# Use of a Telemedicine Bridge Clinic to Engage Patients in Opioid Use Disorder Treatment

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**Objectives:** We aimed to assess the feasibility of using a telemedicine bridge clinic model as a low-barrier mechanism to initiate patients on medication treatment for opioid use disorder (MOUD) while facilitating engagement in long-term treatment.

**Methods:** We established a telemedicine bridge clinic after the U.S. Drug Enforcement Administration temporarily suspended regulations limiting initial treatment of patients with buprenorphine via both audiovisual and audio-only technology during the COVID-19 public health emergency. The rate of engagement in medication treatment for opioid use disorder MOUD based upon review of the Prescription Drug Monitoring Program is described. Referral sources, technology utilization, and payer mix are also presented.

**Results:** The Bridge Clinic scheduled 208 new patient visits and physicians evaluated 200, a show rate of 96% from April 2020 to July 2021. Of the 200 patients who were treated, 192 (96%) were diagnosed with opioid use disorder. Most patients (159/200, 79%) scheduled audio-only visits. At least 1 prescription for buprenorphine was filled by 185/192 (96%) of opioid use disorder patients within 30 days of the telemedicine visit and 147/192 (77%) of patients filled 2 or more prescriptions. Most patients were covered by Medicaid (62%) or were uninsured (19%). There was no significant difference in outcomes for patients evaluated by audio-only vs. audiovisual techniques.

**Conclusion:** A Bridge Clinic using audiovisual and audio-only telemedicine served a high-risk, vulnerable population and facilitated engagement in evidence-based MOUD.

**Key Words:** buprenorphine, opioid use disorder, telemedicine

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The United States continues to experience an epidemic of overdose deaths, with more than 93,000 deaths in 2020 – an average of more than 250 per day primarily due to opioids.[1] The COVID-19 pandemic contributed to an acceleration in overdose deaths.[2] In 2019, 10.1 million Americans misused opioids and 1.6 million people had opioid use disorder (OUD).[3]

Treatment of OUD that includes opioid agonist medications reduces mortality by up to fifty percent in addition to reductions in illicit substance use, incidence of Hepatitis C and human immunodeficiency virus, healthcare utilization, and costs.[4] Despite these benefits, many who could benefit from medication treatment for opioid use disorder (MOUD) do not have access to this care.[4] The most commonly reported barriers are gaps in knowing where to go for treatment, difficulty accessing care, a lack of prescribers and treatment openings leading to long wait times, and geographical distance from treatment providers.[3,5]

Low threshold access to starting MOUD has addressed some of these barriers.[4–6] One MOUD clinic observed that patients seen by an x-waivered provider on the same day as initial presentation were 7 times more likely to attend their appointment than patients who were scheduled 2 or more days later.[7] Telemedicine is another proposed solution to overcome geographic and other barriers to accessing MOUD.[8]

Despite the potential for telemedicine to deliver OUD treatment, the Ryan Haight Online Pharmacy Protection Act of 2008 limits use of this approach by requiring initial in-person evaluation before prescribing a controlled substance.[9] The COVID-19 pandemic offered an opportunity to examine how a change to this regulation could alter MOUD care while the provisions restricting telemedicine were suspended.[10] Following these temporary waivers, UPMC established a telemedicine bridge clinic to facilitate engagement and care for individuals with substance use disorder. We describe implementation and provide preliminary outcomes.

## METHODS

The UPMC Department of Emergency Medicine, with support from UPMC Health Plan, created the UPMC Medical Toxicology Telemedicine Bridge Clinic (Bridge Clinic) to rapidly engage and coordinate care with local treatment providers and other stakeholders throughout Pennsylvania. Figure 1 is a flowchart representing the patient engagement process. We scheduled Bridge Clinic telemedicine evaluations, either via secure audiovisual technology or telephone, with physicians board-certified in emergency medicine,

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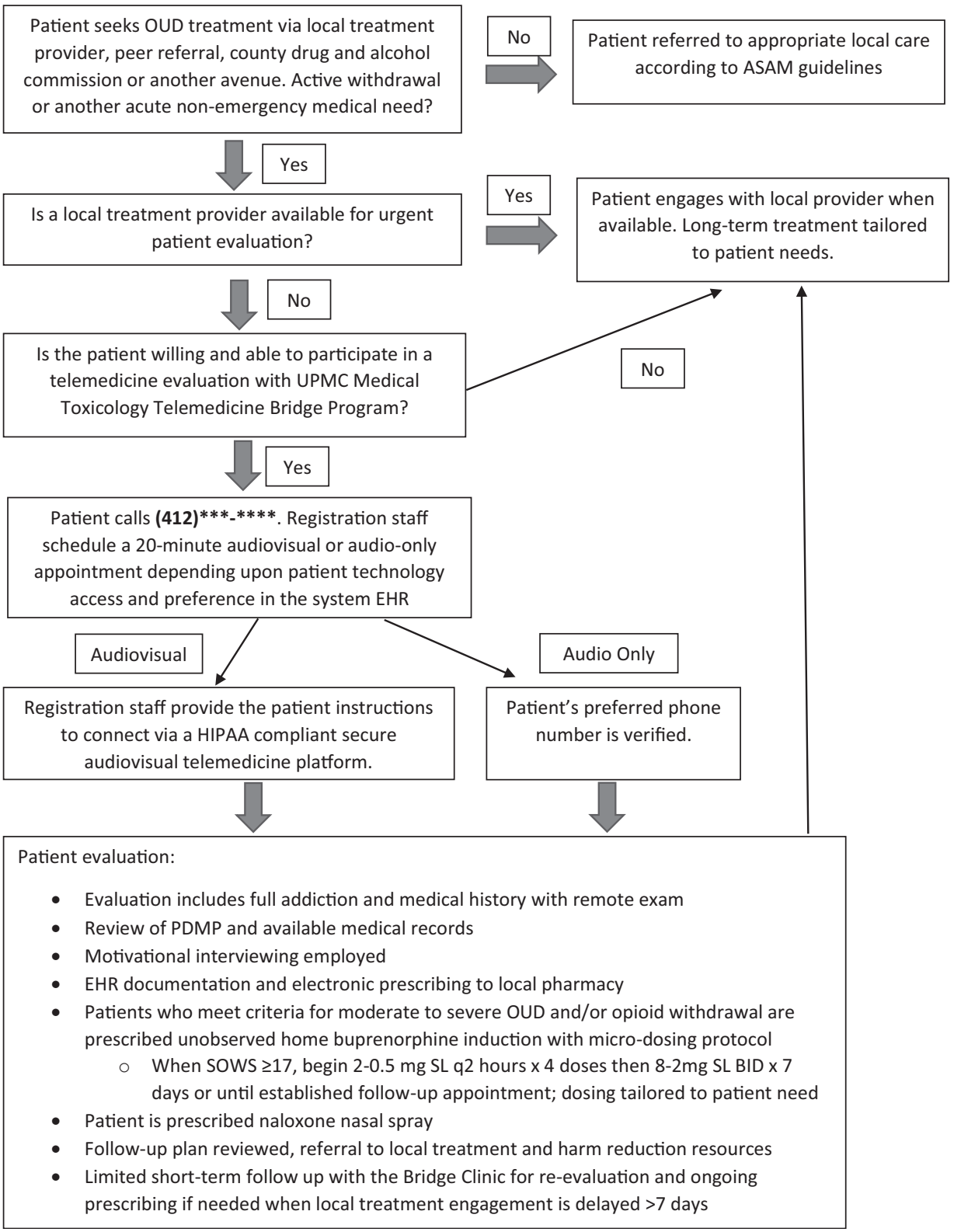


**FIGURE 1.** UPMC medical toxicology telemedicine bridge clinic OUD process and patient flow. OUD indicates opioid use disorder.

toxicology, and addiction medicine, typically within hours of initial contact. Appointments were available Monday-Friday, 8a-8p.

The UPMC Quality Improvement Review Committee approved retrospective chart review for Quality Assurance and publication of findings. We used electronic health records to obtain patient data including medical record numbers, age, gender, date of birth, and zip code. We maintained these deidentified data on a secure database. We used coding and billing data to describe payer mix. We queried electronic health records including the Pennsylvania Prescription Drug Monitoring Program to determine buprenorphine prescription fills.

We employed a descriptive approach to present preliminary implementation data. Engagement in MOUD was defined as at least 1 buprenorphine prescription filled within 30 days of the first telemedicine visit. We identified ongoing medication treatment as at least 1 additional buprenorphine prescription refill subsequent to the first. We reviewed all patient data at least 60 days after the initial visit. Other secondary outcomes of interest were engagement rates among patients using audio-only and audiovisual technologies.

## RESULTS

Between April 27, 2020 and July 31, 2021, 208 individual patients scheduled appointments at the Bridge Clinic with 200/208 (96%) attending. Most patients were evaluated once while transitioning to ongoing care, though some did return. The mean number of visits per patient was 1.4.

Basic demographic data, referral sources, visit information, payer mix, and prescription outcomes are in Table 1. Although the service was made available for treatment of any urgent substance use disorder need, patients with OUD accounted for nearly all (192/200, 96%) of attended visits. Most patients were referred by addiction treatment providers or a harm reduction service. A large majority of patients (159/200, 79%) scheduled audio-only appointments. Most patients had Medicaid insurance (129/207, 62%) with the next largest portion being uninsured (40/207, 19%) and only 8% commercially insured. multiple patients had recently been released from jail (14/200, 7%) and 2 patients were pregnant.

Of all who participated in an appointment for OUD, 185/192 (96%) patients filled a buprenorphine prescription within 30 days and 147/192 (77%) filled 2 or more prescriptions subsequent to the initial bridge clinic evaluation. There was no significant difference in the rate of prescription fills among patients evaluated through audiovisual versus audio-only technology.

## DISCUSSION

Telemedicine is an important potential tool to expand access to evidence-based MOUD.[8] Our Bridge Clinic provided access to MOUD with an engagement rate of 96%. Published rates in low-barrier outpatient MOUD clinics has ranged from 62% to 77%.[7,11] In a real-world environment, 77% of Bridge Clinic patients filled 2 or more buprenorphine prescriptions following their initial visit. These preliminary data support ongoing work to evaluate this modality with a defined comparison group and longer-term outcomes.

**TABLE 1.** Bridge Clinic Patient Demographics, Visit Information, and Outcomes

| | |
|---|---|
| Total patients (n = 208) | |
| Female | 89 (43%) |
| Male | 119 (57%) |
| Mean age (range) | 40 (18–71) |
| Visits (n = 295)/patient | 1.42 |
| Referral source (n = 200) | |
| County Drug and Alcohol Commission | 37 (19%) |
| Harm Reduction Organization | 65 (33%) |
| Addiction treatment provider | 91 (46%) |
| Unknown/not reported | 4 (2%) |
| Word of mouth | 3 (1%) |
| Primary diagnoses (n = 200; excluding 8 no show appointments) | |
| Opioid use disorder | 192 (96%) |
| Alcohol use disorder | 5 (2.5%) |
| Benzodiazepine use disorder | 2 (1%) |
| Methamphetamine use disorder | 1 (<1%) |
| Primary payer (n = 207 available) | |
| Medicaid | 129 (62%) |
| Self-pay | 40 (19%) |
| Medicare | 22 (11%) |
| Commercial | 16 (8%) |

**Mode of Connection (n = 200; Excluding No Show appointments)**

| | Audio Only | Audiovisual |
|---|---|---|
| Utilization | 158 (79%) | 42 (21%) |
| Mean Age | 41 | 38 |

**Outcomes for Bridge Clinic Patients With Opioid Use Disorder**

| | Audio Only (n = 153) | Audiovisual (n = 39) | Total (n = 192) |
|---|---|---|---|
| No buprenorphine prescriptions | 6 (4%) | 1 (3%) | 7 (4%) |
| One buprenorphine prescription | 147 (96%) | 38 (97%) | 185 (96%) |
| 2+ buprenorphine prescriptions | 112 (73%) | 33 (85%) | 147 (77%) |

Our model would allow integration of a low-barrier telemedicine bridge clinic into the existing framework of addiction care including behavioral therapy, social supports, and other in-person medical care.[4–6] The scope, reach, efficiency, and scalability of a telemedicine clinic allow for improved cost-effective capacity to treat patients who may not have rapid access to local care. Moreover, maintaining adherence to continuous buprenorphine treatment for established patients who have gaps in care, including incarceration, is associated with reduced rates of recurrent illicit opioid use, Emergency Department utilization, and overall costs.[12] The telemedicine bridge clinic model can also support Emergency Department buprenorphine initiation and warm handoff efforts.[13]

It is notable that the majority (62%) of patients evaluated at the Bridge Clinic had insurance through a Medicaid program with the next largest group being uninsured (19%). Other work has noted lower Medicaid insurance coverage frequency in the OUD population (38%), suggesting that our patients represented a more disadvantaged group.[14] Nearly 80% of Bridge Clinic patients scheduled audio visits. The most common barriers to audiovisual visits were limited access to smartphones or internet capability which are consistent with previously reported findings.[8,15] In our limited initial cohort analysis, outcomes were similar among groups

engaged via phone and audiovisual technologies. More detailed analysis is required to determine the effectiveness and quality of audio-only care. Telemedicine, including audio-only access, has potential to reduce gaps in care access for particularly vulnerable populations.[8]

## LIMITATIONS

Urine drug screening was not available in this telemedicine model so clinical assessment guided medication treatment. Risk of untreated OUD was deemed greater than potential diversion of a limited buprenorphine prescription. Surveillance with drug testing remains a challenge in telehealth OUD care. We used a retrospective approach without a defined comparison group for preliminary implementation description. Our sample size and location may differ from others or lack optimal sizing, but it suits this initial feasibility goal. The primary endpoint of buprenorphine prescription fill within 30 days, with a secondary outcome measure of additional buprenorphine prescription fills as evaluated in the Pennsylvania Prescription Drug Monitoring Program, may lack granularity. Further prospective study of comprehensive engagement and retention outcomes relative to a matched comparison group would provide more robust information regarding the quality and effectiveness of this care modality.

## CONCLUSIONS

Establishing a telemedicine bridge clinic, utilizing both audiovisual and audio-only modalities, is feasible and may offer an effective intervention to engage vulnerable patients in evidence-based MOUD.

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