in rural OPR efforts. Compensate presenters and facilitators for sharing their expertise.
- Fund rural-focused communities of practices, with emphasis on identifying and sharing rural best practices as well as adapting EBPs to rural settings and reducing disparities among key populations.
- Sponsor peer-to-peer virtual and in-person site visits to share innovative rural OPR practices. This may include highlighting effective model rural OPR programs, facilitating the ability of established rural OPR leaders to provide direct technical support or guidance to grassroots leaders and newer organizations on various topics (e.g., how to conduct needs assessments, collect data, conduct outreach, or stock supplies).
- Focus on peer-to-peer models that involve "like-training-like" (e.g., LHD directors supporting other LDH directors, law enforcement officials training other law enforcement officials).

Provide funding to support OPR collaboration and partnerships across sectors in rural settings

Rural OPR leaders shared multiple examples of how local partnerships and cross-sector collaborations play a critical role in OPR efforts in rural settings. These relationships are key to identifying local overdose drug trends and needs, leveraging resources (i.e., funding and staff), providing linkages to care, reducing stigma, and increasing an understanding of EBPs. Rural OPR leaders stressed that developing these types of partnerships and coalitions takes dedicated time and staff to be effective, especially in rural settings where participation in, and prioritization of, OPR efforts may be hindered by limited staff and resources. Subcontracts that infuse funds into organizations throughout the community should be prioritized, rather than unfunded memoranda of understanding, to prevent

smaller organizations from being asked to provide uncompensated services. The importance of flexibility when considering partnership requirements for funding was also stressed; rural areas vary in terms of the capacity and types of partners available (e.g., some rural areas have limited or no emergency medical services, law enforcement, and/or harm reduction organizations).

How can this be done?

- Fund cross-sector community coalition infrastructure and coordination. This helps bring together key players in rural OPR efforts to identify community needs, share resources, reduce duplicate efforts, and establish partnerships and linkages to care.
- Financially support the time and effort it takes to establish and maintain cross-sectoral partnerships and coalitions that support ongoing and effective collaboration.
- Support formal partnerships among LHDs, grassroots organizations, or CBOs that are directly implementing OPR efforts in communities, including offering subcontracts to organizations with established harm reduction programs or other OPR interventions.
- Carefully consider partnership requirements, especially in rural settings where specific types of partnerships may not be available or feasible.

Ensure grant funding aligns with OPR operational costs and considers burdens that are often exacerbated in rural settings

Rural OPR leaders highlighted multiple examples of how their OPR efforts are often more time-intensive and costly than in other settings. It can take a significant amount of staff time and outreach to identify and build trust with community members and establish partnerships and linkages to trusted service providers. Program leaders described taking on considerable costs to mitigate transportation barriers for the people they serve (e.g., mileage, all-road vehicle maintenance expenses, staff time spent traveling). Uncompensated or non-reimbursable costs related to data collection and processing needed to adhere to reporting requirements (especially related to naloxone and supply distribution) were also noted. Given limited access to services in many rural communities, OPR programs described integrating support of basic needs into their services through peer support, case managers, and care navigators who help address social determinants of health (SDOH) for the people they serve.

How can this be done?

- Provide funding that supports the extensive time and effort it takes staff to build trust and relationships with potential service recipients in rural settings, including community outreach. This will likely require larger upfront funding investment with fewer participants served as programs are started or expanded.
- Ensure funding considers and is responsive to the operational and administrative costs associated with mitigating transportation barriers in rural settings (e.g., factoring high mileage into budgets as programs often rely on staff and contractors to drive long distances to meet with participants).

- Enable programs to provide appropriate pay for staff time needed to collect data and administer grants.
- Ensure that funding recognizes the need to address SDOH as part of OPR efforts, especially in rural settings where access to services is limited.

Meaningfully engage PWLLE throughout the funding process

Many rural OPR leaders shared frustrations over the lack of meaningful engagement by funders of the people most directly impacted by the rural overdose crisis, especially PWLLE, in key decision-making roles. PWLLE—including individuals from disproportionately impacted and historically marginalized communities—must be an integral part of funding-related activities, including the development of NOFOs and review of subsequent applications. Rural OPR leaders also stressed a key component of successfully engaging PWLLE, especially PWUD, is providing appropriate compensation for sharing their time and expertise.

How can this be done?

- Identify, train, and compensate rural PWLLE to serve on advisory bodies, in meaningful numbers, to provide input, oversight, and guidance on development of NOFOs related to rural OPR efforts, including developing applicant eligibility requirements and application evaluation criteria.
- Engage and compensate PWLLE to serve as grant reviewers, especially individuals from rural settings as well as disproportionately impacted and historically marginalized communities. PWLLE who have worked in rural harm reduction, MOUD, and OPR should be prioritized.
- Ensure PWLLE, including PWUD, are compensated appropriately for sharing their insights, experience and expertise.

APPENDIX B.

An Environmental Scan and Gap Analysis

Understanding the Needs of Rural Communities:

An Environmental Scan & Gap Analysis

July 2024

Submitted to:

National Association of County and City Health Officials
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Contents

Acronym List

AHRQ	Agency for Healthcare Research and Quality
CBPR	community-based participatory research
CDC	Centers for Disease Control and Prevention
CLIA	Clinical Laboratory Improvement Amendments
DAWN	Drug Abuse Warning Network
EBP	evidence-based practice
ECHO	Extension for Community Healthcare Outcomes
ED	emergency department
EMS	emergency medical services
HRSA	Health Resources and Services Administration
MAT	medication-assisted treatment
MOUD	medications for opioid use disorder
NACCHO	National Association of County and City Health Officials
NIH	National Institutes of Health
NSDUH	National Survey on Drug Use and Health
OEND	overdose education and naloxone distribution
OUD	opioid use disorder
PRSS	peer recovery support specialist
PWUD	people who use drugs
RCORP	Rural Communities Opioid Response Program
SAMHSA	Substance Abuse and Mental Health Services Administration
SBIRT	screening, brief intervention, and referral to treatment
SDOH	social determinants of health
SSP	syringe services program
SUD	substance use disorder
SUDORS	State Unintentional Drug Overdose Reporting System

Introduction

Purpose and Background

The landscape of substance use and overdose presents critical challenges for rural communities, necessitating a comprehensive examination of recent data and existing prevention and response efforts. As rural areas grapple with distinct social determinants of health (SDOH), spanning economic, geographic, educational, health care, food, and housing factors, understanding the nuances of fatal and non-fatal overdoses is imperative. This environmental scan and gap analysis is the first part of a larger needs assessment that seeks to elucidate the multifaceted dimensions of rural overdose prevention and response efforts. Ultimately, the needs assessment, including this report, illuminates the current complexities, successes, challenges, and opportunities as the country seeks to strengthen its responses to reduce morbidity and mortality associated with substance use.

This environmental scan and gap analysis examines available resources, studies, and best practices related to overdose prevention and response efforts, specifically in rural areas, and identifies populations that are disproportionately affected by overdose. To answer the research questions included in the Methodology section below, the environmental scan and gap analysis is divided into three main sections:

1. Overdose and Substance Use Rates in Rural Communities
2. Evidence-Based Strategies and Promising Practices for Overdose Prevention and Response in Rural Communities
3. Differences and Disparities in Overdose Prevention and Response Efforts in Rural Communities

Definitions

Overdose. For the purposes of the environmental scan and gap analysis, overdose is defined as an instance in which a single drug or combination of drugs depresses of the central nervous system, causing an individual to be unresponsive to stimulation and/or experience respiratory depression. The literature commonly uses the term "opioid overdose" to focus on the causal agent of respiratory depression and loss of life in situations where the overdose is not successfully reversed.[1] The strength, and frequent lack of purity, of today's illicit drug supply has contributed to the evolving overdose crisis, making it common, including in rural communities, for multiple substances to be involved in an overdose.[2,3,4] As a result, it is critical that overdose prevention and response efforts focus not just on the needs of people who use opioids, but other substances as well, such as methamphetamine and cocaine.[5] This was factored into the environmental scan and gap analysis by including broader search terms (e.g., "substance use") rather than just "opioid use." Further information regarding the search terms is included in the Methodology section, later in the Introduction.

Rural. A key challenge in examining rural overdose prevention and response data and efforts is the variety of definitions of rural found in academic literature and government resources. The Rural Health Information Hub identifies eight common definitions of rural that vary widely in geographic region and the number of people living in rural areas.[6] As an example, based on the 2010 U.S. Census Bureau's definition, 19.3 percent of people living in the United States are in rural communities, but that drops to 15 percent according to the Office of Management and Budget's definition.[7] These varying definitions of rural are seen across datasets that examine fatal and non-fatal overdose rates, making it difficult to draw clear conclusions when comparing information from different sources (e.g., urban vs. rural fatal overdose rates, disparities in rural overdose rates by demographics). Therefore, data comparisons included in this report are drawn from the same data sources. We recommend caution in attempting to draw comparisons between datasets or research articles without confirming the definition of rural used in the corresponding analysis. Academic articles and grey literature also used varying definitions of rural and frequently did not specify which one was used. Therefore, the resources were included simply by self-identifying as pertaining to rural populations.

Methodology

Report Structure and Research Questions. The environmental scan and gap analysis addresses the following two research questions and associated sub-questions:

1. Who is experiencing overdose in rural communities? What substances are involved in these overdoses?
    a. What disparities exist between rates of substance use in rural areas and rates of fatal and non-fatal overdose?

2. What resources and practices currently exist in rural communities to effectively prevent and respond to overdoses? What novel and/or promising approaches to overdose prevention and response have been successfully implemented in rural communities?
    a. What disparities exist between rural overdose prevention and response efforts?
    b. What practices and resources exist to reduce existing disparities, i.e., to effectively prevent and respond to overdose among historically marginalized or disproportionately impacted populations in rural communities?

The first research question is addressed in the next section, Environmental Scan and Gap Analysis: Overdose and Substance Use Rates in Rural United States. The second research question is responded to in the section on Environmental Scan and Gap Analysis: Evidence-Based Strategies and Promising Practices for Overdose Prevention and Response in Rural Areas, with questions 2a and 2b addressed in the Environmental Scan and Gap Analysis: Differences and Disparities in Rural Overdose Prevention and Response Efforts section. The report closes with a Summary of the findings from the environmental scan and gap analysis.

Search Parameters. To identify relevant academic literature, the environmental scan search process focused on two core databases—Google Scholar and Semantic Scholar—supplemented by the reference lists of the literature reviewed. Grey literature, identified through Science.gov, included published reports and datasets (e.g., from government agencies), conference proceedings, white papers, and policy briefs.

Inclusion criteria for the scan:

- Included key search terms
- Published within the most recent 5 years (2018–2023)
- Was research or intervention based in the United States
- Had no paywall for grey literature
- Had minimal paywall for academic literature (limited to systematic reviews or other seminal or critical articles)
- Were books or chapters available online
- Had a rural-specific data or focus
- Included substances indicated in scan's definition of overdose

Key search terms (see Appendix B-1) were identified based on the research questions and sub-questions. Evidence-based practices (EBPs) were identified for overdose prevention and response from the National Institutes of Health's (NIH) Helping to End Addiction Long-Term (HEAL) Initiative's 2023 practice guide, "Opioid-Overdose Reduction Continuum of Care Approach"[8] and the Centers for Disease Control and Prevention's (CDC) 2018 guide, "Evidence-Based Strategies for Preventing Opioid Overdose."[9] The key search terms identified specific populations and communities suspected to have disparate outcomes based on input from internal and external subject matter experts.

Articles and documents that met inclusion criteria were grouped and reviewed by research questions or sub-questions as well as by overdose and other rates, relevant EBPs, potential promising practices, disparities, and/or specific populations of interest. Gaps and challenges were also identified in the literature review. These categories are not mutually exclusive, and some articles and reports fell into multiple categories.

Limitations. This environmental scan focuses primarily on recent, publicly available academic literature that addresses overdose prevention and response in rural communities within the United States, supplemented by relevant grey literature. Additional studies and literature that are not readily accessible online (e.g., they are behind paywalls) were not included in this scan. The search may not have identified all relevant studies or interventions. For example, the search may not have captured studies or literature on interventions that may have taken place in rural settings but were not explicitly identified as having rural-specific data or focus. Lastly, a scoping review indicated that studies not identifying variation between rural and urban outcomes may be less likely to be published due to publication bias, potentially limiting the availability of information on rural overdose prevention and response efforts.[10]

Overdose and Substance Use Rates in Rural United States

The environmental scan identifies and synthesizes publicly available overdose and substance use rates to gain a better understanding of who is experiencing overdose in rural communities within the United States. Many of the reviewed resources provide national-level information that includes rural-specific data or focus. The rates and figures presented in this section are primarily drawn from recently published reports and datasets produced by the U.S. government, including mortality data from the National Vital Statistics System,[11] the Drug Abuse Warning Network's (DAWN) nationwide public health surveillance system,[12] which captures data on emergency department (ED) visits, and the annual National Survey on Drug Use and Health (NSDUH).[13]

Rates of Fatal and Non-Fatal Overdose

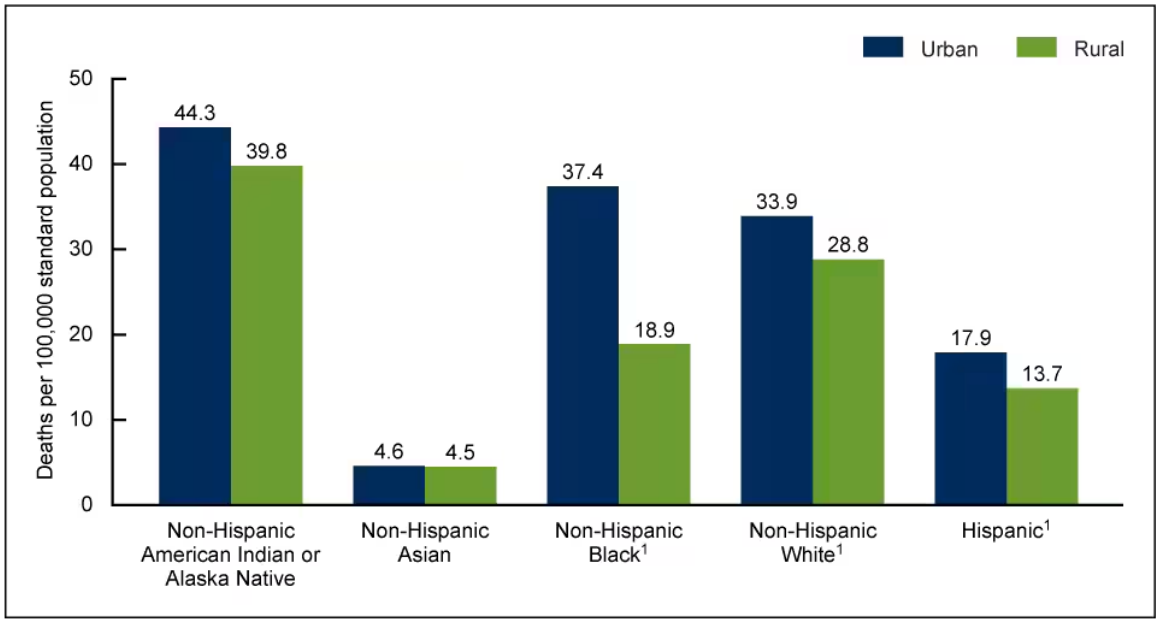
Fatal Overdose Rates in Rural Areas. Drawing on mortality data from the National Vital Statistics System, this section summarizes national-level fatal overdose rates in rural counties, including demographic variations and substances involved. Drug overdose deaths have continued to rise in rural counties within the United States since 1999.[14] Between 1999 and 2019, the age-adjusted drug overdose rates in rural counties increased from 4.0 per 100,000 in 1999 to 19.6 in 2019.[15] In 2020, the first year of the COVID-19 pandemic, the rate in rural counties rose even further, reaching a high of 26.2 per 100,000 people.[16] In addition, while nearly half of states (23) reported higher drug overdose death rates in urban counties compared to rural counties in 2020, 8 states reported higher rates in rural counties (California, Connecticut, Maryland, New York, North Carolina, North Dakota, Vermont, and Virginia).[17]

Demographic Variations in Fatal Overdose Rates in Rural Areas. Within rural counties, fatal drug overdose rates for 2020 varied by demographic characteristics such as sex, race and ethnicity, and age. For example, the 2020 drug overdose death rate in rural counties was almost twice as high for males compared to females, 34.1 and 17.9, respectively.[18] Rates

also differed by race in rural counties: highest for non-Hispanic American Indian or Alaska Native (AI/AN) people (39.8), followed by non-Hispanic White (28.8), non-Hispanic Black (18.9), and non-Hispanic Asian (4.5).[19] Variations by age were also apparent within rural counties among people aged older than 15 years, with drug overdose death rates highest for the 25–44 age group (51.6), followed by the 45–64 age groups (33.5), individuals aged 15–24 (13.3), and 65 years and older (6.2).[20, 21]

Demographic Variations in Fatal Overdose Rates — National Estimates. While not specifically focused on rural settings, learnings from CDC analysis of 2019 to 2020 overdose death rate data from the State Unintentional Drug Overdose Reporting System (SUDORS) is useful.[22] The analysis provided insights about increasing overdose death rates and widening disparities by trends in race, ethnicity, and other factors, across 25 states and the District of Columbia.[23] For example, between 2019 and 2020, overdose death rates increased the most among non-Hispanic Black (44 percent), followed by non-Hispanic AI/AN people (39 percent), and White people (22 percent).[24] When examining the rates by age and racial and ethnic subgroups, Black people, aged 15–24, and AI/AN people, aged 25–44, had the largest relative rate increase.[25] Moreover, when accounting for age, race, and sex, the highest overdose death rates were reported among older Black males, aged 45–64 and 65 plus, with the largest relative increase among AI/AN females aged 25–44.[26] Also of note, overdose death rates increased with increasing county-level income inequality ratios across race and ethnicity. Black and Hispanic people were disproportionately affected.[27] While national data trends should be considered, the assumption cannot be made that rural data trends will match national patterns. Figure 1 illustrates that in 2020, non-Hispanic Black people experienced a higher fatal overdose rate compared to non-Hispanic White people in urban areas, but the inverse was true for rural settings. To support more nuanced understanding and response to health disparities in overdose rates in the rural context, analysis of health disparities should examine rates by geographic characteristics (urban/rural) in addition to sociodemographic characteristics (e.g., sex, age, race and ethnicity, sexual orientation, and gender identity) and SDOH characteristics that are discussed in this scan.

Figure 1. Age-adjusted rates of drug overdose deaths by race and Hispanic origin and urban-rural status: United States, 2020[1]



[1]Rate higher in urban counties than in rural counties ($p < 0.05$).

NOTES: Drug overdose deaths were identified using *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population. Decedent's county of residence was classified as urban or rural based on the 2013 NCHS Urban–Rural Classification Scheme for Counties. Rates for non-Hispanic Native Hawaiian or Other Pacific Islander people were not reported due to small numbers. Access data table for Figure 2 at: https://www.cdc.gov/nchs/data/databriefs/db440-tables.pdf#2.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality

1 Figure reprinted from Spencer, M. R., Garnett, M. F., & Miniño, A. M. (2022). *Urban-rural differences in drug overdose death rates, 2020*. NCHS Data Brief, No. 440. CDC. National Center for Health Statistics. Page 2. https://dx.doi.org/10.15620/cdc:118601

INTERACTIVE TOOLS AND DASHBOARDS FATAL DRUG OVERDOSE RATES BY COUNTY, STATE, OR NATIONAL-LEVEL.

There are an increasing number of available interactive tools and dashboards focused on visualizing key data and trends on fatal overdose in the United States at differing geographic levels. These dashboards may improve understanding and response to urban-rural differences in fatal drug overdose rates at localized levels and within specific states and counties.

- The Provisional County-level Drug Overdose Death Count includes a dashboard that supports data visualization of provisional drug overdose deaths by county within a 12-month period (currently through June 2023).[28] While the dashboard does not highlight urban-rural differences specifically, there is potential to use the source data to run a comparison against rurally designated counties to help identify trends in the future.
- NORC's Overdose Mapping Tool allows individuals in the general public to create county-level maps that highlight the relationship between community and population demographics and fatal drug overdoses—including opioid overdoses—in the United States.[29] The data can be filtered by county, state, urban or rural, and timeframe. In addition, there is an option to add map overlays for federally defined regions and Native American reservations. The tool is funded by Bureau of Justice Assistance, Office of Justice Programs, U.S. Department of Justice.

Non-Fatal Overdose Rates in Rural Areas. National-level data reported fatal drug overdose rates more frequently than non-fatal drug overdose rates in rural counties. However, national-level estimates can still provide insights into recent trends regarding who is experiencing non-fatal overdoses. The next section highlights national-level estimates of non-fatal overdose rates—including demographic variations and substances involved—based on DAWN surveillance data on ED visits from January 2021 through June 2022.

Non-Fatal Overdose Rates – National Estimates. The DAWN surveillance data from January 2021 through June 2022 estimates a national rate of 180 per 100,000 people are treated for a non-fatal overdose annually through ED visits.[30] Given that this data does not include community-based reversals or individuals who refuse transport to the ED following an overdose reversal by a first responder, this estimate undercounts the non-fatal overdose rate.

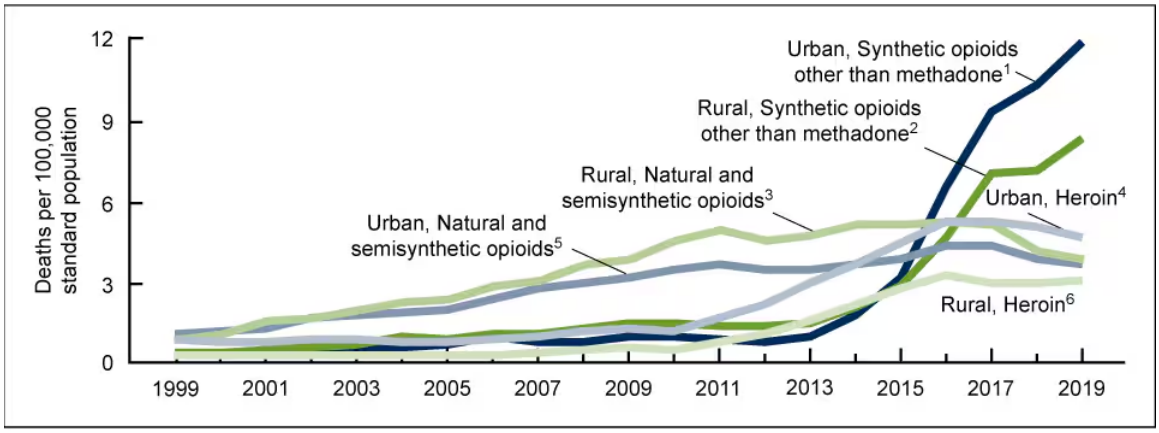
Demographic Variations in Non-Fatal Overdose Rates – National Estimates. DAWN's estimated non-fatal drug overdose rates at the national level varied by demographic characteristics, such as sex at birth, race and ethnicity, and age. For example, males were more likely to be treated for a non-fatal overdose in an ED than females, at an estimated 196 per 100,000 and 165 per 100,000, respectively. Variations were also present across races. Black and African American people had the highest rate of non-fatal overdoses at 175 per 100,000, followed by White people, with 154 per 100,000. DAWN noted lower rates for those

identified as multi-racial (49 per 100,000) and AI/AN (14 per 100,000).[31,2] Variations by age group were also evident, with ages 26–44 noted as the highest rate of non-fatal overdose visits (293 per 100,000), followed by those aged 18–25 (253 per 100,000). Lower rates were observed among those aged 45–64 (169 per 100,000), under 18 (112 per 100,000), and 65 and over (71 per 100,000).[32]

Substances Involved in Fatal and Non-Fatal Overdoses

Substances Involved in Fatal Overdoses. The substances involved in fatal overdoses in rural counties within the United States vary by type and time period. In 2020, synthetic opioids other than methadone (which include fentanyl, fentanyl analogs, and tramadol) were the most common type of drug involved in rural drug overdose deaths (14.3 deaths per 100,000 standard population), followed by psychostimulants with misuse potential such as methamphetamine, amphetamine, and methylphenidate (9.4 per 100,000), natural and semisynthetic opioids such as morphine, codeine, hydrocodone, and oxycodone (4.5 per 100,000), heroin (3.2 per 100,000), and cocaine (3.0 per 100,000).[33] As illustrated in Figures 2 and 3, substances involved in fatal overdose also varied between 1999–2019 by urban or rural residence.

Figure 2. Age-adjusted rates of opioid-involved drug overdose deaths, by type of opioid and urban or rural residence: United States, 1999–2019[3]



[1]Significant increasing trend from 1999 to 2006, stable trend from 2006 to 2013, then significant increasing trend from 2013 through 2019, with different rates of change over time, $p < 0.05$.

[2]Significant increasing trend from 1999 to 2009, stable trend from 2009 to 2013, increasing trend from 2013 to 2017, then stable trend from 2017 through 2019, $p < 0.05$.

[3]Significant increasing trend from 1999 to 2010, with different rates of change over time; stable trend from 2010 to 2017, then significant decreasing trend from 2017 through 2019, $p < 0.05$.

[4]Stable trend from 1999 to 2005, significant increasing trend from 2005 to 2016, with different rates of change over time, then significant decreasing trend from 2016 through 2019, $p < 0.05$.

[5]Significant increasing trend from 1999 to 2010, stable trend from 2010 to 2013, significant increasing trend from 2013 to 2017, then significant decreasing trend from 2017 through 2019, $p < 0.05$.

[6]Significant increasing trend from 1999 to 2015, with different rates of change over time; stable trend from 2015 through 2019, $p < 0.05$.

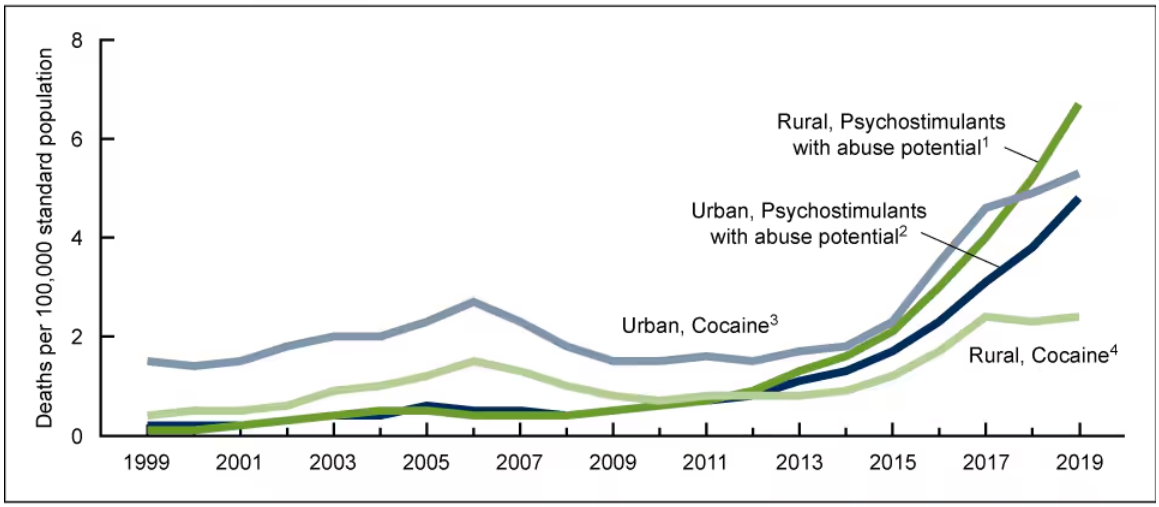
2 The report indicated Asian, native Hawaiian or pacific islander data was suppressed.

3 Figure reprinted from Hedegaard H., & Spencer M. R., (2021). *Urban–rural differences in drug overdose death rates, 1999–2019* NCHS Data Brief, No. 403. National Center for Health Statistics. Page 3. https://dx.doi.org/10.15620/cdc:102891

NOTES: Drug overdose deaths were identified using I*nternational Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Among deaths with drug overdose as the underlying cause, the following multiple cause-of-death codes indicate the drug type(s) involved: Heroin (T40.1), Natural and semisynthetic opioids (T40.2), and Synthetic opioids other than methadone (T40.4). Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population. Decedent's county of residence was classified as urban or rural based on the 2013 NCHS Urban–Rural Classification Scheme for Counties. Access data table for Figure 3 at: https://www.cdc.gov/nchs/data/databriefs/db403-tables-508.pdf#3.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality

Figure 3. Age-adjusted rates of stimulant-involved drug overdose deaths, by type of stimulant and urban or rural residence: United States, 1999–2019[4]



[1]Significant increasing trend from 1999 to 2004, stable trend from 2004 to 2008, then increasing trend from 2008 through 2019, with different rates of change over time, $p < 0.05$.

[2]Significant increasing trend from 1999 to 2005, stable trend from 2005 to 2008, then increasing trend from 2008 through 2019, with different rates of change over time, $p < 0.05$.

[3]Significant increasing trend from 1999 to 2006, significant decreasing trend from 2006 to 2012, significant increasing trend from 2012 to 2017, then stable trend from 2017 through 2019, $p < 0.05$.

[4]Significant increasing trend from 1999 to 2006, significant decreasing trend from 2006 to 2010, then significant increasing trend from 2010 through 2019, $p < 0.05$.

NOTES: Drug overdose deaths were identified using *International Classification of Diseases, 10th Revision* underlying cause-of-death codes X40–X44, X60–X64, X85, and Y10–Y14. Among deaths with drug overdose as the underlying cause, the following multiple cause-of-death codes indicate the drug type(s) involved: Cocaine (T40.5) and Psychostimulants with abuse potential (T43.6). Age-adjusted death rates were calculated using the direct method and the 2000 U.S. standard population. Decedent's county of residence was classified as urban or rural based on the 2013 NCHS Urban–Rural Classification Scheme for Counties. Access data table for Figure 4 at: https://www.cdc.gov/nchs/data/databriefs/db403-tables-508.pdf#4.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality

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NOTE: *Examples of psychostimulants with abuse or misuse potential include methamphetamine, amphetamine, and methylphenidate.*

Substances Involved in Non-Fatal Overdoses. DAWN's surveillance data can also provide insights into the types of substances involved in recent non-fatal overdoses nationally. For example, the most mentioned substance in non-fatal overdose visits to EDs included prescription or other opioids (27.8 percent) and heroin (22.7 percent).[34] Other top substances mentioned included benzodiazepines (9.8 percent), antidepressant medications (9.3 percent), cannabis (7.4 percent), methamphetamine (7.3 percent), acetaminophen (6.8 percent), antipsychotic medications (4.2 percent), and cocaine (4.2 percent). Almost half (48.1 percent) of non-fatal overdose visits involved an opioid.[35] Critically, fentanyl has not been tracked as an independent category within DAWN's dataset. The impact of fentanyl on overdose deaths must be incorporated into any comprehensive understanding of overdose rates.

4 Figure reprinted from Hedegaard H., & Spencer M. R., (2021). Page 4.

Polysubstance was prevalent with studies showing that non-fatal overdoses involving more than one substance ranged from 39–52 percent.[36,37] A cross-sectional study that surveyed people who use drugs (PWUD) in rural areas across 10 states also found that individuals who self-reported using both opioid and methamphetamine had higher rates of non-fatal overdose when compared to individuals who used opioids or methamphetamine independently.[38]

INTERACTIVE TOOLS AND DATA DASHBOARDS ON NON-FATAL DRUG OVERDOSE RATES IN THE UNITED STATES.

The CDC highlights the following three data dashboards as complimentary resources for understanding non-fatal overdoses in the United States, available through the Drug Overdose Surveillance and Epidemiology (DOSE) system.[39] While county-level data is available, in the case of some rural counties, the data is suppressed.

- DOSE Dashboard: Non-Fatal Overdose Syndromic Surveillance Data[40]
- DOSE Dashboard: Non-Fatal Overdose Emergency Department and Inpatient Hospitalization Discharge Data[41]
- Fentalog Study: A Subset of Non-Fatal Suspected Opioid Overdoses with Toxicology Testing[42]

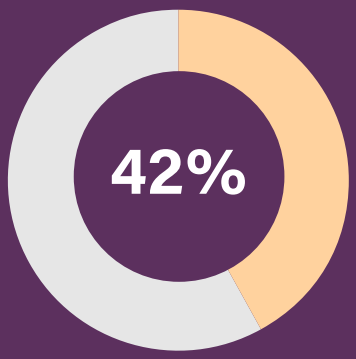
Rates of Substance Use, Substance Use Disorders, and Substance Use Disorder Treatment in Rural Areas

Reports on the NSDUH that analyzed national-level data on substance use, substance use disorders (SUD), and substance use disorder treatment estimates (including analysis by race, ethnicity, and age) are readily available; however, analysis of urban-rural differences within these reports is not easily accessible.[43] For example, additional 2021 and 2022 estimates by county type—including a potential proxy measure for rural "non-metro counties"[44] of substance use, SUD, substance use risk and protective factors, availability of substance use treatment, and co-occurrence of mental health issues and SUDs—can be found in the NSDUH survey results detailed tables[45] on the website of the Substance Abuse and Mental Health Services Administration (SAMHSA). However, analysis of the survey results by county type is not included in the annual national report for 2022[46] or the NSDUH 2022 Highlighted Population Slides.[47]

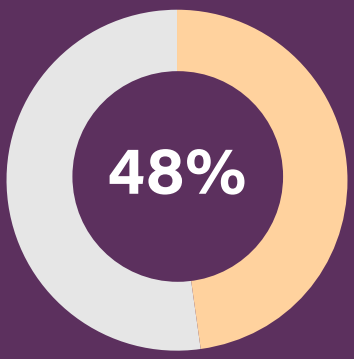
To increase accessibility of this information, pertaining to urban-rural differences in substance use, the 2022 NSDUH data from non-metro counties have been provided in Appendix B-2 on the following topics: illicit drug use (excluding illegal fentanyl), SUD, received SUD treatment, and received medication-assisted treatment (MAT) for opioid use among people with opioid use disorder (OUD).

KAISER FAMILY FOUNDATION TRACKING POLL JULY 2023: SUBSTANCE USE CRISIS AND ACCESSING TREATMENT, RURAL STATISTICS

The following data points highlight the extensive impact of substance use on rural communities:



"Four in ten of those living in rural areas (42%) report they or a family member have experienced opioid addiction compared to smaller shares of those living in suburban (30%) or urban (23%) areas."[48]



"About half (48%) of those who live in rural areas ... say they are worried that someone in their family will unintentionally consume the drug [fentanyl]."[49]

Evidence-Based Strategies and Promising Practices for Overdose Prevention and Response in Rural Communities

This section presents the findings from an environmental scan on the available implementation of EBPs to prevent and respond to overdose in rural settings. The following sections are primarily grouped by the interventions identified as EBPs in the NIH HEAL 2023 "Opioid-Overdose Reduction Continuum of Care Approach" and the CDC's 2018 "Evidence-Based Strategies for Preventing Opioid Overdose" guides.[50,51] In addition, the scan includes other focus areas identified by subject matter experts as potential promising practices.

Prioritize Delivery of Services to Those Who Need Them Most in Criminal Legal Settings and Other Venues

Individuals released from carceral settings to the community face particularly high fatal overdose risk in the two weeks following release although the risk remains elevated for the first year following release.[52,53] While not specific to rural communities, studies examining overdose rates post-release showed an increased risk of at least 40 times in the two weeks post-release.[54] The scan findings indicate that the rural criminal legal setting serves as a critical venue for connecting PWUD with medications for opioid use disorder (MOUD) and other support services.

A recent study by the Rural Opioid Initiative found that 42 percent of PWUD surveyed in rural communities had been recently incarcerated, that those who were recently incarcerated had higher rates of overdose in the past 6 months, and that recent incarceration was not associated with MOUD treatment. These findings elucidated the dire need for

evidence-based SUD treatment and overdose prevention and response efforts, including MOUD services and provision of naloxone, within the rural criminal legal systems, including jails and prisons. It also highlights the need for accessible MOUD and harm reduction services following incarceration.[55] In addition, a study on justice-involved women in Appalachia reinforced that the first 6 months after release from jail are a "critical period for intervening among rural women who use substances, to reduce both their high-risk substance use patterns and the likelihood of re-incarceration."[56]

A 2019 issue brief, also from Appalachia, reported health disparities related to opioid misuse and offered several examples of successful drug court models in rural settings that helped divert people with substance use disorder out of the criminal justice setting and into recovery services.[57] For example, a pretrial diversion program and specialty drug courts in Potter County, Pennsylvania, "link people with substance use disorder to treatment."[58] In Appalachian Tennessee, "the 4th Judicial District's Recovery Oriented Compliance Strategy (TN ROCS) offers a pathway to treatment for offenders who have substance use disorders and are considered low-risk for recidivism," and specialized "Family Treatment Drug Courts that also involve child welfare services, with the ultimate goal of promoting safe and healthy environments for children."[59] In evidence-based drug court models, court staff and the judiciary must work closely with behavioral health staff to ensure appropriate care is provided and individual autonomy regarding treatment options is respected.

Implement Field-Based Population Detection Methods

Field-based detection methods, which involve real-time community outreach within existing programs, networks, and systems, were a key component of several EBPs identified in this environmental scan. Methods include active overdose education and naloxone distribution (OEND) programs, MOUD programs, peer recovery support, and peer service and syringe services programs (SSP). The scan will discuss the effectiveness of these interventions within rural settings in the relevant sections to follow.

Use Data Sources to Target Intervention to Those Who Need Services

The environmental scan identified multiple examples of innovative ways data is being used in rural settings to better identify populations at risk for overdose and support their needs. Research indicates that overdose risks and regional characteristics vary widely among different rural communities; therefore, it is critical to examine the unique characteristics of each community when developing strategies for overdose prevention and response, as universal approaches may not be effective for rural communities.[60] For example, one study in rural Appalachia used spatial and social network data to determine the optimal individuals to target for overdose prevention training and naloxone distribution, optimizing the intervention reach.[61] Another study in rural Illinois used bivariate mapping of counties

with low local health department provision of OUD treatment and HIV services along with higher disease rates to help direct resources to address the overdose crisis and related infectious diseases.[62]

The scan also noted challenges and recommendations for using data sources to guide interventions on overdose prevention and response in rural settings. For example, after comparing two of the most readily available national datasets on substance use—the NSDUH[63] and the Treatment Episode Data Set-Admissions (TEDS-A)[64]—with state-level data from Alaska's Department of Labor Statistics,[65] one study concluded these national datasets may not apply to understanding rural and remote substance use. The study found that neither national dataset assessed fentanyl—a prominent local concern in overdoses. Additionally, language and travel constraints that were particularly pronounced in remote areas of Alaska may have limited data collection introducing potential sampling bias.[66] In turn, the study recommended utilizing local data collection combined with analysis of Medicaid data and other forms of admission and discharge data to inform localized, comprehensive, state-level addiction response plans.[67] Multiple studies also stressed the importance of going beyond mapping geographic variables by a single factor like urban/rural, and instead called for analysis that simultaneously maps geographic and demographic variables, along with other measures of social vulnerability.[68,69,70] The study also recommends incorporating qualitative and community-based participatory research (CBPR) that engages individuals with lived and living experience to support more nuanced and precise analysis to inform more responsive and effective interventions.[71]

Engage Individuals with Lived Experience in the Decision-Making Process

Engaging individuals with lived and living experience in the decision-making processes and activities is an established best practice and guiding principle for overdose prevention and response.[72] For example, one of the pillars of SAMHSA's Harm Reduction Framework emphasizes the importance of PWUD and people with lived experience of drug use leading harm reduction efforts.[73] However, the scan did not identify many examples that clearly highlighted this best practice within overdose prevention and response programs in rural settings. Similarly, a scoping review that conducted a multidimensional assessment of MOUD access found that few studies in the academic literature prioritized MOUD patients' perspectives or examined how MOUD access differed by rurality. There is a strong need to solicit and incorporate insights from people with lived experience of MOUD access more consistently and systematically.[74,75]

While not specific to overdose prevention and response efforts, federal recommendations on strategies to engage people with lived experience highlight the importance of equitable compensation.[76]

Implement Active OEND Programs for PWUD, Their Social Networks, and at Venues Where Overdoses Are Most Likely to Occur

The environmental scan identified multiple studies and programs focused on proactive OEND in rural settings, especially among PWUD and their social networks. A study on the CARE2HOPE OEND interventions with PWUD in Appalachian Kentucky found that the program not only increased participant knowledge and confidence in administering naloxone, but it also helped shift individual's roles in responding to overdose within their community. Over half of participants reporting a recent experience administering intervention-provided naloxone.[77]

LESSONS LEARNED FROM PROJECT HOPE'S OEND WORK IN RURAL ALASKA

Rural participants in this study experienced more logistical challenges, such as transportation and travel time, in obtaining naloxone than urban participants. While services such as syringe exchanges are legal in Alaska and generally available in urban and surrounding areas, they are less accessible for rural individuals. The solution participants described was to obtain multiple kits at each visit to the partner organization and to share those kits with others. Rural communities experience a 45% higher rate of opioid-related overdose deaths than urban areas as well as a disparity in naloxone administration by emergency medical services. The current study suggests that providing individuals in rural communities with numerous kits for secondary distribution could be one way to help to overcome the shortcomings of relying on emergency services.[78, 79,80]

The scan also identified facilitators and barriers to implementing needed OEND programs in rural communities. A study of PWUD in rural northern New England noted the willingness of PWUD to play active roles as key responders to overdoses.[81] The researchers found that OEND interventions provide an opportunity to build and expand on these roles and provide connections to support for those experiencing trauma or post-traumatic stress disorder after witnessing or responding to an overdose. Another study that examined overdose responses among people who use prescription opioids non-medically in Appalachia found that the majority of respondents had witnessed an inappropriate (non-evidence-based) response and expressed willingness to participate in overdose prevention training.[82] In addition, a study on overdose prevention and response strategies in rural Illinois found that the low use of naloxone among participants was due to barriers around naloxone access, fear of opioid withdrawal, and fear of arrest. These results further illustrate the need for greater education on and access to naloxone in rural communities.[83]

One potentially promising program used a post-overdose outreach team in the rural Midwest that adopted a quick response team model to develop and implement a consistent process for conducting outreach after overdoses. The team communicated with

survivors and family members and initiated interventions such as OEND, provision of local recovery resources, and warm handoffs to treatment providers, if desired.[84] There are many examples of post-overdose outreach teams or quick response teams that have been implemented across the country. The teams' structures and strategies vary.

FACILITATING FACTORS FOR POST-OVERDOSE OUTREACH TEAM SUCCESS

Facilitators:

- Being person-centered and non-coercive
- Establishing clear role boundaries of team members
- Including multi-disciplinary and multiagency collaboration
- Having empathy for those who use drugs and experienced overdose

Barriers:

- Difficulties contacting survivors, especially individuals experiencing housing instability
- Stigma among community members around PWUD and overdose[85]

Include Passive OEND Strategies

The environmental scan identified several studies that examined the current and potential role of pharmacies in supporting passive OEND strategies and expanding access to naloxone, including in rural contexts. One study in Rhode Island and New York determined that pharmacies with the following characteristics were more likely to have dispensed naloxone and to have dispensed a larger number of doses: rural, higher volume of all prescriptions and of buprenorphine, higher syringe sales, drive-through access, longer weekend hours, and being situated in communities with younger populations.[86] A study of pharmacies in rural and small metro areas of New York found that while overall naloxone dispensation was low, the community pharmacists showed favorable attitudes toward pharmacy naloxone distribution.[87] Another study noted, however, that although access to naloxone has improved within the three states of interest, concerns over inequitable access remained, particularly in rural areas. Barriers to increasing access to naloxone distribution in pharmacy settings specifically included bias toward and stigmatization of PWUD and harm reduction strategies like naloxone distribution as well as out-of-pocket costs.[88]

The scan revealed one Veterans Affairs medical center that created an innovative pharmacist–led telehealth clinic for OEND that targeted at-risk patients to improve access to OEND in rural areas.[89] Hands-on naloxone training for rural clinicians and staff at behavioral health clinics was also noted as promising practice for responding to opioid overdose. However, the effectiveness of the training toward the intended goal of reducing response time between recognition of opioid overdose symptoms and administration of naloxone needs to be investigated.[90]

Build OEND Capacity Among First Responders

Several studies examined OEND capacity and attitudes about naloxone among first responders in rural areas. For instance, the Missouri Overdose Rescue and Education project described a successful overdose prevention program that implemented large-scale training and naloxone distribution for rural first responders. The program attributed its success to the implementation of both train-the-trainer modules and online education as well as partnerships with local public health agencies that served as distribution hubs for naloxone.[91]

OEND TRAINING CONTENT FOCUS AREAS FROM THE MISSOURI OVERDOSE RESCUE AND EDUCATION PROJECT

- Non-stigmatizing and people-first language
- Missouri legislation related to naloxone and interactions with PWUDs
- Risk compensation beliefs
- Overview of the opioid-overdose landscape
- Overdose risk factors and identifying and responding to an opioid overdose
- Brain-disease model of addiction[5]
- Fentanyl myths and facts[92]

At the state level, many emergency medical services (EMS) have also updated their protocols and provide training through health departments to enable non-paramedic first responders such as firefighters, law enforcement, and emergency medical technicians to administer naloxone. Many rural EMS providers report being extremely comfortable with administering naloxone.[93] Interestingly, several studies elucidated that many first responders support harm reduction strategies and community-based OEND for PWUD, as these are the people who are most likely to witness overdoses and can provide the quickest response, especially in rural and remote areas.[94,95,96]

5 While some studies have shown that framing substance use disorder in the context of a brain-disease model can reduce stigma compared to a moralistic view of substance use, this approach has also been critiqued for discounting the psychological, social, and economic factors that contribute to substance use. A more holistic view would incorporate a biopsychosocial approach.

Expand Medications for MOUD Capacity in Healthcare, Criminal Legal Settings, and Through Telemedicine

The environmental scan identified examples of studies and programs related to expanding MOUD in rural communities' healthcare settings, including primary care practices and hospitals as well as through tele-mentoring, telemedicine, and other innovative models. The Technology and Medication Assisted Treatment Team Training and Resources (IT MATTTRs)[97] project in rural Colorado focused on training primary care teams on specific protocols for the use of buprenorphine treatment for OUD. It found that the proportion of participating primary care practices providing or referring patients for treatment increased from 18.8 percent to 74.4 percent over 12 months. Moreover, within the study region, the overall number of people prescribed buprenorphine was significantly higher over a 4-year period than other parts of the state.[98]

A separate article examined grantees receiving funding through the Agency for Healthcare Research and Quality's (AHRQ) Patient-Centered Outcomes Research program met regularly over a 4-year period to share strategies and discuss their work supporting MOUD in primary care practices in rural communities.[99] The cohort identified several promising practices. Lessons learned included making MOUD training and support available to all clinic staff through a broad menu of training options, support, and resources, and providers should be initiated early and in multiple formats and levels of engagement. Additional details on lessons learned from the grantees' work with rural primary care clinics are described in Table 1.

Table 1. Summary of project intervention and training and supports offered to clinics through AHRQ's efforts to expand MOUD access in rural primary care practices[100]

The Who	The whole clinic	Training designed for potential MOUD prescribers, therapists, counselors, clinic managers, front office staff, case managers, community support workers, etc.
The What	Trainings on both clinical and practice-based processes to treat patients with opioid use disorder	▪ Drug Addiction Treatment Act 2000 waiver eligibility and in-depth information on co-occurring disorders, special populations, details on formulations, chronic pain, etc. ▪ Screening, Brief Intervention, and Referral to Treatment (SBIRT) ▪ Motivational interviewing ▪ Stigma toward patients with SUD ▪ Experience of other MOUD prescribers ▪ Development of clinic-tailored protocols
The How	A mix of in-person and online training and support	▪ In-person training and/or consultations allow for hands-on, tailored assistance for establishing MOUD treatment within a practice, both among providers and clinic staff. ▪ Tele-mentorship model provides education and online assistance for establishing MOUD treatment within a practice, both among providers and clinic staff. ▪ Additional online support (tele-consultation, interactive webinars, recorded webinars, and resources, such as screeners, guidelines, monitoring tools, etc.) allow for ongoing consultation and support.

NOTE: The content in this table originally appeared in Cole et al, 2021 (see endnote 100)

The environmental scan uncovered several studies or articles that specifically characterized primary care practices or hospitals experiences with the tele-mentoring program, Project ECHO (Extension for Community Healthcare Outcomes). Project ECHO is a case-based education model that connects specialists with remote providers via a simultaneous video link.[101] A study on the implementation of the project across Oregon's rural and community hospitals concluded that use of ECHO for interprofessional SUD hospital care across the state was both feasible and acceptable.[102] However, despite participants' reported satisfaction with the program and substantial gain in knowledge around MOUD, prescribing practices did not change, citing the need for supportive hospital leadership and policies and culture around SUD for substantial shifts in practices to take place.[103]

Similar findings emerged from a small study of ECHO with primary care physicians and staff. It found that while providers and staff were receptive to the model and valued the learning sessions, it was difficult to employ the changes. Systematic challenges such as competing demands in patient care and the low degree of endorsement by clinic leadership impeded providers' ability to engage in the tele-mentoring models.[104]

Multiple articles found evidence that increased utilization of telemedicine is a potentially promising practice to increase access to MOUD in rural areas.[105,106,107,108] Increased access to high-speed internet will be an important component of continued expansion of telehealth support for MOUD.[109] Given the potential barriers to high-speed internet in rural areas, telehealth models should not be limited to computer-based models. To support access and equity, visits should also be conducted over the telephone.[110] The scan also indicated mobile clinics and community-based satellite clinics as potential promising practices for reducing barriers to MOUD in rural communities.[111,112,113]

A successful example of expanding MOUD in criminal legal settings was also identified through the scan. A cross-sector program in rural Minnesota, working to reduce opioid use and misuse at the local hospital and clinic, partnered with the county jail to provide buprenorphine treatment to incarcerated individuals. Preliminary results from the program indicated that individuals incarcerated in county jails who received buprenorphine had reduced jail time and recidivism.[114]

Initiate On-Site MOUD in Community-Based Settings and Create Linkage Programs and Protocols

Rural hospitals are less likely than their urban counterparts to have MOUD consult services available in ED or in-patient settings.[115] It is important for hospitals to provide transitional opioid programs, the gold standard for initiating treatment linkages to outpatient services for patients hospitalized due to overdose or other substance use issues. There is a clear need for onsite MOUD initiation strategies in rural communities. One example of this best practice within rural settings is a successful pilot in South Carolina where three diverse South Carolina EDs implemented a buprenorphine initiation program, including universal SBIRT, into their hospital, using primarily a peer recovery coach model. Facilitating factors associated with the program's success included leadership buy-in and involvement from the start, clear communication with community fast-track providers, early and ongoing feedback to ED staff on outcomes, and strong patient navigator supervision.[116]

Enhance MOUD Engagement and Retention

The environmental scan identified at least two successful approaches to supporting MOUD engagement and retention of patients within rural communities and multiple opportunities to increase access and retention. For example, a randomized control trial that examined the impact of technology-assisted buprenorphine treatment in rural and non-rural settings noted significantly higher rates and longer duration of illicit opioid abstinence for both rural and non-rural communities as compared to the control group. While illicit opioid abstinence was used as an outcome metric, it is important to note that abstinence was not a requirement for continuing to receive treatment, and harm reduction supplies were distributed during bimonthly in-person visits. This approach has the potential to support expansion of treatment capacity to underserved populations, especially those who cannot attend regular treatment due to barriers, such as transportation issues, geographic distance, or childcare responsibilities.[117]

A study in the Eastern Shore region of Maryland also found success and promise in the implementation of a novel, integrated telemedicine and mobile treatment unit approach. Access to buprenorphine through the virtual and traveling program led to similar patient outcomes as the closest permanent treatment location, including longer duration of patient retention.[118] A pilot program in rural Colorado that was developed to increase the number of nurse practitioners and physician assistants providing MOUD, however, noted low patient retention in their program after 6 months. The authors called for more research to examine motivation and other factors that affect whether or not MOUD patients continue with treatment, noting that stigma likely plays a substantial role.[119] In addition, lessons learned from COVID-19 highlighted several ways to improve rural methadone access, including flexible methadone dispensing and take-home schedules for patients, expansion of telehealth appointments for medication management, and increasing the number of allowable take-home doses.[120]

Expand Peer Recovery Support and Peer Services

Peer recovery support and peer services within rural communities were associated with better SUD outcomes. For example, the West Virginia Peers Enhancing Education, Recovery, and Survival (WV PEERS) program, which provides ongoing peer recovery support specialist (PRSS) services, demonstrated success in engaging individuals with OUD in EDs and community settings and linking them to SUD treatment, mental health support, and other social services.[121] The Northeast Georgia Community Connections Program, which works with peers who become certified addiction recovery empowerment specialists in rural EDs in Georgia, a Medicaid non-expansion state, also resulted in increased engagement of patients that are typically underserved within healthcare settings.[122]

Of note, the success of referrals to additional care was associated with insurance status. In addition, several lessons learned were identified in a study on Medicaid-funded PRSSs operating in residential adult services substance use treatment settings. Namely, that while the lived experience of specialists provided high value and expertise, Medicaid funding was

not considered sufficient to hire the number of staff needed and/or provide competitive hourly compensation rates for these positions. Specialists also report encountering role difficulties that left them feeling unsupported.[123]

NORTHEAST GEORGIA COMMUNITY CONNECTIONS PROGRAM

The strength of the NECCP stems from the successful engagement rate of peers to patients, the capacity to address both opioid-specific and other SUDs, and the bridging of gaps between social support and formal clinical support. As a grassroots model developed within a rural health-care system, the program is sensitive to the myriad demographic variables specific to the setting and fills a needed gap in service delivery within EDs. Identification of population-specific needs, coupled with a responsiveness to such needs, is critically important for any localized peer-based mechanism of support. The findings suggest that the demand for PRSS is high, with many of the participants having had multiple engagements.[124]

Address Barriers to Needed Resources

The environmental scan found several studies that stressed the importance of addressing the SDOH and systemic issues to reduce overdose risk for individuals.[125,126] This may include helping patients obtain living-wage employment, affordable housing, transportation, food, communication technologies, and access to medical and mental health care. Co-location or integration of care with collaboration among providers and services, particularly between primary care and mental health teams, was noted to reduce barriers and support access to MOUD. One study suggested that people experiencing houselessness may also be more motived to visit an SSP if the location addressed other needs like food, clothing, or linkage to other social services.[127] Additional research is needed to identify promising practices around addressing childcare barriers within rural settings.

Ensure Safer Opioid Prescribing, including Academic Detailing

Safe opioid prescribing is an imperative part of rural overdose prevention. A 2020 study found that implementing a comprehensive opioid reduction protocol, which included several CDC 2016 opioid prescribing guidelines, led to a significant reduction of opioid prescribing to patients with chronic non-cancer pain within two rural family medicine clinics. The protocol includes the following interventions: "risk assessment and mitigation; patient education via an 8-week psychoeducational group; checking urine drug screens and statewide prescription drug monitoring program; treating psychiatric comorbidities; maximizing nonpharmacological and nonopioid pharmacological treatments; slow taper of opioids at 10% of original dose per month, aiming to get all patients under 90 morphine milligram equivalents (MME) and most under 50 MME; and finally assessment for OUD with referral for MAT if indicated."[128] In 2022, the CDC released updated prescribing guidelines entitled "CDC Clinical Practice Guideline for Prescribing Opioid for Pain."[129]

The Arkansas Geriatric Education Collaborative, one of the Health Resources and Services Administration (HRSA)-funded Geriatric Workforce Enhancement recipients, used academic detailing for opioid prescribers at a rural federally qualified health center. Academic detailing involves one-on-one office-based training and consultation by detailers to clinicians to increase adherence to an EBP. The provider education focused on preventing overdoses by co-prescribing naloxone. Providers who participated reported that the academic detailing interactions helped them balance safer prescribing protocols and the use of harm reduction resources, including naloxone. Among providers that prescribed naloxone post-training, there was a 283 percent increase in naloxone prescriptions.[130] Academic detailing is a strategy that could be used to expand clinicians' understanding of harm reduction practices and reduce stigma through ongoing education.

A 2022 study of the U.S. Department of Veterans Affairs Pharmacy Benefits Management pilot virtual academic detailing program found the program significantly increased co-prescribing of naloxone when opioid medications were prescribed to veterans at risk for opioid overdose or death. There was no difference in naloxone prescribing rates between providers who received in-person versus virtual detailing. Similar results were found for rural providers, indicating that virtual academic detail is a feasible alternative that can expand geographic reach of academic detailing programs.[131]

ACADEMIC DETAILING THROUGH COOPERATIVE EXTENSION AGENTS

Cooperative Extension programs, sponsored through the Department of Agriculture, are typically affiliated with land-grant universities, and disseminate research to communities who may benefit from it most. Training Cooperative Extension agents to deliver academic detailing on opioids is a promising practice. The strong similarities between traditional extension education activities and academic detailing make extension agents particularly strong candidates to implement academic detailing on opioid misuse in rural agricultural communities.[132,133]

Implement Safe and Effective Opioid Disposal

The environmental scan identified a 2019 issue brief on health disparities related to opioid misuse in Appalachia that highlighted several successful examples of safe drug disposal practices and programs in rural settings. Examples included permanent drug-donation collection boxes in front of convenient and accessible locations (e.g., pharmacies, police stations, medical facilities, and courthouses)[134,135,136] and DEA-sanctioned drug take-back events in Appalachian Tennessee and Virginia.[137,138,139] The scan did not identify any specific examples of mail-in programs. Based on the findings of the environmental scan, additional research is needed to determine the impact of these types of programs on reducing overdose in rural areas.

Screening for Fentanyl in Routine Clinical Toxicology Testing

The environmental scan did not identify direct examples of studies on fentanyl screening in routine clinical toxicology testing in rural settings. This is likely because Clinical Laboratory Improvement Amendments (CLIA)-waived point-of-care testing for fentanyl does not yet exist, requiring expensive and more sophisticated onsite lab equipment or lab partnerships. However, one study that examined 3 years of toxicology records among overdose deaths in 11 rural counties in Michigan illustrated the utility of regional research and community overdose surveillance. Authors reviewed county-level post-mortem toxicology data to identify and track trends in substances involved in overdoses locally, which in turn can support better-targeted interventions to address and mitigate overdose deaths.[140] This approach, known as an "overdose fatality review," has been adopted in numerous rural communities.[141] In addition, fentanyl test strips serve as a low barrier overdose prevention tool to help individuals in rural settings detect fentanyl, regulate use, and support harm reduction strategies.[142,143,144] Combining education and distribution of fentanyl test strips within SSPs and community outreach was recommended.[145,146]

Good Samaritan Laws

The environmental scan did not readily identify direct examples in the academic literature of Good Samaritan laws being successfully implemented in rural settings, possibly because they are state-level policies. In 2021, a comparative analysis of state-level health policies in the rural United States highlighted Good Samaritan laws as an emergency response statute best practice, and all states have enacted criminal liability immunity for people reporting opioid overdose to first responders. However, the level of protection varies from state to state, and knowledge of and adherence to the law vary on the local level.[147] Moreover, a 2023 mixed-methods study of PWUD who witnessed and responded to overdoses in rural Northern New England found that despite these laws, some PWUD still reported encountering criminal legal system consequences after calling 911 and feared it could happen again.[148] A study in Alaska also showed that while people who currently or previously used heroin or other opioids were familiar with the laws, they did not trust that the laws would be effective in protecting them from legal consequences.[149]

To comprehend the effect of these laws on overdose mortality in rural settings, understanding the local context is critical—including the interpretation and implementation of these laws, in everyday practice, by local law enforcement.[150] To strengthen the impact of Good Samaritan laws on fatal overdoses, within the confines of existing laws, educational campaigns for the general public and trainings for first responders to increase adherence to the law are valuable. Additionally, to increase trust between those most likely to witness an overdose and those responding to 911 calls, preferences for the types of first responders (e.g., behavioral health interventionists compared to police) in overdose situations should be explored in more depth.[151]

Syringe Services Programs

Multiple studies examined the implementation of SSPs in rural areas. These studies underscore the important role SSPs play in providing services to PWUD, especially people who inject drugs, including reducing and reversing overdoses through OEND.[152,153] Expanding access to SSPs in rural areas, including through mobile units, plays a critical role in supporting overdose prevention and response.[154] A study on the implementation fidelity of rural SSPs in Kentucky found that most SSPs were "mostly faithful" in their implementation of the six core components of SSPs.[155]

SIX CORE COMPONENTS OF SSP IMPLEMENTATION FIDELITY ACCORDING TO BATTY ET AL:[156]

1. Needs-based harm reduction supply distribution
2. Sexual, injection, and overdose risk education and counseling
3. Cooperation between SSPs and local law enforcement
4. Provide or coordinate other health and social services
5. Ensure low barrier access to services
6. Promote dignity for PWUD

A study examining SSP utilization in Maine found that participants with a history of overdose were more likely to use the SSP, and that living less than 10 miles from an SSP was associated with increased SSP use.[157] Moreover, a study on the suspension of an SSP in rural West Virginia demonstrated the negative impacts of SSP closures for PWUD in the rural communities. The closure led to reduced access to naloxone and sterile injection equipment as well as increased the risk for overdose and HIV/HCV acquisition.[158]

Strategic Partnerships, Community Engagement, and Community Forums

The scan identified several strategic partnerships and community engagement approaches that may have potential for supporting overdose prevention and response in rural communities. While there is extensive documentation of partnerships between behavioral health, medical health care, law enforcement, criminal legal representatives, and school systems, there are also a variety of less traditional partnerships that should be considered within overdose prevention and response efforts. For example, a recent scoping review found a significant increase in the Cooperative Extension Services efforts to respond to the overdose crisis through organizations connected to the land grant system and through state-level work being funded by federal grants. The research highlights the opportunity to use Cooperative Extension Services to build cross-sector partnerships that support the local dissemination and adoption of EBPs aimed at mitigating SUD.[159]

The Morrison County Community Based Care Coordination, a rural Minnesota task force mentioned previously as an example of MOUD expansion, reported several successes related to its cross-sector efforts in reducing opioid use and misuse among patients at St Gabriel's Hospital and Family Medical Center in Little Falls, Minnesota. The collaborative strategy resulted in a decline in jail time and lower rates of recidivism among people incarcerated in county jail who engaged in the task force-supported buprenorphine treatment program.[160]

One innovative example of community engagement comes from two rural communities in Southeast Utah that applied CBPR collaborative principles to create, carry out, and evaluate an evidence-based community opioid education series. By increasing participants' knowledge and awareness of local resources and reducing stigma, the educational event series proved to be an effective strategy for addressing overdoses.[161] Community forums to address the overdose crisis also showed promise as an effective grassroots approach in rural Minnesota. The forums can engage rural communities and increase attendees' awareness and knowledge of the overdose crisis at the local level. That engagement can support the expansion of community coalition work that strengthens relationships and collaborations among community members, key players, and public health officials.[162]

Addressing Stigma

Even as rural communities implement evidence-based or promising practices to expand overdose prevention and response efforts, stigma can remain pervasive and must be consciously addressed on an ongoing basis to increase the effect of these efforts.[163] Stigma surrounding PWUD, in general, tends to center around the view of SUD, and substance use generally, as being a choice, moral failing, or character flaw, rather than a condition influenced by biopsychosocial factors. This stigma is exacerbated with the use of terms like "addict," "drug abuse," or "drug-seeking," which put the onus of SUD or substance use on the individual. These views can contribute to negative views of SUD treatment and harm reduction strategies like naloxone, and criminalization rather than supportive services for PWUD.

This stigma is compounded in rural areas, which tend to be small and dense, with widespread familiarity among community members. For PWUD, "stigmatizing labels may become harder to dodge (or dislodge) and, once applied, harder to shed."[164] These areas also tend to have lower annual household incomes on average, compared with urban or suburban areas; this exacerbates rural community members' concerns and may activate negative views toward PWUD over the financing of intervention methods, including overdose prevention and response efforts.

Stigma related to prevention and treatment methods was also noted, including from healthcare professionals and pharmacists.[165] For example, MOUD may be stigmatized as being a substitution rather than a treatment and recovery pathway.[166] These views were often associated with a lack of knowledge regarding MOUD. Similarly, lack of knowledge, combined with stigma against PWUD, can result in negative views toward harm reduction

interventions like syringe exchange programs and overdose reversal methods like naloxone.[167,168,169] Another study in rural Illinois found that law enforcement officials, EMS workers, and probation officers exhibited negative attitudes about PWUD, in part due to the frequency and intensity of their encounters with them. This stigma may prevent PWUD from seeking help for fear of mistreatment.[170]

Since many of these stigmatizing views are associated with limited knowledge of the biopsychosocial factors surrounding substance use and SUD, one strategy to mitigate this issue is to implement public health education on the medical model of addiction, on stigma, and on evidence-based approaches to prevention and treatment, including harm reduction strategies.[171,172] Education on the possibilities for harm reduction programs, such as increasing naloxone access, developing trusting relationships with PWUD, providing services 24/7, and providing community outreach events could help garner support for these programs. Finally, education on harm reduction tactics like administering naloxone are beneficial for reducing opioid-related overdose because it increases community members confidence in responding to overdose.

Public education interventions could target community-based organizations, such as faith-based organizations as well as schools to reach at-risk youth.[173,174] Stigma trainings could target healthcare workers, law enforcement, and older, retired/unemployed people who tend to hold more stigma against PWUD and to address compassion fatigue.[175] One potential avenue for community education is social media; in one study of a rural community, respondents identified social media as a fertile space to engage and educate community members to challenge stigmatizing narratives.[176]

Differences and Disparities in Overdose Prevention and Response Efforts in Rural Communities

While evidence-based and promising overdose prevention and response efforts are being implemented in, and adapted to, rural contexts across the United States, certain community members, especially people who are part of historically marginalized communities, experience disparities in availability of access to and outcomes of services. This section contains a summary of disparities identified in rural overdose prevention and response efforts, including populations that have decreased access to certain approaches and strategies.

A study that examined underlying opioid mortality factors at the county level in the United States revealed that rural areas with the highest fatal overdose rates also experienced elevated rates of HIV transmission, tobacco use, and unemployment.[177] Rural-specific barriers further affect the effectiveness and sustainability of overdose prevention and response efforts. These include:

- Greater reliance on public funding[178,179]
- Limited access to basic services and underutilization of existing services[180]
- Inadequate transportation and poor road quality[181,182]
- Limited broadband internet services[183]
- Provider shortages[184,185,186]

Key Populations: Differences and Disparities in Rural Overdose Prevention and Response Efforts

Race and Ethnicity

An analysis of prevention, harm reduction, treatment, and recovery services by rural community consortia under the Rural Communities Opioid Response Program (RCORP) identified racial disparities in service provision. Many of the services offered and strategies implemented by these rural consortia align with overdose prevention and response EBPs and promising strategies. They also expand beyond those included in this report. Evaluators compared the demographics of individuals receiving services to the demographics of the overall population in each consortium's service area to identify potential disparities. Of the 221 consortia included in the analysis, 14 (6.3 percent) served all racial and ethnic categories in proportion to the populations of their rural service areas. Half of the consortia (49.5 percent) served disproportionately fewer Hispanic individuals while just over one quarter (27.4 percent) served disproportionately fewer Black people. Almost three quarters (72.0 percent) served AI/AN people in equal or higher proportion to that of the services area.[187]

Access to MOUD varies by race and ethnicity as well; in one study, White individuals in both urban and rural areas received MOUD at nearly 4 times the rate of Black rural and urban individuals prior to the COVID-19 pandemic.[188] MOUD rates among Black and Hispanic individuals increased more significantly than the rates among White people during the COVID-19 pandemic but still remained below White MOUD rates overall. This data highlights substantial disparities in service provision in rural communities. Continued emphasis on disparate outcomes, health equity, and opportunities to further provide culturally competent care are critical to addressing these outcomes.

Gender Identity

While overdose prevention and response programs, such as SSPs, commonly have more male than female participants, a study in Alaska found women were more likely to engage in multiple overdose prevention strategies than men.[189] This aligns with other research that indicates women typically engage in more harm reduction practices than men as well as seek treatment for SUD sooner than men do.[190,191] When seeking treatment for SUD, women are more often referred to psychotherapy treatments while men are more often referred to pharmacological treatments.[192] Research examining the experiences of transgender and gender nonconforming people in rural communities specifically related to overdose prevention and response efforts was not identified by the environmental scan. This gap in extant evidence warrants further research.

Sexual Orientation

Sexual orientation-related disparities in overdose prevention and response efforts, particularly related to treatment, are also prevalent. One study examining substance use, SUD, and treatment access, and treatment needs based on sexual orientation across urban and rural areas using NSDUH data found that in some circumstances gay, lesbian, and bisexual individuals had higher odds of seeking and receiving SUD treatment. However, the study also noted that non-heterosexual individuals in rural communities have more unmet SUD treatment needs than their heterosexual counterparts.[193] Further, members of the non-straight community may experience stigma and bias when seeking treatment from SUD and mental health providers, emphasizing the need for additional training and tailored services.[194] Exacerbating this adversity, evidence indicates that SUD treatment providers who advertise LGBQ+-specific services in rural communities lack program content or treatments tailored to this population.[195]

Pregnant People

The environmental scan did not identify rates of overdose among pregnant people but included studies showing substantial disparities in access to care, including MOUD, for people with perinatal opioid use disorder.[196] One of the barriers to care is that few obstetrician-gynecologists feel comfortable initiating MOUD, and other practitioners who do prescribe MOUD may not feel comfortable seeing pregnant patients.[197] It is noteworthy that there are treatment models that reduce risk of overdose that have been implemented alongside prenatal care in some rural communities and offer a blueprint for expansion of services.[198]

Insurance Status

Insurance status affects access to evidence-based SUD treatment services for overdose prevention and response efforts. This is particularly true for states that have enacted Medicaid expansion. For example, one study found that between 2006 and 2011, prescribing for two MOUDs (buprenorphine and naltrexone) increased by 200 percent in states with Medicaid expansion, while in non-expansion states they rose by 50 percent.[199] This issue is compounded for uninsured and/or minority populations in non-expansion states, for example for AI/AN people in the Great Plains.[200] While many of the overdose prevention and response evidence-based and promising practices identified in the previous section are not directly covered by insurance, they may be implemented at and through medical care provider sites. This means that insurance status may also impact awareness of overall overdose prevention and response efforts as underinsured people do not access care sites frequently. As such, the status of Medicaid expansion may have a considerable effect on access to overdose prevention and response resources in rural communities.

Strategies to Address Disparities in Overdose Prevention and Response Efforts

Financing, Including Medicaid Policy

One method to address these disparities in access to evidence-based SUD treatment is to change Medicaid policy. Some emergency policies adopted during COVID-19 expanded access to care and have the potential to reduce racial and ethnic disparities in access to treatment. For example, in Louisiana, the Medicaid program "lifted restrictions on in-person-only MAT and eliminated the requirement for prior authorization for telemedicine delivery of MAT" along with covering methadone.[201] Additional policies included allowing same-day billing for primary and behavioral health services, which mitigated transportation barriers by reducing travel needs.[202,203]

Programs Tailored to Specific Populations

Targeting outreach and tailoring programs to groups with specialized needs, like non-White populations, pregnant populations, and LGBTQ+ populations, is another promising way to decrease disparities. One study found that African Americans prefer "in-person health information delivered by community health workers who are culturally competent and familiar with the community."[204] Outreach for these populations should build on existing infrastructure within the community, such as faith-based institutions and community centers. Providers who treat LGBTQ+ people should address the specific risk factors for substance use and SUD in that population, such as minority stress, and provide gender-affirming care.[205] For communities seeking input, CBPR partnerships are an opportunity to leverage lived and living experience within the community to identify how to best tailor programs to meet local needs.[206]

Provider and Community Education

A key strategy to mitigate these disparities is to train providers in treatment methods like SBIRT and MOUD, and on topics like culturally competent care, SUD stigma, and caring for pregnant individuals.[207] Another educational approach is community drug use prevention, which should target at-risk populations by reducing opioid prescribing and prescription misuse. Community trainings, interventions, and coalitions focused on prevention, harm reduction, and treatment of opioid misuse would be beneficial and could be aimed, for example, at youth in schools.[208] Community interventions should focus on "(1) making drug use as safe as possible for existing users (to reduce overdose rates in the short term) and (2) preventing risky drug use initiation to reduce overdose rates in the long term."[209] These methods include increasing access to MOUD, naloxone, and fentanyl testing strips, especially in rural, predominantly minority communities.[210]

Summary

The environmental scan and gap analysis reveal the important practices and strategies to prevent and respond to overdose in rural communities, along with the opportunities and challenges that persist. Our examination of overdose-related data, EBPs and promising strategies, and disproportionately affected communities underscores the urgency of tailored interventions based on a nuanced understanding of regional needs, which can vary greatly. This summary represents a call to action, emphasizing the need for collaborative endeavors that bridge gaps, prioritize equity, and pave the way for a more effective, resilient, and community-centric approach to combating overdoses in rural settings.

While rural overdose fatalities generally remain lower than those in urban settings, at 26.2 per 100,000 people compared to 28.6 in 2020, closer examination of regional differences highlights disparities.[211] California, Connecticut, Maryland, New York, North Carolina, North Dakota, Vermont, and Virginia all saw higher fatal overdose rates in their rural counties compared to urban counties.[212] Furthermore, when examining fatal overdose rates by race in rural communities, the data trends shift from the national and urban trends. As an example, in 2020, the fatal overdose rate was 3.5 per 100,000 higher for non-Hispanic Black people compared to non-Hispanic White people in urban settings but 9.9 per 100,000 lower for the same groups in rural communities.[213] Critically, fatal overdose rates continue to rise in rural communities, regardless of race demographics. AI/AN people are experiencing the highest fatal overdose rate in rural communities at 39.8 lives lost per 100,000 in 2020.[214]

The substances involved in overdoses also varied between urban and rural communities, with synthetic opioids other than methadone playing a larger role in urban communities and psychostimulants more commonly involved in rural communities.[215] While substances capable of causing overdose will be a focus of prevention and response efforts, it is critical to consider drug trends, such as psychostimulant prevalence, as these will influence engagement and education strategies. These differences highlight the importance of regional data in overdose prevention and response efforts as national trends frequently do not align with the experiences of rural communities. There is also a need for a more standardized definition of rurality in national datasets to help draw clear comparisons.

Some of the most direct examples of interventions that can effectively address overdose in rural areas include OEND. OEND programs that work with PWUD are particularly important in rural areas as these individuals are the most likely to witness an overdose within their communities and can provide a more immediate response compared to first responders. Providing supplies and overdose response kits to individuals for secondary distribution within their community was noted as one key method of reducing barriers. Secondary distribution helps address challenges to naloxone access related to transportation and travel time that are often exacerbated in rural settings, along with reaching individuals who would not seek direct services even without other barriers due to concerns related to stigma.

Building OEND capacity among first responders was also noted as a successful way to directly address overdoses in rural communities. Important considerations when building capacity with first responders include addressing potential stigma against PWUD and increasing community awareness and understanding of Good Samaritan laws. The scan also noted that while passive OEND strategies have been implemented in rural areas, disparities between urban and rural access to naloxone via pharmacies persists. Barriers to naloxone in rural areas include out-of-pocket costs as well as potential bias and stigmatization of PWUD and harm reduction strategies. Additional research is needed regarding the implementation and effectiveness of naloxone distribution in pharmacy settings.

The scan also identified several examples of expanding MOUD capacity in healthcare settings, including primary care practices and hospitals. Practices associated with successful MOUD in primary care included involving all staff in MOUD training, providing a broad menu of training and resources, and providing multiple formats and levels of engagement. Potentially promising practices in MOUD expansion included accessible telehealth models—especially those that enable access over the phone—as well as mobile clinics, community-based satellite clinics, and integrated telemedicine mobile treatment unit models. Studies on the tele-mentoring program, Project ECHO, identified buy-in from leadership and supportive policy and culture as critical components needed to shift practice around MOUD through this remote model in rural settings.

Peer recovery support, peer services, and SSPs were also noted as important services in rural areas, allowing PWUD to access necessary resources to prevent and respond to overdoses. PRSSs were noted for high levels of engagement of people with OUD and referrals to additional care as well as the added value that individuals with lived experience brought to their work. SSPs also play a critical role in OEND with PWUD in rural areas, and the inclusion of mobile SSPs was recognized as having a potential impact on reducing and reversing overdoses in rural areas. In all these services, championing multiple pathways of recovery, individual autonomy, and continued support, regardless of an individual's current substance use, is critical to ensure community members will access services as needed.

Multiple instances of differences and disparities in rural overdose rates and overdose prevention and response efforts were also observed. Strategies identified within the scan to address these disparities in rural settings include adapting Medicaid policies (e.g., lifting

restrictions on in-person only MOUD, eliminating prior authorization for telemedicine for MOUD, etc.); developing and implementing tailored outreach and treatment programs that address specialized needs of non-White populations, pregnant populations and LGBTQ+ populations; and conducting provider and community education on topics like culturally competent care, stigma, and caring for pregnant individuals.

This environmental scan and gap analysis underscores the remarkable strides rural communities across the United States have taken in addressing overdose prevention and response. Through EBPs, innovative strategies, and community engagement, tangible progress has been made. However, as we celebrate achievements, it is crucial to acknowledge the persistent challenges and existing gaps that demand further attention, especially related to disparate outcomes for historically marginalized communities. The journey toward comprehensive and equitable overdose prevention in rural settings is far from complete. With a collective commitment to targeted interventions, evidence-based responses, resource allocation, and ongoing collaboration, rural areas can continue their transformative efforts. The path forward requires continuous adaptation, learning from successes and challenges alike, to create a future where every rural community has the tools and support necessary to prevent and respond effectively to overdoses.

APPENDIX B-1.

Environmental Scan Search Strategy

Topic: Rural Overdose Prevention and Response

Date: 2018–2023

Countries: United States

Primary Databases Searched: Google Scholar, Semantic Scholar

*Search was supplemented by grey literature sourced through Science.gov, published reports and datasets (e.g., government), conference proceedings, white papers, and policy briefs.

**Reference lists of literature reviewed were also utilized when relevant.

The primary search strategy was to combine searches of

1. "rural" United States/American AND "overdose" related terms
2. "rural" United States/American AND "substance use" related terms
3. "rural" United States/American AND "overdose prevention and response" related terms
4. "rural" United States/American AND "evidence-based strategies" OR "evidence-based practice" related terms
5. "rural" United States/American AND "disparity" related terms

The search strategy included using "AND" to combine concepts, "OR" to combine similar search terms, and NOT to exclude/filter. Abbreviations (e.g., SUD, LGBTQ+) and truncation for variant endings of words were also used.

Overdose Terms

1. overdose rate (fatal, non-fatal)
2. substance use rate
3. substance use disorder rate

Substance Use Terms

1. substance use
2. substance misuse
3. people who use drugs
4. problematic substance use
5. substance use disorder
6. opioid use
7. opioid use disorder
8. people who inject drugs
9. polysubstance use

Overdose Prevention and Response Terms

1. overdose prevention
2. overdose response
3. substance use treatment
4. substance use prevention
5. opioid use prevention/treatment/services
6. substance use program/services
7. recovery center/program/community
8. harm reduction

EBP Terms

EBP search terms were identified based on the EBPs for overdose prevention and response highlighted in the NIH's Helping to End Addiction Long-Term (HEAL) 2023 "Opioid-Overdose Reduction Continuum of Care Approach"[216] and the CDC's 2018 "Evidence-Based Strategies for Preventing Opioid Overdose."[217] Examples include:

1. naloxone distribution
2. medications for opioid use disorder/medication assisted treatment
3. peer recovery support
4. safe opioid disposal

5. syringe services
6. Good Samaritan laws
7. strategic partnerships—types of entities/programs: public safety, EMS, first responders, community-based organizations, etc.

Disparities/Populations Terms

1. disparity, populations, equity/inequity, disproportionate impact
2. race, ethnicity
    a. Black/African American
    b. Indigenous/Native American/American Indian/Alaska Native
    c. Hispanic/Latino/Latinx
    d. Asian American/Pacific Islander
3. immigrant, refugee, migrant
4. women, mothers, maternal, pregnant, postpartum, parent
5. low income, poor, poverty, unhoused/homeless, housing, unemployed
6. incarcerated, criminal justice involved, jail, prison, re-entry, correctional institution, probation, parole, criminal legal settings
7. age, elderly/older, adolescent/teenager/school-age, young adult
8. sexual minority, LGBTQ+, lesbian, gay, bisexual, trans, transgender, queer, sexual identity/orientation

The following criteria were used to exclude resources:

- Outside of the United States
- Paywall grey literature and minimal paywall academic literature (only as needed, such as systematic reviews and other seminal or critical articles)
- Books/chapters that are not available online
- Rural-specific data or focus
- Substances that are not indicated in the scan's definition of overdose (i.e., overdose is defined as an instance in which a single drug or combination of drugs causes depression of the central nervous system causing an individual to be unresponsive to stimulation and/or experience respiratory depression)

APPENDIX B-2.

Results from the 2022 National Survey on Drug Use and Health: Adapted Detailed Tables on Illicit Drug Use by County Type[218]

Table 2. National Survey on Drug Use and Health (NSDUH) Table 1.70A – Illicit Drug Use in Past Year: Among People Aged 12 or Older; by Age Group and Geographic, Numbers in Thousands, 2021 and 2022

Geographic/Socioeconomic Characteristics	Aged 12+ (2021)	Aged 12+ (2022)	Aged 12-17 (2021)	Aged 12-17 (2022)	Aged 18+ (2021)	Aged 18+ (2022)	Aged 18-25 (2021)	Aged 18-25 (2022)	Aged 26+ (2021)	Aged 26+ (2022)
COUNTY TYPE										
Large Metro	34,264[b]	39,876	1,978	2,049	32,287[b]	37,827	6,994[a]	7,962	25,293[b]	29,865
Small Metro	19,617[b]	22,422	1,329	1,283	18,289[b]	21,139	4,345	4,802	13,944[b]	16,337
Non-metro	8,113	8,040	496[a]	356	7,617	7,684	1,697	1,456	5,920	6,228
Urbanized	3,258	3,688	238	162	3,020	3,526	809	726	2,211	2,800
Less Urbanized	4,121	3,793	223[a]	148	3,898	3,646	751	687	3,147	2,959
Completely Rural	734	559	35	*	699	512	138[b]	44	561	469

* = low precision

NOTE: Estimates for 2021 may differ from previously published estimates because the 2021 analysis weights were updated to facilitate between-year comparisons. See the 2022 NSDUH: Methodological Summary and Definitions for details.

NOTE: For comparison of estimates between 2021 and 2022, illicit drug use estimates do not include illegally made fentanyl (IMF).

[a, b] The difference between this estimate and the 2022 estimate is statistically significant at the .05 level (a) or .01 level (b). Rounding may make the estimates appear identical.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2021 and 2022.

Table 3. National Survey on Drug Use and Health (NSDUH) Table 5.11A – Drug Use Disorder in Past Year: Among People Aged 12 or Older; by Age Group and Geographic Characteristics, Numbers in Thousands, 2021 and 2022

Geographic/ Socioeconomic Characteristics	Aged 12+ (2021)	Aged 12+ (2022)	Aged 12-17 (2021)	Aged 12-17 (2022)	Aged 18+ (2021)	Aged 18+ (2022)	Aged 18-25 (2021)	Aged 18-25 (2022)	Aged 26+ (2021)	Aged 26+ (2022)
COUNTY TYPE										
Large Metro	13,028[a]	14,733	899	997	12,129[a]	13,736	2,918[b]	3,535	9,211	10,202
Small Metro	7,507[b]	9,165	721	665	6,786[b]	8,499	1,894[a]	2,292	4,892[b]	6,208
Non-metro	3,932	3,332	276[a]	151	3,656	3,181	757	656	2,899	2,526
Urbanized	1,335	1,490	121	82	1,214	1,407	327	322	887	1,086
Less Urbanized	2,174[a]	1,541	140[a]	47	2,034	1,494	395	316	1,639	1,178
Completely Rural	423	301	15	*	408	280	35	18	373	262

* = low precision

NOTE: Estimates for 2021 may differ from previously published estimates because the 2021 analysis weights were updated to facilitate between-year comparisons. See the 2022 NSDUH: Methodological Summary and Definitions for details.

NOTE: Drug use disorder estimates are based on Diagnostic and Statistical Manual of Mental Disorders, Firth Edition (DSM-5) criteria. Beginning with the 2021 NSDUH, questions on prescription drug use disorder were asked of all past year users of prescription drugs, regardless of whether they misused prescription drugs. The estimates in this table include prescription drug use disorder data from all past year users of prescription drugs. See the 2022 NSDUH: Methodological Summary and Definitions for details on these changes.

[a, b] The difference between this estimate and the 2022 estimate is statistically significant at the .05 level (a) or .01 level (b). Rounding may make the estimates appear identical.
Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2021 and 2022.

Table 3. National Survey on Drug Use and Health (NSDUH) Table 5.18A – Received Substance Use Treatment in Past Year: Among People Aged 12 or Older; by Geographic Characteristics

Geographic/ Socioeconomic Characteristics	Treatment for Drugs (2022)	Treatment for Alcohol (2022)	Treatment for Both Drugs and Alcohol (2022)	Treatment for Substance Unspecified[1] (2022)	Treatment for Drugs or Alcohol[1] (2022)
COUNTY TYPE					
Large Metro	3,022	2,187	828	1,966	6,347
Small Metro	2,190	1,449	609	1,555	4,585
Non-metro	973	702	231	730	2,173
Urbanized	373	223	47	356	904
Less Urbanized	506	457	172	264	1,055
Completely Rural	93	22	11	110	214

NOTE: Substance use treatment includes treatment for drug or alcohol use through inpatient treatment/ counseling; outpatient treatment/counseling; MAT; telehealth treatment; or treatment received in a prison, jail, or juvenile detention center. Substance use treatment questions are asked of respondents who used alcohol or drugs in their lifetime.

NOTE: Because of the proportion of respondents in the "substance unspecified" category for treatment, the estimates in this table have added uncertainty. See the 2022 NSDUH: Methodological Summary and Definitions for details.

[1] These estimates include data from respondents who reported that they received any substance use treatment but did not report the substance for which they received treatment.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2022.

Table 4. National Survey on Drug Use and Health (NSDUH) Table 5.25A – Received MAT for Opioid Use in Past Year: Among People Aged 12 or Older; Received MAT for Opioid Use in Past Year: Among People Aged 12 or Older with Past Year Opioid Use Disorder; by Geographic Characteristics, Numbers in Thousands, 2022

Geographic / Socioeconomic Characteristics	Received MAT for Opioid Use (2022)	Received MAT for Opioid Use among People with an Opioid Use Disorder[1] (2022)
COUNTY TYPE		
Large Metro	1,286	651
Small Metro	737	343
Non-metro	369	128
Urbanized	144	57
Less Urbanized	163	*
Completely Rural	63	*

* = low precision

NOTE: MAT for opioid use refers to medication prescribed by a doctor or other health professional to help reduce or stop the use of opioids.

1 Opioid use disorder estimates are based on Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria. Beginning with the 2021 NSDUH, questions on prescription drug use disorder were asked of all past year users of prescription drugs, regardless of whether they misused prescription drugs. The estimates in this table include opioid use disorder data from all past year users of opioids. See the 2022 NSDUH: Methodological Summary and Definitions for details on these changes.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2021 and 2022.

Endnotes

1 Baldo, B. A., & Rose, M. A. (2022). Mechanisms of opioid-induced respiratory depression. *Archives of Toxicology*, *96*(8), 2247–2260. https://doi.org/10.1007/s00204-022-03300-7

2 Jenkins, R. A. (2021). The fourth wave of the US opioid epidemic and its implications for the rural US: A federal perspective. *Preventive Medicine*, *152*(2), 106541. https://doi.org/10.1016/j.ypmed.2021.106541

3 Jenkins, R. A., Whitney, B. M., Nance, R. M., Allen, T. M., Cooper, H. L. F., Feinberg, J., Fredericksen, R., Friedmann, P. D., Go, V. F., Jenkins, W. D., Korthuis, P. T., Miller, W. C., Pho, M. T., Rudolph, A. E., Seal, D. W., Smith, G. S., Stopka, T. J., Westergaard, R. P., Young, A. M., Zule, W. A., … Crane, H. M. (2022). The Rural Opioid Initiative Consortium description: Providing evidence to understand the fourth wave of the opioid crisis. *Addiction Science & Clinical Practice*, *17*(1), Article 38. https://doi.org/10.1186/s13722-022-00322-5

4 Friedman, J., & Shover, C. L. (2023). Charting the fourth wave: Geographic, temporal, race/ethnicity and demographic trends in polysubstance fentanyl overdose deaths in the United States, 2010–2021. *Addiction*, *118*(12), 2477–2485. https://doi.org/10.1111/add.16318

5 Korthuis, P. T., Cook, R. R., Foot, C. A., Leichtling, G., Tsui, J. I., Stopka, T. J., Leahy, J., Jenkins, W. D., Baker, R., Chan, B., Crane, H. M., Cooper, H. L., Feinberg, J., Zule, W. A., Go, V. F., Estadt, A. T., Nance, R. M., Smith, G. S., Westergaard, R. P., Van Ham, B., … Young, A. M. (2022). Association of methamphetamine and opioid use with nonfatal overdose in rural communities. *JAMA Network Open*, *5*(8), e2226544. https://doi:10.1001/jamanetworkopen.2022.26544

6 RHIhub. (2024). *Am I rural? – Help.* Rural Health Information Hub. https://www.ruralhealthinfo.org/am-i-rural/help#classification

7 Mueller, K. J., Coburn, A. F., Knudson, A., Lundblad, J. P., MacKinney, A. C., McBride, T. D., Mobley, E., Ullrich, F., Barker, A. (2020). *Considerations for defining rural places in health policies and programs*. Rural Policy Research Institute. https://rupri.public-health.uiowa.edu/publications/policypapers/Considerations%20For%20Defining%20Rural%20Places.pdf

8 National Institutes of Health HEAL Initiative. (2023). *Opioid-overdose reduction continuum of care approach: A guide for policymakers for implementing evidence-based strategies that address opioid overdose*. National Institute on Drug Abuse. https://heal.nih.gov/files/2024-01/policymaker-ORCCA.pdf

9 Carroll, J. J., Green, T. C., & Noonan, R. K. (2018). *Evidence-based strategies for preventing opioid overdose: What's working in the United States: An introduction for public heath, law enforcement, local organizations, and others striving to serve their community*. CDC. National Center for Injury Prevention and Control. https://stacks.cdc.gov/view/cdc/59393

10 Bommersbach, T., Justen, M., Bunting, A. M., Funaro, M. C., Winstanley, E. L., & Joudrey, P. J. (2023). Multidimensional assessment of access to medications for opioid use disorder across urban and rural communities: A scoping review. *International Journal of Drug Policy*, *112*, 10391. https://doi.org/10.1016/j.drugpo.2022.103931

11 CDC Wonder. (n.d.). *National vital statistics system, mortality data, 2020*. [Data set]. National Center for Health Statistics. https://wonder.cdc.gov/ucd-icd10.html

12 Substance Abuse and Mental Health Services Administration (SAMHSA). (2023, March 23). *Drug abuse warning network (DAWN): Non-fatal overdoses short report, 2021–2022.* Department of Health and Human Services. https://www.samhsa.gov/data/report/dawn-non-fatal-overdoses

13 Substance Abuse and Mental Health Services Administration. (2023, November 13). *National survey on drug use and health 2022 detailed tables.* Center for Behavioral Health Statistics and Quality. https://www.samhsa.gov/data/report/2022-nsduh-detailed-tables

14 Hedegaard, H., & Spencer, M. R., (2021). *Urban–rural differences in drug overdose death rates, 1999–2019*. (NCHS Data Brief, No. 403). CDC. National Center for Health Statistics. https://dx.doi.org/10.15620/cdc:102891

15 Hedegaard H., & Spencer M. R. (2021).

16 Spencer, M. R., Garnett M. F., & Miniño, A. M. (2022). *Urban-rural differences in drug overdose death rates, 2020* (NCHS Data Brief, No. 440). CDC. National Center for Health Statistics. https://dx.doi.org/10.15620/cdc:118601

17 Spencer, M. R., et al. (2022).

18 Spencer, M. R, et al. (2022).

19 Spencer, M. R., et al. (2022).

20 Kramarow, E. A., & Tejada-Vera, B. (2022). QuickStats: Drug overdose death rates* among persons aged ≥ 15 years, by age group and urban-rural status (†) – National Vital Statistics System, United States, 2020. *MMWR: Morbidity and mortality weekly report, 71*(47), e1503-e1503. http://dx.doi.org/10.15585/mmwr.mm7147a3

21 CDC Wonder. (n.d.).

22 CDC Drug Overdose Prevention. (2024). *SUDORS dashboard: Fatal drug overdose data*. https://www.cdc.gov/overdose-prevention/data-research/facts-stats/sudors-dashboard-fatal-overdose-data.html?CDC_AAref_Val=https://www.cdc.gov/drugoverdose/fatal/dashboard

23 Kariisa, M., Davis, N. L., Kumar, S., Seth, P., Mattson, C. L., Chowdhury, F., & Jones, C. M. (2022). *Vital Signs*: Drug overdose deaths, by selected sociodemographic and social determinants of health characteristics—25 states and the District of Columbia, 2019–2020. *MMWR. Morbidity and mortality weekly report, 71*(29), 940–947. http://dx.doi.org/10.15585/mmwr.mm7129e2

24 Kariisa M., et al. (2022).

25 Kariisa M., et al. (2022).

26 Kariisa M., et al. (2022).

27 Kariisa M., et al. (2022).

28 Ahmad F. B., Anderson R. N., Cisewski J. A., Rossen L. M., Warner M., & Sutton P. (2024). *County-level provisional drug overdose death counts*. CDC. National Center for Health Statistics. https://www.cdc.gov/nchs/nvss/vsrr/prov-county-drug-overdose.htm#techNotes

29 NORC Walsh Center for Rural Health Analysis. (n.d.). Drug overdose deaths in the United States. Overdose mapping tool. [Computer software]. https://overdosemap.norc.org

30 SAMHSA. (2023, March 23).

31 SAMHSA. (2023, March 23).

32 SAMHSA. (2023, March 23).

33 Spencer, M. R., et al. (2022).

34 SAMHSA. (2023, March 23).

35 SAMHSA. (2023, March 23).

36 SAMHSA. (2023, March 23).

37 CDC Overdose Prevention. (2024, February 29). *The Fentalog study: A subset of nonfatal suspected opioid-involved overdoses with toxicology testing.* https://www.cdc.gov/overdose-prevention/data-research/facts-stats/fentalog-study-dashboard.html?CDC_AAref_Val=https://www.cdc.gov/drugoverdose/nonfatal/fentalog/dashboard/index.html

38 Korthuis, P. T., Cook, R. R., Foot, C. A., Leichtling, G., Tsui, J. I., Stopka, T. J., Leahy, J., Jenkins, W. D., Baker, R., Chan, B., Crane, H. M., Cooper, H. L., Feinberg, J., Zule, W. A., Go, V. F., Estadt, A. T., Nance, R. M., Smith, G. S., Westergaard, R. P., Van Ham, B., … Young, A. M. (2022). Association of methamphetamine and opioid use with nonfatal overdose in rural communities. *JAMA Network Open*, *5*(8), e2226544–e2226544. https://doi.org/10.1001/jamanetworkopen.2022.26544

39 CDC Overdose Prevention. (204, April 23). *About the drug overdose surveillance and epidemiology (DOSE) system.* U.S. Department of Health and Human Services. https://www.cdc.gov/overdose-prevention/data-research/facts-stats/about-dose-system.html

40 CDC Overdose Prevention. (2024, June 28). *DOSE dashboard: Nonfatal overdose syndromic surveillance data*. [Data set]. U.S. Department of Health and Human Services. https://www.cdc.gov/overdose-prevention/data-research/facts-stats/dose-dashboard-nonfatal-surveillance-data.html

41 CDC Overdose Prevention. (2024, January 22) *DOSE dashboard: Nonfatal overdose emergency department and inpatient hospitalization discharge data*. [Data set]. U.S. Department of Health and Human Services. https://www.cdc.gov/overdose-prevention/data-research/facts-stats/dose-dashboard-nonfatal-discharge-data.html

42 CDC Overdose Prevention. (2024, February 29).

43 Substance Abuse and Mental Health Services Administration. (2023, November 13.). *Key substance use and mental health indicators in the United States: Results from the 2022 National Survey on Drug Use and Health*. Center for Behavioral Health Statistics and Quality. https://www.samhsa.gov/data/report/2022-nsduh-annual-national-report

44 Economic Research Service of the U.S. Department of Agriculture. (2024, March 26). *Rural classifications*. https://www.ers.usda.gov/topics/rural-economy-population/rural-classifications.aspx

45 SAMHSA. (2023, November 13). *Detailed tables*.

46 SAMHSA. (2023, November 13). *Key indicators*.

47 SAMHSA. (2023, November 13). *Key indicators*.

48 Sparks, G., Montero, A., Kirzinger, A., Valdes, I., & Hamel, L. (2023). *KFF tracking poll July 2023: substance use crisis and accessing treatment*. KFF. https://www.kff.org/other/poll-finding/kff-tracking-poll-july-2023-substance-use-crisis-and-accessing-treatment/

49 Sparks, G., et al. (2023).

50 National Institutes of Health HEAL Initiative. (2023).

51 Carroll, J. J., et al. (2018).

52 Hoover, D. B., Korthuis, P. T., Waddell, E. N., Foot, C., Conway, C., Crane, H. M., Friedmann, P. D., Go, V. F., Nance, R. M., Pho, M. T., Satcher, M. F., Sibley, A., Westergaard, R. P., Young, A. M., & Cook, R. (2023). Recent incarceration, substance use, overdose, and service use among people who use drugs in rural communities. *JAMA Network Open*, *6*(11), e2342222. https://doi.org/10.1001/jamanetworkopen.2023.42222

53 Cooper, J.A., Onyeka, I., Cardwell, C., Paterson, E., Kirk, R., O'Reilly, D., & Donnelly, M. (2023). Record linkage studies of drug-related deaths among adults who were released from prison to the community: A scoping review. *BMC Public Health, 23*(1), Article 826. https://doi.org/10.1186/s12889-023-15673-0

54 Ranapurwala, S. I., Shanahan, M. E., Alexandrisdis, A. A., Proescholdbell, S. K., Naumann, R. B., Edwards, D., & Marshall, S. W. (2018). Opioid overdose mortality among former North Carolina inmates: 2000–2015. *American Journal of Public Health, 108*, 1207–1213. https://doi.org/10.2105/AJPH.2018.304514

55 Bunting, A. M., Dickson, M. F., & Staton, M. (2022). Polysubstance use and re-incarceration in the 12-months after release from jail: A latent transition analysis of rural Appalachian women. *The American Journal of Drug and Alcohol Abuse, 48*(3), 356–366. https://doi.org/10.1080/00952990.2021.1995402

56 (Bunting, A. M., et al. (2022).

57 East Tennessee State University and NORC at the University of Chicago. (2019). *Issue brief: Health disparities related to opioid misuse in Appalachia: Practical strategies and recommendations for communities.* Appalachian Regional Commission. https://www.arc.gov/wp-content/uploads/2020/06/HealthDisparitiesRelatedtoOpioidMisuseinAppalachiaApr2019.pdf

58 East Tennessee State University and NORC at the University of Chicago. (2019).

59 East Tennessee State University and NORC at the University of Chicago. (2019).

60 Kolak, M. A., Chen, Y. T., Joyce, S., Ellis, K., Defever, K., McLuckie, C., Friedman, S., & Pho, M. T. (2020). Rural risk environments, opioid-related overdose, and infectious diseases: A multidimensional, spatial perspective. *International Journal of Drug Policy*, *85*, 102727. https://doi.org/10.1016/j.drugpo.2020.102727

61 Rudolph, A. E., Young, A. M., & Havens, J. R. (2018). Using network and spatial data to better target overdose prevention strategies in rural Appalachia. *Journal of Urban Health*, *96*, 27–37. https://doi.org/10.1007/s11524-018-00328-y

62 McLuckie, C., Pho, M. T., Ellis, K., Navon, L., Walblay, K. A., Jenkins, W. D., Rodriguez, C., Kolak, M. A., Chen, Y.-T., Schneider, J. A., & Zahnd, W. E. (2019). Identifying areas with disproportionate local health department services relative to opioid overdose, HIV and Hepatitis C Diagnosis Rates: A study of rural Illinois. *International Journal of Environmental Research and Public Health*, *16*(6), 989. https://doi.org/10.3390/ijerph16060989

63 Center for Behavioral Health Statistics and Quality. (2021). *2020 national survey on drug use and health public use file codebook.* Substance Abuse and Mental Health Services Administration. https://www.datafiles.samhsa.gov/sites/default/files/field-uploads-protected/studies/NSDUH-2020/NSDUH-2020-datasets/NSDUH-2020-DS0001/NSDUH-2020-DS0001-info/NSDUH-2020-DS0001-info-codebook.pdf

64 SAMHSA. (2020). *Treatment episode data set (TEDS)*. U.S. Department of Health and Human Services. https://www.samhsa.gov/data/data-we-collect/teds-treatment-episode-data-set

65 Alaska Department of Labor and Development. (2024, January 9). *Alaska population estimates*. Research and Analysis. https://live.laborstats.alaska.gov/data-pages/alaska-population-estimates

66 Parker, R. D., Meyer, J. A., & Abram, M. A. (2023). National data and the applicability to understanding rural and remote substance use. *Journal of Prevention, 44*(4), 491–500. https://doi.org/10.1007/s10935-023-00734-2

67 Parker, R. D., et al. (2023).

68 Textor, L., Friedman, J., Bourgois, P., Aronowitz, S., Simon, C., Jauffret-Roustide, M., Namirembe, S., Brothers, S., McNeil, R., Knight, K. R., & Hansen, H. (2023). Rethinking urban-rural designations in public health surveillance of the overdose crisis and crafting an agenda for future monitoring. *International Journal of Drug Policy*, *118*, 104072. https://doi.org/10.1016/j.drugpo.2023.104072

69 Pear, V. A., Ponicki, W. R., Gaidus, A., Keyes, K. M., Martins, S. S., Fink, D. S., Rivera-Aguirre, A., Gruenewald, P. J., & Cerdá, M. (2019). Urban-rural variation in the socioeconomic determinants of opioid overdose. *Drug and Alcohol Dependence*, *195*, 66–73. https://doi.org/10.1016/j.drugalcdep.2018.11.024

70 Joudrey, P. J., Kolak, M., Lin, Q., Paykin, S., Anguiano, V., & Wang, E. A. (2022). Assessment of community-level vulnerability and access to medications for opioid use disorder. *JAMA Network, 5*(4), e227028–e227028. https://doi.org/10.1001/jamanetworkopen.2022.7028

71 Textor, L., et al. (2023).

72 Carroll, J. J., et al. (2018).

73 Substance Abuse and Mental Health Administration. (2023). *Harm reduction framework*. Center for Substance Abuse Prevention. https://www.samhsa.gov/sites/default/files/harm-reduction-framework.pdf

74 Bommersbach, T., et al. (2023).

75 Ibragimov, U., Young, A. M., & Cooper, H. L. F. (2020). Understanding rural risk environments drug-related harms: Progress, challenges, and steps forward. *International Journal of Drug Policy*, *85*, 102926. https://doi.org/10.1016/j.drugpo.2020.102926

76 Skelton-Wilson, S., Sandoval-Lunn, M., Zhang, X., Stern, F., & Kendall, J. (2021). *Methods and emerging strategies to engage people with lived experience: Improving federal research, policy, and practice.* Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services. https://aspe.hhs.gov/sites/default/files/documents/62e7a64c60e10c47484b763aa9868f99/lived-experience-brief.pdf

77 Kesich, Z., Ibragimov, U., Komro, K., Lane, K., Livingston, M., Young, A., & Cooper, H. L. F. (2023). "I'm not going to lay back and watch somebody die": A qualitative study of how people who use drugs' naloxone experiences are shaped by rural risk environment and overdose education/naloxone distribution intervention. *Harm Reduction Journal*, *20*, 166. https://doi.org/10.1186/s12954-023-00900-z

78 Hanson, B. L., Porter, R. R., Zöld, A. L., & Terhorst-Miller, H. (2020). Preventing opioid overdose with peer-administered naloxone: findings from a rural state. *Harm Reduction Journal*, *17*, Article 4. https://doi.org/10.1186/s12954-019-0352-0

79 Faul M., Dailey M. W., Sugerman D. E., Sasser S. M., Levy B., Paulozzi L. J. Disparity in naloxone administration by emergency medical service providers and the burden of drug overdose in US rural communities. *American Journal of Public Health*, *105*(S3), e26–e32.. https://doi.org/10.2105/AJPH.2014.302520

80 Zhang X., Marchand C., Sullivan B., Klass E. M., & Wagner K. D. Naloxone access for emergency medical technicians: An evaluation of a training program in rural communities. *Addiction Behavior, 86*, 79–85. https://pubmed.ncbi.nlm.nih.gov/29572041/

81 Nolte, K., Romo, E., Stopka, T. J., Drew, A., Dowd, P., Del Toro-Mejias, L., Bianchet, E., & Friedmann, P. D. (2023). "I've been to more of my friends' funerals than I've been to my friends' weddings": Witnessing and responding to overdose in rural Northern New England. *Journal of Rural Health*, *39*(1), 197–211. https://doi.org/10.1111/jrh.12660

82 Macmadu, A., Gurka, K. K., Linn, H. I., Smith, G. S., & Feinberg, J. (2022). Factors associated with non-evidence-based overdose responses among people who use prescription opioids non-medically in rural Appalachia. *Substance Use & Misuse*, *58*(2), 163–170. https://doi.org/10.1080/10826084.2022.2135967

83 Walters, S. M., Felsher, M., Frank, D., Jaiswal, J., Townsend, T., Muncan, B., Bennett, A. S., Friedman, S. R., Jenkins, W., Pho, M. T., Fletcher, S., & Ompad, D. C. (2023). I don't believe a person has to die when trying to get high: Overdose prevention and response strategies in rural Illinois. *International Journal of Environmental Research and Public Health, 20*(2), 1648. https://doi.org/10.3390/ijerph20021648

84 Canada, M., & Formica, S. (2022). Implementation of a post-overdose quick response team in the rural Midwest: A team case study. *Journal of Community Safety and Well-Being*, *7*(2), 59–66. https://doi.org/10.35502/jcswb.233

85 Canada, M., & Formica, S. (2022).

86 Green, T. C., Bratberg, J., Baird, J., Burstein, D., Lenz, K., Case, P., Walley, A. Y., & Xuan, Z. (2020). Rurality and differences in pharmacy characteristics and community factors associated with provision of naloxone in the pharmacy. *The International Journal of Drug Policy*, *85*, 102602. https://doi.org/10.1016/j.drugpo.2019.11.010

87 Tofighi, B., Martino, D., Lekas, H.-M., Williams, S. Z., Blau, C., & Lewis, C. F. (2022). Scaling opioid overdose prevention and naloxone dispensation among rural and small metro area pharmacists: Findings from a qualitative study. *Journal of Substance Use*, *28*(4), 568–573. https://doi.org/10.1080/14659891.2022.2070877

88 Spector, A. L., Galletly, C. L., Christenson, E. A., Montaque, H. D. G., & Dickson-Gomez, J. (2022). A qualitative examination of naloxone access in three states: Connecticut, Kentucky, and Wisconsin. *BMC Public Health*, *22*(1), 1387. https://doi.org/10.1186/s12889-022-13741-5

89 Jensen, A. N., Beam, C. M., Douglass, A. R., Brabson, J., Colvard, M. D., & Bean, J. R. (2019). Description of a pharmacist-led clinical video telehealth group clinic for opioid overdose prevention and naloxone education. *The Mental Health Clinician*, *9*(4), 294–297. https://www.researchgate.net/publication/334155998_Description_of_a_pharmacist-led_clinical_video_telehealth_group_clinic_for_opioid_overdose_prevention_and_naloxone_education

90 Cody, S. L., Hines, C. B., Glenn, C. J., Sharp-Marbury, R., & Newman, S. D. (2022). An exploratory study of a hands-on naloxone training for rural clinicians and staff. *Journal of Nursing Scholarship, 55*(3), 599–604. http://dx.doi.org/10.1111/jnu.12841

91 Wood, C. A., Duello, A., Horn, P., Winograd, R. P., Jackson, L., Mayen, S., & Wallace, K. (2021). Overdose response training and naloxone distribution among rural first responders. *Journal of Rural Mental Health, 45*(3), 207–218. https://psycnet.apa.org/doi/10.1037/rmh0000166

92 Wood, C. A., et al. (2021).

93 Ratcliffe, B. J., Danek, R., Ireland, E. M., & Reyes, E. (2022). Rural and urban EMS level of comfort with overdose treatment. *Journal of Regional Medical Campuses, 5*(1). https://doi.org/10.24926/jrmc.v5i1.4388

94 Spector, A. L., et al. (2022).

95 Filteau, M. R., Green, B., Kim, F. L., & McBride, K. (2022). 'It's the same thing as giving them CPR training': Rural first responders' perspectives on naloxone. *Harm Reduction Journal*, *19*(1), 111. https://harmreductionjournal.biomedcentral.com/articles/10.1186/s12954-022-00688-4

96 Nolte, K., et al. (2023).

97 IT MATTTRS. (2024). *MAT resources*. University of Colorado Anschutz Medical Campus. https://medschool.cuanschutz.edu/itmatttrs/materials

98 Zittleman, L., Curcija, K., Nease, D. E., Jr, Fisher, M., Miriam Dickinson, L., Thomas, J. F., Espinoza, A., Sutter, C., Ancona, J., Holtrop, J. S., & Westfall, J. M. (2022). Increasing capacity for treatment of opioid use disorder in rural primary care practices. *Annals of Family Medicine*, *20*(1), 18–23. https://www.annfammed.org/content/20/1/18

99 Cole, E. S., DiDomenico, E., Green, S., Heil, S. K. R., Hilliard, T., Mossburg, S. E., Sussman, A. L., Warwick, J., Westfall, J. M., Zittleman, L., & Salvador, J. G. (2021). The who, the what, and the how: A description of strategies and lessons learned to expand access to medications for opioid use disorder in rural America. *Substance Abuse*, *42*(2), 123–129. https://doi.org/10.1080/08897077.2021.1891492

100 Cole, E. S., et al. (2021).

101 Komaromy, M., Ceballos, V., Zurawski, A., Bodenheimer, T., Thom, D. H., & Arora, S. (2018). Extension for community healthcare outcomes (ECHO): A new model for community health worker training and support. *Journal of Public Health Policy, 39*, 203–216. https://doi.org/10.1057/s41271-017-0114-8

102 Englander, H., Patten, A., Lockard, R., Muller, M., & Gregg, J. (2021). Spreading addictions care across Addictions Care Across Oregon's rural and community hospitals: Mixed-methods evaluation of an interprofessional telementoring ECHO program. *Journal of General Internal Medicine*, *36*(1), 100–107. https://doi.org/10.1007/s11606-020-06175-5

103 Englander, H., et al. (2021).

104 Salvador, J., Bhatt, S., Fowler, R., Ritz, J., James, R., Jacobsohn, V., Brakey, H. R., & Sussman, A. L. (2019). Engagement with Project ECHO to increase medication-assisted treatment in rural primary care. *Psychiatric Services*, *70*(12), 1157–1160. https://doi.org/10.1176/appi.ps.201900142

105 Bommersbach, T., et al. (2023).

106 Wang, L., Weiss, J., Ryan, E. B., Waldman, J., Rubin, S., & Griffin, J. L. (2021). Telemedicine increases access to buprenorphine initiation during the COVID-19 pandemic. *Journal of Substance Abuse Treatment*, *124*, 108272. https://doi.org/10.1016/j.jsat.2020.108272

107 Hughes, P. M., Verrastro, G., Fusco, C. W., Wilson, C. G., & Ostrach, B. (2021). An examination of telehealth policy impacts on initial rural opioid use disorder treatment patterns during the COVID-19 pandemic. *The Journal of Rural Health*, *37*(3), 467–472. https://doi.org/10.1111/jrh.12570

108 Cantor, J., & Laurito, A. (2021). The new services that opioid treatment programs have adopted in response to COVID-19. *Journal of Substance Abuse Treatment*, *130*, 108393. https://doi.org/10.1016/j.jsat.2021.108393

109 Lister, J. J., & Lister, H. H. (2021). Improving methadone access for rural communities in the USA: Lessons learned from COVID-19 adaptations and international models of care. *Rural and Remote Health*, *21*(4), 1–5. https://doi.org/10.22605/RRH6770

110 Lister, J. J., & Lister, H. H. (2021).

111 Chen, H., Knettel, B. A., Macon Harrison, L., Des Marais, A. C., Nelli, A., Campbell, H., Muhirwa, A., McKellar, M., Gulur, P., & Guthrie, S. (2023). Leveraging policy changes made in response to COVID-19 to advance telehealth and novel treatment approaches for people who use opioids: Qualitative perspectives from two rural North Carolina counties. *North Carolina Medical Journal, 84*(5). https://doi.org/10.18043/001c.83930

112 Bommersbach, T., et al. (2023).

113 Chen, H., at al. (2023).

114 Au-Yeung, C., Blewett, L. A., & Lange, K. (2019). Addressing the rural opioid addiction and overdose crisis through cross-sector collaboration: Little Falls, Minnesota. *American Journal of Public Health*, *109*(2), 260–262. https://doi.org/10.2105/ajph.2018.304789

115 Franz, B., Cronin, C. E., Lindenfeld, Z., Pagan, J. A., Lai, A. Y., Krawczyk, N., Rivera, B. D., & Chang, J. E. (2023). Rural-urban disparities in the availability of hospital-based screening, medications for opioid use disorder, and addiction consult services. *Journal of Substance Use and Addiction Treatment*, *160*, 209280. https://doi.org/10.1016/j.josat.2023.209280

116 Bogan, C., Jennings, L., Haynes, L., Barth, K., Moreland, A., Oros, M., Goldsby, S., Lane, S., Funcell, C., & Brady, K. (2020). Implementation of emergency department-initiated buprenorphine for opioid use disorder in a rural southern state. *Journal of Substance Abuse Treatment*, *112*, 73–78. https://doi.org/10.1016/j.jsat.2020.02.007

117 Sigmon, S. C., Peck, K. R., Batchelder, S. R., Badger, G. J., Heil, S. H., & Higgins, S. T. (2023). Technology-assisted buprenorphine treatment in rural and nonrural settings: Two randomized clinical trials. *JAMA Network Open*, *6*(9), e2331910-e2331910. https://doi:10.1001/jamanetworkopen.2023.31910

118 Weintraub, E., Seneviratne, C., Anane, J., Coble, K., Magidson, J., Kattakuzhy, S., Greenblatt, A., Welsh, C., Pappas, A., Ross, T. L., & Belcher, A. M. (2021). Mobile telemedicine for buprenorphine treatment in rural populations with opioid use disorder. *JAMA Network Open*, *4*(8), e2118487-e2118487. https://doi.org/10.1001/jamanetworkopen.2021.18487

119 Amura, C. R., Sorrell, T. R., Weber, M. T., Alvarez, A., Beste, N., Hollins, U., & Cook, P. F. (2021). Outcomes from the medication assisted treatment pilot program for adults with opioid use disorders in rural Colorado. *Substance Abuse Treatment, Prevention, and Policy*, *17*, 1–11. https://doi.org/10.1186/s13011-021-00424-4

120 Lister, J. J., & Lister, H. H. (2021). Improving methadone access for rural communities in the USA: Lessons learned from COVID-19 adaptations and international models of care. *Rural and Remote Health*, *21*(4), 6770. https://doi.org/10.22605/RRH6770

121 Davis, S. M., Stover, A. N., Linn, H., Dower, J., McCawley, D., Winstanley, E. L., & Feinberg, J. (2021). Establishing peer recovery support services to address the Central Central Appalachian opioid epidemic: The West Virginia Peers Enhancing Education, Recovery, and Survival (WV PEERS) Pilot Program. *Journal of Appalachian Health*, *3*(3), 36–50. https://doi.org/10.13023/jah.0303.04

122 Ashford, R. D., Meeks, M., Curtis, B., & Brown, A. M. (2019). Utilization of peer-based substance use disorder and recovery interventions in rural emergency departments: Patient characteristics and exploratory analysis. *Journal of Rural Mental Health*, *43*(1), 17–29. https://doi.org/10.1037/rmh0000106

123 Wallis, R., Signorelli, M., Linn, H., Bias, T., Allen, L., & Davis, S. M. (2023). Lessons learned from employing Medicaid-funded peer recovery support specialists in residential substance use treatment settings: An exploratory analysis. *Journal of Substance Use and Addiction Treatment*, *154*, 209136. https://doi.org/10.1016/j.josat.2023.209136

124 Ashford, R. D., et al. (2019).

125 Walters, S. M., Bolinski, R., Almirol, E., Grundy, S. A., Fletcher, S., Schneider, J. A., Friedman, S. R., Ouellet, L., Ompad, D. C., Jenkins, W. D., & Pho, M. T. (2022). Structural and community changes during COVID-19 and their effects on overdose precursors among rural people who use drugs: A mixed-methods analysis. *Addiction Science & Clinical Practice*, *17*(1), 1–15. https://doi.org/10.1186/s13722-022-00303-8

126 Rengifo, S., Wu, A., Ioffreda, P., & Ilyas, A. M. (2023). Differences in Opioid-Related Deaths in the Appalachian Region in 2018-2021 by State and Rural-Urban County Classification. *Cureus*, *15*(6), e40480. https://doi.org/10.7759/cureus.40480

127 Ballard, A. M., Falk, D., Greenwood, H., Gugerty, P., Feinberg, J., Friedmann, P. D., Go, V. F., Jenkins, W. D., Korthuis, P. T., Miller, W. C., Pho, M. T., Seal, D. W., Smith, G. S., Stopka, T. J., Westergaard, R. P., Zule, W. A., Young, A. M., & Cooper, H. L. F. (2023). Houselessness and syringe service program utilization among people who inject drugs in eight rural areas across the USA: A cross-sectional analysis. *Harm Reduction Journal*, *20*(1), 157. https://doi.org/10.1186/s12954-023-00892-w

128 Stack, M., LaRouche, V., Zhang, Y., Warden, D., Stack, C., & Klugiene, E. A. (2020). Effects of implementing a comprehensive opioid reduction protocol on overall opioid prescribing among patients with chronic, non-cancer pain in a rural family medicine clinic: A controlled cross-over trial. *The Journal of the American Board of Family Medicine*, *33*(4), 502–511. https://doi.org/10.3122/jabfm.2020.04.200060

129 Dowell, D., Ragan, K. R., Jones, C. M., Baldwin, G. T., & Chou, R. (2022, November 4). Recommendations and reports: CDC clinical practice guideline for prescribing opioids for pain – United States, 2022. *Morbidity and Mortality Weekly, 71*(3), 1–95. http://dx.doi.org/10.15585/mmwr.rr7103a1

130 Tobey, L., Breckling, M., Ali, M., & McAtee, R. (2023). Improved naloxone prescribing in rural primary care following academic detailing for opioid overdose prevention. *Innovation in Aging*, *7*(Supplement 1), 779. https://doi.org/10.1093/geroni/igad104.2517

131 Bounthavong, M., Shayegani, R., Manning, J. M., Marin, J., Spoutz, P., Hoffman, J. D., Harvey, M. A., Himstreet, J. E., Kay, C. L., Freeman, B. A., Almeida, A., & Christopher, M. L. D. (2022). Comparison of virtual to in-person academic detailing on naloxone prescribing rates at three U.S. Veterans Health Administration regional networks. *International Journal of Medical Informatics*, *161*, 104712. https://doi.org/10.1016/j.ijmedinf.2022.104712

132 Hagaman, A., Roark, K., & Washburn, L. T. (2023). U.S. Cooperative Extension's response to substance misuse: A scoping review. *Frontiers in Public Health*, *11*, 1127813. https://doi.org/10.3389/fpubh.2023.1127813

133 Evans, M. W., Robinson, M. N., Wari, E., & Buys, D. (2022). Sensitive issues in agri-health: Training agents in academic detailing to engage farm families on rural health during the opioid crisis. *American Journal of Health Studies, 37*(1). https://doi.org/10.47779/ajhs.2022.717

134 East Tennessee State University and NORC at the University of Chicago. (2019).

135 Gray, J., Hagemeier, N., Brooks, B., & Alamian, A. (2015). Prescription disposal practices: A 2-year ecological study of drug drop box donations in Appalachia. *American Journal of Public Health*, *105*(9), e89–e94. https://doi.org/10.2105/AJPH.2015.302689

136 Lane, N., Holmes, G. M., Arcury, T., Schwalbe, M., Randolph, R., Frank, J., Thomas, S., Latus, J., Rodgers, J., Cohen, A., Ivey, K., Holding, W., Lane, M., Silberman, P., Gaul, K., Villamil, L., & Keyser, A. (2018). *Exploring bright spots in Appalachian health: Case studies.* Appalachian Regional Commission. https://arc.gov/report/identifying-bright-spots-in-appalachian-health-statistical-analysis-2/

137 East Tennessee State University and NORC at the University of Chicago. (2019).

138 Gray, J., et al. (2015).

139 Drug Enforcement Administration. (2018). *DEA national take back day*. https://takebackday.dea.gov/

140 Victor, G., Hedden-Clayton, B. J., Lister, J., Lee, G., Huynh, P., & Ray, B. (2023). Community overdose surveillance: Fentanyl involvement in overdose deaths in rural Michigan. *Drug and Alcohol Dependence Reports*, *7*, 100150. https://doi.org/10.1016/j.dadr.2023.100150

141 Reynolds, K., & Jones, V. (2023). Overdose fatality review: A rural community approach. [PowerPoint slides]. Jay County Drug Prevention Coalition. https://www.ofrtools.org/Content/Documents/OFR/2023Forum/Collaboration_Within_Rural_Communities.pdf

142 Victor, G., et al. (2023).

143 Peiper, N. C., Clarke, S. D., Vincent, L. B., Ciccarone, D., Kral, A. H., & Zibbell, J. E., (2019, January). Fentanyl test strips as an opioid overdose prevention strategy: Findings from a syringe services program in the Southeastern United States. *The International Journal of Drug Policy*, *63*, 122–128. https://www.sciencedirect.com/science/article/pii/S0955395918302135

144 Walters, S. M., et al. (2023).

145 Walters, S. M., et al. (2023).

146 Victor, G., et al. (2023).

147 Shaver, C., Johnson, J., Greenhill, R. G., & Nadimidla, S. (2021). Comparative analysis of state level health policy for opioid abuse mitigation in rural America. *Journal of Health and Human Services Administration, 44*(2), 137–161. https://doi.org/10.37808/jhhsa.44.2.3

148 Nolte, K., et al. (2023).

149 Hanson, B. L., et al. (2020)

150 Nolte, K., et al. (2023).

151 Nolte, K., et al. (2023).

152 Carnes, N. A., Asher, A. K., Bohm, M. K., & Bessler, P. A. (2021). Access to HIV, viral hepatitis, and substance use disorder treatment/overdose prevention services: A qualitative analysis of syringe service programs (SSPs) serving rural PWID. *Substance Use & Misuse*, *56*(13), 1933–1940. https://doi.org/10.1080/10826084.2021.1958863

153 Rowe, C., Santos, G. M., Vittinghoff, E., Wheeler, E., Davidson, P., & Coffin, P. O. Predictors of participant engagement and naloxone utilization in a community-based naloxone distribution program. *Addiction*, *110*(8), 1301–1310. https://doi.org/10.1111/add.12961

154 Thakarar, K., Sankar, N., Murray, K., Lucas, F. L., Burris, D., & Smith, R. P. (2021). Injections and infections: Understanding syringe service program utilization in a rural state. *Harm Reduction Journal*, *18*, 1–8. https://doi.org/10.1186/s12954-021-00524-1

155 Batty, E. J., Ibragimov, U., Fadanelli, M., Gross, S. B., Cooper, K., Klein, E. M., Ballard, A. M., Young, A. M., Lockard, A. S., Oser, C. B., & Cooper, H. L. F. (2022). A qualitative analysis of rural syringe service program fidelity in Appalachian Kentucky: Staff and participant perspectives. *The Journal of Rural Health, 39*(2), 328–337. https://doi.org/10.1111/jrh.12715

156 Batty, E. J., et al. (2022).

157 Thakarar, K., et al. (2021).

158 Allen, S. T., Grieb, S. M. D., O'Rourke, A., Yoder, R., Planchet, E., White, R. H., & Sherman, S. G. (2019). Understanding the public health consequences of suspending a rural syringe services program: A qualitative study of the experiences of people who inject drugs. *Harm Reduction Journal*, *16*, 1–10. https://doi.org/10.1186/s12954-019-0305-7

159 Hagaman, A., et al. (2023).

160 Au-Yeung, C., Blewett, L. A., & Lange, K. (2019). Addressing the rural opioid addiction and overdose crisis through cross-sector collaboration: Little Falls, Minnesota. *American Journal of Public Health*, *109*(2), 260–262. https://doi.org/10.2105/ajph.2018.304789

161 Condie, A. W., Judd, H., & Yaugher, A. C. (2023). Opioid use disorder community education events: Rural public health implications. *Health Education & Behavior*, *50*(6), 728–737. https://doi.org/10.1177/10901981221135506

162 Palombi, L., Olivarez, M., Bennett, L., & Hawthorne, A. N. (2019). Community forums to address the opioid crisis: An effective grassroots approach to rural community engagement. *Substance Abuse: Research and Treatment*, *13*, 1–7. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6378421/pdf/10.1177_1178221819827595.pdf

163 Ezell, J. M., Walters, S. M., Friedman, S. R., Bolinski, R., Jenkins, W. D., Schneider, J. A., Link, B., & Pho, M. T. (2020). Stigmatize the use, not the user? Attitudes on opioid use, drug injection, treatment, and overdose prevention in rural communities. *Social Science & Medicine*, *268*, 113470. https://doi.org/10.1016/j.socscimed.2020.113470

164 Ezell. J. M., et al. (2020).

165 Ezell, J. M., et al. (2020).

166 Creasy, S. L., Thompson, J. R., Mair, C. F., & Burke, J. G. (2021). Understanding polarizing community perspectives on harm reduction strategies. *Journal of Appalachian Health*, *3*(4), 74–88. https://doi.org/10.13023/jah.0304.07

167 Ezell, J. M., et al. (2020).

168 Baker, L. S., Smith, W., Gulley, T., & Tomann, M. M. (2020). Community perceptions of comprehensive harm programs and stigma towards people who inject drugs in rural Virginia. *Journal of Community Health*, *45*(2), 239–244. https://doi.org/10.1007/s10900-019-00732-8

169 Heo, M., Beachler, T., Sivaraj, L. B., Tsai, H.-l., Chea, A., Patel, A., Litwin, A. H., & Zeller, T. A. (2023). Harm reduction and recovery services support (HRRSS) to mitigate the opioid overdose epidemic in a rural community. *Substance Abuse Treatment, Prevention, and Policy*, *18*(1), 23. https://doi.org/10.1186/s13011-023-00532-3

170 Ezell, J. M., et al. (2020).

171 Creasy, S. L., et al. (2021).

172 Heo, M., et al. (2023).

173 Ezell, J. M., et al. (2020).

174 Lister, J. J., & Joudrey, P. J. (2022). Rural mistrust of public health interventions in the United States: A call for taking the long view to improve adoption. *The Journal of Rural Health*, *39*(1), 18–20. https://doi.org/10.1111/jrh.12684

175 Heo, M., et al. (2023).

176 Ezell, J. M., et al. (2020).

177 Langabeer, J. R., Chambers, K. A., Cardenas-Turanzas, M., & Champagne-Langabeer, T. (2022). County-level factors underlying opioid mortality in the United States. *Substance Abuse*, *43*(1), 76–82. https://doi.org/10.1080/08897077.2020.1740379

178 Bond Edmond, M., Aletraris, L., & Roman, P. M. (2015). Rural substance use treatment centers in the United States: An assessment of treatment quality by location. *The American Journal of Drug and Alcohol Abuse*, *41*(5), 449–457. https://doi.org/10.3109/00952990.2015.1059842

179 Heitkamp, T., & Fox, L. (2022). Addressing disparities for persons with substance use disorders in rural communities. *Journal of Addictions Nursing*, *33*(3), 191–197. https://doi.org/10.1097/JAN.0000000000000483

180 Pullen, E., & Oser, C. (2014). Barriers to substance abuse treatment in rural and urban communities: Counselor perspectives. *Substance Use & Misuse*, *49*(7), 891–901. https://doi.org/10.3109/10826084.2014.891615

181 Nielsen, M., D'Agostino, D., & Gregory, P. (2017). Addressing rural health challenges head on. *Missouri Medicine*, *114*(5), 363–366. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6140198/

182 TRIP. A National Transportation Nonprofit. (2020). *Rural connections: Challenges and opportunities in America's heartland.* https://tripnet.org/wp-content/uploads/2020/05/TRIP_Rural_Roads_Report_2020.pdf

183 Humphreys, B. (2019). *Demand for broadband in rural areas: Implications for universal access.* (CRS Report No. R46108). Congressional Research Service. https://crsreports.congress.gov/product/pdf/R/R46108

184 Heitkamp, T., & Fox, L. (2022).

185 Chandler, R., Nunes, E. V., Tan, S., Freeman, P. R., Walley, A. Y., Lofwall, M., Oga, E., Glasgow, L., Brown, J. L., Fanucchi, L., Beers, D., Hunt, T., Bowers-Sword, R., Roeber, C., Baker, T., & Winhusen, T. J. (2023). Community selected strategies to reduce opioid-related overdose deaths in the HEALing (Helping to End Addiction Long-termSM) communities study. *Drug and Alcohol Dependence*, *245*, 109804. https://doi.org/10.1016/j.drugalcdep.2023.109804

186 Cook, R. R., Foot, C., Arah, O. A., Humphreys, K. N., Rudolph, K. E., Luo, S., Tsui, J. I., Levander, X. A., & Korthuis, P. T. (2023). Estimating the impact of stimulant use on initiation of buprenorphine and extended-release naltrexone in two clinical trials and real-world populations. *Addiction Science & Clinical Practice*, *18*(1), 11. https://doi.org/10.1186/s13722-023-00364-3

187 Waibel, E., Tallman, E., Koban Payne, R., Meyers, K. (2023, May 16–19). Using census data to identify racial disparities in rural SUD service provision. [Poster]. National Rural Health Association's 46th Annual Rural Health Conference, San Diego, CA.

188 Anderson, A., Walker, B., Shao, Y., Laveist, T. A., & Callison, K. (2022). Racial and ethnic disparities in medication assisted treatment: Evidence from Louisiana Medicaid during the COVID-19 pandemic. *Journal of General Internal Medicine*, *38*, 266–268. https://doi.org/10.1007/s11606-022-07893-8

189 Hanson, B. L., et al. (2020).

190 Vigna-Taglianti, F. D., Burroni, P., Mathis, F., Versino, E., Beccaria, F., Rotelli, M., Garneri, M., Picciolini, A., & Bargagli, A. M. (2016). Gender differences in heroin addiction and treatment: Results from the VEdeTTE Cohort. *Substance Use & Misuse*, *51*(3), 295–309. https://doi.org/10.3109/10826084.2015.1108339

191 Hernandez-Avila, C. A., Rounsaville, B. J., & Kranzler, H. R. (2004). Opioid-, cannabis- and alcohol-dependent women show more rapid progression to substance abuse treatment. *Drug and Alcohol Dependence*, *74*(3), 265–272. https://doi.org/10.1016/j.drugalcdep.2004.02.001

192 Vigna-Taglianti, F. D., et al. (2016).

193 Dyar, C., & Morgan, E. (2023). Rural and urban differences in disparities in substance use and substance use disorders affecting sexual minority populations. *The Journal of Rural Health*, *40*(3), 542–556. https://doi.org/10.1111/jrh.12816

194 Dyar, C., & Morgan, E. (2023).

195 Dyar, C., & Morgan, E. (2023).

196 Higgins, T. M., Goodman, D. J., & Meyer, M. C. (2019). Treating perinatal opioid use disorder in rural settings: Challenges and opportunities. *Preventive Medicine*, *128*, Article 105786. https://doi.org/10.1016/j.ypmed.2019.105786

197 Leech, A. A., McNeer, E., Stein, B. D., Richards, M. R., McElroy, T., Dupont, W. D., & Patrick, S. W. (2023). County-level factors and treatment access among insured women with opioid use disorder. *Medical Care*, *61*(12), 816–821. https://doi.org/10.1097/MLR.0000000000001867

198 Higgins, T. M., et al. (2019).

199 Wesner, C. A., Zhang, W., Melstad, S., Ruen, E., Deffenbaugh, C., Gu, W., & Clayton, J. L. (2020). Assessing county-level vulnerability for opioid overdose and rapid spread human immunodeficiency Virus and hepatitis C Infection in South Dakota. *The Journal of Infectious Diseases*, *222*(Supplement 5), S312-S321. https://doi.org/10.1093/infdis/jiaa231

200 Wesner, C. A., et al. (2020).

201 Anderson, A., Walker, B., Shao, Y., Laveist, T. A., & Callison, K. (2023). Racial and ethnic disparities in medication assisted treatment: Evidence from Louisiana Medicaid during the COVID-19 pandemic. *Journal of General Internal Medicine*, *38*(1), 266–268. https://doi.org/10.1007/s11606-022-07893-8

202 Wesner, C. A., et al. (2020).

203 Canada, M., & Formica, S. (2022). Implementation of a post-overdose quick response team in the rural Midwest: A team case study. *Journal of Community Safety and Well-Being*, *7*(2), 59–66. https://doi.org/10.35502/jcswb.233

204 Lee, H. Y., Eyer, J. C., Luo, Y., Jeong, H. R., Chapman, S., & Hudnall, M. (2023). Opioid literacy among individuals living in rural Alabama: The role of social determinants of health. *Journal of Psychosocial Nursing and Mental Health Services*, *61*(10), 52–59. https://doi.org/10.3928/02793695-20230523-03

205 Dyar, C., & Morgan, E. (2023).

206 Parker, R. D., Meyer, J. A., & Abram, M. A. (2023). National data and the applicability to understanding rural and remote substance use. *Journal of Prevention, 44*(4), 491–500. https://doi.org/10.1007/s10935-023-00734-2

207 Bryan, M. A., Smid, M. C., Cheng, M., Fortenberry, K. T., Kenney, A., Muniyappa, B., Pendergrass, D., Gordon, A. J., & Cochran, G. (2020). Addressing opioid use disorder among rural pregnant and postpartum women: A study protocol. *Addiction Science & Clinical Practice*, *15*, 33. https://doi.org/10.1186/s13722-020-00206-6

208 Wesner, C. A., et al. (2020).

209 Monnat, S. M. (2022). Demographic and geographic variation in fatal drug overdoses in the United States, 1999–2020. *The ANNALS of the American Academy of Political and Social Science*, *703*(1), 50–78. https://doi.org/10.1177/00027162231154348

210 Monnat, S. M. (2022).

211 Spencer, M. R., et al. (2022).

212 Spencer, M. R., et al. (2022).

213 Spencer, M. R., et al. (2022).

214 Spencer, M. R., et al. (2022).

215 Spencer, M. R., et al. (2022).

216 National Institutes of Health HEAL Initiative. (2023).

217 Carroll, J. J., et al. (2018).

218 SAMHSA. (2023, November 13). *Detailed tables*.

APPENDIX C.

Resources for Rural Overdose Prevention and Response Efforts

This list highlights resource repositories, technical assistance providers and organizations, toolkits, data sources, and individual resources related to rural overdose prevention and response. This represents relevant resources identified during the needs assessment and is not a definitive list of all rural overdose prevention and response resources.

Type	Name	Description
Data Source	DOSE Dashboard	The Centers for Disease Control and Prevention Drug Overdose Surveillance and Epidemiology (DOSE) website provides information on non-fatal overdoses, including county-level data for some states. However, in many instances data is suppressed for rural areas.
Data Source	NORC Drug Overdose Map	This data dashboard provides county-level overdose mortality data. Users can also overlay other data measures to examine regional outcomes.
Data Source	Overdose Detection Mapping Application Program (ODMAP)	ODMAP is an application that provides near real-time data about suspected overdoses. Communities across the United States use it to track and response to non-fatal overdoses.
Data Source	Provisional County-Level Drug Overdose Death Counts	This Centers for Disease Control and Prevention website provides a dashboard of county-level drug overdose deaths, including those in rural communities. However, in many instances data is suppressed for rural areas.

Type	Name	Description
Learning Community	Project ECHO	Project ECHO is a model designed to disseminate evidence-based health information using a virtual platform, which makes it accessible to rural communities with internet access. The Texas Harm Reduction ECHO is an example with rural attendees identified during the needs assessment.
Organization	Center for Indigenous Health	The Center of Indigenous Health at Johns Hopkins University partners with communities to advance Indigenous well-being and health equity, including projects focused on substance use and prevention.
Organization	NASTAD	NASTAD is a nonprofit association of public health officials who administer HIV and hepatitis programs and includes a Drug User Health Team. Their website includes a variety of resources related to overdose prevention and response, but none specific to rural communities.
Organization	National Association of County and City Health Officials (NACCHO)	NACCHO is a nonprofit association of local public health departments and includes an overdose, injury, and violence prevention team. Their website includes a variety of resources related to overdose prevention and response at the local level.
Organization	National Organization of State Offices of Rural Health (NOSORH)	The NOSORH website includes a section on "Rural Opioids."
Organization	National Rural Health Association (NRHA)	NRHA is a national nonprofit membership organization composed of rural health providers and partners.
Organization and Resources	National Association of Counties (NACo)	NACo is a nonprofit association representing county governments, elected officials, and employees throughout the country. NACo's Opioid Solutions Center provides a variety of resources and has previously facilitated learning engagements related of overdose prevention and response for county government employees, including local health departments.
Organization and Resources	National Council for Mental Wellbeing	National Council for Mental Wellbeing is a membership organization of mental health and substance organizations that has developed a variety of resources and trainings related to overdose prevention and response, some of which are specific to rural communities or are rural-inclusive.
Organization and Resources	NEXT Distro	NEXT Distro is an online and mail-based harm reduction service provider and frequently cited as a model and resource for mail-based distribution programs. NEXT Distro also develops overdose prevention and response educational resources.

Type	Name	Description
Organization and Technical Assistance	Remedy Alliance for the People	Remedy Alliance for the People is a nonprofit organization that provides lower cost naloxone to communities. They also provide free technical assistance related to overdose education and naloxone distribution.
Resource	A Guide to Establishing Syringe Services Programs in Rural, At-Risk Areas	This guide produced by the Comer Family Foundation provides practical guidance for establishing a syringe services program in rural communities.
Resource	Expanding the Circle of Care: A Practical Guide to Syringe Services for Tribal and Rural Communities	This guide, authored by Philomena Kebec, Courtney Remacle, Aurora Conley, Sean Akerman, and Ana Tochterman at the Gwayakobimaadiziwin Bad River Needle Exchange, includes practical information for establishing a syringe services program in rural and Indigenous communities, including an example of gathering perspectives from people with living experience.
Resource	Lessons in Framing Overdose Prevention: Considerations for Rural Communities	This webinar, sponsored by the National Overdose Prevention Network, outlines strategies for engaging rural communities on overdose prevention.
Resource	Methods and Emerging Strategies to Engage People with Lived Experience	This report, released by the Office of the Assistant Secretary for Planning and Evaluation, outlines strategies for engaging people with lived experience. While this report does not refer specifically to rural communities or people with lived and living experience of substance use, it provides general guidance that can be applied in rural overdose prevention and response efforts.
Resource	Models of Tribal Promising Practices: Tribal Opioid Overdose Prevention Care Coordination and Data Systems	The report by Seven Directions, a Center for Indigenous Public Health, outlines promising practices to prevent overdose and substance use disorders in Indigenous communities and is inclusive of those living in rural areas.
Resource	National Report: Rural Substance Use Disorder Stigma and Treatment Needs	This report by the University of Vermont Center on Rural Addiction, a Rural Center of Excellence for Substance Use Disorders, explores substance use stigma and barriers to substance use disorder treatment in rural communities.
Resource	Policy Brief: Public Health Strategies for Opioid Overdoses	This policy brief from the CDC provides an overview of public health strategies to reduce opioid overdose in rural communities.

Type	Name	Description
Resource Repository	Rural Community Toolbox	The Rural Community Toolbox is a website designed to centralize federal resources across agencies to help support rural communities in addressing the effects of substance use and overdose.
Resource Repository	Rural Health Information Hub	Rural Health Information Hub (RHIhub) is designed to be a first-stop shop for rural health information. It includes a repository of toolkits, trainings, articles, program descriptions, and funding opportunities specific to rural health. Most of the information on the site related to overdose prevention and response is tagged under "substance use and misuse." It also includes guidance for conducting community needs assessments. A few particularly relevant toolkits include: Rural Community Health Toolkit (including community needs assessments) Rural Health Equity Toolkit Rural Medications of Opioid Use Disorder Toolkit Rural Prevention and Treatment of Substance Use Disorders Toolkit Rural Transportation Toolkit Social Determinants of Health in Rural Communities Toolkit
Resource Repository	Rural Opioid Initiative – Research Consortium	The Rural Opioid Initiative (ROI) is a research consortium of eight research teams located in rural areas studying "comprehensive approaches to prevent and treat outcomes related to substance use." Their website includes all of the publications resulting from their research.
Resource Repository and Technical Assistance	Rural SUD Info Center	Rural SUD Info Center is repository of resources, trainings, and programs developed by the three Rural Centers of Excellence on Substance Use Disorders. A request for free technical assistance to any organizations in HRSA-designated rural communities is available through the site.
Resource Repository and Technical Assistance	Rural Communities Opioid Response Program – Technical Assistance (RCORP-TA)	The RCORP-TA website is a repository of free resources, trainings, and funding opportunities specific to rural prevention, harm reduction, and treatment and recovery efforts.

Type	Name	Description
Resource Repository and Technical Assistance	Rural Responses to the Opioid Epidemic (aka, Reaching Rural)	The Reaching Rural initiative, co-funded by the Bureau of Justice Assistance, the Centers for Disease Control and Prevention, and the State Justice Institute, supports funding, technical assistance, and resources for rural communities.
Technical Assistance	Rural Centers of Excellence on Substance Use Disorders	The Rural Centers of Excellence on Substance Use Disorders contribute to the evidence base to reduce substance use disorders in rural communities.
Technical Assistance	Rural Opioid Technical Assistance (ROTA) Regional Centers	ROTA-R develops and disseminates technical assistance related to substance use in rural communities. There is one ROTA Regional Center located in each of the 10 U.S. Department of Health and Human Services regions.
Toolkit	Guides: Overdose Prevention 101 and Working with Rural Communities	This toolkit, developed by Public Health Institute, provides an overview of general overdose prevention, along with specific guidance and resources for working in rural communities.
Toolkit	Estimate Service Needs in Your Rural Community Tool and Applying Population Estimation Methods in Rural America Toolkit	This toolkit, developed by the Johns Hopkins Bloomberg School of Public Health, is designed to help rural communities estimate need in their communities to better understand resource allocation.

APPENDIX D.

Community Engagement Strategy

April 11, 2024
Updated July 31, 2024

Background and Purpose

JBS International has partnered with the National Association of County and City Health Officials (NACCHO), through funding from the Centers for Disease Control and Prevention (CDC), to conduct a needs assessment of rural overdose prevention and response (OPR) initiatives in the United States. As part of NACCHO's commitment to advancing health equity, the purpose of this needs assessment is to work for and with rural communities to better understand and amplify needs, available resources, challenges, strategies, and stories related to OPR.

The needs assessment involved several components, including an environmental scan and gap analysis, roundtables with subject matter experts (SMEs), and community engagement in the form of interviews. These interviews provided NACCHO with a deeper understanding of rural OPR, ensuring people with lived and living experience (PWLLE) and historically marginalized communities, such as racial and ethnic minority community members, Indigenous community members, and LGBTQIA+ people are represented. This collaboration of public health professionals and those most affected is essential to shine light on the full range of issues rural communities face and devise solutions that are clear, evidence-based, and community-driven.

Based on participant feedback and recommendations from the roundtables, as well as key takeaways from the Environmental Scan and Gap Analysis, JBS has developed the following Community Engagement Strategy to identify and engage selected rural local health departments (LHDs), their community partners, and/or other relevant interested parties, including PWLLE of drug use leading community-based organizations, to gather insights into the specific successes, challenges, and needs of rural communities in addressing overdose.

Research Questions

The following questions guided the needs assessment:

1. Who is experiencing overdose in rural communities? What substances are involved in these overdoses?
    a. What disparities exist between rates of substance use in rural areas and rates of fatal and non-fatal overdose?
2. What resources and practices currently exist in rural communities to effectively prevent and respond to overdoses? What novel and/or promising approaches to overdose prevention and response have been successfully implemented in rural communities?
    a. What disparities exist between rural overdose prevention and response efforts?
    b. What practices and resources exist to reduce existing disparities, i.e., to effectively prevent and respond to overdose among historically marginalized or disproportionately impacted populations in rural communities?

The community engagement activity was guided by the same research questions as the broader needs assessment. Qualitative data from community interviews provided NACCHO with a more nuanced understanding of the experiences of overdose in eight different rural settings (Q1) and provided additional insights into existing barriers, resources, best practices, and innovative or promising practices being implemented in rural communities (Q2). In response to the research sub-questions, the community interviews also solicited information on disparities among historically marginalized or disproportionally affected populations in rural communities, including differing experiences of overdose, disparities in access to OPR efforts, and effective strategies to mitigate these disparities.

Community Engagement Processes and Data Collection

The community engagement activity involved a series of interviews with LHDs or other entities leading rural OPR efforts on the ground to collect qualitative data on rural OPR.

Number of Communities Engaged. A total of eight rural communities were involved in interviews as part of JBS's community engagement. Of these, five communities were engaged in "virtual" or remote interviews conducted via Zoom, and three communities were engaged through in-person interviews. For each selected community, JBS conducted one or two individual or group interviews. Group interviews included up to three participants. In communities where interviews were conducted in-person, JBS requested an optional informal tour of the community's OPR activities or programs prior to the in-person interview to provide additional background and context for the discussion.

Interview respondents. JBS identified either a LHD or community-based organization (CBO) as the primary interview respondent for each selected community. LHDs were at a county, multi-county, district, or a level or within a tribal community. CBOs included nonprofits or grassroots organizations, including harm reduction coalitions or networks.

Interview Guides. JBS facilitated each individual or group interview using a structured interview protocol guide that allowed for organic probes. To enable the asking of tailored questions for specific respondent types and interview structure, JBS developed and used three interview guides, including:

1. LHD interview guide
2. CBO interview guide

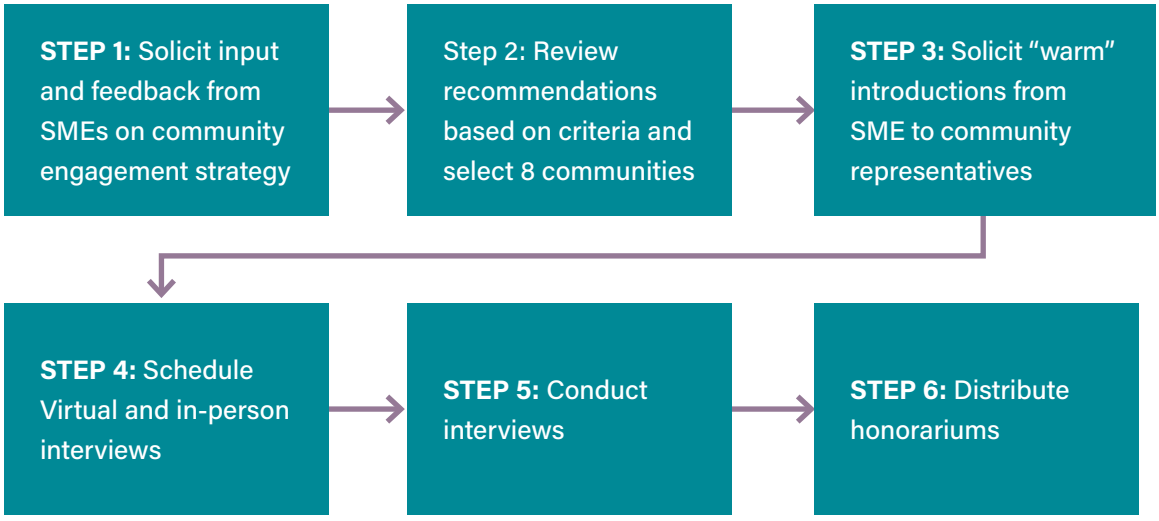
Each interview guide included sections or questions on the following topics or themes:

- Communities and populations served and relevant OPR services provided
- Local overdose trends, rates, and data sources
- Effective rural OPR efforts
- Barriers to rural OPR
- OPR funding needs
- Partnerships

Within relevant sections and questions, interview guides included probes around disparities, including around access to services and effective practices to reduce overdoses among historically marginalized or disproportionately affected populations in rural communities. In addition to clearly communicating interview expectations and confidentiality in the initial outreach to potential interviewees, the interviewers obtained consent from the interviewees to participate in the discussion and requested permission to record the interview at the start of each formal interview.

Process for Identifying, Selecting, and Engaging Rural Communities

JBS implemented the following steps to identify, select, and engage rural communities in this needs assessment:



Step 1: SME Feedback on Community Engagement Strategy. JBS solicited input and feedback from SMEs on recommended criteria for identifying and selecting communities as well as specific recommendations for communities, LHDs, CBOs, grassroots organizations, and/or individuals engaged in rural OPR to interview as part of the community engagement activities. While this was completed primarily through the second roundtable, JBS engaged other relevant SMEs to fill in gaps as needed. Selection criteria and key populations of interest were informed by the findings from the first roundtable and the Environmental Scan and Gap Analysis. Based on this information, JBS determined selection criteria for the community interviews and finalized the criteria based on feedback from NACCHO and CDC.

Step 2: Selecting Communities. Based on the final selection criteria for the community engagement interviews, JBS identified a purposeful sample of eight communities to engaged in the needs assessment. For the three in-person interviews, JBS prioritized entities serving communities identified in the Environmental Scan and Gap Analysis as experiencing disproportionate overdose rates or lacking access to OPR services.

For each selected community, JBS identified a point of contact (POC) who was invited to participate in either a remote or an in-person interview. JBS ensured that PWLLE and historically marginalized communities, such as racial and ethnic minority community members, Indigenous community members, and LGBTQIA+ people, were represented. Additionally, JBS considered distribution across CDC's four geographic regions.[1] In linguistically diverse regions, JBS was prepared to conduct interviews in languages other than English.

Step 3: Community Outreach. Once the list of eight selected communities and relevant POCs was confirmed, JBS solicited "warm" introductions from SMEs who have established connections to the relevant community POC to introduce JBS and the project and invite people to participate in the interviews. Outreach materials included a one-page flyer on the needs assessment and purpose of the community interviews, along with an email explaining the goals of the interview, who will be participating, expectations of interviewees, and confidentiality guidelines. If a selected community representative declined to participate, alternative communities had been identified as backups.

Step 4: Scheduling Interviews. Upon confirmation of each community POC's interest in participating in the interview, JBS scheduled a virtual or an in-person interview.

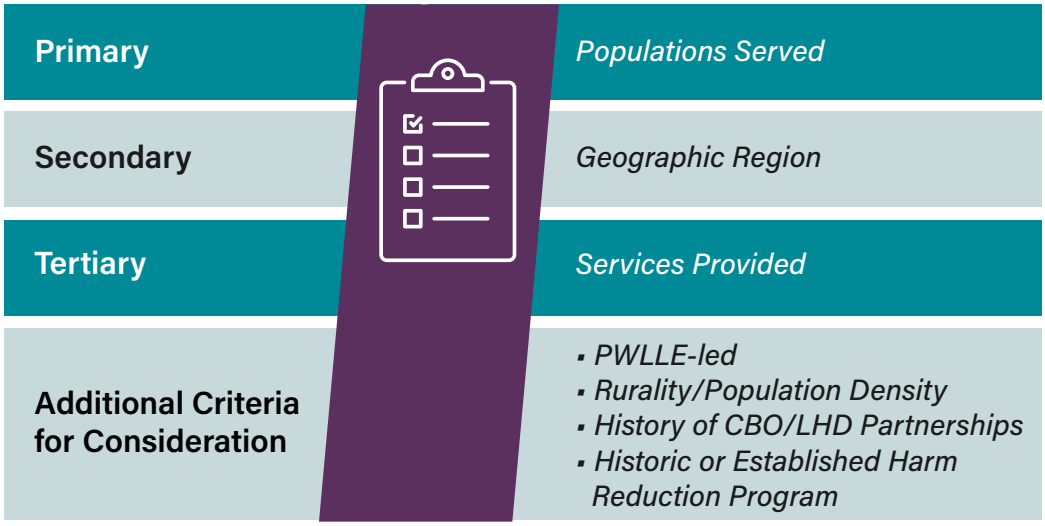
Step 5: Conduct Interview. A two-person research team from JBS, including one lead interviewer and one notetaker, conducted each interview. Interpreters were used as needed. With permission, interviews were recorded (virtual via Zoom; in-person via audio-recorder) and transcribed.

Step 6: Distribute Honoraria. Interviewees were offered a $500 honorarium for their participation in community engagement activities.

1 Centers for Disease Control and Prevention National Center for Health Statistics. (2023, June 26). *Health, United States, 2020–2021. Geographic division or region.* U.S. Department of Health and Human Services. https://www.cdc.gov/nchs/hus/sources-definitions/geographic-region.htm

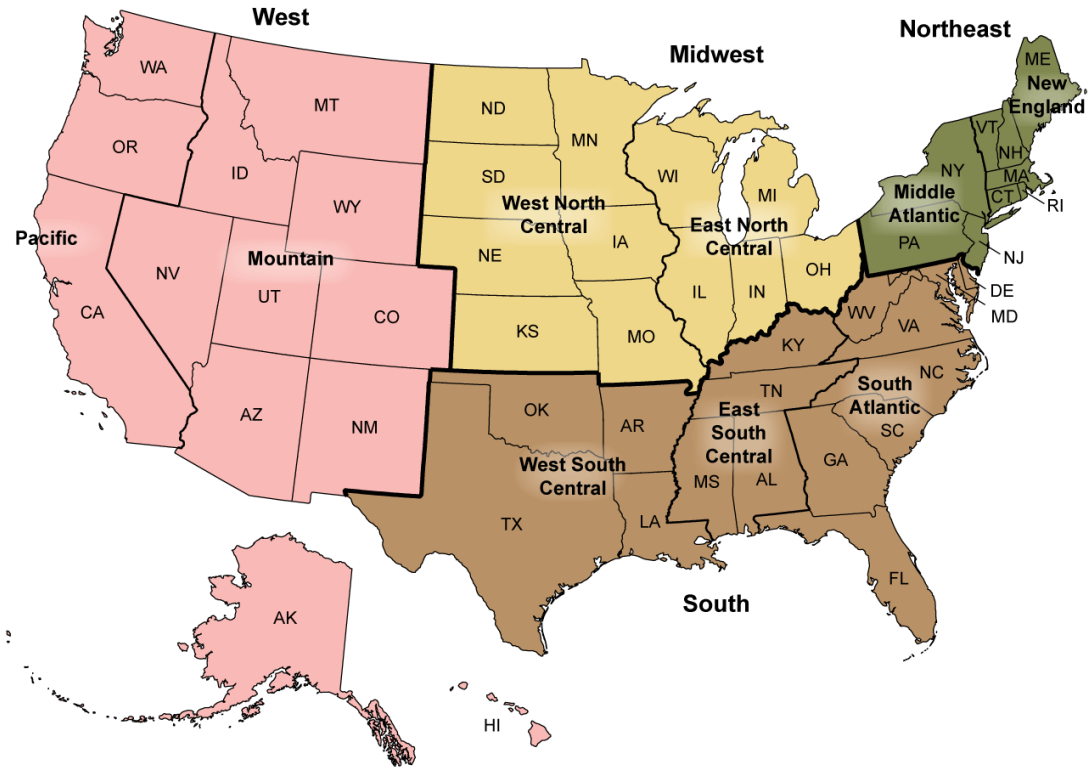
Criteria for Selecting Communities

Based on the recommendations from SMEs and learnings from the Environment Scan and Gap Analysis, JBS identified and prioritized the following criteria for identifying and selecting communities to participate in the community engagement interviews. Based on NACCHO and CDC input, JBS finalized the criteria.



Criteria 1: Populations Served. "Populations served" was the primary criteria for selecting communities for participation in interviews. At least one of the eight selected communities included an LHD or a CBO that serves each of the identified key populations in a rural setting. JBS identified the following populations as high priority and organizations serving these populations were included in the community engagement interviews.

Criteria 2: Geographic region. Geographic diversity plays a key role in the community engagement strategy. JBS selected communities intending to include representation from each of the four U.S. Census Bureau geographic regions (Northeast, South, Midwest, West) and at least six of the geographic divisions.



Source: Centers for Disease Control and Prevention National Center for Health Statistics. (2023, June 26). Health, United States, 2020–2021. Geographic division or region. U.S. Department of Health and Human Services. https://www.cdc.gov/nchs/hus/sources-definitions/geographic-region.htm#Figure

Criteria 3: Services Provided. A wide array of different services, approaches, and best practices may be provided within a community. JBS identified the following services as particularly interesting or important in rural settings specifically. When selecting communities, JBS's intent was to include at least one community implementing each of the identified types of services—overdose education and naloxone distribution (OEND), medications for opioid use disorder (MOUD), and harm reduction services—in the community interviews.

OEND	• *PWUD-focused* • *Community-based*
MOUD	• *General* • *Justice-involved settings*
HARM REDUCTION SERVICES	• *Syringe services programs (SSP)/Harm reduction health hubs* • *Services for people who consume drugs through smoking or snorting* • *Drug checking*

Other Criteria for Consideration. JBS identified several other criteria as important to consider when selecting rural communities to be engaged in the needs assessment. For example, when selecting organizations to participate in the community interviews, entities that are led by and include PWLLE were prioritized.

PWLLE-led

- Try to include CBOs and grassroots organizations that are led by and include PWLLE

Rurality/Population Density

- While all identified communities will meet the HRSA definition of "rural", will try to include communities who meet a variety of definitions or degrees of rurality

CBO/LHD Partnerships

- Try to include communities with well-established or strong partnerships between CBOs and LHDs as well as those with limited or no engagement between CBOs and LHDs

History of Harm Reduction Program

- Try to include communities with history of successful harm reduction services as well as programs or partnerships that are nascent or in early stages

Schedule for Data Collection

JBS conducted community interviews between April 29 and May 28, 2024, scheduling approximately one in-person and one or two virtual community engagements per week.

Data Analysis and Reporting

Coding and Analysis. Interview transcripts were imported, coded, and analyzed through Atlas.ti, using a codebook and thematic analysis. If a participant declined to give permission to be recorded, interview notes were taken in place of transcripts for coding and analysis.

Confidentiality. To protect respondent confidentiality, notes from the in-person and virtual interviews were reviewed, synthesized, and submitted to NACCHO and CDC in a single Community Engagement Topline Summary Notes. Communities were primarily identified by populations served and geographic regions within the topline summary and other reports or presentations. Direct quotes from individuals used in reports or presentation did not include respondent name or identifying information. Participant responses were also combined and reported in aggregate form.

Reporting. Key findings, community insights, and recommendations on rural OPR from the community engagement interviews—as well as learnings from the Environmental Scan and Gap Analysis and roundtables—have been integrated into the project's final reports and webinar, including the Comprehensive Report, the Funding Brief, and the final Webinar.

- **Comprehensive Report.** JBS prepared a comprehensive final report that integrates key findings, best practices, community insights, and recommendations from community engagement interviews with key takeaways from the Environmental Scan and Gap Analysis as well as the roundtable discussions. The report includes clear and actionable recommendations for improving OPR efforts in rural communities. These recommendations align with the evidence-based and promising practices identified in the Environmental Scan and Gap Analysis and address the unique characteristics of rural settings.
  - **Funding Brief.** This brief report summarizes the funding challenges faced by rural communities and recommendations for mitigating these challenges based on information collected as part of community engagement activities. The brief includes strategies for ensuring that funding reaches rural communities affected by the overdose crisis. It will be included as a standalone appendix to the Comprehensive Report.
- **Webinar.** JBS has prepared a slide deck and presentation on key findings from the overall project and next steps, including insights and recommendations from community engagement interviews documented in the Comprehensive Report and Funding Brief. The webinar is scheduled to be delivered to project participants, CDC, NACCHO, and other relevant parties in July 2024. The webinar also includes project participants to ensure widespread dissemination of findings with community engagement interview respondents.

APPENDIX E.

Community Engagement Interview Guide: Community Based Organization

Interviewer's welcome, introduction, and instructions to interviewee

Respondent Name:	
Respondent's Position/Role:	
Organization:	
Interviewer Name:	
Notetaker Name:	
Interview Date:	
Start Time:	
End Time:	

Introduction

My name is _____ and I am a _____ with JBS International. Thank you so much for volunteering to take part in this interview. I know you are busy and appreciate your taking the time to join this discussion today. I also want to introduce my colleague _____ , also with JBS International, who will be taking notes during our conversation.

About JBS and the Interview

Our firm, JBS International, has been contracted by the National Association of County and City Health Officials (NACCHO) through Centers for Disease Control and Prevention (CDC) funding to

conduct a needs assessment of rural overdose prevention and response (OPR) initiatives in the United States. We are not part of NACCHO or CDC; we are an independent contractor.

In this interview, we are interested in learning about your experiences as a community-based organization (CBO) working on OPR in rural communities. The information you provide will help us to better understand and amplify needs, available resources, challenges, strategies, and stories related to rural OPR efforts. The interview is expected to take about 2 hours to complete.

Voluntary and Private; Consent to Interview

Your participation is voluntary, and you are free to stop the interview at any time. If you feel uncomfortable with a question, please let me know, and we will skip that question.

Anything you tell us will remain private. Your individual responses will not be identifiable in reports, including reports or materials shared with NACCHO and CDC. We will combine the information you provide with other interviews. We will use no details related to your personal identity, so please feel free to be candid.

Do we have your permission to proceed? Yes: ☐ No: ☐

Record Date: _____ Time: _____

Person Consenting: _____

Witness: _____

Consent to Record

Before we get started, we would like to ask for your permission to record this interview, so we can make an accurate transcription of your responses. Only the evaluation team will have access to the digital file of the recording. When we finish analysis, we will delete the recording. If you prefer not to be recorded, we will take detailed notes of our discussion for analysis.

Do we have your permission to record this interview? Yes: ☐ No: ☐

Record Date: _____ Time: _____

Person Consenting: _____

Witness: _____

Do you have any questions for us before we begin?

Interview questions

****IMPORTANT NOTE****

Begin the audio recording AFTER receiving the participant's consent to participate and only if you received the participant's consent to be audio recorded.

A—Communities/Population(s) Served and Relevant Services Provided

The first few questions will be about your role in your organization, your work on rural OPR, and the rural communities in which your organization works.

1. **Could you tell us a little about yourself and your role here at [*organization name*]?**
   a. Title?
   b. How long have you been in this role?
   c. How long have you been involved in OPR efforts?

2. **What kind of OPR-related activities or services[1] does your organization provide to rural communities? Please describe.**
   a. **Where** does your organization provide OPR services? Are they offered in your whole service area?
   b. Are you or your organization interested in any types of OPR activities that you are NOT able to provide? Why? What are the barriers or constraints?
   c. How does the current community climate impact the type of services your organization is able to provide (e.g., legal, social, political)?

3. **Can you describe the populations served2 through your organization's OPR efforts within rural settings?**
   a. How, if at all, are you tailoring your efforts to the specific needs of your local population(s)?
      i. **What constraints or barriers have you encountered to meeting the needs of your populations?**
      ii. **How does your organization address or mitigate these barriers?**
   b. **In your community, are there any populations in need of OPR services your organization is** unable to reach? **If so, please describe.**
      i. **What constraints or barriers do you face in reaching these populations?**
      ii. **Do you have any recommendations to increase or improve access to OPR services for these populations? If yes, please describe.**

1 For example, OPR activities may include but are not limited to: overdose education and naloxone distribution [OEND], medications for opioid use disorder [MOUD], harm-reduction services such as syringe services programs [SSPs], harm-reduction health hubs, drug checking.

2 Population may include pregnant and parenting people, people who identify as LGBTQIA+, racial and ethnic minorities, tribal communities, uninsured, people experiencing houselessness, people who have been incarcerated, and youth under 18 years old.

4. **How do you track OPR trends in your community?**
   a. **What type of OPR data does your organization collect or track?**
   b. **Do you use any data sources or dashboards to inform your efforts?**
   c. **What types of information or data do you think are missing?**
      i. *Probe for any disparities*
   d. What would be **most helpful to track overdose trends** in your community moving forward? What type of information is needed?

5. **To what extent, if any, are people with lived and living experience (PWLLE) of drug use engaged in activities or decision-making processes within your organization? Please describe.**

B—Strengths and Barriers to Effective OPR Efforts in Rural Communities

The next part of today's conversation is going to focus on strengths, resources, and barriers to prevent and respond to overdose in rural communities.

6. **What are your community's strongest assets for addressing OPR in rural settings?**
   a. What unique facilitators exist in rural communities compared to urban or suburban communities?
   b. **What types of partners, organizations, or individuals play a key role in these facilitators in rural settings?**

7. **What is working well within your rural community to reduce and respond to overdoses? Please describe.**
   a. **Why do you consider it a "success"? How do you measure "success"?**
   b. **Who is being reached through these efforts?**
   c. **Who is being missed through these efforts?**
      i. *Potential probes: pregnant and parenting people, people who identify as LGBTQIA+, racial and ethnic minorities, tribal communities, uninsured, people experiencing houselessness; people who have been incarcerated, youth under 18 years old*

8. **Have any specific resources or tools[3] been particularly helpful or useful in supporting, starting, or expanding OPR efforts, leveraging strengths, and addressing barriers in your community? If so, please describe.**
   a. **How do you seek out or learn about new programs, resources, or tools (e.g., newsletters, conferences, webinars, word of mouth)?**

3 Resources may include human resources such as specific individuals, coalitions, organizations, or community partners or services provider; tangible resources like databases, toolkits, and physical supplies; or funding resources such as grants, federal, state, or local funding, and Opioid Abatement funds.

9. Are there any resources or tools that you **need or wished existed**?

10. Beyond what we have already discussed, have you encountered additional **obstacles or challenges** to providing effective OPR activities in the rural communities you serve?
    a. What could be done to mitigate these barriers?

C—OPR Funding Needs in Rural Communities

Next, we would like to hear about the type of initiatives, resources, policies, or supports that would be most helpful in your community to support rural OPR efforts.

11. If you had a magic wand, what top initiatives would you implement in your rural communities in the next 3 years to address overdose?
    a. What **resources, policies or supports** would you like to see put in place to support your organization's OPR efforts in rural communities?

12. What type of funding has been helpful to date in starting and sustaining your current OPR efforts?
    a. What sort of funding would be **most helpful** in your OPR efforts?
    b. What **issues or challenges** have you faced in securing and/or maintaining funding?
    c. What is needed to overcome or **mitigate these challenges**?

D—Local Partnerships

We are also interested in hearing about the types of partnerships your organization engages in to support rural OPR.

13. What type of **partners**,[4] if any, has your organization coordinated or collaborated with as part of your rural OPR efforts? Please describe.
    a. Who do you work with most closely? How so?
    b. What facilitates effective collaboration with these partners?
    c. What challenges or barriers hinder effective collaboration with these partners?
    d. What types of partnerships would be helpful for strengthening your rural OPR efforts in the future?

14. How would you describe the level of coordination and collaboration between your local health departments (LHDs) and community partners working on OPR in your community?
    a. What are the strengths and the challenges to effectively collaborating with your LHDs?
    b. What recommendations do you have to improve or strengthen partnerships between LHDs and CBOs working on OPR in rural communities?

4 Partnerships may include, but are not limited to LHD, CBOs, grassroots organization, local treatment providers, rural clinician, pharmacies, first responders (EMS, fire department, police departments), jails or other legal justice settings, schools, faith-based organizations, etc.

E—Closing

1. **What are you proudest of in terms of the OPR work your organization provides in rural communities?**

2. **Is there anything else that you think would be important for us to know? Anything else you want to share?**

3. **Do you have any questions for us?**

Conclusion

Thank you so much for taking the time to participate in this interview! Sharing your experience with rural OPR has been very helpful. Your thoughts and opinions will form an important part of this needs assessment. If there is anything you would like to share with us or any concerns you have regarding this interview, you can email us at _____ and _____.

Community Engagement Interview Guide: Local Health Department

Interviewer's welcome, introduction, and instructions to interviewee

Respondent Name:	
Respondent's Position/Role:	
Organization:	
Interviewer Name:	
Notetaker Name:	
Interview Date:	
Start Time:	
End Time:	

Introduction

My name is _____ and I am a _____ with JBS International. Thank you so much for volunteering to take part in this interview. I know you are busy and appreciate your taking the time to join this discussion today. I also want to introduce my colleague _____ , also with JBS International, who will be taking notes during our conversation.

About JBS and the Interview

Our firm, JBS International, has been contracted by the National Association of County and City Health Officials (NACCHO) through Centers for Disease Control and Prevention (CDC) funding to conduct a needs assessment of rural overdose prevention and response (OPR) initiatives in the United States. We are not part of NACCHO or CDC; we are an independent contractor.

In this interview, we are interested in learning about your experiences in an LHD working on OPR in rural communities. The information you provide will help us to better understand and amplify needs, available resources, challenges, strategies, and stories related to rural OPR efforts. The interview is expected to take about 2 hours to complete.

Voluntary and Private; Consent to Interview

Your participation is voluntary, and you are free to stop the interview at any time. If you feel uncomfortable with a question, please let me know, and we will skip that question.

Anything you tell us will remain private. Your individual responses will not be identifiable in reports, including reports or materials shared with NACCHO and CDC. We will combine the information you provide with other interviews. We will use no details related to your personal identity, so please feel free to be candid.

Do we have your permission to proceed? **Yes:** ☐ **No:** ☐

Record Date: _____ **Time:** _____

Person Consenting: _____

Witness: _____

Consent to Record

Before we get started, we would like to ask for your permission to record this interview, so we can make an accurate transcription of your responses. Only the evaluation team will have access to the digital file of the recording. When we finish analysis, we will delete the recording. If you prefer not to be recorded, we will take detailed notes of our discussion for analysis.

Do we have your permission to record this interview? **Yes:** ☐ **No:** ☐

Record Date: _____ **Time:** _____

Person Consenting: _____

Witness: _____

Do you have any questions for us before we begin?

Interview questions

****IMPORTANT NOTE****

Begin the audio recording AFTER receiving the participant's consent to participate and only if you received the participant's consent to be audio recorded.

A. Communities/Population(s) Served and Relevant Services Provided

The first few questions will be about your role in the health department, your work on rural OPR, and the rural communities in which your department works.

1. **Could you tell us a little about yourself and your role here at the LHD?**
   a. Title?
   b. How long have you been in this role?
   c. How long have you been involved in OPR efforts?

2. **What kind of OPR-related activities or services[5] does the health department provide to rural communities? Please describe.**
   a. What services your department provide directly? What services or activities are subcontracted out to local organizations?
   b. Where does the department provide OPR services? Are they offered in your whole service area?
   c. Are you or your department interested in any types of OPR activities that you are NOT able to provide? Why? What are the barriers or constraints?

3. **How does the current policy environment impact the type of services your department is able to provide or support (e.g., federal, state, CDC, etc.)?**
   a. How does the current community climate impact the type of services your department is able to provide or support (e.g., social, political, etc.)?
   b. Who influences the community climate in your area (e.g., county commissioners, community-based organizations [CBOs], service providers, clients, community members)?

4. **Can you describe the populations served[6] through your department's OPR efforts within rural settings?**
   a. How, if at all, are you tailoring your efforts to the specific needs of your local population(s)?
      i. **What constraints or barriers have you encountered to meeting the needs of your populations?**

5 For example, OPR activities may include but are not limited to: overdose education and naloxone distribution [OEND], medications for opioid use disorder [MOUD], harm-reduction services such as syringe services programs [SSPs], harm-reduction health hubs, drug checking.

6 Population may include pregnant and parenting people, people who identify as LGBTQIA+, racial and ethnic minorities, tribal communities, uninsured, people experiencing houselessness, people who have been incarcerated, and youth under 18 years old.

   ii. **How does your department address or mitigate these barriers?**

b. In your community, are there any populations in need of OPR services your department is unable to reach? If so, please describe.

   i. **What constraints or barriers do you face in reaching these populations?**

   ii. **Do you have any recommendations to increase or improve access to OPR services for these populations? If yes, please describe.**

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5. **How do you track OPR trends in your community?**

   a. What type of OPR data does your department collect or track?

   b. Do you use any data sources or dashboards to inform your efforts?

   c. What types of information or data do you think are missing?

      i. *Probe for any disparities*

   d. What would be most helpful to track overdose trends in your community moving forward? What type of information is needed?

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6. **To what extent, if any, are people with lived and living experience (PWLLE) of drug use engaged in activities or decision-making processes within your department? Please describe.**

B. Strengths and Barriers to Effective OPR Efforts in Rural Communities

The next part of today's conversation is going to focus on strengths, resources, and barriers to prevent and respond to overdose in rural communities.

---

1. **What are your community's strongest assets for addressing OPR in rural settings?**

   a. What unique facilitators exist in rural communities compared to urban or suburban communities?

   b. What types of partners, organizations, or individuals play a key role in these facilitators in rural settings?

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2. **What is working well within your rural community to reduce and respond to overdoses? Please describe.**

   a. Why do you consider it a "success"? How do you measure "success"?

   b. Who is being reached through these efforts?

   c. Who is being missed through these efforts?

      i. *Potential probes: pregnant and parenting people, people who identify as LGBTQIA+, racial and ethnic minorities, tribal communities, uninsured, people experiencing houselessness; people who have been incarcerated, youth under 18 years old*

3. **Have any specific resources or tools7 been particularly helpful or useful in supporting, starting, or expanding OPR efforts, leveraging strengths, and addressing barriers in your community? If so, please describe.**
    a. How do you seek out or learn about new programs, resources, or tools (e.g., newsletters, conferences, webinars, word of mouth)?
    b. How accessible or useful have you found resources or tools provided by national-level agencies or organizations (e.g., CDC, NACCHO, Association of State and Territorial Health Officials [ASTHO], Substance Abuse and Mental Health Services Administration [SAMHSA], etc.)? Please describe.
4. **Are there any resources or tools that you need or wished existed?**
5. **Beyond what we have already discussed, have you encountered additional obstacles or challenges to providing effective OPR activities in the rural communities you serve?**
    a. What could be done to mitigate these barriers?

C. OPR Funding Needs in Rural Communities

Next, we would like to hear about the type of initiatives, resources, policies, or supports that would be most helpful in your community to support rural OPR efforts.

1. **If you had a magic wand, what top initiatives would you implement in your rural communities in the next 3 years to address overdose?**
    a. What resources, policies or supports would you like to see put in place to support your organization's OPR efforts in rural communities?
2. **What type of funding has been helpful to date in starting and sustaining your current OPR efforts?**
    a. What sort of funding would be most helpful in your OPR efforts?
    b. What issues or challenges have you faced in securing and/or maintaining funding?
    c. What is needed to overcome or mitigate these challenges?

7 Resources may include human resources such as specific individuals, coalitions, organizations, or community partners or services provider; tangible resources like databases, toolkits, and physical supplies; or funding resources such as grants, federal, state, or local funding, and Opioid Abatement funds.

D. Local Partnerships

We are also interested in hearing about the types of partnerships your department engages in to support rural OPR.

1. **What type of local partners,[8] if any, has your department coordinated or collaborated with as part of your rural OPR efforts? Please describe.**
   a. Who do you work with most closely? How so?
   b. What facilitates effective collaboration with these partners?
   c. What challenges or barriers hinder effective collaboration with these partners?
   d. What types of partnerships would be helpful for strengthening your rural OPR efforts in the future?

2. **How would you describe the level of coordination and collaboration between your department and CBOs working on OPR in your community?**
   a. What are the challenges or barriers to effectively collaborating with CBOs in your community?
   b. What recommendations do you have to improve or strengthen partnerships between LHDs and CBOs (or other partners) working on OPR in rural communities?

E. Closing

1. **What are you proudest of in terms of the OPR work your department provides in rural communities?**

2. **Is there anything else that you think would be important for us to know? Anything else you want to share?**

3. **Do you have any questions for us?**

Conclusion

Thank you so much for taking the time to participate in this interview! Sharing your experience with rural OPR has been very helpful. Your thoughts and opinions will form an important part of this needs assessment. If there is anything you would like to share with us or any concerns you have regarding this interview, you can email us at _____ and _____.

8 Partnerships may include, but are not limited to CBOs, grassroots organization, local treatment providers, rural clinician, pharmacies, first responders (EMS, fire department, police departments), jails or other legal justice settings, schools, faith-based organizations, etc. Other partners may also include local, state, or national level departments or agencies.