



# Mobile van delivery of extended-release buprenorphine and extended-release naltrexone for youth with OUD: An adaptation to the COVID-19 emergency

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## ABSTRACT

The Youth Opioid Recovery Support (YORS) intervention is a novel treatment for young adults with opioid use disorder (OUD) that uses developmentally informed strategies to reduce barriers to treatment engagement. YORS strategies, such as home delivery of extended-release buprenorphine and extended-release naltrexone for OUD, are designed to increase engagement in treatment, but with the COVID-19 pandemic these strategies increase risk of virus exposure and spread to patients and staff entering homes. We present mobile van service delivery as a potential solution to continuing to provide low-barrier care for young adults with OUD while reducing risk associated with COVID-19. Initial feedback from patients and staff is positive and lays the groundwork to test feasibility and acceptability of this intervention rigorously in future work. Mobile van delivery of extended-release medications for OUD may be a promising treatment modification for mitigating risk of COVID-19, as well as a useful option for ongoing enhancement of care.

## 1. Background

Young adults are disproportionately vulnerable to the current opioid crisis with well-known and devastating consequences (SAMHSA, 2017). They have low rates of pharmacotherapy initiation (Hadland et al., 2018), substantial difficulties with retention in treatment (Matson et al., 2014; Mutlu et al., 2016; Woody et al., 2008), and have poorer treatment outcomes compared to older adults (Fishman, Wenzel, Scodes, et al., 2020). Several strategies have promise for addressing these barriers. Extended-release medication formulations have the potential to help overcome adherence challenges that daily medications present, but even with this strategy there are adherence limitations among youth (Mitchell et al., 2018). Practitioners have used home delivery of medications and assertive outreach approaches for treatment of severe mental illness and other chronic health conditions, such as TB and HIV (Jit et al., 2011; Needle et al., 2005; Rosenheck & Dennis, 2001), for which medication adherence is vital to treatment success. Researchers have used and studied mobile delivery (e.g., using a van) for sublingual buprenorphine (Krawczyk et al., 2019; Sullivan et al., 2006) and methadone (Greenfield et al., 1996; Hall et al., 2014) in adults, but to our knowledge there is no research on such mobile delivery for youth. There is also evidence of other assertive strategies being used effectively in youth with SUD (Godley et al., 2010).

Our group has developed and tested the Youth Opioid Recovery Support (YORS) intervention, an assertive wrap-around approach

designed to increase medication adherence and treatment engagement through nonlinear recovery trajectories (see Fishman, Wenzel, Vo, et al., 2020 including a preliminary treatment manual as supplemental material; Wenzel et al., 2020). We approached to enroll in the program young adults with OUD who select extended-release buprenorphine (XR-BUP) or extended-release naltrexone (XR-NTX) as their relapse prevention medication through standard care. YORS has four components: 1) Home delivery of patient's choice of extended-release medication for opioid use disorder (XR-MOUD), either: XR-NTX or XR-BUP for OUD; 2) engagement of families in collaborative treatment planning and monitoring focusing on medication adherence; 3) assertive outreach: actively tracking and communicating with youth and families by text and social media to promote engagement and adherence; and 4) contingency management: to provide incentives for medication adherence.

The COVID-19 pandemic further exacerbates the barriers to engagement and adherence for this already difficult-to-engage population. For many, COVID-19 has created further ambivalence about recovery and anxiety about exposure risk. Moreover, the strategies in YORS designed to increase engagement, such as entering the homes of young adults to deliver XR-MOUD, may actually increase risk of virus exposure both to the members of the patient's household and to staff entering the household. Risk of exposure associated with home delivery is especially relevant for young adults with OUD, as many live in recovery housing with others in close proximity or in a multigenerational family home.

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**Fig. 1.** A photograph of mobile van delivery of extended-release buprenorphine.

We recently began a project funded through the NIH HEAL initiative (NIH, 2019) to further refine and test the YORS intervention through iterative cycles of testing, participant feedback, and refinement, ultimately leading to a larger randomized controlled trial. We have focused our initial refinements on addressing risk reduction associated with COVID-19 while also reducing barriers to treatment for OUD.

## 2. Current treatment services adaptation

Mobile van delivery presents a potential solution to balancing COVID-19 risk reduction and overcoming barriers to medication adherence. Although we have tested the YORS intervention with positive results (Fishman, Wenzel, Scodes, et al., 2020; Wenzel et al., 2020), we have not tested mobile van delivery as a component of YORS. To this end, our group has developed a protocol for mobile van delivery of XR-MOUD for OUD, and has pilot tested the procedure on about a dozen young adult patients (Fig. 1).

Prior to mobile delivery, the patient is contacted to inform them of the procedures, obtain consent, confirm their physical location, and screen for COVID-19 symptoms and risk of exposure. The mobile van delivery procedures are used only for patients who screen as low risk to exposure. Alternative strategies for patients deemed high risk may include waiting until risk shifts to low according to CDC guidelines, increased support through telehealth counseling, temporarily switching to daily formulations of naltrexone or buprenorphine, or additional family involvement and education.

Patients receive van-delivered XR-MOUD via a passenger van with some seats removed to maximize space for comfort and mobility, but with a bench seat retained for delivering the injection. Polyurethane seats, steering wheel, and dash are easily sanitized before and after each visit with a disinfectant solution and washable cloth. Van windows are covered with rip paper to protect patient confidentiality, and air conditioning or windows are used to maximize airflow to decrease the likelihood of transmission.

Our current staffing has included at least a 2-person team of a nurse for injection delivery and a therapist for case management and abbreviated psychotherapy sessions as feasible. The physician is available by telephone as needed. Staff contacts the patient when leaving the treatment facility and again upon arrival to the residence to ask them to come outside. Patients are greeted and provided with a disposable mask upon arrival if needed. After a brief orientation to the van and procedures, patients provide a urine sample in their residence and deliver it to staff back in the van for point-of-care testing. Therapists can hold brief counseling sessions with patients either inside the van or outside

the van depending on ability to find a comfortable and confidential location.

Initial, informal feedback from patients and staff is encouraging. One patient expressed, "It's better than not getting the shot!" Others have given feedback that they prefer it to standard home delivery due to concern for older relatives or embarrassment of clinical staff entering their home. One patient's feedback supported a 2-person delivery team because, "as a female, I would be uncomfortable with just one man in the van". We have also tested a 1-person operation consisting of a nurse performing a medication management session without the therapist. Staff feedback has generally been very positive toward this procedure, in comparison to the alternative of entering someone's home.

## 3. Conclusions and implications for the future

In our limited pilot experience so far, mobile van delivery of XR-MOUD to young adults has been well received by both patients and staff. The controlled and disinfect-able dosing environment reduces COVID-19 exposure risk and seems to alleviate anxieties in comparison to previous in-home delivery procedures.

In addition to its clear utility for infection control, the van-based procedure may have other advantages. Van delivery could address concerns that a minority of patients have expressed about lack of confidentiality or a subjective sense of intrusiveness with in-home delivery. Additionally, van delivery might help with the rare concerns raised by staff in the past regarding security in some households. We also plan to test the addition of telehealth services during the delivery. For example, a clinician could conduct a brief remote session via telehealth while the patient is in the van, using a laptop brought by the nurse, or the patient's mobile phone. This approach might offer the advantage of immediacy as well as a team approach to care delivery, and may increase engagement compared to telehealth appointments attempted at a later time.

One potential limitation of van delivery is that the in-home setting has frequently led in the past to the easy availability of a family member (or other treatment significant other) who can add valuable in-the-moment persuasion or leverage for treatment adherence. This may be addressed by inviting the family member out to the van or to a discreet location outdoors, but we have not yet tested that approach. Much of the in-person family engagement component of YORS has been adapted to video-conferencing and assertive text messaging. Another potential limitation, although we have not seen this so far, is a hypothetical concern about any stigma or embarrassment with entering a van in public view, especially in crowded urban areas. In the future, we can easily envision a van-based team that could have the option and make an individualized decision about whether to administer a dose in the van or in the home.

While our limited experience has been positive, these preliminary, anecdotal results need further confirmation. Further, the sustainability of the YORS intervention in general (whether using in-home or van-based dosing) under nonresearch real-world reimbursement conditions remains unknown; we are awaiting planned economic analysis to document the value proposition. Nevertheless, given what we know now, we are optimistic that mobile van delivery may present not only a prudent adaptation during the COVID-19 pandemic, but also a new tool to add to the therapeutic repertoire even beyond the current emergency. This new strategy could be flexibly applied as an enduring patient-centered component of the YORS intervention for the provision of care to young adults with high-severity OUD. Further, mobile van delivery of XR medications, as an assertive community strategy for increasing access and adherence to MOUD, might also have broader applicability, and may be worthy of testing in other hard-to-reach populations.

## Declaration of competing interest

Dr Fishman has been a paid consultant for Alkermes, which makes extended-release naltrexone, one of the medications given in this intervention.

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