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Fighting the Fentanyl Epidemic in California

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Executive Summary

Historically, Western states have lagged behind their Eastern neighbors when it concerns the opioid epidemic. This trend holds true as California has only recently begun to experience a fourth wave of opioid use that is distinguished, in part, due to the rising prevalence of fentanyl. Of particular concern is how fentanyl use patterns diverge from historical patterns observed with opioids. Specifically, communities of color face an outsized burden of the growing prevalence of fentanyl and its associated overdose (OD) complication, whereas opioid use has historically been a minor factor in these populations. Disparities in access to and knowledge of healthcare resources is experienced as an intersection of racial, generational, and urbanization divides. As this epidemic becomes more potent throughout the state, it is crucial for California to expand its healthcare infrastructure and collaborate with community partners to provide the necessary preventative and treatment resources to mitigate the harm induced by fentanyl consumption.

From June to August 2021, the Harvard Kennedy School Institute of Politics Health Policy Team researched how the California Department of Health (CDPH) can most effectively respond to the current overdose epidemic, with a special emphasis on youth and young adults. Throughout this process, we have collaborated with CDPH Secretary Tomás J. Aragón, Chief Robin Christensen, Unit Chief Mahtab Shahkarami, Strategic Projects Manager Jeannie Balido, and Coordinator Sheila Samperio. To parallel the pathway of substance use disorder (SUD) development, we segment our investigation of fentanyl to the areas of environment, prevention, and treatment. This framework enables us to target potent measures to disrupt SUD progression. Our recommendations generally explore three core avenues: (1) expanding Naloxone distribution, (2) empowering individuals to determine fentanyl presence in their area, and (3) collaborating with local partners to provide SUD treatment and preventive services.

Recommendations

1. Institute Targeted Free Self-Serve Harm Reduction Vending Machines

CDPH should initiate the use of free self-serve harm reduction vending machines in counties with low income levels and high synthetic opioid overdose death rates. A free and publicly accessible vending machine would include fentanyl test strips, Naloxone kits, hygiene supplies, and clean syringe needles—all materials that may significantly improve potentially deadly outcomes for individuals. These vending machines should simultaneously be installed in densely populated areas with high overdose mortality, as well as community centers and places of congregation in more rural settings. Targeted vending machine distribution is vital to ensuring that individuals who are at higher risk for fentanyl use are equipped with the overdose-reversing materials.

2. Prioritize Medication Assisted Treatment access for Incarcerated Individuals

CDPH should prioritize incarcerated and formerly incarcerated individuals in their opioid prevention and intervention efforts by expanding Medication Assisted Treatment (MAT) to all correctional facilities. Evidence shows incarcerated individuals report high rates of SUD and are most vulnerable to overdose after release. The backlog of current efforts due to lack of MAT-prescribing physicians prevents the same quality of care from being delivered to all incarcerated individuals suffering from a SUD, an already vulnerable population. In addition to expanding the volume and accessibility of trained MAT providers in correctional facilities, continuity of care protocols should be developed for incarcerated individuals to ensure access to care upon release. By ensuring the quality and ubiquity of MAT, incarcerated individuals will be better supported during the reintegration process.

3. Implement Cultural Competency Approaches: Partnerships between Faith and Science

CDPH should implement culturally competent approaches to community-based intervention by engaging faith-based leaders. Various mental health, treatment, housing, and harm-reduction programs exist in the state, but barriers of trust and a lack of understanding prevent active use of these services. As such, creating outreach programs to educate and support faith-based leaders, often trust fixtures in their communities, into playing advocacy roles may

help expand access to prevention and treatment programs. The U.S. Department of Health and Human Services' Opioid Epidemic Practical Toolkit provides a framework for such partnership between public health and faith leaders. With this focus on meeting the diverse population of the state where they are, California can reduce the stigma of addiction and increase certain communities' willingness to seek treatment programs.

4. Integrate Crime Lab Data into State-Wide Surveillance Efforts

CDPH should make crime lab data, including drug seizures and associated toxicology reports, available to the public. The fourth wave of the opioid epidemic has been driven by supply-side forces (i.e., the widespread contamination of heroin and cocaine with illicitly manufactured fentanyl). While California consolidates mortality, toxicology, and law enforcement reports in the Cal-Enhanced database, there is a need for timely data on changes in the illicit drug market supply. Research has found strong associations between crime lab data, such as fentanyl tests and seizures, and drug overdose deaths up to three months in advance, suggesting that this data could be used to gauge emerging drug trends and inform intervention efforts. CDPH should work closely with the Drug Enforcement Agency to integrate data from the National Forensic Laboratory Information System and the National Seizure System into public health research and surveillance efforts. Additionally, CDPH should integrate this data within their Opioid Overdose Surveillance Dashboard in a timely, geographically specific manner to help shape community action.

5. Consolidate Fentanyl Information via Public Technological Systems

CDPH should institute a text alert system to inform the public of regional overdose spikes and expand its Opioid Overdose Surveillance Dashboard to identify real-time regional patterns in fentanyl-overdose-related emergency department (ED) visits. Currently, the Dashboard displays the number of fentanyl-overdose-related deaths in the past year statewide, but it does not offer real-time, fentanyl-specific information about ED visits, including non-fatal overdoses. Real-time monitoring of drug overdose trends at the county-level can provide the information necessary to institute more timely and impactful fentanyl crisis responses. A statewide text alert system and dashboard would help California combat the fentanyl epidemic because, with an enhanced awareness of potential fentanyl-laced "bad batches" in their area, both officials and

individuals who use illicit drugs can make regionally-specific adaptations. Further implementation of a hotline can empower community members to receive assistance on fentanyl's presence in a neighborhood as well as provide appropriate resources.

6. Expand Fentanyl Test Strip Distribution

CDPH should expand its distribution of fentanyl test strips to reduce statewide fentanyl overdose deaths. Testing strips accurately identify minute quantities of fentanyl and are easily interpretable, with one line indicating that the test detected fentanyl and two lines indicating the test did not detect fentanyl. The affordable price tag at \$1 per strip offers a compelling and accessible solution to battle rising opioid overdose rates; indeed, current distribution in twenty California needle exchange centers costs the state about \$57,000.

7. Expand Community Naloxone Education

CDPH should further expand access to Naloxone education and training targeted towards individuals who use drugs, as well as their family and friends, to help them recognize overdose situations and in turn successfully administer Naloxone. In particular, volunteer teams should conduct outreach in neighborhoods outside of immediate access to pharmacies and hospitals with pamphlets and hands-on training opportunities. Education through such programs has resulted in fewer opioid deaths in states like Missouri and Ohio and has also bolstered the confidence of participating individuals to react competently during overdoses.

8. Extend Distribution of Naloxone Kits

CDPH should introduce a more widespread Naloxone distribution service within the state's pharmacies by increasing the supply of take-home Naloxone kits through overdose support programs and mail-based distribution. Currently, only eligible entities and organizations (such as first responders, schools, or hospitals) can obtain Naloxone through California's Naloxone Distribution Project, barring the general population from participating in the program. CDPH should look to expand accessibility of these kits to individuals who use opioids, as well as family and friends with proof of adequate training in both recognizing an overdose situation and then administering Naloxone. To ensure equitable distribution of kits, trained professionals should actively offer public training sessions and do community outreach in regions of low

socio-economic stability to become qualified to administer Naloxone. As friends and family are most likely to administer Naloxone in the case of an overdose, it is vital that they are included in these Naloxone distribution opportunities.

9. Designate Harm-Reduction Facilities

CDPH should designate legalized overdose prevention centers, allowing people a secure, isolated space to use opioids under the surveillance of a healthcare professional with clean drug paraphernalia to reduce the spread of infectious diseases. Additionally, the public, particularly younger children and teenagers more susceptible to the public visibility of opioid use, will be separated from the consumption of drugs typically on the streets. The harm reduction staff in these facilities should foster connections and genuine bonds with those who visit recurrently.

10. Expand Access to Contingency Management and Cognitive Behavioral Therapy

CDPH should increase access to contingency management (CM) and cognitive behavioral therapy (CBT) for those with opioid use disorder (OUD). These behavioral therapies help address the patient's feelings towards both drugs and further medicinal treatment. CM works in an incentive-based manner, awarding patients "points" as they receive negative drug tests. With a similar goal, CBT assists patients in coping with stress and triggers related to fentanyl use. While California has private rehabilitation centers that offer inpatient services and detoxification, such care can be cost-prohibitive and inaccessible; there is a need to increase funding and expand access through, for instance, informational brochures and mobile therapy options. These services can be targeted towards patients who have recently acquired Naloxone or have a known history of fentanyl use.

11. Implement the Communities That Care Model in Community-Based Coalitions

CDPH should appoint multiple community prevention coordinators (CPCs) across the state in order to implement the Communities That Care (CTC) model with local drug prevention community-based coalitions. Pennsylvania implemented the CTC model with over 100 communities and demonstrated how this model can greatly reduce not only youth substance use, but also the relevant risk factors that underlie substance abuse. The CPC would coordinate with local coalitions to appoint relevant board members, generate individual community action plans,

implement evidence-based policies and programs, and measure their programs' success while continually refining their approaches. This model's ability to reduce youth and young adult SUDs while systematically eliminating key risk factors for the initiation of drug use will help target and prevent accidental fentanyl overdoses.

12. Implement Universal Mental Health Screenings in Schools

CDPH should coordinate with the California Department of Education (CDOE) to launch Universal Mental Health Screenings (UMHS) across California school districts. Such coordination would involve identifying school districts with the highest number of students reporting mental health concerns to pilot multiple UMHS programs such as the Behavioral and Emotional Screening System; the Social, Academic, and Emotional Behavior Risk Screener; and the Social and Emotional Health Survey. Data can then be aggregated in coordination with the CDOE's Cal-SCHLS System regarding relevant Alcohol, Tobacco, and Other Drug (ATOD) use and mental health concerns to determine the most effective program at identifying at-risk students. Identification and early intervention through UMHS would reduce the number of students entering adulthood with a developing SUD and, by extension, the number of adults with the potential to overdose on fentanyl.

13. Implement Screening, Brief Intervention and Referral to Treatment in Schools

CDPH should expand availability of Screening, Brief Intervention, & Referral to Treatment (SBIRT) in schools, healthcare practices, and community centers. SBIRT is an evidence-based approach to deliver early intervention and treatment services for persons with SUDs and those at risk of developing SUDs in school. By fostering a relationship with the CDOE, SBIRT can be implemented within school districts and provide online workshops for school nurses, counselors, school-based health center staff, and other trained staff. A similar program to Massachusetts's SBIRT should also be implemented to facilitate SBIRT trainings for healthcare providers in schools, pediatric practices, and elsewhere and ensure patients are being connected to specialists in a timely manner. Consolidating this infrastructure and funding in the form of a "CASBIRT" would ensure that such training becomes more easily accessible.

14. Expand and Emulate Existing Social Media Prevention Efforts

CDPH should fund social media campaigns to promote fentanyl prevention and intervention. Model campaigns for this effort include Washington's "Laced and Lethal," which have targeted communities with a high number of youth who are at risk for fentanyl use. Successful elements of these campaigns include the integration of real stories that highlight the harm and potency of fentanyl, as well as peer-to-peer social media advocacy in which youth themselves disseminate information about the harm of fentanyl use. Further investigation of at-risk populations in California can help determine which social media advertising strategies resonate most strongly and exhibit the greatest leverage.

15. Increase Awareness of the 911 Good Samaritan Laws

CDPH should raise public awareness around its drug-related 911 Good Samaritan Law (GSL). While the GSL was enacted to encourage people experiencing or witnessing an overdose event to seek help without fear of criminalization, limited awareness of the GSL has curtailed the reporting of potential overdoses to emergency services. GSL awareness is especially important in marginalized communities, which are disproportionately affected by the fentanyl crisis and may have greater distrust of law enforcement. CDPH should educate the general public through public service announcements and partner with law enforcement officials to ensure 911 GSL training is consistent with this public health messaging. Targeting this intervention in counties most affected by drug overdose deaths can ensure that resources are deployed efficiently.

16. Implement and Study Therapeutic Workplace Prevention

CDPH should implement therapeutic workplace models among low-income and unemployed individuals with SUDs. By pursuing employment-incentivized models of substance recovery, CDPH can help individuals medicate and fight against addiction while transitioning them into stable work environments. The therapeutic workplace model addresses underlying social determinants of health without incurring significant costs. While there have already been studies pointing to the efficacy of the abstinence contingent therapeutic workplace mode in general, more concrete research regarding the model's effectiveness, specifically in California's working environment, is recommended.

17. Implement Ohio's Health and Opioid Abuse Prevention Education Curriculum

CDPH should model the creation and distribution of curriculum resources on Ohio's HOPE Curriculum to equip school-based youth with the necessary skills to prevent early drug use. The educator-developed curriculum includes resources, rather than guidelines, to develop student's knowledge, attitudes, and social and emotional skills to prevent substance abuse. Currently, California's health education omits three grade levels from requiring ATOD programming and does not include teaching the connection between prescription opioid abuse and heroin addiction, a critical aspect of addressing the fentanyl crisis. Delaying the age of first use among California youth is critical given that it is the single largest indicator of lifelong addiction.

18. Integrate the Advancing Wellness and Resiliency in Education Program in Schools

CDPH should integrate Project Advancing Wellness and Resiliency in Education (AWARE) from the Substance Abuse and Mental Health Services Administration (SAMHSA) to increase awareness of mental health issues among school-aged youth. Implemented in schools with the assistance of SAMHSA grants, this program can connect youth, who may have SUDs, and their families to relevant services. Evidence supports that, even though Project AWARE does not directly address opioids, it enhances protective factors that reduce the likelihood of future opioid use. With a focus on protective factors such as mental health, school-bond, family, and life skills, youth participating in this program will be less likely to develop SUDs.

19. Implement Evidence-Based-Prevention-Interventions in Schools

CDPH should implement universal evidence-based-prevention-interventions (EBPIs) such as Life Skills Training, Skills, Opportunity, And Recognition and Strengthening Families programs within their school systems. Currently, CDPH does not have a strong alignment with school districts, making it difficult for public health messaging to reach youth. Evidence supports that implementing EBPIs that teach children personal self-management, social skills, and resistance skills specifically related to drug use leads to a decrease in substance use. The Drug Abuse Resistance Education Program, on the other hand, does not teach such skills and has shown no significant improvement in served communities. With EBPIs in place, students will be

more focused on their health, well-being, futures, and families which all serve as strong protective factors against substance use.

Environment Overview

I. Medication Assisted Treatment in Correctional Facilities

Many states have successfully used Medication Assisted Treatment (MAT) treatments to reduce inmate overdose death rates in prisons and jails. For instance, Rhode Island saw a 61% drop in post-release overdose fatalities after implementing the MAT program in all their facilities.¹

The California Department of Health Care Services estimates that two-thirds of the state's inmates meet the criteria for diagnosis of a SUD, compared to 9% in the general population.² California's 2018 MAT Expansion Project attempted to combat this crisis by increasing access to treatment for incarcerated individuals, a population historically excluded from MAT efforts. The MAT Expansion Project funded programs in 29 counties to develop MAT for individuals in county jails, which have so far served 1,646 clients.³ Although this progress symbolizes a step in the right direction, it accounts for only 2% of inmates with a SUD in California receiving treatment.⁴ Additionally, as of December 2020, thousands of California's inmates reported that they still did not have access to treatment due to backlogs caused by a shortage of available prescribers.⁵

It is critical to ensure that inmates have access to timely care but also that their care continues upon release. Studies have shown that formerly incarcerated individuals are at an elevated risk for opioid-related death during the first four weeks after release.⁶ The prioritization of continuity of care post-release remains vital to addressing the opioid epidemic amongst high-risk incarcerated and formerly incarcerated populations.

¹ California Health Care Foundation. "Medication-Assisted Treatment in Correctional Settings." Accessed July 26, 2021. <https://www.chcf.org/project/medication-assisted-treatment-in-correctional-settings/>.

² Figueroa, Richard. "State Opioid Response Grant Performance Progress Report September 30, 2018 – September 29, 2019," 2019, 6.

³ Figueroa, "State Opioid Response."

⁴ Prison Policy Initiative. "California Profile." Accessed August 7, 2021. <https://www.prisonpolicy.org/profiles/CA.html>.

⁵ Holly McDede. "Thousands of California Inmates Waiting for Access to Addiction Treatment." Accessed July 26, 2021.

<https://www.kqed.org/news/11849703/thousands-of-california-inmates-waiting-for-access-to-addiction-treatment>.

⁶ California Health Care Foundation. "Medication-Assisted Treatment in Correctional Settings." Accessed July 26, 2021. <https://www.chcf.org/project/medication-assisted-treatment-in-correctional-settings/>.

II. Need for Culturally and Racially Competent Care

The media and public health community's attention to the opioid epidemic has been largely centered on White rural and suburban communities, while communities of color have been either ignored as needing distinct care and attention or grouped into efforts targeting predominantly White communities.⁷ Communities of color are experiencing equal or more dramatic increases in opioid misuse and overdose deaths. Nationally, from 2011-2016, Black populations accounted for the highest increase in overdose death rate involving synthetic opioids like fentanyl and fentanyl analogs.⁸ The urgency of the opioid crisis and its deadly impact on communities of color must be matched by innovative models that consider cultural factors and institutions such as religion and language.

In many communities of color, faith leaders often act as trusted sources within social networks. Faith institutions provide a space of discussion and guidance on typically private concerns such as mental and physical health and interpersonal relationships. As the Substance Abuse and Mental Health Services Administration (SAMHSA) wrote in their review of the opioid epidemic in communities of color, in Black communities “where traditional, mainstream social services have not addressed critical needs, the Black church has stepped in.”⁹ For decades, faith leaders have been involved in health campaigns (e.g., for HIV and diabetes). In this position of trust and leadership, faith leaders present a unique resource for public health messaging and education campaigns. For example, in Huntington, WV, where one in every ten residents is opioid dependent, a program was organized to train faith leaders in understanding opioid misuse and treatment.¹⁰ The city's faith leaders have taken on new roles within the community, helping individuals seek treatment by educating their community members and mitigating stigma surrounding SUD. Despite the past success of engaging faith-based leaders, faith networks have been under-utilized in combating the opioid epidemic.

⁷ Drake, Jasmine, Creaque Charles, Jennifer W Bourgeois, Elycia S Daniel, and Melissa Kwende. “Exploring the Impact of the Opioid Epidemic in Black and Hispanic Communities in the United States.” *Drug Science, Policy and Law* 6 (January 1, 2020): 2050324520940428. <https://doi.org/10.1177/2050324520940428>.

⁸ U.S. Department of Health and Human Services Substance Abuse and Mental Health Services Administration Office of Behavioral Health Equity. “The Opioid Crisis and the Black/African American Population: An Urgent Issue,” n.d., 30.

⁹ U.S. Department of Health and Human Services Substance Abuse and Mental Health Services Administration Office of Behavioral Health Equity.

¹⁰ Mann, Brian. “Was It ‘Reasonable’ To Ship 81 Million Opioid Pills To This Small West Virginia City?” *NPR*, July 30, 2021, sec. National. <https://www.npr.org/2021/07/30/1021676306/was-it-reasonable-to-ship-81-million-opioid-pills-to-this-small-west-virginia-cj>.

III. Existing Surveillance Networks of Illicit Drug Flow in the United States

National illicit drug flow is primarily tracked by U.S. Customs and Border Protection through conducting and documenting drug seizures at and between ports of entry in the Consolidated Counterdrug Database.¹¹ Other law enforcement officials play an important role in identifying drug trafficking events in their case management systems, sending samples to forensic laboratories, and even submitting data on clandestine laboratories to the Drug Enforcement Agency's (DEA) National Seizure System. Forensic laboratories usually collect the most fine-grained data through chemical analyses of seized samples and report out results to the National Forensic Laboratory Information System. From chemical analysis data, officials can distinguish between fentanyl analogs, possible methods of production, and primary source countries.¹² However, drug seizure data provides an incomplete picture of illicit drug flow as it can only represent unsuccessful drug trafficking events and provide estimates of quantities rather than proportions of drugs.¹³ Furthermore, forensic analyses have limited utility in distinguishing between pharmaceutically-diverted and illicitly-manufactured fentanyl (IMF).

IV. Factors Affecting Illicit Drug Availability

Overdose death rates across the United States have steadily risen over the past twenty years, resulting in over 70,000 deaths in 2019 alone.¹⁴ According to the National Institute of Drug Abuse, deaths involving synthetic opioids which were primarily fentanyl-based rose with a staggering 36,359 deaths in 2019.¹⁵ Several environmental factors increase the risk for substance use disorder, including genetic predisposition, age, mental health disorders, peer pressure, and early exposure.¹⁶ Understanding these factors is key in reducing the number of people diagnosed with an SUD and subsequent illicit drug overdoses.

¹¹ Finklea, Kristin. "Illicit Drug Flows and Seizures in the United States: What Do We [Not] Know?," July 3, 2019. <https://crsreports.congress.gov/>.

¹² Finklea, "Illicit Drug Flows."

¹³ Finklea, "Illicit Drug Flows."

¹⁴ National Institute on Drug Abuse. "Overdose Death Rates." National Institute on Drug Abuse, February 29, 2021. <https://www.drugabuse.gov/drug-topics/trends-statistics/overdose-death-rates>.

¹⁵ National Institute on Drug Abuse. "Overdose Death Rates." National Institute on Drug Abuse, February 29, 2021. <https://www.drugabuse.gov/drug-topics/trends-statistics/overdose-death-rates>.

¹⁶ Mayo Clinic Staff. "Drug Addiction (Substance Use Disorder)." Mayo Clinic. Mayo Foundation for Medical Education and Research, October 26, 2017. <https://www.mayoclinic.org/diseases-conditions/drug-addiction/symptoms-causes/syc-20365112>.

Income level is an important factor that dictates many health outcomes across the United States. The Henry J. Kaiser Foundation found that nearly one in four adults admitted to foregoing recommended medical treatment plans simply due to cost.¹⁷ Low-income individuals who cannot afford healthcare will not receive the support that they need. Conversely, the Centers for Disease Control and Prevention (CDC) classifies those on Medicaid and from low-income backgrounds to be at high risk for prescription drug overdose due to the higher likelihood that Medicaid beneficiaries are prescribed opioids at higher doses and for longer durations.¹⁸ Not only are they less likely to have access to evidence-based addiction treatment, but also undergo psychological stress due to increased economic challenges.¹⁹ Poverty increases stress and decreases self esteem and social support. One example of social determinants' influence on SUD is Appalachia: with the combination of high risk of injury, low wages, and rare access to healthcare, many individuals find themselves having to take opioids to deal with pain which often leads to the start of an addiction.²⁰

V. Generational Cycles of Addiction

Generational cycles of addiction also play a large role in the susceptibility of youth to SUD.²¹ In fact, having at least one parent with a SUD has been linked to children being at an increased risk for engaging in substance use. Thus, it is vital to incorporate family dynamics into education and treatment programs.

¹⁷ Kaiser Family Foundation. "Poll: Nearly 1 in 4 Americans Taking Prescription Drugs Say It's Difficult to Afford Their Medicines, Including Larger Shares Among Those with Health Issues, with Low Incomes and Nearing Medicare Age." *KFF* (blog), March 1, 2019. <https://www.kff.org/health-costs/press-release/poll-nearly-1-in-4-americans-taking-prescription-drugs-say-its-difficult-to-afford-medicines-including-larger-shares-with-low-incomes/>.

¹⁸ National Institute on Drug Abuse. "Addressing the Opioid Crisis Means Confronting Socioeconomic Disparities," October 25, 2017. <https://archives.drugabuse.gov/about-nida/noras-blog/2017/10/addressing-opioid-crisis-means-confronting-socioeconomic-disparities>.

¹⁹ Volkow, Nora, and George Koob. "Saving a 'Lost Generation': The Need to Prevent Drug and Alcohol Abuse in Midlife," January 28, 2016. <https://archives.drugabuse.gov/about-nida/noras-blog/2016/01/saving-lost-generation-need-to-prevent-drug-alcohol-abuse-in-midlife>.

²⁰ St Joseph Institute. "Poverty and Addiction Relationship." *St. Joseph Institute for Addiction* (blog), June 18, 2018. <https://stjosephinstitute.com/understanding-the-relationship-between-poverty-and-addiction/>.

²¹ McKenzie, Brook. "Breaking the Family Cycle of Addiction | For Better | US News," November 30, 2018. <https://health.usnews.com/health-care/for-better/articles/2018-11-30/breaking-the-family-cycle-of-addiction>.

Adverse childhood experiences (ACEs) are traumatic events (e.g., abuse, neglect, parents with SUD, etc) that an individual experiences during childhood.²² Exposure to chronic, traumatic events negatively impacts neurocognitive development and ability to constructively handle emotions and decisions.²³ A robust, graded, and causal relationship exists between ACEs and early initiation of alcohol use, prescription drug use, and lifetime illicit drug use.²⁴ Reducing ACEs among California youth is crucial to reducing the likelihood of developing substance use disorder.

VI. Fentanyl Use Across Demographic Groups

With a rise in opioid-related overdose death rates across the United States in the past decade, it is important for public health officials to investigate their use across different demographic groups. The prominence of illicitly manufactured fentanyl has increased death rates for several minority populations, hitting Black and Hispanic populations the hardest. Despite having historically low opioid-related death rates, Black individuals living in large, central metro areas experienced a 361% increase in synthetic opioid-related deaths from 2015-2017, with those aged 45-54 years old going from representing 19.3% to 41.9% of these deaths, and those aged 55-64 years old from 21.8% to 42.7%.²⁵ The Black community has been drastically impacted by this shift as their opioid mortality rate has more than doubled in the past five years even without significant increases in prescription opioid use. Overdoses are likely to be the result of increased availability and affordability of fentanyl in addition to the increased potency of the drug when compared to prescription opioids.²⁶

According to the National Vital Statistics System, the largest percentage increase in synthetic opioid-related deaths (379%) occurred for Hispanic individuals aged 25-34 years old.²⁷

²² Anda, Robert. "The Role of Adverse Childhood Experiences in Substance Misuse and Related Behavioral Health Problems," 2018, 6.

²³ Robert, "Childhood Experiences in Substance Misuse."

²⁴ Robert, "Childhood Experiences in Substance Misuse."

²⁵ Monica, Alexandra, Matthew Kiang, and Magali Barbien. "Trends in Black and White Opioid Mortality in the United States, 1979–2015," September 2018.

https://journals.lww.com/epidem/Fulltext/2018/09000/Trends_in_Black_and_White_Opioid_Mortality_in_the_16.aspx.

²⁶ Monica, Kiang, and Barbien, "Trends in Black and White Opioid Mortality."

²⁷ Lippold, Kumiko M, Christopher M Jones, Emily O'Malley Olsen, and Brett P Giroir. "Racial/Ethnic and Age Group Differences in Opioid and Synthetic Opioid-Involved Overdose Deaths Among Adults Aged ≥18 Years in Metropolitan Areas - United States, 2015–2017." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, November 1, 2019. https://www.cdc.gov/mmwr/volumes/68/wr/mm6843a3.htm#T2_down.

Among Whites the overall percentage of synthetic opioid-related death rates ranged from 56% to 65.4% depending on the urbanization of the area.²⁸ From 2015-2017, all racial/ethnic groups living in metropolitan areas experienced an increase not only in opioid-related death rates but also synthetic opioid-related death rates. Fentanyl has led to a significant portion of opioid-related deaths being made up by synthetic opioids. For persons aged 45-54 years old living in large central metropolitan areas, synthetic opioids have been responsible for 70% of opioid-related deaths in the Black population, 56% in the Hispanic community, and 54.2% amongst Whites.²⁹ It is crucial to comprehend opioid-related death statistics across various demographic groups when investigating differences in fentanyl use in order to create culturally competent interventions.

VII. Vectors of Fentanyl Consumption

An older study of post-mortem and toxicology reports in California found that most victims of fentanyl-related overdose deaths (n=112) had a prior history of drug use, but interestingly found limited traces of opioids in their bloodstream.³⁰ The study also observed that 48% of cases found ethanol at impaired and legally intoxicated levels.³¹ From investigative reports, only three cases had evidence of pharmaceutical fentanyl at the site of overdose.³² These findings indicate that fentanyl OD death victims were primarily people with limited experience with drug use, who were usually White and in their mid-thirties.

However, the demographics of the opioid epidemic have changed since the 1980s, including how people access fentanyl and risk factors for mortality. A systematic review of fentanyl use and related deaths across North America and Nordic regions (n=1946) found that mixed drug toxicity occurred in 34.5% cases, with other opioids, antidepressants, cocaine, and benzodiazepine being most frequently abused together.³³ Intravenous routes of drug administration appear to be most commonly used, followed by transdermal patches and

²⁸ Lippold, Jones, O'Malley Olsen, and Giroir, "Group Differences in Opioid and Synthetic Opioid."

²⁹ Lippold, Jones, O'Malley Olsen, and Giroir, "Group Differences in Opioid and Synthetic Opioid."

³⁰ Henderson, G. L. "Fentanyl-Related Deaths: Demographics, Circumstances, and Toxicology of 112 Cases." *Journal of Forensic Sciences* 36, no. 2 (March 1991): 422-33.

³¹ Henderson, "Fentanyl-Related Deaths."

³² Henderson, "Fentanyl-Related Deaths."

³³ Ejaz Cheema et al., "Causes, Nature and Toxicology of Fentanyl-Associated Deaths: A Systematic Review of Deaths Reported in Peer-Reviewed Literature," *Journal of Pain Research* 13 (2020): 3281, <https://doi.org/10.2147/JPR.S280462>.

ingestion.³⁴ The highest blood concentrations of fentanyl were observed in cases of mixed drug toxicity. However, the study noted the variability of measurements of fentanyl blood concentrations due to site of blood draws and method of administration.

A survey of people who use heroin or prescription opioids in Baltimore, Boston, and Providence (n=308) found that 27% of participants preferred drugs with fentanyl laced.³⁵ The study also found statistically significant associations between fentanyl preference and daily drug, injection drug, and non prescription opioid use. Furthermore, the participants who preferred fentanyl reported that prior knowledge of fentanyl lacing would not affect their drug use behaviors. Interestingly, participants' self reported ability to distinguish between drugs laced with and without fentanyl did not substantially differ. This finding suggests that participants are indifferent to perceived risk of IMF in the drug supply.

The mean age of participants that reported preferring fentanyl was seven years younger than those who did not prefer fentanyl. The authors warn that the substantial age gap in fentanyl preference in people who use drugs may reflect the increasing infiltration of IMF in the drug supply and subsequent preference for fentanyl.

VIII. Fentanyl Use Risk Factors

People who prefer fentanyl are more likely to be younger, White, and consume drugs daily.³⁶ Among people who use fentanyl daily, it was found that the rate of fentanyl use was the same despite fentanyl preference.³⁷ This finding suggests that fentanyl was present in the drug supply and was not being specifically sought after.³⁸ The highest synthetic opioid (excluding methadone) overdose death rate was among non-Hispanic White Americans at 11.9 deaths per 100,000 people.³⁹

³⁴ "Fentanyl Use, Misuse, and Abuse: A Summary of 23 Postmortem Cases | Journal of Analytical Toxicology | Oxford Academic." Accessed October 10, 2021. <https://academic.oup.com/jat/article/27/7/499/784138?login=true>.

³⁵ Morales, Kenneth B., Ju Nyeong Park, Jennifer L. Glick, Saba Rouhani, Traci C. Green, and Susan G. Sherman. "Preference for Drugs Containing Fentanyl from a Cross-Sectional Survey of People Who Use Illicit Opioids in Three United States Cities." *Drug and Alcohol Dependence* 204 (November 1, 2019): 107547. <https://doi.org/10.1016/j.drugalcdep.2019.107547>.

³⁶ Johns Hopkins University Bloomberg School of Public Health. "Preference for Fentanyl Higher among Young, White, Frequent Opioid Users: Study of People Who Use Drugs in Three Cities Will Be Used to Target Harm-Reduction Measures." ScienceDaily, September 18, 2019. <https://www.sciencedaily.com/releases/2019/09/190918115918.htm>.

³⁷ Johns Hopkins University Bloomberg School of Public Health, "Preference for Fentanyl Higher."

³⁸ Johns Hopkins University Bloomberg School of Public Health, "Preference for Fentanyl Higher."

³⁹ "The Opioid Crisis and the Black/African American Population: An Urgent Issue | SAMHSA Publications and Digital Products," April 2020.

Location is also a risk factor in fentanyl use. In nineteen states, rates of overdose deaths were higher in urban counties than suburban counties. California is among five states where the opposite has been observed.⁴⁰ Of the remaining 26 states, the rates were found to be similar. In a survey conducted with people who inject drugs from rural and urban settings, it was observed that rural participants were less likely to know key factors related to opioid overdose compared to their urban counterparts.⁴¹ However, both groups' knowledge on opioid overdose was severely limited. A state-wide curriculum change targeting opioid education could thus be particularly effective, as youth in both rural and urban counties would have access.

Ohio, for example, piloted the implementation of the Health and Opioid Abuse Prevention Education (HOPE) curriculum. The curriculum strays from traditional drug education rooted in demonizing those who use substances. Instead, the grade-specific lessons delve into role-playing exercises and interactive discussions that foster understanding surrounding drug abuse from an early age. Each grade-specific lesson is twenty minutes long and designed to be incorporated into a drug unit in a health class. California could base the creation and implementation of such curricula in both urban and rural counties.

Additionally, access to trusted suppliers influences fentanyl exposure. Researchers conducted a qualitative study interviewing 25 individuals of color residing in urban areas who inject drugs. Several participants employed the strategies of carrying Naloxone and buying from drug sellers who also used the heroin they sold to minimize the risk of overdosing.⁴² This is based on a concept called "social supply." Social supply is a source of illicit drugs where the buyer and seller have a prior relationship (e.g., acquaintance, friend, etc). Social supplies of heroin are "minimally commercial" as they "focus sales on existing users, obtain marginal profits, and largely use profits to finance their own drug use."⁴³ Lesser focus on profits and

<https://store.samhsa.gov/product/The-Opioid-Crisis-and-the-Black-African-American-Population-An-Urgent-Issue/EP20-05-02-001>.

⁴⁰ Hedegaard, Holly, and Merianne Rose Spencer. "Urban-Rural Differences in Drug Overdose Death Rates, 1999-2019." *NCHS Data Brief*, no. 403 (March 2021): 1–8.

⁴¹ Dunn, Kelly E., Frederick S. Barrett, Claudia Yopez-Laubach, Andrew C. Meyer, Bryce J. Hruska, Kathy Petrush, Suzan Berman, Stacey C. Sigmon, Michael Fingerhood, and George E. Bigelow. "Opioid Overdose Experience, Risk Behaviors, and Knowledge in Drug Users from a Rural versus an Urban Setting." *Journal of Substance Abuse Treatment* 71 (December 2016): 1–7. <https://doi.org/10.1016/j.jsat.2016.08.006>.

⁴² Rhodes, Blythe, Betsy Costenbader, Loftin Wilson, Rebecca Hershow, Jennifer Carroll, William Zule, Carol Golin, and Lauren Brinkley-Rubinstein. "Urban, Individuals of Color Are Impacted by Fentanyl-Contaminated Heroin." *The International Journal on Drug Policy* 73 (November 2019): 1–6. <https://doi.org/10.1016/j.drugpo.2019.07.008>.

⁴³ Rhodes, Costenbader, Wilson, Hershow, Carroll, Zule, Golin, Brinkley-Rubinstein, "Urban, Individuals of Color Are Impacted."

expansion often translates to greater transparency and open communication on drug potency and content. Reports of fentanyl-contaminated heroin and increased risk for overdose arose when trusted sources became unavailable.⁴⁴ The removal of trusted drug sources may unintentionally lead those struggling with an addiction to rely on sources that increase the risk of overdose. None of the participants stated that they desired fentanyl-contaminated heroin, and many would typically discard the heroin or use it more cautiously (e.g., use smaller amounts, have Naloxone nearby). These accounts suggest that initiatives such as fentanyl test strips which warn people if their heroin is contaminated with fentanyl would be effective in changing their behavior.

⁴⁴ Rhodes, Costenbader, Wilson, Hershov, Carroll, Zule, Golin, Brinkley-Rubinstein, “Urban, Individuals of Color Are Impacted.”

Intervention Overview

I. Evaluating Fentanyl Test Strip Efficacy

Across culturally and linguistically diverse populations of people who inject drugs in Baltimore, MD, 85% were “concerned” about fentanyl poisoning, and 88% said that, if available, they would use a testing strip to determine the presence of fentanyl.⁴⁵ These respondents said that such information would empower informed decisions to avoid overdosing. Such decisions could include using drugs in the presence of others, carrying Naloxone and ensuring knowledge of administration, doing a “tester” shot, using less than originally intended, and even throwing the drugs away. The national popularization of “goofballing” or “speedballing,” a trend wherein heroin is mixed with stimulants such as cocaine and methamphetamine, further increases the opportunity for fentanyl’s entry into drug use.⁴⁶

II. Analyzing Drug Overdose Spike Text Alert Systems

A Baltimore text alert program founded in 2017 allows users to text back and be connected with a 24-hour crisis line, be sent the location of the nearest needle exchange van, receive access to a Naloxone training schedule, receive information about local community treatment options, or dispatch emergency medical services anonymously if they do not feel comfortable calling 911.⁴⁷ Preliminary data suggests that this program is effective in reducing overdose deaths and promoting user participation, garnering support from the Baltimore City Health Department (BCHD).⁴⁸ There is also not extensive information available regarding how BCHD may address fears of poor confidentiality among service users or shortcomings in outreach. Since there is still limited research available regarding the effectiveness of this text alert system, monitoring worked best when focusing on identifying regional patterns in drug overdoses, including trends identifiable through individual, self-reported drug checking, which helped inform effective and timely responses to overdose patterns.

⁴⁵ Healy, Melissa. “Drug Overdose Data Spotlight Fentanyl’s Deadly Westward Expansion - Los Angeles Times.” Los Angeles Time, October 25, 2019.

<https://www.latimes.com/science/story/2019-10-25/fentanyl-fatal-drug-overdoses-westward-expansion>.

⁴⁶ Melissa, “Drug Overdose Data.”

⁴⁷ Figueroa, “State Opioid Response.”

⁴⁸ Figueroa, “State Opioid Response.”

III. Data Collection Regarding the Opioid Overdose Surveillance Dashboard

Despite research into the influence of social and practical factors, it is very difficult to determine why one drug is popular in one region and not in a neighboring one. A commonly cited example of this complexity is Estonia, where fentanyl has dominated the illicit opioid market for two decades, whereas a short ferry ride away in Finland, it does not.⁴⁹

Fentanyl overdose deaths in California have spiked by over 2,100% since 2016.⁵⁰ Synthetic opioid overdoses, predominantly caused by fentanyl, resulted in the deaths of approximately 4,000 Californians in 2020.⁵¹ Since fentanyl is frequently laced into commonly-used street drugs, those who ingest illegal recreational drugs are often unknowingly poisoned, which contributes to a greater number of overdoses and deaths.⁵² The city of San Francisco has witnessed the drug-related deaths of nearly two people each day.⁵³ According to Dr. Daniel Ciccarone, a University of California, San Francisco professor of addiction medicine, fentanyl was uncommon in Western states prior to 2017.⁵⁴

Fentanyl was instead commonly dispersed by drug trafficking cartels throughout the east coast of the United States, and these networks often laced it into heroin supplies without the knowledge of those who may consume them.⁵⁵ However, a “fourth wave” of unintentional drug overdose deaths is currently taking root west of the Mississippi River and specifically inundating California, prompting the state to experience significant increases in drug overdose mortality rates compared to the rest of the United States.⁵⁶ In California, fentanyl is frequently distributed under its own name as a powder or a tablet, but it is also laced into other common stimulants like methamphetamines. Illegal fentanyl usage has substantially risen alongside increased street-drug accessibility, contributing to the ongoing upward trend in Californian stimulant-related overdose

⁴⁹ Shover, Chelsea L., Titilola O. Falasinnu, Candice L. Dwyer, Nayelie Benitez Santos, Nicole J. Cunningham, Rohan B. Freedman, Noel A. Vest, and Keith Humphreys. “Steep Increases in Fentanyl-Related Mortality West of the Mississippi River: Recent Evidence from County and State Surveillance.” *Drug and Alcohol Dependence* 216 (November 2020): 108314. <https://doi.org/10.1016/j.drugalcdep.2020.108314>.

⁵⁰ National Institute on Drug Abuse. “California: Opioid-Involved Deaths and Related Harms.” National Institute on Drug Abuse, April 3, 2020. <https://www.drugabuse.gov/drug-topics/opioids/opioid-summaries-by-state/california-opioid-involved-deaths-related-harms>.

⁵¹ National Institute on Drug Abuse, “California: Opioid-Involved Deaths and Related Harms.”

⁵² McCormick, Erin. “Enough Fentanyl to Kill San Francisco: The New Wave of the Opioid Crisis Sweeping California.” *The Guardian*, June 14, 2021, sec. US news. <https://www.theguardian.com/us-news/2021/jun/14/us-opioid-crisis-california-fentanyl-deaths>.

⁵³ Figueroa, “State Opioid Response.”

⁵⁴ Figueroa, “State Opioid Response.”

⁵⁵ Figueroa, “State Opioid Response.”

⁵⁶ Figueroa, “State Opioid Response.”

deaths.⁵⁷ As a result of the quick timeframe for this shift in usage pattern, data collection has lagged behind. For instance, the western trend's impact in terms of mortality has yet to be seen in CDC data due to a two- to three-year lag in reporting of national and state-level statistics. This means that we must look at localities and county reporting directly rather than relying on national governmental organizations to understand the sense of urgency surrounding the evolving fentanyl crisis.

IV. Fentanyl-Use Hotline

HELP4WV has provided contemporary resources for anyone seeking rehabilitation from drug use.⁵⁸ By connecting individuals to peer-support specialists and recovery coaches, immediate confidential support and resource referrals are provided. Some of these resources include out-patient counseling, medication, and psychiatric/emergency care. While assistance can be provided over the phone, an extensive resource list is also available for services such as support groups, short-term treatment, and facilities that aid those who use fentanyl.⁵⁹

V. Community Naloxone Education

Naloxone distribution within U.S. communities has been proven successful in providing easy access to fentanyl overdose relief. Pharmacists in Illinois have been undergoing training on how to know when it is safe to provide Naloxone to individuals with or who are in close contact to those with SUD.⁶⁰ These opioid overdose and Naloxone distribution-related educational training resources permit the state to allow pharmacists and Naloxone training programs to supply Naloxone to individuals at risk of opioid overdose without a prescription.⁶¹ In addition, family and friends who could be of assistance to an individual with SUD would be able to pick

⁵⁷ Ciccarone, Daniel. "The Rise of Illicit Fentanyl, Stimulants and the Fourth Wave of the Opioid Overdose Crisis." *Current Opinion in Psychiatry* 34, no. 4 (July 2021): 344–50. <https://doi.org/10.1097/YCO.0000000000000717>.

⁵⁸ HELP4WV. "HELP4WV." Accessed July 19, 2021. <https://www.help4wv.com>.

⁵⁹ Carnes, Neal A., Alice K. Asher, Michele K. Bohm, and Patricia A. Bessler. "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*, August 6, 2021, 1–8. <https://doi.org/10.1080/10826084.2021.1958863>.

⁶⁰ Ardron-Hudson, P, S Hall, K Ellis, V Pakalniskis, and P.Q. Moore. "19 Accessibility of Naloxone in Chicago Pharmacies Registered Under the Illinois Standing Order - Annals of Emergency Medicine," October 1, 2019. [https://www.annemergmed.com/article/S0196-0644\(19\)30695-X/fulltext](https://www.annemergmed.com/article/S0196-0644(19)30695-X/fulltext).

⁶¹ McKenzie, Brook. "Breaking the Family Cycle of Addiction | For Better | US News," November 30, 2018. <https://health.usnews.com/health-care/for-better/articles/2018-11-30/breaking-the-family-cycle-of-addiction>.

up Naloxone if the pharmacist deemed it appropriate based on the mental and health-related circumstances of the individual in question.

To ensure that said family and friends are in fact educated on the usage of Naloxone and what an overdose situation looks like, Missouri developed the MO-HOPE project.⁶² This project entails a focus on instituting statewide change across Missouri to focus on reducing opioid-related deaths. The focus here is education — providing individuals who are at an elevated risk of overdose with the knowledge and equipment to take care of themselves and those surrounding them. As a result of this project, accessible online training has been devised to provide overdose education and Naloxone distribution conversational resources to train people at higher risk of observing or experiencing opioid overdoses.⁶³ There is also an emphasis on educating more individuals from varying geographical locations within the state on how to conduct these trainings so that improvement in opioid overdose response can occur across a wide breadth of regions that vary in urbanization and socioeconomic status.⁶⁴

VI. Distributing Naloxone by Mail

While California's Naloxone Distribution Project has expanded the public's access to Naloxone, these resources are allocated to professional organizations such as emergency personnel, hospitals, and substance use treatment programs. At present, most individuals would not be able to obtain Naloxone through this program.⁶⁵

Based on the Delaware Overdose Fatality Commission 2018 Annual Report, 79% of studied overdoses occurred within a household, where Naloxone was not available 93% of the time.⁶⁶ While Naloxone can mitigate consequences of fentanyl use, it must be administered quickly. Mail-order Naloxone allows neighbors to have accessible Naloxone and immediately respond.

Despite legislation existing in all 50 states to allow public access to Naloxone, limited knowledge of Naloxone among the public limits its efficacy. While many first responders like

⁶² MO-HOPE. "Training – MO-HOPE Project." Accessed October 10, 2021. <https://mohopeproject.org/training/>.

⁶³ MO-HOPE, "Training – MO-HOPE Project."

⁶⁴ MO-HOPE, "Training – MO-HOPE Project."

⁶⁵ Department of Health Care Services. "Naloxone Distribution Project," September 8, 2021. https://www.dhcs.ca.gov/individuals/Pages/Naloxone_Distribution_Project.aspx.

⁶⁶ Lawes, Julia. "Delaware Drug Overdose Fatality Review Commission," June 2019, 24. <https://attorneygeneral.delaware.gov/wp-content/uploads/sites/50/2019/07/2019-Delaware-Drug-Overdose-Fatality-Review-Commission-Report-Final.pdf>.

police officers and paramedics are trained in Naloxone administration, the inability for a prompt response time results in the underutilization of Naloxone. Brain damage occurs 4-5 minutes after an overdose, but an average emergency response time is 9.4 minutes.⁶⁷ Based on this finding, there have been efforts to provide Naloxone to residences for a more immediate response time. However, stigma surrounding fentanyl use, a lack of awareness of these resources, and fears of legal repercussions have caused the delayed adoption of mailed Naloxone kits.

VII. Designating Harm-Reduction Facilities

Vancouver, Canada, has taken a more unique approach by establishing the first safe opioid injection site in 2003, which has yet to see a single overdose in the eighteen years it has operated.⁶⁸ This site emphasizes harm-reduction rather than complete abstinence in order to mitigate the adverse health and social consequences of opioid use and increase accessibility to healthcare services for individuals with SUD. Specifically located in a downtown region of Vancouver with a high number of marginalized people with SUD, the site also bolsters equitable access to medical professionals who are willing to answer questions, provide therapy and advice, and direct those who consume opioids towards places of specialized treatment. Staff supervise the site and are trained to detect warning signs of an overdose before the overdose becomes fatal.⁶⁹

VIII. Implementing Mobile Cognitive Behavioral Therapy

The Food and Drug Administration (FDA) has recently approved reSET-O, a free-to-use mobile application for tracking fentanyl use. The intention of the program is to be used alongside medications such as buprenorphine. The application is used as an outpatient treatment method by healthcare providers to monitor progress of those who have used fentanyl and reward good behavior. By maintaining this behavior, patients understand their triggers for fentanyl and work

⁶⁷ Nebraska, Edward M. DeSimone II, RPh, PhD, FAPhA Professor of Pharmacy Sciences Jennifer A. Tilleman, RPh, PharmD, FASCP Associate Professor of Pharmacy Practice Kelsey A. Kaku, RPh, PharmD, MBA Community Pharmacy Practice Resident Chace T. Erickson, 2018 PharmD Candidate Creighton University School of Pharmacy and Health Professions Omaha. "Expanding Access to Naloxone," March 16, 2018. <https://www.uspharmacist.com/article/expanding-access-to-Naloxone>.

⁶⁸ Inflexxion. "The Opioid Crisis: A Global Problem." *PainEDU* (blog), January 4, 2018. <https://www.painedu.org/opioid-crisis-global-problem/>.

⁶⁹ "Supervised Consumption Sites - Vancouver Coastal Health." Accessed July 26, 2021. <http://www.vch.ca/public-health/harm-reduction/supervised-consumption-sites>.

to avoid them. A study conducted by the FDA showed a nearly 14% (82.4% vs 68.4%) increase in retention in outpatient treatment when patients used reSET-O compared to those who did not.⁷⁰

In conjunction with cognizance of the stigma surrounding the drug crisis, another potential, yet effective, method to tackle fentanyl use in California is cognitive behavioral therapy (CBT). According to the National Institute on Drug Abuse, CBT is a method that was originally designed to prevent relapse of alcoholics but was later applied to individuals facing drug addiction. Specifically, these therapy sessions ascertain coping methods that examine consequences of continued drug use and potential risk factors that reintroduce drug abuse.⁷¹ While modern CBT is typically used for mental health disorders such as anxiety or attention deficit disorder, the shared technique of identifying triggers in drug addiction has provoked necessary introspection in patients, which is essential to their recovery process.⁷² In fact, a contingency study projected 60% of people impacted by substance abuse were able to maintain their recovery status for a year following CBT treatment.⁷³

With regard to the implementation of CBT, a genuine concern is the efficacy of such a relief effort. While 23 million Americans require treatment for some form of substance use disorder, only 10% of the population genuinely receive such services.⁷⁴ However, as determined through practices that implement CBT, such as Peace Valley Recovery of Philadelphia, a structured plan designed by a therapist allows CBT to be a more short-term method; this theoretically allows CBT to become more accessible in the long term.⁷⁵ Researchers have also found that the efficacy of CBT is further enhanced when used in conjunction with certain medications, such as methadone, buprenorphine, and naltrexone, for patients recovering from

⁷⁰ Office of the Commissioner. "FDA Clears Mobile Medical App to Help Those with Opioid Use Disorder Stay in Recovery Programs." FDA. FDA, December 10, 2018. <https://www.fda.gov/news-events/press-announcements/fda-clears-mobile-medical-app-help-those-opioid-use-disorder-stay-recovery-programs>.

⁷¹ National Institute on Drug Abuse. "Cognitive-Behavioral Therapy (Alcohol, Marijuana, Cocaine, Methamphetamine, Nicotine) | National Institute on Drug Abuse (NIDA)," January 2018. <https://www.drugabuse.gov/publications/principles-drug-addiction-treatment-research-based-guide-third-edition/evidence-based-approaches-to-drug-addiction-treatment/behavioral-therapies/cognitive-behavioral-therapy>.

⁷² Juergens, Jeffrey, and David Hampton. "Cognitive Behavioral Therapy." Addiction Center, September 28, 2021. <https://www.addictioncenter.com/treatment/cognitive-behavioral-therapy/>.

⁷³ Rawson, Richard A., Alice Huber, Michael McCann, Steven Shoptaw, David Farabee, Chris Reiber, and Walter Ling. "A Comparison of Contingency Management and Cognitive-Behavioral Approaches During Methadone Maintenance Treatment for Cocaine Dependence." *Archives of General Psychiatry* 59, no. 9 (September 1, 2002): 817. <https://doi.org/10.1001/archpsyc.59.9.817>.

⁷⁴ Strand, Katie. "Addiction Treatment Statistics." Text. National Association of Addiction Treatment Providers, April 16, 2018. <https://www.naatp.org/addiction-treatment-statistics>.

⁷⁵ Drew, Elizabeth. "Cognitive Behavioral Therapy In Pennsylvania," August 9, 2021. <https://www.peacevalleyrecovery.com/treatments/cbt/>.

opioid specific disorders. In one of their studies, 71% to 81% of patients receiving the dual treatment reported that they were satisfied with their progress.⁷⁶

CBT is only one of many possible ways to deal with the rise of fentanyl overdoses in California. While there is research required to explore other unknown logistics attributed to the therapeutic method, the application of CBT and surrounding technology is promising for successful intervention in the fentanyl crisis.

IX. Expanding Access to Contingency Management

Contingency Management works in an incentive-based manner, giving those suffering from an opioid use disorder (OUD) a path to decreasing dependence. The treatment is effective for methamphetamines and cocaine addiction, and coupling the method with behavioral therapy produced significant positive results.⁷⁷ In addition, one of the most fruitful ways of providing contingency management is to decrease the financial burden it may impose on certain families; to address barriers, Senate Bill 110 proposes for California's Medicaid program to pay for treatment. Following a similar track, accessibility can be greatly increased with fewer financial barriers and greater availability in the state.

X. Medicinal Treatment Usages for Drug-Related Harms

The World Health Organization (WHO) outlined recommendations to treat those susceptible to drug-related harms with the key effort being Naloxone administration; however, the WHO also created a spectrum of interventions for those at varying stages of fentanyl dependence. One of the most cost-effective measures is utilizing methadone and buprenorphine

⁷⁶ Dugosh, Karen, Amanda Abraham, Brittany Seymour, Keli McLoyd, Mady Chalk, and David Festinger. "A Systematic Review on the Use of Psychosocial Interventions in Conjunction With Medications for the Treatment of Opioid Addiction." *Journal of Addiction Medicine* 10, no. 2 (April 2016): 93–103.

<https://doi.org/10.1097/ADM.000000000000193>.

⁷⁷ Dembosky. "California May Be First State to Try Treatment That Pays People Not to Use Meth." KQED, September 30, 2021.

<https://www.kqed.org/news/11854373/state-lawmakers-move-to-expand-effective-but-controversial-treatment-for-meth-addiction>.

as treatment against increasing opioid dependency.⁷⁸ The aforementioned treatments are more generally used for pain management and for patients with OUD.⁷⁹

The medicines must be carefully chosen in order to avoid problematic effects in the long term. Most patients are placed on moderate-dose methadone; however, transferring to buprenorphine is a far more optimal course of action due to its easy-to-withdraw effects. In a study to find the optimal transition from moderate-dose methadone to buprenorphine, a transdermal fentanyl patch “bridge” was utilized to slowly decrease a patient’s dependence on fentanyl. While the study presents limitations, such as inability to extrapolate to higher doses of methadone and test new activators, it provides a valuable scope into inpatient care for addiction treatment. The results of the study demonstrate that there are many factors to consider when intervening in a drug-dependency issue, including setting, availability of products, time constraints, and patient-driven informed choice.⁸

⁷⁸ World Health Organization. “Opioid Overdose,” August 4, 2021. <https://www.who.int/news-room/fact-sheets/detail/opioid-overdose>.

⁷⁹ Stanciu, Cornel N, Stephen Gibson, Nikhil Teja, and Christopher J Healey. “An Efficient and Smooth Methadone-to-Buprenorphine Transition Protocol Utilizing a Transdermal Fentanyl Bridge and a Pharmacokinetic Inducer: The Stanciu Method.” *Cureus* 12, no. 5 (n.d.): e8310. <https://doi.org/10.7759/cureus.8310>.

Prevention Overview

I. Substance Use Disorders and Fentanyl Overdoses in Youth

Individuals aged 20-34 years old died more from fentanyl overdoses than any other types of drugs.⁸⁰ In particular, in Santa Clara County where the number of fentanyl deaths nearly doubled in 2020, victims were younger on average than in the previous two years.⁸¹ It is especially concerning that many California adolescents enter young adulthood either with SUDs or dangerous drug habits: by eleventh grade, nearly 22% of California public school students have used prescription pain medications at least once to get high.⁸² In fact, California lies in the highest quintile of states that have adolescents with an illicit drug use disorder.⁸³

Even as prescription overdose among youth has been in decline, overdose deaths among this population are on the rise due to fentanyl and other synthetic opioids.⁸⁴ Two in three adults treated for OUD first used opioids when they were younger than age 25. In California, there were 3,200 opioid-related deaths in 2019, half of which were caused by fentanyl.⁸⁵ In order to address issues with youth fentanyl use, screening processes must be adapted, implemented, and standardized to refer youth to necessary treatments.

II. Implementation of the Communities That Care Model

In California, there is already a wide framework of community-based coalitions specifically meant to address and reduce Alcohol, Tobacco, and Other Drug (ATOD) consumption in youth populations. Examples include San Diego's Central Region Prevention

⁸⁰ Kurle, Sydney. "The Silent Epidemic: Drug Overdose Deaths Surge in California Pre-Pandemic." State of Reform (blog), January 16, 2021.

<https://stateofreform.com/featured/2021/01/the-silent-epidemic-drug-overdose-deaths-surge-in-california-pre-pandemic/>.

⁸¹ Small, Julie, and Chatterjee. "Fentanyl Is Killing More People During the Pandemic. In Santa Clara County, Victims Are Getting Younger." KQED, May 24, 2021.

<https://www.kqed.org/news/11874651/fentanyl-is-killing-more-people-in-the-pandemic-in-santa-clara-county-victims-are-getting-younger>.

⁸² McGorry, Patrick D, and Cristina Mei. "Early Intervention in Youth Mental Health: Progress and Future Directions." Evidence Based Mental Health 21, no. 4 (November 2018): 182–84.

<https://doi.org/10.1136/ebmental-2018-300060>.

⁸³ National Survey on Drug Use and Health. "2018-2019 NSDUH State Estimates Of Substance Use And Mental Disorders | CBHSQ Data." December 15, 2020.

<https://www.samhsa.gov/data/report/2018-2019-nsduh-state-estimates-substance-use-and-mental-disorders>.

⁸⁴ Cook-Sather, Scott D., Elynor Urban, Vincent A. Romano, and Michael A. Romano. "When Fentanyl Finds an Outlier: Talking With Teenagers About the Danger." *Pediatrics* 148, no. 4 (October 1, 2021).

<https://doi.org/10.1542/peds.2021-051368>.

⁸⁵ Drug Enforcement Agency. "Operation Engage Southern California." Accessed October 10, 2021.

<https://www.dea.gov/engage/operation-engage-southern-california>.

Coalition, Los Angeles' South Los Angeles Movement (SLAM) Coalition, and Orange County's Drug-Free Coalition. These coalitions provide a base to launch several prevention programs in coordination with the CDPH.

One model that has shown promise for community-based prevention implementation is the Communities That Care (CTC) model, which relies on continuously refining prevention techniques specific to a community's needs.⁸⁶ Per the CTC Implementation Guide, the first phase involves appointing a full-time community prevention coordinator (CPC) who can focus efforts on regions most heavily hit by the fentanyl epidemic in California. The second phase involves forming a board of local coalitions to consider the importance of prevention science, organize workshops, and develop a timeline for implementing CTC in their community. The third phase involves the coalition assessing a community's most relevant risk and protective factors by reviewing data from community youth surveys and accessing the resources to address such factors. The fourth phase involves creating a plan for prevention work in the community, such as selecting or expanding effective policies and programs. The fifth and final phase involves implementing selected policies and programs, monitoring and evaluating them, and then tracking their success through surveys for further refinement.

III. Case Studies from Implementation of the Communities That Care Model

The CTC Coalition of Massachusetts Franklin County and the North Quabbin region began in 2002 and included “more than 200 members with representation from local government, businesses, schools, law enforcement, faith-based organizations, media, hospitals, mental health providers, parent advocates, and out-of-school-time programs,” in order to address the diverse needs of their community.⁸⁷ When the coalition was formed, they obtained a federal Drug Free Communities grant, distributed by SAMHSA, which provided their program with the initial funds to run for several years.⁸⁸ The coalition maintains a Community Action Plan, sponsors various programs such as Botvin LifeSkills Training and Screening, Brief Intervention, and Referral to Treatment for all students in local school districts, and works with these districts

⁸⁶ Allen, Kat. “Rural Project Summary: Communities That Care Coalition - Rural Health Information Hub,” May 22, 2019. <https://www.ruralhealthinfo.org/project-examples/902>.

⁸⁷ Allen, Kat. “Rural Project Summary: Communities That Care Coalition - Rural Health Information Hub,” May 22, 2019. <https://www.ruralhealthinfo.org/project-examples/902>.

⁸⁸ Allen, “Rural Project Summary.”

to coordinate student-led campaigns to promote health behaviors.⁸⁹ Overall, thirty rural towns in Franklin County and North Quabbin have seen significant reductions in substance abuse (47% to 29% for alcohol, 19% to 6% for cigarettes) and priority risk factors (55% to 37% for family management problems) that they identified in their youth. Reducing the use of these substances is key to preventing the development of SUDs into adulthood.

The CTC model has shown success in other states as well. Pennsylvania’s Commission on Crime and Delinquency (PCCD) was an early adopter of the CTC model and has disseminated model startup resources to over 100 communities in the past 25 years. Through a study utilizing results from the Pennsylvania Youth Survey (PAYS), researchers determined the relative effectiveness of the CTC model in Pennsylvania: communities utilizing the CTC model had lower levels of risk factors for substance abuse and problematic behaviors than communities not employing it.⁹⁰ Further, researchers found that the CTC model had significant impacts on Pennsylvania’s communities by reducing overall drug use and risk factors in their youth populations.⁹¹ This success across over 100 communities demonstrates the model’s ability to adapt to varying environments.

IV. The Importance of Addressing Mental Health Concerns in Schools

The most prominent means of collecting data relevant to ATOD consumption and risky youth behaviors is California’s School Climate, Health, and Learning Survey (Cal-SCHLS) System. Los Angeles Unified School District’s Cal-SCHLS shows that a third of students in grades seven, nine, and eleven reported “being so sad or hopeless every day for two weeks or more that they [stopped] doing some usual activities” in 2018-2019.⁹² These findings are of particular concern given that adolescents often develop mental health disorders, such as depression or anxiety, prior to developing SUDs.⁹³ When adolescents develop a mental illness,

⁸⁹ Allen, “Rural Project Summary.”

⁹⁰ Feinberg, Mark E., Mark T. Greenberg, D. Wayne Osgood, Jennifer Sartorius, and Daniel Bontempo. “Effects of the Communities That Care Model in Pennsylvania on Youth Risk and Problem Behaviors.” *Prevention Science* 8, no. 4 (November 14, 2007): 261–70. <https://doi.org/10.1007/s11121-007-0073-6>.

⁹¹ Feinberg, Greenberg, Osgood, Sartorius, Bontempo, “Effects of the Communities That Care Model.”

⁹² Los Angeles Unified – CHKS Sample. California Healthy Kids Survey, 2018-19: Main Report. San Francisco: WestEd Health and Justice Program for the California Department of Education. https://data.calschls.org/resources/LAUSD_CHKS_Sample_1819_Sec_CHKS.pdf

⁹³ National Institute on Drug Abuse. “Common Comorbidities with Substance Use Disorders Research Report” <https://www.drugabuse.gov/publications/research-reports/common-comorbidities-substance-use-disorders>.

associated neurochemical changes increase the vulnerability for problematic use of substances.⁹⁴ Research also indicates that mental health problems can pose significant barriers to learning and academic achievement, other key protective factors against the development of a SUD.⁹⁵ In addition, many studies show that drug use at an early age often precedes the development of a SUD into adulthood.⁹⁶ Better diagnosis, prevention, and intervention for mental health disorders in school-aged children is a precursor to tackling the development of SUDs in adult populations.

V. Universal Mental Health Screenings in Public Schools

Nearly 71% of adolescents with mental health needs in California did not receive treatment according to California's Health Interview Survey.⁹⁷ Universal Mental Health Screenings (UMHS), however, may help address this disparity. UMHS consist of "screening all students using diagnostic instruments (e.g., rating scales) to identify individuals who may be at risk for social-emotional and/or mental health concerns."⁹⁸ Students are only screened with informed consent from parents.

Baldwin Park Unified School District in California has already successfully implemented UMHS. With the use of the CoVitality's social and emotional health survey (SEHS), which was developed by researchers at UC Santa Barbara, the district was able to successfully identify 1,278 students out of 5,287 who were deemed either at an "elevated" risk or currently at-risk for mental health concerns; these are students who may have otherwise gone unnoticed.⁹⁹ The district was then able to offer small group counseling, mindfulness and social skills training, academic skills tutoring, or referrals to school-based and community mental health agencies, all

⁹⁴ National Institute on Drug Abuse, "Common Comorbidities with Substance Use Disorders Research Report."

⁹⁵ Levitt, Jessica Mass, Noa Saka, Lisa Hunter Romanelli, and Kimberly Hoagwood. "Early Identification of Mental Health Problems in Schools: The Status of Instrumentation." *Journal of School Psychology* 45, no. 2 (April 2007): 163–91. <https://doi.org/10.1016/j.jsp.2006.11.005>.

⁹⁶ Levitt, Saka, Romanelli, Hoagwood, "Early Identification of Mental Health Problems in Schools."

⁹⁷ McGorry, Patrick, and Cristina Mei. "Early Intervention in Youth Mental Health: Progress and Future Directions | Evidence-Based Mental Health." *Evidence-Based Mental Health* 21, no. 4 (November 2018): 182–84. <http://dx.doi.org/10.1136/ebmental-2018-300060>.

⁹⁸ Wood, Brandon J., and Terry McDaniel. "A Preliminary Investigation of Universal Mental Health Screening Practices in Schools." *Children and Youth Services Review* 112 (May 2020): 104943. <https://doi.org/10.1016/j.childyouth.2020.104943>.

⁹⁹ O'Malley, Megan, and Katie Eklund. "Universal Social, Emotional, and Behavioral Screening for Monitoring and Early Intervention – California Safe and Supportive Schools." California Safe and Supportive Schools, 2020. <https://ca-safe-supportive-schools.wested.org/resource/universal-social-emotional-and-behavioral-screening-for-monitoring-and-early-intervention/>.

of which offer protective factors against the initiation of drug use.¹⁰⁰ CoVitality’s instruments underwent rigorous research to support their success at identifying at-risk students.¹⁰¹

Additional instruments are available that have low cost, low time demands, easy-to-use data aggregation and display, and psychometric validation.¹⁰² Other screening tools that meet these criteria include the Behavioral and Emotional Screening System (BEES) offered by Pearson Assessments and the Social, Academic, and Emotional Behavior Risk Screener (SAEBRS) offered by FastBridge.¹⁰³ Currently however, only about 12.6% of public schools in the United States actively use UMHS.¹⁰⁴ The number one cited reason for failing to implement UHMS in schools was having “no access to mental health screeners.”¹⁰⁵

VI. Therapeutic Workplace Preventions

One existing strategy for SUD prevention is a therapeutic workplace style strategy. Therapeutic workplace is an intervention style program that utilizes employment and wages to help prevent SUD. This results in “drug abstinence over long time spans” to “promote the use of the opiate antagonist naltrexone in [opiate] dependent adults.”¹⁰⁶ A study published in the *Journal of Substance Abuse Treatment* concluded the therapeutic workplace model can “sustain long-term abstinence and employment” among poor and unemployed substance users.¹⁰⁷

One notable comparison to be made includes the comparison between opioid-abstinence contingent workplace models and general workplace models. In one study, participants who underwent a six-month abstinence program and subsequently experienced the therapeutic

¹⁰⁰ O’Malley, Megan, and Katie Eklund. “Universal Social, Emotional, and Behavioral Screening for Monitoring and Early Intervention – California Safe and Supportive Schools.” California Safe and Supportive Schools, 2020.

¹⁰¹ Furlong, Michael J., Erin Dowdy, Karen Nylund-Gibson, Rhea Wagle, Delwin Carter, and Tameisha Hinton. “Enhancement and Standardization of a Universal Social-Emotional Health Measure for Students’ Psychological Strengths.” *Journal of Well-Being Assessment*, February 4, 2021. <https://doi.org/10.1007/s41543-020-00032-2>.

¹⁰² O’Malley, Megan, and Katie Eklund. “Universal Social, Emotional, and Behavioral Screening for Monitoring and Early Intervention – California Safe and Supportive Schools.” California Safe and Supportive Schools, 2020.

¹⁰³ O’Malley and Eklund, “Universal Social, Emotional, and Behavioral Screening.”

¹⁰⁴ Wood, Brandon J., and Terry McDaniel. “A Preliminary Investigation of Universal Mental Health Screening Practices in Schools.” *Children and Youth Services Review* 112 (May 2020): 104943.

¹⁰⁵ Wood and Terry, “A Preliminary Investigation of Universal Mental Health Screening.”

¹⁰⁶ Silverman, Kenneth, and August Holtyn. “The Center for Learning and Health at The Johns Hopkins Bayview Medical Center.” Johns Hopkins Medicine. Accessed October 10, 2021.

https://www.hopkinsmedicine.org/psychiatry/patient_information/bayview/medical_services/substance_abuse/center_for_learning.html.

¹⁰⁷ Aklin, Will M., Conrad J. Wong, Jacqueline Hampton, Dace S. Svikis, Maxine L. Stitzer, George E. Bigelow, and Kenneth Silverman. “A Therapeutic Workplace for the Long-Term Treatment of Drug Addiction and Unemployment: Eight-Year Outcomes of a Social Business Intervention.” *Journal of Substance Abuse Treatment* 47, no. 5 (December 2014): 329. <https://doi.org/10.1016/j.jsat.2014.06.013>.

workplace model had greater abstinence rates than controls.¹⁰⁸ Another study specifically requiring enrollment into methadone treatment to access the workplace further demonstrated the efficacy of therapeutic workplace preventions.¹⁰⁹ However, abstinence-contingent therapeutic workplace models are limited by their expensive nature.

VII. Screening, Brief Intervention, and Referral to Treatment & Car, Relax, Alone, Forget, Family/Friends, and Trouble

Screening, Brief Intervention, and Referral to Treatment (SBIRT) is a process designed to screen for, assess, and treat SUDs. Multiple screening tests are used to gauge substance use, with each taking approximately 5-10 minutes.¹¹⁰ SBIRT is intended to be a universalized approach, and has demonstrated high efficacy with different populations.¹¹¹ SBIRT is also a practice that is legislatively supported and accessible. In 2014, SBIRT was designated an “essential service” for all health plans under the Patient Protection and Affordable Care Act.¹¹²

SBIRT applications also hold promise for youth. The American Academy of Pediatrics recommends that pediatric providers screen for, assess, and treat SUD through SBIRT.¹¹³ Although most research studies have examined SBIRT’s role in alcohol use prevention, the SBIRT approach has also proven to be effective with other substances, including opioids.¹¹⁴ A Kaiser Permanente study showcased the efficacy of SBIRT in pediatric primary care settings: a pediatrician-only SBIRT-trained group was 10 times more likely to conduct brief interventions with at-risk parents than a “usual care” control group.¹¹⁵ According to another study, adolescents

¹⁰⁸ DeFulio, Anthony, and Kenneth Silverman. “Employment-Based Abstinence Reinforcement as a Maintenance Intervention for the Treatment of Cocaine Dependence: Post-Intervention Outcomes.” *Addiction (Abingdon, England)* 106, no. 5 (May 2011): 960. <https://doi.org/10.1111/j.1360-0443.2011.03364.x>.

¹⁰⁹ Holtyn, August F., Mikhail N. Koffarnus, Anthony DeFulio, Sigurdur O. Sigurdsson, Eric C. Strain, Robert P. Schwartz, and Kenneth Silverman. “EMPLOYMENT-BASED ABSTINENCE REINFORCEMENT PROMOTES OPIATE AND COCAINE ABSTINENCE IN OUT-OF-TREATMENT INJECTION DRUG USERS.” *Journal of Applied Behavior Analysis* 47, no. 4 (Winter 2014): 681. <https://doi.org/10.1002/jaba.158>.

¹¹⁰ Babor, Thomas, Bonnie McRee, Patricia Kassebaum, Paul Grimaldi, Ahmed Kazi, and Jeremy Bray. “Screening and Brief Intervention Enter Their 5th Decade.” *Substance Abuse: Official Publication of the Association for Medical Education and Research in Substance Abuse* 28 (February 1, 2007): 3–6. https://doi.org/10.1300/J465v28n03_02.

¹¹¹ Babor, Mcree, Kassebaum, Grimaldi, Kazi, and Bray, “Screening and Brief Intervention.”

¹¹² NORC at the University of Chicago. “Learner’s Guide to Adolescent SBIRT,” January 2016.

¹¹³ NORC at the University of Chicago, “Learner’s Guide to Adolescent SBIRT.”

¹¹⁴ Connolly, Beth, and Vanessa Baaklini. “Primary Care Providers Can Help Steer People to Opioid Addiction Treatment.” Pew, January 25, 2021. <https://pew.org/3sO2298>.

¹¹⁵ Sterling, Stacy, Andrea H. Kline-Simon, Ashley Jones, Lauren Hartman, Katrina Saba, Constance Weisner, and Sujaya Parthasarathy. “Health Care Use Over 3 Years After Adolescent SBIRT.” *Pediatrics* 143, no. 5 (May 1, 2019). <https://doi.org/10.1542/peds.2018-2803>.

with access to SBIRT had fewer comorbidities, psychiatry visits at 1 year, SUD diagnoses, and outpatient use over 3 years, indicating that SBIRT in primary care may reduce health care utilization and improve adolescent health.¹¹⁶ Not only does SBIRT reduce health complications for youth, it also reduces the need for youth to engage costly services to treat SUDs later.

CRAFFT is an SBIRT-certified screening process that is designed uniquely for adolescents and offers both a self-administered and face-to-face component. Each letter in the acronym represents one word in each question of the CRAFFT protocol: Car, Relax, Alone, Forget, Family/Friends, and Trouble. Studies show that CRAFFT has high efficacy as a screening tool for adolescents: the determined “scores” from the CRAFFT screening correlated with other measures of substance use by adolescent patients, such as past psychiatric trauma evaluations and suicide attempts for patients with higher “scores.”¹¹⁷

SBIRT is considered a flexible tool, and one that can be practiced by a clinician or through a self-administered computer-based screening. Still, SBIRT remains an underutilized practice in pediatric practices for several reasons, including concerns surrounding efficient workflow, electronic medical record (EMR) integration in pediatric practices, and lack of training and knowledge on SBIRT screening tools.¹¹⁸

The Quality Improvement (QI) project, implemented in Maryland, was designed to help pediatric practices adapt SBIRT to their specific needs and workflow by improving primary care provider (PCP) confidence, knowledge, and ability to screen for substance use and prevent the onset of substance use disorder.¹¹⁹ The SBIRT QI intervention did not require a huge time commitment from providers, increasing SBIRT acceptability among those in pediatric practices. Employing pre-existing resources within the practice—like an EMR, for instance—ensured that SBIRT could be effectively embedded without disrupting or slowing the clinical flow. Further,

¹¹⁶ Sterling, Kline-Simon, Jones, Hartman, Saba, Weisner, and Parthasarathy, “Health Care Use Over 3 Years.”

¹¹⁷ Oesterle, Tyler S., Mario J. Hitschfeld, Timothy W. Lineberry, and Terry D. Schneekloth. “CRAFFT as a Substance Use Screening Instrument for Adolescent Psychiatry Admissions.” *Journal of Psychiatric Practice* 21, no. 4 (July 2015): 259–66. <https://doi.org/10.1097/PRA.0000000000000083>.

¹¹⁸ Sharon J. L. Levy, Janet F. Williams, and Committee on Substance Use And Prevention, “Substance Use Screening, Brief Intervention, and Referral to Treatment,” *Pediatrics* 138, no. 1 (July 1, 2016), <https://doi.org/10.1542/peds.2016-1211>.

¹¹⁹ Alinsky, Rachel H., Kayla Percy, Hoover Adger, Diana Fertsch, and Maria Trent. “Substance Use Screening, Brief Intervention, and Referral to Treatment in Pediatric Practice: A Quality Improvement Project in the Maryland Adolescent and Young Adult Health Collaborative Improvement and Innovation Network.” *Clinical Pediatrics* 59, no. 4–5 (May 1, 2020): 429–35. <https://doi.org/10.1177/0009922820902441>.

vocal support from the leaders of the pediatrics practice in how SBIRT would improve the quality of clinical practice was useful in garnering support from the providers at the practice.¹²⁰

Another case study on training and technical assistance and implementation of SBIRT is the Massachusetts Screening, Brief Intervention and Referral to Treatment - Training and Technical Assistance program (MASBIRT - TTA).¹²¹ Their services include individual, organizational, and state-level training. In doing so, they establish SBIRT and CRAFFT as the standard of substance screening across various settings in Massachusetts and impact people in various settings, including schools and workplaces. In facilitating training, MASBIRT ensures that those who may not meet the criteria for substance dependence, or are not willing to undergo traditional treatment, have a space to speak with SBIRT trained professionals who can then refer them to treatment options should it be necessary.¹²²

However, there are some limitations of the efficacy of SBIRT within pediatrics. Adolescents are less likely to seek services or disclose information on risky behaviors if they do not believe the information will be kept confidential, yet only 38% of 15-17 years olds had one-on-one time with a provider during a clinic visit in 2018.¹²³ One solution for this is implementing self-administered screening processes. Research shows that adolescents report greater comfort and likelihood of honesty with self-administered questionnaires, as opposed to face-to-face interviews where they may not be able to have time alone with their PCP.¹²⁴ CRAFFT is time efficient and can be self-administered, as it is developed through the modification of questions from more extensive screening processes.¹²⁵

Still, there are some youth populations who are not engaged in primary care settings, and would not be recipients of CRAFFT screening. For instance, fewer boys and young men seek treatment in primary care; they may be more likely to seek care in other healthcare settings—like

¹²⁰ Alinsky, Percy, Adger, Fertsch, and Trent, “Substance Use Screening, Brief Intervention, and Referral.”

¹²¹ Pettengill, Caitlin. “SBIRT in Schools | Massachusetts Screening, Brief Intervention and Referral to Treatment (MASBIRT).” MASBIRT. Accessed October 10, 2021. <https://www.masbirt.org/sbirt-information/school-sbirt>.

¹²² Pettengill, “SBIRT in Schools.”

¹²³ Centers for Disease Control and Prevention. “Teen Health Services and One-On-One Time with A Healthcare Provider | Adolescent and School Health | CDC,” August 18, 2021. https://www.cdc.gov/healthyyouth/protective/factsheets/OneonOnetime_FactSheet.htm.

¹²⁴ Centers for Disease Control and Prevention. “Teen Health Services and One-On-One Time with A Healthcare Provider | Adolescent and School Health | CDC,” August 18, 2021. https://www.cdc.gov/healthyyouth/protective/factsheets/OneonOnetime_FactSheet.htm.

¹²⁵ NORC at the University of Chicago. “Learner’s Guide to Adolescent SBIRT,” January 2016.

urgent care, emergency, or prenatal settings.¹²⁶ For this reason, SBIRT should not be limited to primary care settings alone and instead be expanded to other healthcare domains.

VIII. Social Media Campaigns and Messaging to Promote Fentanyl Prevention

Social media campaigns have also been used to combat fentanyl use. In 2015, Maryland's Heroin & Opioid Emergency Task Force developed a report for addressing the state's opioid crisis that specifically outlined the necessity of developing student-based prevention campaigns and a public awareness campaign that included cost-efficient video PSAs.

The use of campaign messaging to elucidate the danger of fentanyl and its potency is especially effective for a young audience. Presenting the human face of the opioid epidemic may also be more effective in countering fentanyl usage. Such campaigning must be sensitive and cater uniquely to youth.¹²⁷

There have been several successful social media campaigns directly addressing increased levels of fentanyl use through preventative and interventive measures. One fentanyl prevention campaign effort called "Laced and Lethal" took place in Kings County, a community in Washington that saw eighteen local youth die of fentanyl overdose deaths.¹²⁸ The campaign's focus was on educating youth on the risk of buying pills and powders potentially laced with fentanyl, as well as the need for life-saving access to Naloxone.¹²⁹

Many successful substance use prevention campaigns include peer-to-peer social media advocacy. Living the Example (LTE) is a program that trains adolescent youth ambassadors to develop and disseminate prevention messages within their own social media networks and through in-school activities.¹³⁰ LTE focuses on "gain-framed" messaging—for instance, rather

¹²⁶ Centers for Disease Control and Prevention. "Teen Health Services and One-On-One Time with A Healthcare Provider | Adolescent and School Health | CDC," August 18, 2021.

¹²⁷ National Institute on Drug Abuse, "Preventing Opioid Use Disorder in Older Adolescents and Young Adults (Ages 16-30): Expert Panel Planning Meeting," National Institute on Drug Abuse, September 19, 2018, <https://www.drugabuse.gov/news-events/meetings-events/2018/09/preventing-opioid-use-disorder-in-older-adolescents-young-adults-ages-16-30-expert-panel-planning>.

¹²⁸ Department of Community & Human Services. "Cultivating Connections: King County Launches Youth Fentanyl Overdose Prevention Campaign." Cultivating Connections, March 25, 2021.

<https://dchsblog.com/2021/03/25/king-county-launches-youth-fentanyl-overdose-prevention-campaign/>.

¹²⁹ Leon, Alexandra de. "King County Launches Youth Fentanyl Overdose Prevention Campaign." Harborview Injury Prevention and Research Center, March 26, 2021.

<https://hiprc.org/blog/king-county-launches-youth-fentanyl-overdose-prevention-campaign/>.

¹³⁰ Evans, William, Elizabeth Andrade, Michaela Pratt, Alexandra Mottern, Sergio Chavez, Anthony Calzetta-Raymond, and Jiayan Gu. "Peer-to-Peer Social Media as an Effective Prevention Strategy: Quasi-Experimental Evaluation." *JMIR MHealth and UHealth* 8, no. 5 (May 6, 2020): e16207. <https://doi.org/10.2196/16207>.

than highlighting the harm of fentanyl usage, the emphasis is instead on the health benefits and safety associated with quitting fentanyl use. LTE had a preventative effect on substance use: youth with exposure to LTE messaging reported reduced drug use intentions. This result could be seen in eight different substance groups, including opioids.¹³¹

IX. Drug-related 911 Good Samaritan Laws

A review of the effectiveness of drug-related 911 Good Samaritan Laws (GSLs) has found that nearly two-thirds of people who inject drugs have little-to-no knowledge of GSLs.¹³² A longitudinal study found that individuals who witnessed an OD event and had correct knowledge of GSLs were 3.6 times as likely to call 911 compared to OD witnesses with incorrect knowledge.¹³³ Specifically, the study recruited 351 individuals from syringe exchange sites; trained participants in GSL laws after overdose rescue training; and surveyed participants' understanding of 911 GSLs and response to OD events in 3-month intervals up to a year after training. This study suggests the importance of targeted education interventions to raise awareness of 911 GSLs.

X. DARE Program

The Drug Abuse Resistance Education Program (DARE) is primarily focused on combating substance use in youth. However, a study done by the American Psychological Association shows that over the course of ten years, DARE had “no effects in actual drug use initially or during the [ten year] follow-up period.”¹³⁴ The study emphasizes the increasingly strong sentiment against programs like DARE. Yet, many of these programs are still taught in schools. The study also notes that DARE programs are still widely used because very few people

¹³¹ Evans, William, Elizabeth Andrade, Michaela Pratt, Alexandra Mottern, Sergio Chavez, Anthony Calzetta-Raymond, and Jiayan Gu. “Peer-to-Peer Social Media as an Effective Prevention Strategy: Quasi-Experimental Evaluation.” *JMIR MHealth and UHealth* 8, no. 5 (May 6, 2020): e16207. <https://doi.org/10.2196/16207>.

¹³² Moallem, Soroush, and Kanna Hayashi. “The Effectiveness of Drug-Related Good Samaritan Laws: A Review of the Literature.” *The International Journal on Drug Policy* 90 (April 2021): 102773. <https://doi.org/10.1016/j.drugpo.2020.102773>.

¹³³ Jakubowski, Andrea, Hillary V. Kunins, Zina Huxley-Reicher, and Anne Siegler. “Knowledge of the 911 Good Samaritan Law and 911-Calling Behavior of Overdose Witnesses.” *Substance Abuse* 39, no. 2 (2018): 233–38. <https://doi.org/10.1080/08897077.2017.1387213>.

¹³⁴ Lynam, Donald R., Richard Milich, Rick Zimmerman, Scott P. Novak, T. K. Logan, Catherine Martin, Carl Leukefeld, and Richard Clayton. *Project DARE: No Effects at 10-Year Follow-Up*. Addictive Behaviors: New Readings on Etiology, Prevention, and Treatment. Washington, DC, US: American Psychological Association, 2009. <https://doi.org/10.1037/11855-008>.

argue with the current state of prevention programs.¹³⁵ The state of these programs can be mostly characterized as “informational.” Very shortly put, the program informs students to “resist drugs.” As many studies, like the one previously mentioned show, this form of SUD prevention programming is antiquated.

XI. Evidence-Based-Prevention-Interventions

Crowley et al. confirmed the effectiveness of universal evidence-based prevention-interventions (EBPIs) by demonstrating that universal school-based EBPIs are capable of reducing nonmedical prescription opioid use by youth in a cost-effective manner and may supplement costly approaches to monitor and restrict access.¹³⁶ This evaluation also reveals the potential of family-based EBPIs during early adolescence to enhance the efficiency of school-based programs. In a longitudinal study, researchers randomly assigned middle schools to receive evidence-based-prevention interventions (EBPIs) and compared them to schools that did not receive such interventions. When these students had reached 12th grade, it was found that the percentage of students who had not received any intervention and misused opioids was over 5% greater than those who received the intervention, and almost 10% greater than those who had received an EBPI in conjunction with the family-strengthening program.¹³⁷

Another EBPI program is the Skills, Opportunity, And Recognition (SOAR) Program. This program is primarily focused on school based-intervention for youth. This program uniquely instructs teachers and parents, just as it does for children.¹³⁸ Additionally, as opposed to the DARE program that simply draws negative connotations to substances, this program focuses on strengthening bonds between families, schools, and communities. Another example is the Promoting Alternative Thinking Strategies Program, or PATHS. PATHS works in schools, districts, and social service organizations in an effort to promote social-emotional learning in youth.¹³⁹

¹³⁵ Lunam, Milich, Zimmerman, Novak, Logan, Martin, Leukefeld, Clayton, *Project DARE*.

¹³⁶ Crowley, D. Max, Damon E. Jones, Donna L. Coffman, and Mark T. Greenberg. “Can We Build an Efficient Response to the Prescription Drug Abuse Epidemic? Assessing the Cost Effectiveness of Universal Prevention in the PROSPER Trial.” *Preventive Medicine* 62 (May 2014): 71–77. <https://doi.org/10.1016/j.ypmed.2014.01.029>.

¹³⁷ Crowley, Jones, Coffman, and Greenberg, “Can We Build an Efficient Response.”

¹³⁸ SOAR. “SOAR Works!” Accessed October 10, 2021. <https://soarworks.samhsa.gov/>.

¹³⁹ PATHS Program. “About Us — PATHS Program LLC.” PATHS Program. Accessed October 10, 2021. <https://pathsprogram.com/about-us>.

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<https://www.drugabuse.gov/drug-topics/opioids/opioid-summaries-by-state/california-opioid-involved-deaths-related-harms>.
- . "Overdose Death Rates." National Institute on Drug Abuse, February 29, 2021.
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