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Rapid Overlap Initiation Protocol Using Low Dose Buprenorphine for Opioid Use Disorder Treatment in an Outpatient Setting: A Case Series

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Abstract

Objectives: Fear and risk of precipitated withdrawal are barriers for initiating buprenorphine in individuals with opioid use disorder, particularly among those using fentanyl. A buprenorphine rapid overlap initiation (ROI) protocol (also known as “rapid micro-dosing”) utilizing small, escalating doses of buprenorphine can overcome this barrier, reaching therapeutic doses in 3 to 4 days. We sought to demonstrate the feasibility of implementing a buprenorphine ROI protocol for buprenorphine initiation in the outpatient setting.

Methods: We conducted a retrospective chart review of patients prescribed an outpatient ROI protocol at the Office-based Buprenorphine Induction Clinic from October to December 2020. The ROI protocol utilizes divided doses of sublingual buprenorphine tablets and blister packaging for easier dosing. Patients were not required to stop other opioid use and were advised to follow up on day 4 of initiation.

Results: Twelve patients were included, of whom eleven (92%) were using fentanyl at intake. Eleven patients picked up their prescription. Seven patients returned for follow-up (58%), and all

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LWS, TGL, and CS conceived the study and design. TGL, MS, PW, MG, and CS developed the clinical protocols. LWS abstracted and analyzed the data. All authors contributed to data interpretation. LWS drafted the article, and all authors contributed substantially to its revision. CS provided study supervision.

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7 completed the ROI protocol. One patient reported any withdrawal symptoms, which were mild. At 30 days, 7 patients (58%) were retained in care, and 5 (42%) were still receiving buprenorphine treatment, 4 (33%) of whom had been abstinent from nonprescribed opioid use for ≥2 weeks.

Conclusions: The ROI protocol was successful in initiating buprenorphine treatment for patients in our outpatient clinic, many of whom were using fentanyl. The ROI protocol may offer a safe alternative to traditional buprenorphine initiation and warrants further study.

Keywords

addiction; buprenorphine; fentanyl; micro-dosing; opioid use disorder; opioid-related disorders

The United States (US) overdose crisis has accelerated in recent years. Opioids were implicated in 75% of the 93,000 drug-related overdose deaths in 2020, the nation's highest record of drug-related deaths.[1] Fentanyl has supplanted heroin as the most commonly involved opioid in overdoses and is also a common contaminant of other drugs.[2,3] This phenomenon is especially salient in San Francisco, with 697 overdose deaths in 2020 (more than twice the number of COVID-19 deaths), and 70% involved fentanyl.[4]

The need to expand treatment for opioid use disorder (OUD) is pressing. Medication is recommended as first-line treatment, and opioid agonist therapy with methadone or buprenorphine reduces mortality by >60%.[5] However, <30% of individuals with OUD receive medication treatment.[5,6] Buprenorphine, a partial mu-opioid agonist with high affinity and potency, offers several benefits over methadone, including availability in office-based settings, a respiratory ceiling effect with minimal risk for overdose, and fewer sedating and arrhythmogenic side effects and drug-drug interactions.[7]

Even as the US is loosening prescribing restrictions to increase buprenorphine access,[8] initiating buprenorphine remains a challenge that is exacerbated by the increasing rates of fentanyl use. Buprenorphine's high-binding affinity and low intrinsic activity at the mu-opioid receptor result in displacement of existing full-agonist opioids occupying the receptor, precipitating withdrawal.[7] In traditional initiation protocols, a period of opioid abstention and the presence of mild to moderate withdrawal symptoms are required before administering standard starting doses of 4–8 mg of buprenorphine. However, fear of and distress associated with withdrawal is a major barrier for patients considering buprenorphine.[8–10]

The risk of precipitated withdrawal is likely higher among those regularly using fentanyl.[11] Fentanyl is lipophilic with a high volume of distribution, and chronic use results in tissue stores and prolonged renal excretion.[12] These features are thought to be why the risk of precipitated withdrawal with traditional buprenorphine initiation is higher among those using fentanyl, even after periods of opioid abstention.[12,13] Case reports of using low dose overlap initiation protocols to start buprenorphine (also known as buprenorphine "micro-dosing" or "micro-induction") have demonstrated the feasibility of starting buprenorphine without the prerequisite of withdrawal; such protocols start with low buprenorphine doses (eg, 0.5–1.0 mg) and gradually increase the dose over several days, allowing patients to continue to use full-agonist opioids during the initiation process.[7,14] These case reports have

found success with minimal withdrawal symptoms, even when transitioning from opioids such as methadone and fentanyl.

One drawback to standard low dose overlap initiation protocols is that it often requires 6–10 days to reach a therapeutic buprenorphine dose. This duration may increase the likelihood of patient self-discontinuation before achieving a response and can leave patients at risk of overdose due to ongoing nonprescribed opioid use in the week-long initiation period. To optimize the benefits of low dose buprenorphine and enable patients to reach a therapeutic dose more quickly, clinicians have begun to use a rapid overlap initiation (ROI) protocol. This protocol uses more frequent administration of low-dose buprenorphine (eg, doses every 3 to 6 hours) to reach a therapeutic dose in 3–4 days. To date, published case reports and 1 proposed trial of the ROI protocol have been reported from inpatient settings only.[15–19]

In San Francisco, the Office-based Buprenorphine Induction Clinic (OBIC), in partnership with Community Behavioral Health Services (CBHS) Pharmacy, began offering in October 2020 a 3-day ROI protocol in the outpatient setting. This case series reports early experiences implementing the ROI protocol and describes patient characteristics and 30-day outcomes. We hope sharing these data will inform future research and clinical practice to meet the critical need of expanding buprenorphine treatment.

METHODS

Study Setting and Buprenorphine Protocol Development

All cases were patients treated at OBIC, a clinic partnership between the University of California San Francisco and the San Francisco Department of Public Health. OBIC, the first buprenorphine induction clinic in the country, provides OUD treatment with buprenorphine initiation, stabilization, and linkage to community-based primary care or mental health providers. OBIC is also co-located with the CBHS Pharmacy, a behavioral health pharmacy that specializes in substance use disorders and mental health. CBHS Pharmacy partners with addiction providers, including OBIC, to provide person-centered addiction and mental health care. CBHS pharmacists assist with dividing buprenorphine doses and preparing prescriptions using blister packaging. OBIC and CBHS Pharmacy serve publicly insured (eg, Medicaid or Medicare) and uninsured individuals, many of whom are experiencing homelessness and/or have a high burden of comorbid physical and mental health conditions.

In October 2020, OBIC and CBHS Pharmacy staff partnered to develop the ROI protocol as a novel buprenorphine initiation strategy tailored for the outpatient setting. Although it was made available to any interested patient, the protocol was developed specifically as an option for patients who: (1) had had difficulty starting buprenorphine using traditional initiation protocols due to precipitated withdrawal or regular fentanyl use, or (2) those who preferred to reach a therapeutic buprenorphine dose more quickly than the more commonly used 6–7-day overlap initiation protocols allowed (see Table 1 for available protocols). OBIC and CBHS Pharmacy staff developed the protocol using the existing literature and in consultation with experienced colleagues in Vancouver, Canada. To provide easier dosing and facilitate adherence, CBHS provided the ROI protocol with blisterpackaging (Fig. 1).

The smallest available formulation of sublingual buprenorphine in the US is 2 mg. To obtain small doses of buprenorphine (eg, 0.5–1 mg doses), pharmacists divided a 2 mg tablet in half to achieve 1 mg dose or in quarters to achieve 0.5 mg dose. Our clinical experience found that the sublingual mono-formulated product was easier to divide more consistently and had less crumbling than buprenorphine-naloxone tablets. When developing this protocol, we opted to not use divided buprenorphine-naloxone films due to concerns about biostability, though recent data suggest biostability can be maintained with halving films.[20]

Patients wishing to start buprenorphine presented to OBIC during regular business hours. At the initial visit, providers (licensed addiction medicine physicians or nurse practitioners) gathered a substance use history, including history of OUD; other substance use and comorbid substance use disorders; physical and mental health history (including assessing for human immunodeficiency virus, hepatitis C, chronic pain, anxiety, depression, psychotic disorder, or trauma disorder); and prior history of substance use treatment. Providers completed a basic physical exam, urine toxicology screen, and urine pregnancy test where applicable. Based on this information, providers reviewed potential buprenorphine initiation protocols. OBIC providers are trained to consider a low dose overlap initiation protocol as a first-line option for patients with a history of frequent fentanyl use or prior history of precipitated withdrawal. Providers also assessed patient confidence in their ability to take medication 4 times daily (eg, able to remember, regular access to a time device, adequate storage, etc) if opting for the ROI protocol. After reviewing the options, the patient can decide which protocol they prefer.

For patients prescribed the ROI protocol, patients are advised that most people continue using full-agonist opioids during the initiation period. Patients can try to cut down on their full-agonist opioid use gradually over the coming days. Providers highlight that during initiation, the patient may experience mild discomfort due to not yet being at a therapeutic dose, the different feeling of a partial agonist, or some receptor displacement by buprenorphine. The patient should contact the provider if they have any questions, concerns, or significant discomfort (such as intolerable, ongoing symptoms of withdrawal).

For all protocols, providers also emphasize overdose prevention strategies to maximize safety during this period, such as not using drugs alone, ensuring that naloxone is on-hand and that all parties present are familiar with its use, using a test dose of any nonprescribed opioid, using slowly given the variable potency of opioids in the drug supply, and for patients who do not intentionally use fentanyl, using fentanyl test strips to assess for potential contamination. Providers offer naloxone at every visit and can also prescribe adjunctive medications targeted for specific withdrawal symptoms (eg, ondansetron for nausea, hydroxyzine for anxiety, etc).

After the clinical visit, patients go to the co-located CBHS Pharmacy to pick up their prescriptions, and CBHS pharmacists can advise patients on proper buprenorphine administration. Patients follow up with an in-person clinic visit with timing dependent on the initiation protocol (eg, day 4 of the ROI protocol), or earlier if requested. Subsequent follow-up visits occur at least weekly during the early treatment period to continue buprenorphine titration. Patients can either continue with buprenorphine mono-product tablets or transition

to buprenorphine-naloxone films, tablets, or the injectable extended-release formulation based on patient preference.

COVID-19 Adaptations

Because of the ongoing COVID-19 pandemic, all visits were adapted to maintain social distancing guidelines. Patients completed an interview using video-enabled telehealth software with the provider located in another part of the clinic. After the interview, providers briefly met the patient in-person for a physical exam and review of buprenorphine initiation options and counseling. A small proportion of visits were conducted by telephone.

Study Design, Data Collection, and Analysis

We performed a retrospective chart review of patients with OUD who were prescribed the ROI protocol at OBIC from October to December 2020. We abstracted electronic health record and pharmacy prescription data through the OBIC and CBHS Pharmacy electronic medical record systems. The majority of measures were abstracted from OBIC clinic notes, including demographics (including self-reported race/ethnicity), comorbidities, relevant OUD history, other substance use history, reason for ROI protocol selection, successful ROI protocol completion, and 30-day outcomes including retention in care, retention in buprenorphine treatment, and ongoing nonprescribed opioid use.

We defined successful ROI protocol completion as pickup of both the ROI protocol prescription and a refill prescription of buprenorphine within 2 weeks after the initial pickup date. We chose 2 weeks to account for individuals who may delay initiating buprenorphine by several days, as our clinical experience has found individuals who start buprenorphine usually do so within the first 2 weeks after the visit. We defined retention in care at 30 days if there was attendance at any visit with an OBIC provider more than 3 weeks after initial buprenorphine prescription. We adopted this definition from another recent study evaluating buprenorphine treatment in a similar population.[21] We defined retention in buprenorphine treatment at 30 days if CBHS prescription records showed pick up of a buprenorphine refill prescribed by any SFDPH provider between 23 and 37 days after the initial prescription to allow a 7 day grace period. We analyzed data with descriptive statistics using Stata 16. The University of California San Francisco institutional review board approved this study (#20-32990).

RESULTS

Thirteen patients were prescribed the ROI protocol during the study period. One patient was excluded due to lack of documentation on ROI protocol initiation, and we included the remaining 12 patients in this study (Table 2). Patients were young (median age 34 years, interquartile range 29–50), two-thirds identified as men (n = 8; 67%), and half identified as non-Hispanic White (n = 6; 50%). Half were marginally housed or unhoused, 2 of whom were staying in the shelter-in-place hotels provided to unhoused individuals with medical comorbidities during COVID-19.[22] Almost half (42%) had at least 1 documented mental health condition. One patient was pregnant at time of initiation.

Most patients (n = 11; 92%) had previously been on medication for OUD, with either buprenorphine (n = 10; 83%) or methadone (n = 5; 42%). Before intake, 11 patients (92%) self-reported using fentanyl; 8 (67%) self-reported using heroin, including the only patient in the case series not using fentanyl; 2 (17%) were using prescription opioid pills (eg, hydrocodone, oxycodone). Smoking was the most reported method for using opioids (n = 9; 75%), followed by injection (n = 3; 25%) and insufflation (n = 3; 25%). Reasons for choosing the ROI protocol were not mutually exclusive and included fentanyl use (n = 11; 92%); prior history or fear of precipitated withdrawal (n = 2; 17%); and/or patient preference after counseling on the various options (n = 5; 42%). Although adjunctive medications were available, providers rarely prescribed them, with 1 patient receiving hydroxyzine to treat potential anxiety.

Eleven patients (92%) picked up the ROI protocol prescription. Seven patients (58%) returned for follow-up (Table 3). All 7 patients who followed up successfully completed the ROI protocol. All patients continued to use nonprescribed full-agonist opioids during initiation, and 6 patients (50%) reported no withdrawal symptoms. One patient had mild withdrawal in the first 24 hours of the protocol, including sweating and increased anxiety, which resolved by day 2. At 30 days, all 7 patients who completed the ROI protocol were engaged in OBIC care, of whom 5 (42%) were still receiving buprenorphine treatment (as confirmed by urine drug screen). The 2 patients who discontinued buprenorphine reported ongoing opioid cravings at follow-up despite taking 8–16 mg of buprenorphine daily. OBIC providers offered increasing their dose to see if cravings would improve, though both patients later returned to nonprescribed opioid use. Four patients who continued buprenorphine (33%) had been abstinent from all nonprescribed opioid use for ≥2 weeks at the 30-day visit. The fifth patient had dramatically cut down their opioid use from daily to once weekly. Of the 5 patients who remained on buprenorphine, 3 (25%) switched to injectable buprenorphine.

DISCUSSION

We found that the use of a ROI protocol was feasible for initiating buprenorphine treatment in individuals with OUD in an outpatient setting and predominantly using fentanyl. The ROI protocol enabled at least 7 patients to successfully initiate buprenorphine, with only 1 patient that we know of experiencing minimal withdrawal. These results support early evidence that small doses of buprenorphine can be administered more frequently to quickly reach a therapeutic dose compared to standard low dose overlap initiation protocols that require 6–10 days. Buprenorphine's time to peak plasma concentration is approximately 1 hour,[15,23] when theoretically allowing doses to be administered more often than 1 – 3 times a day seen in standard protocols. The ROI protocol takes advantage of this attribute by administering small doses every 3 – 6 hours, while also circumventing the need for full agonist opioid abstention and withdrawal.

One strength of this study is its use of the ROI protocol in an outpatient setting. Prior published ROI studies have only been reported in inpatient settings, with close clinical monitoring and controlled administration of additional full agonist opioids.[15–17,19] Our early findings suggest outpatients can successfully follow a ROI protocol and control their own

concurrent intake of nonprescribed opioids, increasing applicability and generalizability of this protocol by avoiding need for hospitalization and empowering patients in managing their OUD treatment.

All patients who completed the protocol were retained in care at 30 days, with most still receiving buprenorphine treatment. Studies of retention in buprenorphine treatment using traditional protocols vary widely, ranging from 19% to 64% with a median of 59% retained in treatment at 6 months.[24] Although our 45% retention in buprenorphine treatment at 1 month was lower than this median percentage at 6 months, our patient population faces a marked burden of structural barriers, including high rates of poverty, homelessness, and severe mental illness. Further, few studies examined populations using fentanyl, among whom buprenorphine retention may be even lower due to the elevated risk of precipitated withdrawal.[11] Our 64% retention in care and 45% retention in buprenorphine treatment at 30 days was also comparable to that of another study utilizing low-threshold buprenorphine strategies in a similar population.[21] These findings suggest that a ROI protocol is likely safe and effective in initiating buprenorphine treatment, even for patients facing significant social and structural barriers to care.

We learned several best practices that likely facilitated treatment success in the outpatient setting:

1. Providers prioritize patient-centered decision making. By reviewing several approaches to buprenorphine initiation and empowering patients to choose the treatment they prefer, autonomy is prioritized. Providers also individualize treatment and help each patient choose the approach that is most reasonable given their unique history, social context, and preferences.
2. Overdose prevention strategies are key to maintaining safety during the initiation period. As continued use of nonprescribed opioids is common, maximizing harm reduction practices and preventing overdose are of the utmost importance, in particular access to naloxone and avoiding using alone. Providers also help patients plan for taking buprenorphine doses 4 times a day during the ROI protocol to maximize likelihood of success and emphasize that protocols can also be slowed down if needed.
3. Managing expectations may be key to facilitating successful buprenorphine overlap initiation. Providers are keen to counsel patients that even with the ROI protocol, patients may experience some discomfort during initiation. Patients can drop into the clinic during business hours before their scheduled follow-up visit and meet with providers to troubleshoot issues as they occur.
4. Co-location with CBHS Pharmacy offers clear advantages: (1) eliminating transportation to another site for medications, (2) access to same-day medications, regardless of insurance status, and (3) a collaborative relationship between treatment providers and pharmacists that allows for clarification and troubleshooting in real time.

5. Providers should make the process as straightforward as possible. Splitting buprenorphine films or tablets and gradually up-titrating doses during low dose overlap initiation protocols can be cumbersome and confusing for both patients and providers. We were able to offer a standardized ROI regimen of buprenorphine dosing. Blister packs facilitated and simplified administration, and standardized workflows in the pharmacy. Blister packaging has been shown to improve medication adherence, particularly in populations with psychiatric comorbidities,[25,26] and likely contributed to successful completion of the ROI protocol.

6. A variety of buprenorphine products to transition to after initiation may be helpful. OBIC offers a variety of buprenorphine treatment options to which patients can transition to after initiation, including mono-product tablets, buprenorphine-naloxone tablets and films, and injectable extended-release buprenorphine. Patients can work with providers to choose which formulation works best for their needs.

Use of the ROI protocol has several implications for clinical practice, as it offers a promising alternative to both standard low dose overlap initiation and traditional initiation protocols. Experiencing withdrawal has proven to be a significant barrier for patients contemplating starting buprenorphine.[9–11] Our clinical experience underscores how avoiding withdrawal is desirable, especially as it means patients can start treatment immediately even after recent nonprescribed opioid use. Standard low dose overlap initiation protocols offer 1 way of circumventing the requirement for withdrawal but require at least a week before experiencing the benefits of a therapeutic dose, potentially increasing risk of self-discontinuation. Achieving a therapeutic dose in a shorter period while still reducing risk of precipitated withdrawal via the ROI protocol presents a desirable alternative.

There are reasonable ethical considerations with using a protocol that anticipates continued nonprescribed opioid use. Specifically, risk of overdose is theoretically higher than that of traditional initiation protocols requiring full-agonist opioid cessation. This risk must be weighed against the benefits of OUD treatment initiation, particularly among patients unable to tolerate a traditional initiation protocol or for whom the prerequisite of withdrawal is unacceptable. When using the ROI protocol to start buprenorphine in the hospital setting or in Canada, the concurrent administration of full-agonist opioids supplants the expectation of ongoing nonprescribed opioid use.[19,27] However, current US law under the Harrison Narcotics Tax Act prevent outpatient clinicians from prescribing full-agonist opioids outside of Opioid Treatment Program settings to treat withdrawal, resulting in some degree of nonprescribed opioid use with all overlap initiation protocols. It is therefore imperative that ROI protocol use is accompanied by robust and individualized overdose prevention counseling.

Although it is possible the ROI protocol may improve outcomes by increasing likelihood of successful initiation, research comparing outcomes between various protocols is critically needed. Further, there is unlikely to be a “one-size-fits-all” approach, and future work should identify the patients most likely to benefit from various options. In the absence of a clear evidence base, discussion of risks and benefits of using such novel approaches should center

patient goals. For example, although ROI protocol has not yet been validated in pregnant populations, any opioid withdrawal is a risk for miscarriage making traditional initiation protocols less desirable. The ROI protocol's avoidance of withdrawal may favor its use in pregnant populations, as was the case for 1 patient in our case series.

Several limitations should be noted. Generalizability to other clinical settings is unknown. OBIC has flexible drop-in availability, is co-located with CBHS Pharmacy, and has specific advantages that may not be applicable to other office-based settings. Most of our patients had prior experience with buprenorphine (prescribed or nonprescribed). Settings with buprenorphine-naive patients may require more intensive or different counseling approaches at intake. Prescriptions for adjunctive medications to treat withdrawal symptoms were infrequent in our study. Although reported withdrawal symptoms were minimal at follow-up, patients who did not return may have experienced more significant withdrawal symptoms. Increasing prescribing of adjunctive medications may increase likelihood for initiation success. Future studies should also harness qualitative methods to explore perspectives of both patients and providers in how to further develop and expand use of the ROI protocol.

CONCLUSIONS

The ROI protocol to initiate buprenorphine treatment was feasible in a small number of patients in our outpatient clinic. This protocol shows promise in increasing patient comfort, tolerability, and adherence during buprenorphine initiation. By eliminating the requirement for withdrawal and taking advantage of buprenorphine's pharmacokinetics to achieve a therapeutic dose in 3–4 days, the ROI protocol offers a promising approach to ensuring buprenorphine uptake is widely deployed. Future research comparing effectiveness of initiation protocols is critically needed to inform clinical practice and to expand buprenorphine treatment options during this devastating overdose crisis.

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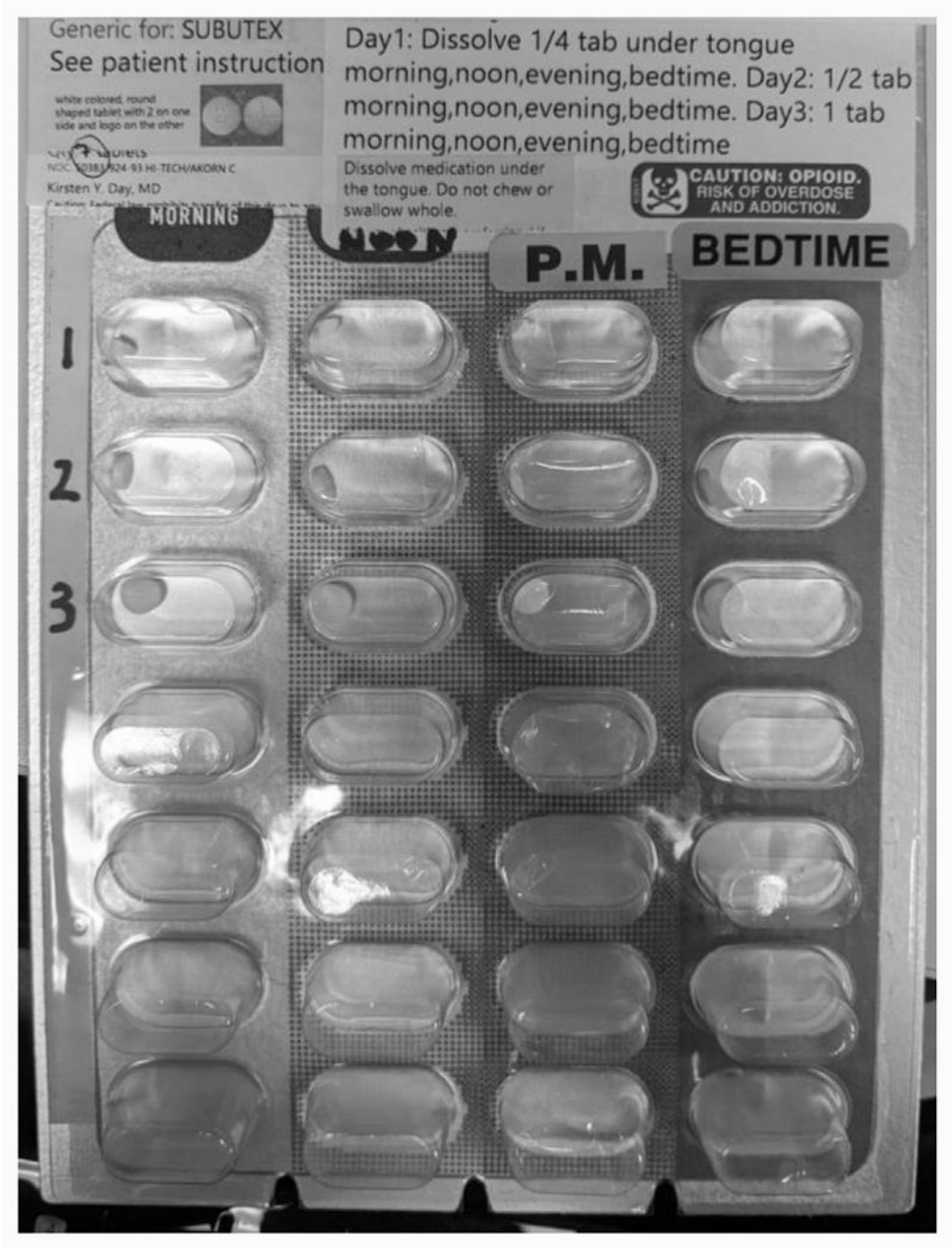

FIGURE 1.

Blister packaging of buprenorphine doses using 3-day rapid overlap initiation protocol. The blister packaging offers 4 columns to include dosing in the morning, noon, afternoon, and at bedtime. Each row denotes a separate day for the initiation process. Row 1 (Day 1) has 1/4 tab of the 2 mg buprenorphine sublingual mono-formulated product in each bubble. Row 2 (Day 2) has 1/2 tab in each bubble. Row 3 (Day 3) has 1 tab in each bubble.

TABLE 1.

Overview of Available Buprenorphine Initiation Protocols at San Francisco Office-based Buprenorphine Induction Clinic

	Buprenorphine Initiation Protocols		
Initiation Day	**Traditional Buprenorphine Initiation**	**6–7 Day Standard Low Dose Overlap Initiation Protocol**	**3-day Rapid Overlap Initiation Protocol**
Day 0	Begin abstaining from all full agonist opioids	Continue full agonist opioid use	Continue full agonist opioid use
Day 1	Start BUP-NX 4–8 mg if adequate withdrawal symptoms. Provide additional 4–8 mg dose 6–8 hours later if still in withdrawal	0.5 mg SL BUP once	0.5 mg SL BUP every 6 hours (total dose 2 mg)
Day 2	Take total dosage from day 1 in the morning. Follow up with the provider.	0.5 mg SL BUP BID	1 mg SL BUP every 6 hours (total dose 4 mg)
Day 3		0.5 mg SL BUP in the morning, 1 mg SL BUP-NX in afternoon and evening	2 mg SL BUP every 6 hours (total dose 8mg)
Day 4		2 mg SL BUP-NX BID	12 mg SL BUP-NX in the morning and follow up with the provider.
Day 5		4 mg SL BUP-NX BID	
Day 6		12 mg SL BUP-NX in the morning and follow up with the provider.	
Risk of precipitated withdrawal	High	Low	Low

BUP indicates buprenorphine monoproduct; BID, two times a day; BUP-NX, buprenorphine-naloxone; SL, sublingual.

TABLE 2.

Characteristics of Patients Undergoing Rapid Overlap Initiation Using Low-dose Buprenorphine for Opioid Use Disorder Treatment (n = 12)

Characteristic	Median (IQR) OR n (%)
Age, years (median, IQR)	34 (29–50)
Gender	
Man	8 (67%)
Woman	4 (33%)
Non-binary or another gender	0 (0%)
Race/ethnicity	
Non-Hispanic Black/African-American	2 (17%)
Hispanic/Latinx	2 (17%)
Non-Hispanic White	6 (50%)
Other race/ethnicity	2 (17%)
Insurance	
Medicaid	9 (75%)
Medicare	2 (17%)
Private insurance/Other	1 (8%)
Housing status	
Stably housed (eg, living in a house or apartment)	6 (50%)
Temporarily housed (eg, living in a Shelter-In-Place hotel)	2 (17%)
Staying with friends/relatives	2 (17%)
Staying in a shelter	1 (8%)
Unsheltered (eg, living in a vehicle or outside)	1 (8%)
Pregnant at time of initiation	1 (8%)
Documented comorbidities	
Chronic pain condition	3 (25%)
Living with HIV	1 (8%)
History of Hepatitis C Infection	3 (25%)
Having at least one mental health condition	5 (42%)
Anxiety disorder	4 (33%)
Depression	5 (42%)
Psychotic disorder	2 (17%)
Trauma disorder	1 (8%)
Opioid Use Disorder Severity	
Mild	0 (0%)
Moderate	1 (8%)
Severe	11 (92%)
Prior Opioid Use Disorder Treatment Experience with	
Methadone	5 (42%)
Buprenorphine	10 (83%)
Opioid Using Before Initiation	

Characteristic	Median (IQR) OR n (%)
Fentanyl	11 (92%)
Heroin	8 (67%)
Prescription pills (eg, oxycodone, hydrocodone, etc)	2 (17%)
Route of opioid use	
Injection drug use	3 (25%)
Inhalation (eg, smoking)	9 (75%)
Insufflation (eg, snorting)	3 (25%)
Oral intake	2 (17%)
Prior history of overdose	
Yes	5 (42%)
No	5 (42%)
Unknown	2 (17%)
Other substances regularly using in the last 90 days	
Alcohol	4 (33%)
Benzodiazepines	5 (42%)
Cocaine	4 (33%)
Methamphetamine	6 (50%)
Prescribed any adjunctive medication at initiation	1 (8%)
Reason for starting buprenorphine ROI protocol	
Using fentanyl	11 (92%)
Fear or history of precipitated withdrawal	2 (17%)
Patient requested after reviewing options	5 (42%)

TABLE 3.

Treatment Outcomes for Patients Who Received Low-dose Buprenorphine Initiation Using a Rapid Overlap Initiation Protocol (n = 12)

Treatment Outcome	n (%)
Withdrawal symptoms during initiation period	
None	6 (50%)
Mild	1 (8%)
Moderate or severe	0 (0%)
Unknown (ie, patient lost to follow up)	4 (33%)
Successfully completed rapid overlap initiation protocol and attended follow up visit	7 (58%)
Retained in Provider Care at 30 days	7 (58%)
Retained in buprenorphine treatment at 30 days	5 (42%)
Of those taking buprenorphine at 30 days, abstinent from opioids for ≥2 weeks	4 (33%)