

BRIEF REPORT

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# The fentanyl made me feel like I needed more methadone”: changes in the role and use of medication for opioid use disorder (MOUD) due to fentanyl

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## Abstract

**Background** Fentanyl and fentanyl analogues have disrupted the illicit drug supply through contamination of other substances (i.e., methamphetamine and cocaine) and replacement of heroin in illicit markets. Increasingly, they are contributing to opioid-overdose related deaths. The rapid and growing presence of fentanyl has led to gaps in research on the impact of this illicit market change on people who use drugs (PWUD). We sought to examine how the changing opioid market and growing fentanyl availability influences the role and use of medication for opioid use disorder (MOUD).

**Methods** Semi-structured qualitative interviews were conducted with a community recruited sample of PWUD (N=22) in Los Angeles, California between September 2021 and April 2022. Interviews examined opioid use history, current opioid use behaviors and consumption patterns, and MOUD experiences and perceptions. Thematic analysis was used to systematically code and analyze textual interview data.

**Results** The following themes related to fentanyl use and MOUD emerged: (1) Use of deviated MOUD to address fentanyl contamination, (2) Changing perception of the effectiveness of MOUD on fentanyl, and (3) Regulatory limitations of MOUD for fentanyl use disorder.

**Conclusions** PWUD described several repertoires for adjusting to changes in the illicit market of opioids. Clinicians treating PWUD should ask about recent fentanyl use prior to starting MOUD to account for increased tolerance to opioids. Harm reduction strategies such as naloxone kits, safe supply, and supervised consumption facilities can all prevent overdose deaths due to fentanyl.

## Introduction

Illicitly manufactured fentanyl has become the dominant opioid in illicit markets [9]. Fentanyl containing opioids are increasingly responsible for opioid-overdose deaths [2]. Both intentional and unintentional fentanyl use can lead to increased overdose risk due to its higher potency [11]. Medication for opioid use disorder (MOUD) is a primary method of treatment, shown to decrease post-overdose mortality and reduce risk of relapse during

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treatment [10, 14]. However, some literature indicates that the introduction of fentanyl into the US drug supply may necessitate changes in MOUD dosing and prescribing guidelines [12]. Fentanyl's increased potency and shorter half-life may require a more aggressive methadone induction strategy [5].

To make MOUD easier to access in the United States, the Biden administration (via SAMHSA and Health and Human Services) has sought to lower methadone prescribing regulations and keep in place more flexible options offered during the height of the COVID-19 pandemic [16]. This change in regulations has taken effect in 2024 and allows for more take-home doses of methadone by patients. It also eliminates the minimum year-long length of opioid addiction that patients need to demonstrate before treatment can be provided. Significant barriers remain, however. Patients must still access methadone via authorized opioid treatment programs (OTP) and cannot pick up this medication at a local pharmacy.

In this qualitative brief report, we describe how the disruption of the drug market, and the resulting illicit opioid supply contamination and uptake of fentanyl affects perceptions and usage of MOUD among a population of people who use drugs (PWUD) in Los Angeles, California.

## Methods

### Participants and procedure

This study was conducted in conjunction with a larger prospective cohort study exploring cannabis use behaviors and opioid related health outcomes in people who inject drugs (PWID) residing in community settings in Los Angeles, California and Denver, Colorado. Inclusion criteria for the parent study were having injected drugs in the last 30 days, being 18 years of age or older, and having used opioids in the last 30 days. For the current study, participants were eligible to participate if they completed their initial baseline interview, resided in Los Angeles, and returned to the field site during data collection hours. Participants provided written informed consent and were remunerated \$40 for their participation. Procedures were reviewed and approved by the Human Subjects Protection Committee at the University of Southern California.

### Semi-structured interviews

In-depth qualitative interviews were conducted with a total of 22 PWUD between September 2021 and April 2022. All interviews occurred in-person and were facilitated by the two lead authors (KS and MB) at two field sites in Los Angeles: Boyle Heights and Hollywood. Face-to-face interviews employed a flexible, semi-structured format with open-ended questions that encouraged

participants to spontaneously discuss new topics that arose during the conversation. Interview topics focused on opioid use behaviors and consumption habits, and experiences and viewpoints on MOUD (Supplemental Table 1). Duration of interviews varied, lasting between 30 and 75 min, with participant recruitment continuing until theoretical saturation was achieved.

### Data analysis

All interview sessions were audio recorded and transcribed verbatim first using a digital transcription software program (Otter.ai), and then checked for accuracy by trained research staff. Transcripts were then imported onto NVivo (Version 12.5), where they were read in their entirety and analyzed thematically using an iterative, multi-step procedure. We first identified all quotations pertaining to MOUD experiences and current/previous opioid use behaviors. The team then reviewed and discussed these quotations, and then sifted and organized them by early themes or clusters of meaning to reduce the data toward a narrower focus. We continued to iteratively review and organize these quotations several different occasions during separate team meetings until consensus of themes was reached.

## Results

The analytic sample included a total of 22 participants, with a median age of 46.5 years (interquartile range [IQR]=39–61; Table 1). Participants were mostly male (N=14; 63.6%), and racially/ethnically diverse (35% White, 5% Black/African American, 9% Native American, 50% mixed race or another race/ethnicity, and 64% having Hispanic or Latino descent), with about 60% having a high school education or more. 36% of our sample (N=8) reported being homeless or unstably housed in the past 3 months, and a large majority (72.3%) reporting a past 30-day income of less than \$1400. Most participants had experiences using methadone (91%), and 32% reported past buprenorphine or suboxone use.

While qualitative interview questions targeted overall opioid consumption patterns, fentanyl quickly emerged as a primary response in participant narratives surrounding current opioid product use, frequency of use, route of administration, opioid withdrawal symptoms, and MOUD experiences and perceptions. Three primary themes emerged from semi-structured interviews: (1) Relying on methadone to alleviate overdose risk from fentanyl contaminated heroin; (2) Changing perceptions of the effectiveness of MOUD on fentanyl; and (3) Regulatory limitations of MOUD for fentanyl specific opioid use disorder.

**Table 1** Participant characteristics (N=22)

Characteristic	Median (range) or N (%)
Age	46.5 (27–70)
Male	14 (63.6%)
Race	
White	7 (31.8%)
Black	1 (4.5%)
Native American or Alaskan Native	2 (9.1%)
Mixed race	4 (14.2%)
Other	8 (36.4%)
Hispanic or Latino ethnicity	14 (63.6%)
Homeless or unstably housed	8 (36.4%)
Income less than \$1400/month	16 (72.3%)
Location	
East LA	17 (77.3%)
Hollywood	5 (22.7%)
Relationship status	
Single, no main partner	13 (59.1%)
In a relationship but not living as married	5 (22.7%)
Married or living as married	4 (18.2%)
High school education or greater	13 (59.1%)
Ever used MOUD	
None	1 (4.5%)
Methadone only	11 (50%)
Buprenorphine only	0 (0%)
Both	10 (45.5%)
Current MOUD use	
None	7 (31.8%)
Methadone only	15 (68.2%)

**Relying on methadone due to fentanyl contamination**

Some participants indicated anxiety around fentanyl, fentanyl contamination, and its health effects, including potential overdose. Methadone, by contrast, was a known quantity to these participants and likely functioned as a proxy for safe supply of uncontaminated drugs.

For example, the following participant described an experience where he fell asleep for several hours after injecting opioids. Upon waking up he tested their heroin supply with fentanyl test strips and noted it was positive for fentanyl contamination. He then used methadone as it was safe, reliable in preventing withdrawal, and available and threw out the contaminated heroin:

*“So when you go to a needle exchange, they give you these fentanyl testers. And I checked it with that fentanyl strip and yeah, it did have fentanyl in it. It wasn’t fentanyl straight. It was fentanyl with heroin. It was heroin with fentanyl to cut it...So yeah, I just*

*happened to ask my wife. Baby, you know, could I have some methadone? She had a bottle couple of bottles. So I drank half and I was alright till the sun came up and the day got born. I went out tossed out the dope and got well” (Male, 54 years)*

Similarly, this participant described how she comes to the methadone clinic and relies on methadone due to fentanyl contamination of the illicit market heroin supply:

*“So I do that. And then I come to them at the methadone [clinic] and I take methadone because this stuff is kinda getting bunk. So and then I’ve been real scared about the fentanyl!?” (Female, 61 years)*

**Impacts of fentanyl on effectiveness of MOUD: methadone and buprenorphine**

Despite the evolving role of methadone due to supply contamination noted in the first theme, many participants with experience of formal MOUD treatment discussed situations in which these medications were less effective—needing to use more MOUD to feel the expected physiological effects. They attributed this lack of effectiveness to the increased opioid tolerance brought on by fentanyl use.

*“It [buprenorphine] didn’t take the edge off. It barely took the edge off. I mean I took five of them [buprenorphine pills]. And it still barely took the edge off, so I took five more. And it still barely did anything for me.” (Male, 45 years)*

The added potency of fentanyl and subsequent feeling of needing higher doses of MOUD could be frustrating for participants in our study. In one case, an interviewee spoke to how this frustration resulted in withdrawal symptoms when he refused to increase his dose:

*“The fentanyl made me feel like I needed more methadone, but I refused to give myself more methadone, so as for me to get back to the way it was before that, it took about a month, and I had symptoms like trouble sleeping, agitations.” (Male, 43 years)*

**Regulatory barriers to methadone access**

Two major regulatory barriers to methadone uptake were reported: (1) dosing regulations that were non-specific for fentanyl and (2) inflexibility around accessing methadone clinics. For example, one participant described how MOUD dosing for fentanyl was inadequate for his withdrawal symptoms along with his preferred MOUD treatment plan:

*“We should start the [buprenorphine] with Subutex. That would stop me. But see, the withdrawals from methadone are worse than the withdrawals from*

heroin. However, they're not worse than withdrawals from fentanyl. And methadone, [HCPs/clinic preceptors] want to start with a low dosage. And that's just a waste of my fucking time. Give me 120 mg three times a day. Even though you're only supposed to do it like twice a day. Because unbeknownst to [HCPs/clinic preceptors], my tolerance is through the fucking roof." (Male, 45 years)

This participant went on to describe how barriers to MOUD included commuting to the methadone clinic, the inadequate dosing, and finally the clinic hours:

"I can't do methadone... I have to go to the methadone clinic at their time and their hours and their thing ... 'we're gonna start with this low dosage and then we'll move you up as time goes by,' you can kiss my ass. And I'm fucking smoking a [eight] ball [1/8th of an ounce] of fent a day." (Male, 45 years)

## Discussion

Findings from our study highlight the important role of MOUD during an unpredictable and transitioning opioid drug supply [8]. When PWUD are unsure about using fentanyl-contaminated drugs, methadone may serve as a proxy to safe supply. Given this, it is especially necessary to make low threshold methadone access a priority during this public health emergency [8].

Our findings also conform with other research by highlighting changes in the effectiveness of MOUD due to fentanyl use, particularly buprenorphine. This may indicate a necessary reevaluation of guidelines for initiating buprenorphine treatment for people who are using fentanyl [3]. A study analyzing Rhode Island statewide data between 2016 and 2020, when fentanyl was the dominant illicit opioid in the local market, reported that patients prescribed a 24 mg dose of buprenorphine showed higher treatment retention than those prescribed the current FDA recommendation of 16 mg. [6]. Prolonged-release subcutaneous buprenorphine injections such as Sublocade have been shown to achieve higher and steadier buprenorphine levels than sublingual products, offering a promising alternative treatment [7]. Nonetheless, our findings underscore the need for comprehensive prescription and dosing guidelines for MOUD specific to fentanyl that address the withdrawal and pain related symptomology reported by PWUD.

Our study also found that regulatory barriers inhibited access to methadone maintenance therapy (MMT). Extant literature has indicated that MMT reduces fentanyl overdose risk by relieving withdrawal symptoms and cravings, thus reducing fentanyl use and associated overdose risks [4]. Additionally, long-term MMT may create cross-tolerance to fentanyl's respiratory

depression and maintain opioid tolerance, reducing the risk of overdose from high potency exposure [4]. Participants in our study noted access barriers including dosing, clinic commute and timing. Recent studies have emphasized the need for low barrier methadone access such as local pharmacy dispensing [8]. Some evidence-based recommendations on methadone treatment for people who use fentanyl include more aggressive initiation dosing and slow-release oral morphine (SROM) [4]. Recently proposed legislation would continue to expand access to MOUD via dispensing strategies but would leave dosing limitations unaddressed (S.644—modernizing opioid treatment access act 118th). Our findings indicate that in the absence of heroin assisted treatment (HAT) and other structural safe supply interventions, these guidelines should be re-evaluated to center the perspectives of PWUD who are at high risk of overdose.

Study limitations include: (1) the Los Angeles location may not be generalizable to other MOUD treatment landscapes, (2) the ongoing COVID-19 pandemic may have influenced participant experiences, and (3) since interviews were conducted, psychostimulants have become more prominent in drug overdoses, which we do not address here.

## Conclusions

This study contributes to the growing literature on fentanyl use and offers unique information on the evolving role, necessity, and implications of expanded MOUD access. Future research should investigate optimal MOUD dosing and low-barrier access strategies for people who use fentanyl. Federal policy should consider adopting a strategy of safe supply to reduce ongoing opioid overdose deaths.

## Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12954-024-01075-x>.

Additional file 1 (DOCX 27 kb)

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## Author contribution

MB and KAS conceptualised the study, collected data, analysed the data, prepared the tables, edited, wrote, and reviewed the first draft of the manuscript. JLG and SSG edited, wrote, and reviewed the manuscript text. RNB is the PI. All authors reviewed the manuscript.

## Data availability

The data are available from the corresponding authors upon reasonable request.

## Declarations

### Competing interests

The authors declare no competing interests.

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